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"Estudio en la duda. Acción en la fe"

SUPLEMENTO ESPECIAL

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Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	eISSN: 1573-7438
DOI	https://doi.org/10.1007/s11250-022-03445-8
Título del Artículo	Prediction of weaning weight in Santa Ines lambs using the body volume formula
Autores e instituciones de adscripción	Gurgel, Antonio Leandro Chaves [1]; Difante, Gelson dos Santos [2]; Neto, Joao Virginio Emerenciano [3]; itavo, Luis Carlos Vinhas [2]; itavo, Camila Celeste Brandao Ferreira [2]; Costa, Carolina Marques [4]; dos Santos, Geraldo Tadeu [1]; Chay-Canul, Alfonso Juventino [5] [1] Departamento de Zootecnia, Universidade Estadual de Maringá, Maringá, PR, Brazil [2] Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brazil [3] Unidade Acadêmica Especializada em Ciências Agrarias, Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil [4] Departamento de Zootecnia, Universidade Federal de Viçosa, Viçosa, MG, Brazil [5] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico
Resumen	Weaning weight (WW) is one of the most important information within production systems, as it is a reflection of management during the breastfeeding phase and will influence the performance of animals in subsequent phases. This study aimed to develop and evaluate linear, quadratic, and exponential models to predict WW using the body volume (BV) formula in Santa Inês lambs for meat. Eighty-five lambs at 90 days of age with WW 17.52 ± 3.79 kg and BV 13.29 ± 2.86 dm3 were evaluated. The quality of fit of the models was evaluated using the coefficient of determination (R2), mean squared error (MSE), and root MSE (RMSE). For the external evaluation of the models, an independent dataset from 43 lambs at 90 days of age was used. The first-degree linear model showed the lowest values of MSE (1.02) and RMSE (1.01). In the external evaluation, all models exhibited estimates of mean WW and standard deviation of this weight similar to the external dataset, as well as high values (above 0.89) for the R2 of predicted vs. observed data. Concordance correlation coefficient (CCC) analysis also revealed that all models showed accuracy and precision (CCC > 0.90). There was no difference between the models in terms of accuracy (P > 0.05). The comparison in terms of precision indicated that the linear model is more precise than the exponential model and that the quadratic model is as precise as the linear model. The first-degree linear model should be used due to its simplicity of interpretation and ease of estimation.Weaning weight (WW) is one of the most important information within production systems, as it is a reflection of management during the breastfeeding phase and will influence the performance of animals in subsequent phases. This study aimed to develop and evaluate linear, quadratic, and exponential models to predict WW using the body volume (BV) formula in Santa Inês lambs for meat. Eighty-five lambs at 90 days of age with WW 17.52 ± 3.79 kg and BV 13.29 ± 2.86 dm3 were evaluated. The quality of fit of the models was evaluated using the coefficient of determination (R2), mean squared error (MSE), and root MSE (RMSE). For the external evaluation of the models, an independent dataset from 43 lambs at 90 days of age was used. The first-degree linear model showed the lowest values of MSE (1.02) and RMSE (1.01). In the external evaluation, all models exhibited estimates of mean WW and standard deviation of this weight similar to the external dataset, as well as high values (above 0.89) for the R2 of predicted vs. observed data. Concordance correlation coefficient (CCC) analysis also revealed that all models showed accuracy and precision (CCC > 0.90). There was no difference between the models in terms of accuracy (P > 0.05). The comparison in terms of precision indicated that the linear model is more precise than the exponential model and that the quadratic model is as precise as the linear model. The first-degree linear model should be used due to its simplicity of interpretation and ease of estimation.
Palabras claves	Biometric measurements; Live weight; Mathematical models; Sheep.

Revista	**FOOD SCIENCE AND TECHNOLOGY**
ISSN	eISSN: 1678-457X
DOI	https://doi.org/10.1590/fst.40922
Título del Artículo	Morphological and physicochemical changes in the cassava (*Manihot esculenta*) and sweet potato (*Ipomoea batata*) starch modified by pyrodextrinization. https://enlinea.unapiquitos.edu.pe/contenido/publicaciones/descargas/nombres_cientificos.pdf

Autores e instituciones de adscripción	Reyes-López, Zeniff [1]; Betancur-Ancona, David [2]; Ble-Castillo, Jorge Luis [1]; Juárez-Rojop, Isela Esther [1]; Ávila-Fernández, Angela [1]; Hernández-Hernández, Maloy [1]; García-Vázquez, Carlos [1]; Sandoval-Peraza, Valentino Mukthar [3]; Quintana-Owen, Patricia [4]; Olvera-Hernández, Viridiana [1] [1] División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México [2] Facultad de Ingeniería Química, Universidad Autónoma de Yucatán, Mérida, Yucatán, México [3] Escuela de Ciencias de la Salud, Universidad del Valle de México, Mérida, Yucatán, México [4] Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Mérida, Yucatán, México
Resumen	In recent years, Resistant Starch (RS) and Slowly Digestible Starch (SDS) have been linked to the prevention of chronic noncommunicable diseases, such as obesity and its complications. Southern Mexico has an important role in the tuber crop production of M. esculenta and I. batatas, which contain considerable amounts of starch. The aim of this study was to evaluate the morphological and physicochemical changes of M. esculenta and I. batatas after pyrodextrinization, including the production of RS and SDS. The factors used in this study were the starch/acid ratio (2.2 HCl) (80:1 and 160:1 p/v); temperature (90 °C and 110 °C) and reaction time (1 and 3 h). The highest production of RS in M. esculenta was obtained with the highest starch/acid ratio and temperature, and the lowest reaction time. For pyrodextrins, loss of crystallinity and an increase in swelling power and water absorption capacity were observed. The highest production of RS in I. batatas was obtained with the highest starch/acid ratio and reaction time, and the lowest temperature. Crystallinity and enthalpy of gelatinization decreased in modified starches. The solubility, swelling power and water absorption capacity increased in both sources.
Palabras Clave	functional properties; resistant starch; tubers

Revista	**DIFFERENTIAL EQUATIONS AND DYNAMICAL SYSTEMS**
ISSN	eISSN: 0974-6870
DOI	https://doi.org/10.1007/s12591-022-00628-5
Título del Artículo	Dynamical Analysis of a Model for Secondary Infection of the Dengue
Autores e instituciones de adscripción	Vinagre, M. R. [1]; Ble, G. [1]; Esteva, L. [2] [1] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Km 1 Carr. Cunduacán-Jalpa de Méndez, Cunduacán, 86690, Tabasco, Mexico [2] Facultad de Ciencias, Universidad Nacional Autónoma de México, Ciudad Universitaria, 04510, Mexico City, Mexico
Resumen	Dengue disease is a major public health problem in the world with a fast spreading rate. Human migration has contibute to spread of the different serotypes of dengue virus, incrementing the risk of dengue hemorrhagic fever and dengue shock syndrome. The disease immunological response is complex, with severe disease linked to the antibody-dependent enhancement. In this work we propose a system of differential equations to model the impact of human migration on the spread of two serotypes of dengue virus between two regions where only one of the serotypes was initially present. When the individuals to the other region they can contract a different serotype. Using the next generation matrix method, the basic reproductive number R0 is calculated and disease-free equilibrium stability is determined. In addition, conditions are obtained that guarantee the existence of an endemic equilibrium. These results provide conditions to predict an epidemic outbreak of dengue hemorrhagic due to a secondary infection of dengue.
Palabras claves	Epidemiological model; Dengue serotype; Basic reproductive number; Global dynamics

Revista	**PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES**
ISSN	ISSN: 0962-8436
DOI	https://doi.org/10.1098/rstb.2022.0069
Título del Artículo	Multispecies collective waving behaviour in fish

Autores e instituciones de adscripción	[Lukas, Juliane [1,2]; Krause, Jens [1,2]; Traeger, Arabella Sophie [1]; Piotrowski, Jonas Marc [1,3]; Romanczuk, Pawel [3,4]; Sprekeler, Henning [3,5]; Arias-Rodríguez, Lenin [6]; Krause, Stefan [7]; Schutz, Christopher [1,3]; Bierbach, David [1,2,3] [1] Faculty of Life Sciences, Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences, Humboldt-Universität zu Berlin, Invalidenstrasse 42, 10115 Berlin, Germany. [2] Department of Biology and Ecology of Fishes, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Müggelseedamm 310, 12587 Berlin, Germany [3] Cluster of Excellence 'Science of Intelligence', Technical University of Berlin, Marchstrasse 23, 10587 Berlin, Germany [4]. Department of Biology, Institute for Theoretical Biology, Humboldt-Universität zu Berlin, Philippstrasse 13, 10115 Berlin, Germany. [5] Institute of Software Engineering and Theoretical Computer Science, Berlin Institute of Technology, 10587 Berlin, Germany. [6 División Académica de Ciencias Biológicas, Universidad Juárez Autónoma Tabasco, 86150 Villahermosa, Mexico. [7]. Department of Electrical Engineering and Computer Science, Lübeck University of Applied Sciences, 23562 Lübeck, Germany.
Resumen	Collective behaviour is widely accepted to provide a variety of antipredator benefits. Acting collectively requires not only strong coordination among group members, but also the integration of among-individual phenotypic variation. Therefore, groups composed of more than one species offer a unique opportunity to look into the evolution of both mechanistic and functional aspects of collective behaviour. Here, we present data on mixed-species fish shoals that perform collective dives. These repeated dives produce water waves capable of delaying and/or reducing the success of piscivorous bird attacks. The large majority of the fish in these shoals consist of the sulphur molly, Poecilia sulphuraria, but we regularly also found a second species, the widemouth gambusia, Gambusia eurystoma, making these shoals mixed-species aggregations. In a set of laboratory experiments, we found that gambusia were much less inclined to dive after an attack as compared with mollies, which almost always dive, though mollies dived less deep when paired with gambusia that did not dive. By contrast, the behaviour of gambusia was not influenced by the presence of diving mollies. The dampening effect of less responsive gambusia on molly diving behaviour can have strong evolutionary consequences on the overall collective waving behaviour as we expect shoals with a high proportion of unresponsive gambusia to be less effective at producing repeated waves.
Palabras clave	Poecilia sulphuraria; Gambusia eurystoma; mixed-species; collective behaviour; predator–prey, collective waves.

Revista	**NATURE PHYSICS**
ISSN	ISSN: 1745-2473
DOI	https://doi.org/10.1038/s41567-022-01916-1
Título del Artículo	Fish shoals resemble a stochastic excitable system driven by environmental perturbations
Autores e instituciones de adscripción	Gómez-Nava, Luis [1,2]; Lange, Robert T. [2,3]; Klamser, Pascal P. [1,4]; Lukas, Juliane [5,6].; Arias-Rodríguez, Lenin [7]; Bierbach, David [2,5,6]; Krause, Jens [2,5, 6]; Sprekeler, Henning [2,3,4].; Romanczuk, Pawel [1,2,4]. [1] Institute for Theoretical Biology, Department of Biology, Faculty of Life Sciences, Humboldt Universität zu Berlin, Berlin, Germany [2] Science of Intelligence, Research Cluster of Excellence, Berlin, Germany [3] Berlin Institute of Technology, Berlin, Germany [4]. Bernstein Center for Computational Neuroscience, Berlin, Germany [5] Thaer Institute, Faculty of Life Sciences, Humboldt-Universität zu Berlin, Berlin, Germany [6]. Department of Biology and Ecology of Fishes, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany [7] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico
Resumen	Groups of animals can perform highly coordinated collective behaviours that confer benefits to the participating individuals by facilitating social information exchange and protection from predators. Some of these characteristics could arise when groups operate at critical points between two structurally and functionally different states, leading to maximal responsiveness to external stimuli and effective propagation of information. It has been proposed that animal groups constitute examples of self-organized systems at criticality; however, direct empirical evidence of this hypothesis—in particular in the wild—is mostly absent. Here we show that highly conspicuous, repetitive and rhythmic collective dive cascades produced by many thousands of freshwater fish under high predation risk resemble a stochastic excitable system driven by environmental perturbations. .

Resumen	Together with the results of an agent-based model of the system, this suggests that these fish shoals might operate at a critical point between a state of high individual diving activity and low overall diving activity. We show that the best fitting model, which is located at a critical point, allows information about external perturbations—such as predator attacks—to propagate most effectively through the shoal. Our results suggest that criticality might be a plausible principle of distributed information processing in large animal collectives.
Palabras claves	N/A

Revista	**REVISTA MEXICANA DE INGENIERÍA QUÍMICA**
ISSN	ISSN: 1745-2473
DOI	https://doi.org/10.24275/rmiq/IA3039
Título del Artículo	Variability of the components of oil drilling waste according to the treatment temperature
Autores e instituciones de adscripción	Vázquez -Vázquez, L. L. [1]; García - Zaleta, D. S. [1]; Torres-Sánchez, S. A. [2]; López -Martínez, S. [1]; Hernández -Núñez, E. [3]; Zurita-Macias-Valadez, M. [1]; Morales-Bautista, C. M. [1] [1] Universidad Juárez Autónoma de Tabasco. Carretera Cunduacán-Jalpa Km 1 Col. La Esmeralda C. P. 86690. Cunduacán, Tabasco, México. [2] Universidad Autónoma de San Luis Potosí. Álvaro Obregón 64, Centro, 78300 San Luis, S.L.P. México. [3] Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Mérida, Departamento de Recursos del Mar. Antigua carretera a Progreso Km. 6, C.P. 97310. Mérida, Yucatán, México.
Resumen	In Mexico's hydrocarbon sector, drilling waste represents a problem because the techniques to treat it increase production costs. In this regard, thermal desorption represents a good option, even though it presents variations in hydrocarbon removals, which causes added costs since some residues need to be treated again. Thus, the objective of this study was to identify these variations according to the treatment temperature (< 320 °C) on a laboratory scale. The results showed that the samples had minerals in common (quartz, baryte and anhydrite) that did not vary after the treatments. However, other minerals were found in some samples, which were not present in others. The hydrocarbons decreased with respect to the temperature fluctuations. However, when comparing the removed percentages and the fractions, they were different from each other. Moreover, Cd, Cr, Pb, Ni, Zn, V, Ba, Fe, and Mn were detected, but their concentration in the leachates was low. It was concluded that the variation in the constituents of the drilling cuttings could depend on the source of generation and that this factor could influence the final properties of the treated solid. When the removal of hydrocarbons was achieved, the fractions there, and the concentration of metals were different between the samples
Palabras claves	Metal, Hydrocarbon, Mineralogy, Waste.

Revista	**ACTA BIOLÓGICA COLOMBIANA**
ISSN	ISSN: 0120-548X
DOI	https://doi.org/10.15446/abc.v28n1.95266
Título del Artículo	Uso de Microhábitats y Diversidad de Presas Consumidas por Craugastor Berkenbuschii (*Anura: Craugastoridae*) en México
Autores e instituciones de adscripción	José del Carmen [1]; Jiménez-Pérez, Nelly del Carmen [2]; Bustos-Zagal, María Guadalupe [3]; Pérez-de la Cruz, Manuel [2]. [1] Facultad Maya de Estudios Agropecuarios, Universidad Autónoma de Chiapas, Carretera Catazajá-Palenque, Km 4, Catazajá, Chiapas, México. C. P.29980. [2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas km 0.5 S/N, entronque a Bosques de Saloya, Villahermosa, Tabasco, México. C.P. 86150. [3] Laboratorio de Herpetología, Depto. de Zoología. Centro de Investigaciones Biológicas. Universidad Autónoma del Estado de Morelos, Av. Universidad 1001 Colonia Chamilpa, Cuernavaca, Morelos. C. P. 62210.
Resumen	Analizamos el uso de microhábitat para las diferentes clases etarias entre épocas climáticas y comparamos la diversidad de presas consumidas por los machos y hembras adultas de Craugastor berkenbuschii en un arroyo tropical del sureste de México.

Resumen	Los datos fueron colectados en diez transectos de 100 x 15 m, separados entre sí por 25 m de distancia entre ellos. Los muestreos diurnos y nocturnos se realizaron mensualmente entre septiembre 2017 y agosto 2018. A cada individuo observado le registramos el sexo, la clase etaria y el microhábitat utilizado al momento del avistamiento. Las presas consumidas fueron extraídas mediante lavados estomacales in situ. Registramos un total de 437 individuos; 165 fueron adultos, 162 juveniles y 110 crías. Los microhábitats utilizados fueron roca, hojarasca, suelo, tronco, rama, hojas y raíz, de los cuales roca fue el más utilizado independientemente de la época del año y clases etarias. Se identificaron 21 órdenes de presas, 19 órdenes en hembras y 11 en machos. El índice de diversidad verdadera (1D), mostró valores similares para machos y hembras, con 9,67 y 9,08 respectivamente. El índice de distintividad taxonómica promedio (Δ+) determinó que las hembras consumen una mayor diversidad de presas que los machos, con 5,12 y 4,25, respectivamente. Los resultados muestran que las diferentes clases etarias de C. berkenbuschii aprovechan una gran variedad de microhábitats entre épocas climáticas y que existen diferencias entre las presas consumidas entre machos y hembras adultas.
Palabras claves	Anfibios; composición dietética; diversidad taxonómica; ecosistemas ribereños; endémica.

Revista	**INTERNATIONAL JOURNAL OF CORROSION AND SCALE INHIBITION**
ISSN	ISSN: 2305-6894
DOI	http://dx.doi.org/10.17675/2305-6894-2023-12-1-4
Título del Artículo	Tradescantia spathacea: New green corrosion inhibitor for SAE 1010 steel in acid médium.
Autores e instituciones de adscripción	Torres Hernández, J. R. [1]; Del Ángel Meraz, E. [1]; Corvo Pérez, E. F. [2] [1] Juárez Autonomous University of Tabasco, Postgraduate in Engineering Sciences, Carretera Cunduacán-Jalpa Km. 1, Col. La Esmeralda, c.p. 86690, Cunduacán, Tabasco, México. [2] Autonomous University of Campeche, Corrosion Research Center, Corrosion Research Center, Av. Agustin Melgar S/Nentre calle 20 y Juan de la Barrera, Col Buenavista. c.p. 24039, Campeche, México
Resumen	Tradescantia spathacea extract (TSE) is a new green corrosion inhibitor of SAE 1010 steel in 1 M HCl. GC-MS, UV-VIS and FTIR analysis of the extract showed the presence of phenols and other heterocyclic compounds including the presence of O, N and S in the molecules, aromatic rings and different functional groups associated with inhibitory properties. Inhibitory efficiency was evaluated by Weight Loss, Tafel extrapolation and EIS. The range of maximum efficiencies was 91.31–95.16%, all determined at concentration 1200 ppm. They increase with immersion time. Tafel results indicate that it is a mixed-type inhibitor. Several adsorption models of Langmuir, Temkin and Freundlich were tested. The best fit corresponded to Langmuir. It means an adsorbed monolayer is formed without interactions between molecules. Electrochemical reactions different to those involved in corrosion may occur due to the presence of compounds in the extract that can be oxidized or reduced. That is the case of polyphenols oxidation already reported for Tradescantia Spathacea extracts. It is suggested to use non electrochemical methods like Weight Loss to confirm the efficiency of the inhibitor.
Palabras claves	Acid medium; green corrosion inhibitor; steel; Tradescantia spathacea

Revista	**CIENCIAUAT**
ISSN	ISSN: 2007-7858
DOI	https://doi.org/10.29059/cienciauat.v17i2.1632
Título del Artículo	Las nanoestructuras de ZnO y sus aplicaciones como sensor de gas H2S
Autores e instituciones de adscripción	Martínez-Pacheco, Claudio [1]; Del-Ángel-Meraz, Ebelia [1]; Díaz-Flores, Laura Lorena [1] [1] División Académica de Ingeniería y Arquitectura, avenida Universidad s/n, Zona de la Cultura, colonia Magisterial, Villahermosa, Tabasco, México, C. P. 86040
Resumen	Existe un interés global en la detección de gases tóxicos, para la protección del medio ambiente y los seres humanos.

Resumen	Se han desarrollado múltiples estudios enfocados en el uso de sensores de gases basados en óxidos metálicos, como es el óxido de zinc (ZnO), el cual presenta propiedades electrónicas específicas como sensor de gases por ser un semiconductor tipo n y bajo costo de producción. El objetivo de este trabajo fue analizar el uso de nanoestructuras de ZnO, para la fabricación de sensores del gas ácido sulfhídrico (H2S), así como las técnicas de obtención más comunes de dichas estructuras. Las características de las nanoestructuras de óxido de zinc (NE´s-ZnO) varían por efecto del método de obtención, generando diferentes morfologías y tamaño, que impactan en la capacidad de detección de gas (0.5 ppm a 600 ppm) y en el rango de temperatura que se requiere. Los avances en la generación de diversas NE´s-ZnO facilitarán la posibilidad de generar sensores que puedan ser utilizados en detectores portátiles y operen a temperatura ambiente, lo cual es un reto actual.
Palabras claves	Detectores portátiles; sensor; gases tóxicos; nanopartículas.

Revista	**BIOMEDICINES**
ISSN	eISSN: 2227-9059,
DOI	https://doi.org/10.3390/biomedicines11030730
Título del Artículo	Telomere Shortening in Three Diabetes Mellitus Types in a Mexican Sample
Autores e instituciones de adscripción	Cuevas Díaz, Pavel [1]; Nicolini, Humberto [1]; Nolasco-Rosales, Germán Alberto [2]; Juárez Rojop, Isela [3]; Tovilla-Zarate, Carlos Alfonso [2,4]; Rodríguez Sánchez, Ester [5]; Genis-Mendoza, Alma Delia [1,6] [1] Genomics of Psychiatric and Neurodegenerative Diseases Laboratory, National Institute of Genomic Medicine (INMEGEN), Mexico City 01090, Mexic [2] Biomedical Postgraduate Program, Academic Division of Health Sciences, Juárez Autonomous University of Tabasco, Villahermosa 86000, Mexico [3] Academic Division of Health Sciences, Juárez Autonomous University of Tabasco, Villahermosa 86000, Mexico [4]. Comalcalco Multidisciplinary Academic Division, Juárez Autonomous University of Tabasco, Comalcalco 86040, Mexico [5] Diabetes Clinic, Hospital Regional de Alta Especialidad “Dr. Gustavo A. Roviosa Perez”, Villahermosa 86020, Mexico [6] Psychiatric Attention Services, Hospital Psiquiatrico Infantil, “Dr. Juan N. Navarro, Tlalpan”, Mexico City 14080, Mexico
Resumen	This study aimed to explore the role of telomere length in three different diabetes types: latent autoimmune diabetes of adulthood (LADA), latent autoimmune diabetes in the young (LADY), and type 2 diabetes mellitus (T2DM). A total of 115 patients were included, 72 (62.61%) had LADA, 30 (26.09%) had T2DM, and 13 (11.30%) had LADY. Telomere length was measured using real-time Polymerase Chain Reaction. For statistical analysis, we used the ANOVA test, X2 test, and the Mann–Whitney U test. Patients with T2DM had higher BMI compared to LADA and LADY groups, with a BMI average of 31.32 kg/m2 ($p = 0.0235$). While the LADA group had more patients with comorbidities, there was not a statistically significant difference ($p = 0.3164$, $p = 0.3315$, $p = 0.3742$ for each of the previously mentioned conditions). There was a difference between those patients with T2DM who took metformin plus any other oral antidiabetic agent and those who took metformin plus insulin, the ones who had longer telomeres. LADA patients had shorter telomeres compared to T2DM patients but not LADY patients. Furthermore, T2DM may have longer telomeres thanks to the protective effects of both metformin and insulin, despite the higher BMI in this group.
Palabras clave	Telomere length; telomere shortening; diabetes; Mexicans

Revista	**ALTERIDAD-REVISTA DE EDUCACIÓN**
ISSNV	ISSN: 1390-325X
DOI	https://doi.org/10.17163/alt.v18n1.2023.05
Título del Artículo	Study of the prevalence of phubbing in classrooms by apps use
Autores e instituciones de adscripción	Medina-Morales, Gladys Del Carmen [1]; Villalón-Hernández, Raquel [1] [1] Universidad Juárez Autónoma de Tabasco

Resumen	Cell phones, as well as the applications used in them, have changed the forms of communication processes between their users, inclusive, in classroom is common. Among the phenomena associated with the mobile device-applications binomial is phubbing, which is defined as the action of belittling or ignoring a person physically by paying more attention to the mobile phone. This research was developed at a public university in southern of Mexico. The principal objective was to find the relationship between phubbing and the use of mobile device apps when students are in the classroom. The study had a quantitative, descriptive and correlational approach. An instrument of our own elaboration was applied, which measured of two variables; in the one hand, Prevalence of phubbing and on the other hand, the use of apps. The questionnaire was applied in between 2019 and 2021, to 643 students, (F: 471, M: 172). It was identified that the prevalence of phubbing and the approach have a direct positive relationship. This means that, the closer the applications, the more phubbing is done in classes. The findings suggest that a significative percentage of students would like to avoid being phubbers by discovering it as a social phenomenon that affects their academic and social context in person.
Palabras claves	Mobile; mobile phone; addiction; apps; technologies; technopathy

Revista	**MICROBIAL CELL FACTORIES**
ISSN	ISSN: 1475-2859,
DOI	https://doi.org/10.1186/s12934-022-02009-7
Título del Artículo	Simultaneous enzyme production, Levan-type FOS synthesis and sugar by-products elimination using a recombinant Pichia pastoris strain expressing a levansucrase-endolevanase fusion enzyme
Autores e instituciones de adscripción	Ávila-Fernández, Angela [1]; Montiel, Silvia [2]; Rodríguez-Alegría, María Elena [2]; Caspeta, Luis [2]; López Munguía, Agustín [2] [1] Centro de Investigación, DACS-Universidad Juárez Autónoma de Tabasco, Av. Gregorio Méndez No. 2838-A. Col. Tamulte´, 86150, Villahermosa, Centro, Tabasco, Mexico [2] Departamento de Ingeniería Celular Y Biocatálisis, Instituto de Biotecnología, UNAM, Av. Universidad, 2001, Chamilpa, Cuernavaca, Mor., Mexico
Resumen	Background: Although Levan-type fructooligosaccharides (L-FOS) have been shown to exhibit prebiotic properties, no efficient methods for their large-scale production have been proposed. One alternative relies on the simultaneous levan synthesis from sucrose, followed by endolevanase hydrolysis. For this purpose, several options have been described, particularly through the synthesis of the corresponding enzymes in recombinant Escherichia coli. Major drawbacks still consist in the requirement of GRAS microorganisms for enzyme production, but mainly, the elimination of glucose and fructose, the reaction by-products. Results: The expression of a fusion enzyme between Bacillus licheniformis endolevanase (LevB1) and B. subtilis levansucrase (SacB) in Pichia pastoris cultures, coupled with the simultaneous synthesis of L-FOS from sucrose and the elimination of the residual monosaccharides, in a single one-pot process was developed. The proof of concept at 250 mL flask-level, resulted in 8.62 g of monosaccharide-free L-FOS and 12.83 gDCW of biomass, after 3 successive sucrose additions (30 g in total), that is a 28.7% yield (w L-FOS/w sucrose) over a period of 288 h. At a 1.5 L bioreactor-level, growth considerably increased and, after 59 h and two sucrose additions, 72.9 g of monosaccharide-free L-FOS and 22.77 gDCW of biomass were obtained from a total of 160 g of sucrose fed, corresponding to a 45.5% yield (w L-FOS/w sucrose), 1.6 higher than the flask system. The L-FOS obtained at flask-level had a DP lower than 20 fructose units, while at bioreactor-level smaller oligosaccharides were obtained, with a DP lower than 10, as a consequence of the lower endolevanase activity in the flask-level. Conclusion: We demonstrate here in a novel system, that P. pastoris cultures can simultaneously be used as comprehensive system to produce the enzyme and the enzymatic L-FOS synthesis with growth sustained by sucrose by-products. This system may be now the center of an optimization strategy for an efficient production of glucose and fructose free L-FOS, to make them available for their application as prebiotics. Besides, P. pastoris biomass also constitutes an interesting source of unicellular protein.
Palabras claves	Levan-FOS; Fructans; Prebiotics; Pichia pastoris; Levansucrase; Endolevanase.

Revista	**JOURNAL OF OCEANOGRAPHY**
ISSN	ISSN: 1573-868X
DOI	https://doi.org/10.1007/s10872-023-00680-x
Título del Artículo	Satellite features of river plumes over the Lobos-Tuxpan reef system
Autores e instituciones de adscripción	Salas Pérez, José de Jesús [1]; Salas Monreal, David [1]; Jordán-Garza, Adán Guillermo [1]; Rodríguez Lehovec, Fernando [2] [1] Universidad Veracruzana, Lomas del Estadio s/n, C.P. 91000, Xalapa, Veracruz, Mexico [2] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Av. Universidad s/n, Zona de la Cultura, Col. Magisterial, Vhsa, C.P. 86040, Centro, Tabasco, Mexico
Resumen	Meteorological data obtained from June to September 2005 to 2011 were used to analyze the dispersion of the Tecolutla, Cazones, and Tuxpan river plumes over the Lobos–Tuxpan reef system, one of the largest reef areas of the western Gulf of Mexico. The highest rainfall and river discharges in the area are observed during the summer season and September. The results suggest that the river's plumes can reach the Tuxpan reef under coastal winds blowing northward, inducing a coastal current flowing in the same direction. The river's plume gets dispersed around the Lobos–Tuxpan reef area (50 km away) due to the influence of an anticyclonic gyre, thus the plumes are classified as far-field plumes. The Kelvin numbers associated with the rivers are small, which allows the direction of the plumes to go northward, despite Coriolis dynamics. The rivers influence produce eutrophication, > 0.3 mg/m3 of chlorophyll-a, mainly around the Tuxpan reef cluster, but further north over the Lobos reef cluster, oligotrophic conditions prevail with chlorophyll-a concentrations below 0.15 mg/m3. Turbid waters from the rivers' plumes, obtained from the diffuse attenuation coefficient at 490 nm, reached the Tuxpan reef area with 0.1–0.2 m−1. This pattern was different during September when the rivers reached the entire area (Lobos and Tuxpan cluster), showing values ranging from 0.05 to 0.10 m−1. Correlation between the sea surface temperature, chlorophyll-a, and turbidity at the river´s mouths with the reef areas also suggest the river's influence at this location. This study could help future ecological studies investigating the relationship between the environment and the biological systems over the Lobos–Tuxpan reef system.
Palabras claves	Tuxpan, Cazones, and Tecolutla rivers; Lobos–Tuxpan reef system; Sea surface temperature (SST); Geostrophic currents; Rain season; Chlorophyll-a concentration values

Revista	**MAMMAL REVIEW**
ISSN	eISSN: 1365-2907
DOI	https://doi.org/10.1111/mam.12313
Título del Artículo	Reducing conflict between the common vampire bat Desmodus rotundus and cattle ranching in Neotropical landscapes
Autores e instituciones de adscripción	Mendoza-Sáenz, Víctor Hugo [1]; Saldana-Vázquez, Romeo A. [2]; Navarrete-Gutiérrez, Darío[3]; Kraker-Castaneda, Cristian[1][4].; Ávila-Flores, Rafael[5]; Jiménez-Ferrer, Guillermo[6] [1] Departamento de Conservación de la Biodiversidad, El Colegio de la Frontera Sur (ECOSUR), Carretera Panamericana y Periférico Sur S/N, Barrio María Auxiliadora, 29290 San Cristóbal de Las Casas, Chiapas, México [2] Instituto de Investigaciones en Medio Ambiente Xabier Gorostiaga, S.J., Universidad Iberoamericana Puebla, Boulevard del Niño Poblano No. 2901, Colonia Reserva Territorial Atlixcáyotl, 72820 San Andrés Cholula, Puebla, México [3] Grupo Académico Ecología, Paisaje y Sustentabilidad, Departamento Observación y Estudio de la Tierra, la Atmosfera y el Océano, El Colegio de La Frontera Sur (ECOSUR), Carretera Panamericana y Periférico Sur S/N, Barrio María Auxiliadora, 29290 San Cristóbal de Las Casas, Chiapas, México [4]. Unidad para el Conocimiento, Uso y Valoración de la Biodiversidad, Centro de Estudios Conservacionistas (CECON), Universidad de San Carlos de Guatemala, Avenida Reforma 0-63, Zona 10, 01010 Guatemala City, Guatemala [5] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas km 0.5 S/N, Entronque a Bosques de Saloya, 86150 Villahermosa, Tabasco, México [6] Departamento de Agricultura, Sociedad y Ambiente, El Colegio de la Frontera Sur (ECOSUR), Carretera Panamericana y Periférico Sur S/N, Barrio María Auxiliadora, 29290 San Cristóbal de Las Casas, Chiapas, México
Resumen	Increased cattle ranching in Neotropical landscapes has led to human–wildlife conflicts that complicate the relationship between agricultural production and biodiversity conservation.

Resumen	We review the literature related to conflicts between livestock production and the common vampire bat Desmodus rotundus, specifically, the factors that influence the incidence of problems caused by bites to cattle. We summarise the strategies proposed to reduce these problems and propose actions from the perspectives of cattle management, landscape ecology and the biology of the common vampire bat. The literature shows that free-range extensive management systems, where cattle graze in areas with forest cover, near riparian zones, caves, secondary vegetation (generally shrublands and immature trees), and vegetation fragments and edges, increase the implications and the severity of the conflict. As a result of different selection forces, the wing morphology and echolocation characteristics of the common vampire bat facilitate its movement under these landscape conditions, thus favouring a scenario of greater interaction with cattle. We propose the establishment of a 'buffer zone' to separate the cattle as far as possible (at least 1 km) from the elements of the landscape that are key for the movement patterns of common vampire bats in cattle ranching areas. The feeding events of this species are positively associated with host availability and landscape elements that provide habitat and connectivity, which shows that the cause of this conflict originates from the process of cattle production and the invasion of the habitat of the common vampire bat. Anti-rabies vaccination programmes in cattle and forest–cattle separation are the most important strategies to minimise conflict and prevent rabies outbreaks.
Palabras claves	Cattle management; common vampire bat Desmodus rotundus; human-wildlife conflict; Neotropics; prevention and mitigation strategies; systematic review; zoonosis.

Revista	**CHEMICAL PAPERS**
ISSN	eISSN: 2585-7290
DOI	https://doi.org/10.1007/s11696-023-02744-0
Título del Artículo	Prolonged colloidal stability of silver nanoparticles through Mentha spicata leaf extract as reducing agent, and their catalytic reduction of 4-nitrophenol
Autores e instituciones de adscripción	Medina-Juárez, Obdulia [1]; Velásquez-Ordoñez, Celso [1]; García-Mendoza, Cinthia [2]; Manuel Rentería-Tapia, Víctor [1]; Luisa Ojeda-Martínez, María [1] [1] Centro de Investigación en Nanociencias y Nanotecnología de CUValles, Universidad de Guadalajara, 46600, Guadalajara, Jalisco, México [2] División Académica de Ingeniería y Arquitectura, Universidad Juárez, Autónoma de Tabasco, 86690, Cunduacán, Tabasco, México
Resumen	This work presents the influence of the reproducibility, stability and the morphology of silver nanoparticles (AgNPs) obtained by green synthesis of nanoparticles (GNPs) assisted by a Mentha spicata extract solution as reducing stock solution (RSS). Noteworthy colloidal dispersion at 6.4 months has been reported by the presence of the surface plasmon resonance (SPR) in the UV–Vis spectra for spherical nanoparticles (680AgN), while quasi-spherical nanoparticles (1300AgN) presented aggregation. Thereby, a great amount of RSS as reducing agent present in the synthesis involves the formation of NPs (nanoparticles) with tendency to agglomeration as shown by high-resolution transmission electron microscope (HRTEM) and Z potential for 1300AgN system. Meantime, the Fourier transform infrared spectroscopy (FTIR) spectra supported that hydroxy group of the poly phenols species reported at 3420 cm−1, and the C=C bonds presented in the aromatic rings at 1633 cm−1 are the main electron-donating species to obtain AgNPs. Finally, the performance of the AgNPs systems to the reduction of 4-nitrophenol (4-NP) was evaluated in the presence of sodium borohydride (NaBH4). These outcomes show NPs with ordered morphology by GNPs reproducible and, with outstanding colloidal stability without an external stabilizer agent, at natural pH of the NPs, and they are useful to diverse applications.
Palabras claves	Mentha spicata; Green silver nanoparticles; Colloidal stability; 4-Nitrophenol reduction

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	1573-7438
DOI	https://doi.org/10.1007/s11250-023-03488-5
Título del Artículo	Prediction models of intake and productive performance of non-castrated Nellore cattle finished in the feedlot system under tropical conditions

Autores e instituciones de adscripción	De Figueiredo Moura, Jessika Rodrigues [1]; Vinhas Itavo, Luis Carlos [1]; Brandao Ferreira Itavo, Camila Celeste [1]; Menezes Dias, Alexandre [1]; dos Santos Difante, Gelson [1]; Tadeu Dos Santos, Geraldo [1]; Chaves Gurgel, Antonio Leandro [1]; Chay-Canul, Alfonso Juventino [2] [1] Faculdade de Medicina Veterinária E Zootecnia, Universidade Federal de Mato Grosso Do Sul, Mato Grosso Do Sul, Campo Grande, 79070-900, Brazil [2] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, 86280, Villahermosa, Tabasco, Mexico.
Resumen	The objective of this study was to understand and predict the intake and performance of Nellore cattle finished in the feedlot. Individual data from 144 non-castrated male Nellore steers finished in the feedlot between the years 2016 and 2020 were used. Descriptive statistical analyses and Pearson's correlation were performed. The outliers were tested by evaluating the studentized residuals in relation to the values predicted by the equations. Residues that were outside the range of−2.5 to 2.5 were removed. The goodness of fit of the developed equations was evaluated by the coefficients of determination (r2) and root mean square error (RMSE). The mean dry matter intake (DMI) was 10.2 kg/day, neutral detergent fiber intake (NDFI) was 3.4 kg/day, corresponding to 33.3% of DMI, crude protein intake (CPI) was 1.6 kg/day, and total digestible nutrient intake (TDNI) was 7.1 kg/day. The CPI to ADG ratio was 1.3 kg CPI/kg ADG and the TDNI to CPI ratio was 4.5 kg TDNI/kg CPI. The averages of productive performance were 1.3 kg/day for average daily gain (ADG), 152.6 kg for total weight gain (TWG), and 497.8 kg for final body weight (FBW) in average days in the confinement of 115.7 days. The intake measures correlated significantly with the performance measures, except for carcass yield and days in the feedlot. TWG had a high positive correlation with ADG (r=0.84), while FBW had a positive correlation (r=0.86) with hot carcass weight (HCW). Measures of intake, performance, and days in the feedlot can be used as predictors of DMI, FBW, HCW, TWG, and ADG. The prediction equations had satisfactory precision and accuracy for non-castrated Nellore cattle finished in feedlot systems under tropical conditions.
Palabras claves	Carcass weight; Dry matter intake; Mathematic models; Slaughter weight; Weight gain.

Revista	**REVISTA BIO CIENCIAS**
ISSN	eISSN: 2395-8472
DOI	https://doi.org/10.24275/rmiq/IA3034
Título del Artículo	Phytoabsorption of heavy metals from leachates using the species Cyperus laxus and Chrysopogon zizanioides
Autores e instituciones de adscripción	Cahuich-Flores, S.G.[1]; López-Martínez, S.[1]; Morales-Bautista, C.M.[2]; Pampillón -González, L.[1]; Hernández -Núñez, E.[3] [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, CP. 86100, Villahermosa, Tabasco, México. [2] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, CP. 86690, Cunduacán, Tabasco, México. [3] Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Mérida, Departamento de Recursos del Mar. Antigua Carretera a Progreso Km. 6, C.P. 97310. Mérida, Yucatán.
Resumen	This study aimed to evaluate and compare the phytoremediation potential of Cyperus laxus and Chrysopogon zizanioides, exposed to a mixture of leachates containing heavy metals. C. laxus is a native species from Mexico and C. zizanioides is an introduced species. Exposure to the leachate was performed using concentration kinetics concerning exposure times (TE) (Control 1, Control 40, 1,7, 15, 30, and 40 days). For this purpose, a completely randomized two-factor design with a 2x7 arrangement in triplicate was performed. The data were analyzed by ANOVA followed by an LSD multiple range test. For the quantification of metals in leachate and plants, inductively coupled plasma atomic emission spectroscopy (ICP-OES) was used. Ten chemical elements (Al, As, Ba, Cr, Hg, Ni, Pb, Se, Tl, and Zn) were identified in leachate and plants. It was observed that C. laxus absorbed mostly Al, Ba, Cr, Cr, Hg, and Ni, while C. zizanioides absorbed As, Pb, Se, Tl, and Zn. In translocation factor (TF) calculations C. laxus translocated only As, whereas C. zizanioides translocated As>Tl>Ba>Cr>Ni, respectively.
Palabras claves	Phytoremediation; native plant, introduced plant, translocation factor; sanitary landfill

Revista	**REVISTA ELECTRÓNICA DE INVESTIGACIÓN EDUCATIVA**
ISSN	eISSN: 1607-4041
DOI	https://doi.org/10.24320/redie.2023.25.e06.4274
Título del Artículo	Apoyo de pares y expectativas de resultado en STEM: desarrollo y validación de un instrumento
Autores e instituciones de adscripción	Magaña Medina, Deneb Eli [1]; Hernández-Mena, Verónica [1]; Aguilar Morales, Norma [1]; Sánchez Escobedo, Pedro Antonio [2] [1] Universidad Juárez Autónoma de Tabasco, México [2] Universidad Autónoma de Yucatán, México
Resumen	Identificar los factores que influyen en la elección de carrera de los jóvenes mexicanos resulta fundamental para generar estrategias que permitan atraer nuevos estudiantes al área de ciencia, tecnología, ingeniería y matemáticas (STEM, por sus siglas en inglés). El objetivo del estudio fue desarrollar y verificar las propiedades psicométricas (fiabilidad y validez de constructo) para las escalas Apoyo de pares estudiantiles (APE-STEM) y Expectativas de resultado (EXREC-STEM) en la elección de carreras universitarias STEM en estudiantes de nivel medio superior, generando un modelo de ecuaciones estructurales. Las escalas (tipo Likert) se aplicaron a 167 estudiantes de instituciones rurales y urbanas del sureste mexicano: los resultados de los análisis factoriales, exploratorio y confirmatorio muestran un adecuado ajuste, además de una consistencia interna de $\alpha = .82$ y .84, confirmándose la solidez empírica del modelo, por lo que se concluye que las escalas son altamente confiables para su utilización en este contexto.
Palabras claves	Educación, ciencia y tecnología, ingeniería, matemáticas, psicometría

Revista	**MATERIALS**
ISSN	eISSN 1996-1944
DOI	https://doi.org/10.3390/ma16031187
Título del Artículo	Oxidation Kinetics of Ti-6Al-4V Alloys by Conventional and Electron Beam Additive Manufacturing
Autores e instituciones de adscripción	Estupinán -López, Francisco [1]; Orquiz-Muela, Carlos [2]; Gaona-Tiburcio, Citlalli [1]; Cabral-Miramontes, José [2]; Bautista-Margulis, Raúl Germán [3]; Nieves-Mendoza, Demetrio [4].; Maldonado-Bandala, Erick [4].; Almeraya-Calderón, Facundo [1]; Lopes, Amit Joe [2]. [1] Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA), FIME, Universidad Autónoma de Nuevo León, San Nicolás de los Garza 66455, Mexico [2] W. M. Keck Center for 3D Innovation, The University of Texas at El Paso, El Paso, TX 79968, USA [3] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa 86040, Mexico [4]. Facultad de Ingeniería Civil, Universidad Veracruzana, Xalapa 91000, Mexico
Resumen	New manufacturing processes for metal parts such as additive manufacturing (AM) provide a technological development for the aeronautical and aerospace industries, since these AM processes are a means to reduce the weight of the parts, which generate cost savings. AM techniques such as Laser Powder Bed Fusions (LPBF) and Electron Beam Fusion (EBM), provided an improvement in mechanical properties, corrosion resistance, and thermal stability at temperatures below 400 °C, in comparison to conventional methods. This research aimed to study the oxidation kinetics of Ti-6Al-4V alloys by conventional and Electron Beam Additive Manufacturing. The thermogravimetric analysis was performed at temperatures of 600 °C, 800 °C, and 900 °C, having a heating rate of 25 °C/min and oxidation time of 24 h. The microstructural analysis was carried out by thermogravimetric analysis. Thickness and morphology of oxide layers were analyzed by field emission scanning electron microscope, phase identification (before and after the oxidation process) was realized by X-ray diffraction at room temperature and hardness measurements were made in cross section. Results indicated that the oxidation kinetics of Ti-6Al-4V alloys fabricated by EBM was similar to conventional processing and obeyed a parabolic or quasi-parabolic kinetics. The samples oxidized at 600 °C for 24 h presented the lowest hardness values (from 350 to 470 HV). At oxidation temperatures of 800 and 900 °C, however, highest hardness values (from 870 close to the alpha-case interface up to 300 HV in base metal) were found on the surface and gradually decreased towards the center of the base alloy.

Resumen	This may be explained by different microstructures presented in the manufacturing processes
Palabras claves	Titanium; additive manufacturing; oxidation kinetics; electron beam fusion

Revista	**REVISTA DE BIOLOGÍA TROPICAL**
ISSN	ISSN: 0034-7744
DOI	https://doi.org/10.15517/rev.biol.trop..v71i1.51085
Título del Artículo	Ontogeny of digestive enzymes in larvae of the Clown Anemonefish, Amphiprion ocellaris (Perciformes: Pomacentridae)
Autores e instituciones de adscripción	Velasco-Blanco, Gabriela [1]; Álvarez González, Carlos Alfonso [2]; Abdo de la Parra, María Isabel [1]; Rodríguez-Ibarra, Luz Estela [1]; Ibarra-Castro, Leonardo [3]; Maytorena-Verdugo, Claudia I. [4].; Arias-Jiménez, José Natividad [2]; Peña Marín, Emyr Saul [5] [1] Centro de Investigación en Alimentación y Desarrollo A.C., Mazatlán Unit., Av. Sábalo Cerritos s/n, Mazatlán, Sinaloa 89010, México; gvelas@ciad.mx, abdo@ciad.mx, eibarra@ciad.mx [2] Laboratorio de Fisiología en Recursos Acuáticos, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Km 0.5 carretera Villahermosa- Cárdenas entronque Bosques de Saloya, Villahermosa, Tabasco, México; alvarez_alfonso@hotmail.com, aijn930427@gmail.com [3] Program in Fisheries and Aquatic Sciences, School of Forest, Fisheries, and Geomatics Sciences, Institute of Food and Agricultural Sciences, University of Florida, 7922 Northwest 71st Street, Post Office Box 110600, Gainesville, Florida 32611, USA; and Whitney Laboratory for Marine Bioscience; 9505 Oceanshore Blvd, St Augustine, Florida, 32080, USA.; l.ibarracastro@ufl.edu [4]. Universidad Politécnica del Centro, Carretera Federal, Villahermosa-Teapa Km 22.5, Tumbulushal Centro, 86290, Villahermosa, Tabasco, México; clau.maytorena@gmail.com [5] Instituto de Investigaciones Oceanológicas, Universidad Autónoma de Baja California (UABC), Ensenada 21100, México; emyr.pea@uabc.edu.mx, ocemyr@yahoo.com.mx (*Correspondance)
Resumen	Introduction: The Clown anemonefish (Amphiprion ocellaris) is the most popular fish species in the marine aquarium trade; however, there is a lack of information on their digestive physiology during larval ontogeny, valuable information needed for diet design and management protocols. Objective: To characterize the early digestive enzymes of A. ocellaris larvae. Methods: We used three pools (10 larvae each) and extracted 10 samples per tank, from just before hatching to the 38th day. We analyzed the specific activity of acid and alkaline proteases, trypsin, chymotrypsin, leucine aminopeptidase and lipase; and did acid and alkaline protease zymograms. Results: We detected all measured enzymes at hatching. Acid proteases increased in activity until the 38th day. Alkaline proteases, trypsin, chymotrypsin, and leucine aminopeptidase had the same pattern, and maximum activity on the 8th day, decreasing at the 38th day. Lipase activity peaked on the 8th and 30th day. The acid zymogram had a single band, appearing on the 8th day. A total of eight alkaline proteases were revealed (154.2, 128.1, 104.0, 59.8, 53.5, 41.9, 36.5 and 25.1 KDa), with seven bands on the 1st day and all bands from the 3rd to 8th day, decreasing at two bands (41.9 and 25.1 KDa) in the 38th day. Conclusion: A. ocellaris has a functional stomach on the 8th day, and, on the 38th day, a digestive omnivore pattern with a tendency to carnivory.
Palabras claves	Digestive development; early ontogeny; electrophoresis; larvae; lipases; proteases.

Revista	**INFECTIOUS DISEASES**
ISSN	eISSN: 2374-4243
DOI	https://doi.org/10.1080/23744235.2022.2158217
Título del Artículo	Novel clinical and immunological features associated with persistent post-acute sequelae of COVID-19 after six months of follow-up: a pilot study
Autores e instituciones de adscripción	Torres-Ruiz, Jiram[1]; Lomelín -Gascón, Julieta[2]; Luna, Jaquelin Lira[1] [3]; Vargas-Castro, Ana Sofia[1][4].; Pérez-Fragoso, Alfredo[1][5]; Núñez-Aguirre, Miroslava[1][5]; Alcalá-Carmona, Beatriz[1][5]; Absalón-Aguilar, Abdiel[6]; Balderas-Miranda, Jennifer T.[7]; Maravillas-Montero, José Luis[8]; Mejía -Domínguez, Nancy R.[8]; Núñez-Alvarez, Carlos[8]; Llorente, Luis[1]; Romero-Ramírez, Sandra[8]; Sosa-Hernández, Víctor Andrés[8]; Cervantes-Diaz, Rodrigo[8]; Juárez-Vega, Guillermo[8]; Meza-Sánchez, David[8]; Rull-Gabayet, Marina[1]; Martínez- Juárez, Luis Alberto[2]; Morales, Linda[2] [9];

Autores e instituciones de adscripción	López -López, Lizeth Naomi[2]; Negrete-Trujillo, José Adrián[2]; Falcon-Lezama, Jorge Abelardo[2][10]; Valdez-Vázquez, Rafael Ricardo[9]; Gallardo- Rincón, Héctor[11]; Tapia-Conyer, Roberto[12]; Gómez-Martin, Diana. [1] [8] [1] Department of Immunology and Rheumatology, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico. [2] Carlos Slim Foundation, Mexico City, Mexico. [3] Sección de Estudios de Posgrado e Investigación Escuela Superior de Medicina-IPN, Mexico City, Mexico. [4]. Becaria o Becario de la Dirección General de Calidad y Educación en Salud, Secretaría de Salud, México. [5] Laboratorio de Inmunoquímica 1, Posgrado en Ciencias Químicobiológicas, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional. [6] Department of Internal Medicine, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, México. [7] Program of Combined Studies in Medicine, School of Medicine, National Autonomous University of Mexico, Mexico City, Mexico. [8] Red de Apoyo a la Investigación, Universidad Nacional Autónoma de México e Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico. [9] Temporary COVID-19 Hospital, Hipódromo de las Américas, Mexico City, Mexico. [10] División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco. [11] Centro Universitario de Ciencias de la Salud (CUCS), Universidad de Guadalajara, Guadalajara, Mexico. [12] National Autonomous University of Mexico, School of Medicine, Mexico City, Mexico.
Resumen	Background: Currently, there is scant information regarding the features associated to the persistence of post-COVID-19 syndrome, which is the main aim of the present study. Methods: A cohort study of 102 COVID-19 patients was conducted. The post-COVID-19 symptoms were assessed by a standardised questionnaire. Lymphocyte immunophenotyping was performed by flow cytometry and chemokines/cytokines, neutrophil extracellular traps, the tripartite motif 63, anti-cellular, and anti-SARS-CoV-2 IgG antibodies were addressed in serum. The primary outcome was the persistence of post-COVID-19 syndrome after six months follow-up. Results: Thirteen patients (12.7%) developed the primary outcome and had a more frequent history of post-COVID-19 syndrome 3 months after infection onset ($p = .044$), increased levels of IL-1α ($p = .011$) and IP-10 ($p = .037$) and increased CD57 expression in CD8+ T cells ($p = .003$). There was a trend towards higher levels of IFN-γ ($p = .051$), IL-1β ($p = .062$) and IL-6 ($p = .087$). The history of post COVID-19 in the previous 3 months, obesity, baseline serum MIP-1α and IP-10, and CD57 expression in CD8+ T cells were independently associated with the persistence of post-COVID-19 syndrome. Conclusion: Our data suggest an important relationship between a pro-inflammatory state mediated through metabolic pathways related to obesity and increased cellular senescence as a key element in the persistence of post-COVID-19 syndrome at six months of follow-up.
Palabras clave	IP-10; MIP-1α; Persistent PASC; immunoinflamation; obesity; senescence.

Revista	**NATURAL AREAS JOURNAL**
ISSN	eISSN: 2162-4399
DOI	https://doi.org/10.3375/22-8
Título del Artículo	Medium- and Large-Sized Mammal Diversity Inside and Outside the Usumacinta Canyon Natural Protected Area
Autores e instituciones de adscripción	Hidalgo-Mihart, Mircea G.[1]; González Gallina, Alberto[2]; Pérez -López, Mariana[1]; Juárez -López, Rugieri[1]; Jesús-de La Cruz, Alejandro[1][3]; Bravata-de la Cruz, Yaribeth[1] [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, 86040, México [2] Red de Ambiente y Sustentabilidad, Instituto de Ecología A.C, Xalapa, Veracruz, 91073, México [3] Panthera México, San Miguel de Allende, Guanajuato, 37750, México
Resumen	The Natural Protected Areas (NPA) network is one of Mexico's main biodiversity conservation strategies. However, comparisons between the biodiversity observed inside and around this conservation instrument have rarely been performed in the country, not even for groups of fauna such as medium and large mammals (weight > 0.5 kg). Aspects of diversity and abundance of medium and large mammals were determined inside the Cañon del Usumacinta Flora and Fauna Protection Area (inside NPA) and in unprotected areas surrounding the NPA (outside NPA) through 72 camera trap stations (41 stations inside and 31 outside NPA). We obtained 1333 records of medium and large mammals of 23 species inside the NPA, while 663 records of 22 species were obtained outside the NPA. The expected species richness, diversity, and species composition by camera station were similar between interior NPA and exterior NPA.

Resumen	Likewise, the shape of the rank-abundance curves was similar inside and outside the NPA but not in the species order. Also, we found differences among the mean weight of the species registered by the camera station with larger species captured in the interior of the NPA. Our results showed that although the diversity of medium- and large-sized mammals is similar between the interior and exterior of the NPA, the conservation actions carried out in the interior of the NPA allow the larger mammal species (generally exposed to subsistence hunters) to be more detectable within the NPA than outside. It is necessary to determine which programs helped reduce the pressure on the largest mammals in the NPA, to maintain their operation and extend it to other NPAs of the region.
Palabras claves	Camera traps; natural protected areas; Tabasco; wildlife management.

Revista	**LATIN AMERICAN JOURNAL OF AQUATIC RESEARCH**
ISSN	ISSN:0718-560X
DOI	http://dx.doi.org/10.3856/vol51-issue1-fulltext-2952
Título del Artículo	Influence of temperature on respiratory metabolism during early development of Totoaba macdonaldi
Autores e instituciones de adscripción	Larios-Soriano, Ernesto [1]; Díaz, Fernando [2]; Re-Araujo, Ana Denise [2]; López, Lus M. [1]; López-Galindo, Laura [3]; True, Conal D. [1]; Álvarez, Carlos A. [4].; Galaviz, Mario A. [1] [1] 1Universidad Autónoma de Baja California, Facultad de Ciencias Marinas, Ensenada, Baja California [2] Laboratorio de Ecofisiología de Organismos Acuáticos, Departamento de Biotecnología Marina Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) Ensenada, Baja California, México [3] Instituto de Investigaciones Oceanológicas, Universidad Autónoma de Baja California Ensenada, Baja California, México [4]. Laboratorio de Acuicultura Tropical, División Académica de Ciencias Biológicas Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México.
Resumen	Environmental temperature can act as a positive or negative modulator of the physiology and metabolism of poikilothermic organisms. As a general rule, larvae and juveniles are more sensitive to temperature stress than adults, which represents a key factor that partly determines their development and growth in aquaculture. Therefore, this study analyzed the effect of exposure to temperatures of 21, 24, and 27°C on the respiratory metabolism (RM) of Totoaba macdonaldi in different developmental stages. For this purpose, eggs, larvae with 4, 6, 8, 14, and 22 days post-hatch (dph), and juveniles of 25 dph were exposed to the experimental temperatures for 5 h. After the exposure time, oxygen consumption measurements were performed. The results clearly show that temperature (21 to 27°C) has the greatest effect on RM in eggs and larvae at 4 and 22 dph (3.1 ± 0.3 to 4.3 ± 0.3 µmol O2 h−1 egg−1, 2.9 ± 0.3 to 10.5 ± 1.2 µmol O2 h−1 larvae−1 and 102.0 ± 6.4 to 189.8 ± 15.3 µmol O2 h−1 larvae−1, respectively). This thermal sensitivity was not observed from 6, 8, and 14 dph larvae and juveniles at 25 dph, where morphological development was the main factor that influencing the RM. Therefore, this study shows that temperature affects RM in different development stages of totoaba, beginning in the egg stage and intensifying once the larvae hatch until 22 dph. Understanding how temperature affects energy expenditure by measuring RM is essential to establish culture conditions that allow better physiological performance and growth in the early life stages of T. macdonaldi.
Palabras claves	Totoaba macdonaldi; acute thermal exposure; respiratory metabolism; early development; aquaculture.

Revista	**ANALES DE PEDIATRÍA**
ISSN	ISSN: 1695-4033
DOI	https://doi.org/10.1016/j.anpedi.2022.08.010
Título del Artículo	Impacto de una maniobra educativa sobre el conocimiento y actitud de la autoexploracion testicular
Autores e instituciones de adscripción	Serret-Montoya, Juana [1]; Rodríguez-Ibarra, Sarait Nadja [1]; Nava-Sánchez, Karla Denis [2]; Zurita-Cruz, Jessie Nallely [3] [1] Departamento de Adolescentes, Hospital Infantil de México Federico Gómez, Ciudad de México, México [2] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de la Salud, Tabasco, México [3] Facultad de Medicina, Universidad Nacional Autónoma de México, Hospital Infantil de México Federico Gómez, Ciudad de México, México

Resumen	Introducción: Se ha descrito que la autoexploración testicular se realiza en un bajo porcentaje de los adolescentes. Objetivo: Evaluar el impacto de una maniobra educativa a corto y largo plazo (6 meses) sobre el conocimiento y la actitud de los adolescentes varones en la autoexploración testicular. Métodos: Se realizó un cuasiexperimento, antes y después en adolescentes varones. Se validó un cuestionario para evaluar el conocimiento y la actitud (conciencia, intenciones y comportamiento) sobre la autoexploración testicular. La maniobra educativa consistió en una charla informativa de manera grupal que incluía esquemas y folletos. Se les aplicó el cuestionario antes y después de la maniobra educativa. Se citaron a los 6 meses posteriores y se les dio nuevamente la charla aplicándose un cuestionario antes y después de la misma. Resultados: Se incluyeron 139 adolescentes con una mediana para la edad de 14 años. El conocimiento (18,3% vs. 78,9% p = 0,02) y la actitud (5,6% vs. 53,5% p = 0,02) mejoraron posteriormente a la primera charla informativa. A los 6 meses de seguimiento (n = 98) el conocimiento no se modificó (87,0% vs. 93,0% p = 0,671); sin embargo, la actitud mejoró tras la segunda charla (58,0% vs. 78,0% p = 0,009). Conclusión: Una maniobra educativa sobre la autoexploración testicular mejoró la proporción de una adecuada actitud (5,6% vs. 53,5%) y conocimiento (18,3% vs. 78,9%) en los adolescentes. El reforzamiento de la maniobra a los 6 meses mejora la proporción de adolescentes con una adecuada actitud (53,5% vs. 86,4%).
Palabras clave	Adolescentes; Cáncer testicular; Autoexploración testicular.

Revista	**JOURNAL OF ASIAN CERAMIC SOCIETIES**
ISSN	ISSN: 2187-0764
DOI	https://doi.org/10.1080/21870764.2023.2181280
Título del Artículo	Evolution of the Cu2ZnSnS4 phase based on the sulfurization-crystallisation duration of the CuS/SnS/ZnS stack formed by thermal evaporation
Autores e instituciones de adscripción	Cruz Santiago, N. [1]; Ramírez Morales, E. [1]; González Sánchez, T. [1]; Castillo Palomera, R. [1]; Rojas Blanco, L. [1]; Hernández Gálvez, G. [2]; Miranda Mandujano, E. [1]; Ricárdez Jiménez, C. [1]; Trujillo Narcía, A. [2]; Sarracino Martínez, Omar [2] [1] Universidad Juárez Autónoma de Tabasco, Avenida Universidad S/N, Col. Magisterial, Villahermosa, Mexico [2] Universidad Popular de la Chontalpa, Cárdenas, Mexico
Resumen	Binary sulfides were deposited by sequential thermal evaporation with the stacking order glass/CuS/SnS/ZnS and subsequently subjected to a sulfurization-crystallization process, considering two thermal treatment time intervals, 5 and 20 min. The objective of implementing different annealing durations was to identify the best conditions to form CZTS films in the pure kesterite phase. After being subjected to the annealing, the films show structural characteristics of the kesterite phase. However, XRD data showed that prolonged annealing causes degradation of the kesterite phase, leading to the formation of traces of CuS and Cu5Sn2S7. The films annealed for shorter duration, in this case 5 min, present a denser and more uniform surface morphology, better degree of preferential orientation, small Urbach energy of 0.302 eV, and higher photosensitivity. The band gap of the films was 1.46 eV and 1.53 eV for annealing durations 5 and 20 min, respectively.
Palabras claves	Semiconducting quaternary alloys; physical vapor deposition processes; Cu2ZnSnS4: thermal evaporation; sulfurization time; thin films.

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	eISSN:1573-7438
DOI	https://doi.org/10.1007/s11250-023-03549-9
Título del Artículo	Estimation of body weight using body measurements in female water buffaloes reared in southeastern Mexico
Autores e instituciones de adscripción	Ruisz-Ramos, Jorge [1]; Torres-Chablé, Oswaldo M. [1]; Peralta-Torres, Jorge A. [1]; Ojeda-Robertos, Nadia F. [1]; Luna-Palomera, Carlos [1]; Portillo-Salgado, Rodrigo [1]; Tyasi, Thobela Louis [2]; Gurgel, Antonio Leandro Chaves [3]; itavo, Luis Carlos Vinhas [4]; Chay-Canul, Alfonso J. [1]

Autores e instituciones de adscripción	Ruisz-Ramos, Jorge [1]; Torres-Chablé, Oswaldo M. [1]; Peralta-Torres, Jorge A. [1]; Ojeda-Robertos, Nadia F. [1]; Luna-Palomera, Carlos [1]; Portillo-Salgado, Rodrigo [1]; Tyasi, Thobela Louis [2]; Gurgel, Antonio Leandro Chaves [3]; itavo, Luis Carlos Vinhas [4]; Chay-Canul, Alfonso J. [1] [1] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México. [2] Department of Agricultural Economics and Animal Production, University of Limpopo, Limpopo, South Africa. [3] Campus Professora Cinobelina Elvas, Federal University of Piauí, Bom Jesus, Piauí, Brazil. antonioleandro09@gmal.com. [4] Faculdade de Medicina Veterinária E Zootecnia, Universidade Federal de Mato Grosso Do Sul, Campo Grande, Mato Grosso Do Sul, Brasil.
Resumen	Buffalo farming is an important livestock activity in Mexico. However, the low technological level of the farms makes it difficult to monitor the growth rates of the animals. The objectives of this study were to analyse the body measurements of 107 adult female Murrah buffaloes, to estimate the interrelationships between those measurements and body weight, and to develop equations to predict body weight (BW) using body measurements including withers at height (WH), rump height (RH), body height (BH), heart girth (HG), abdominal girth (AG), pelvic girth (PG), body length (BL), girth circumference (GC), diagonal body length (DBL), pelvic circumference (PC), and abdomen circumference (AC). The study was conducted on two commercial farms in southern Mexico. Pearson correlation and stepwise regression techniques were used for the data analysis. To find out the best regression models, we used model quality criteria such as coefficient of determination (R2), adjusted R2 (Adj.R2), root mean square error (RMSE), Mallow's Cp, Akaike's information criteria (AIC), Bayesian information criteria (BIC), and coefficient of variation (CV). Correlation results indicated that BW had a positive high correlation ($P<0.01$) of all the measured traits. Model 4 (-780.56+311.76GC+383.51DBL+51.82PC+47.65AC—106.78BL) was the best regression model with a higher R2 (0.87), Adj. R2 (0.86) smaller Cp (4.24), AIC (749.19), BIC (752.16), and RMSE (36.91). The current study suggests that GC, DBL, PC, AC, and BL might be used in combination to estimate BW of adult female Murrah buffaloes.
Palabras claves	Body condition score; Body length; Bubalus bubalis; Correlation; Regression; Withers at height.

Revista	**TELOS-REVISTA DE ESTUDIOS INTERDISCIPLINARIOS EN CIENCIAS SOCIALES**
ISSN	ISSN: 1317-0570
DOI	https://doi.org/10.36390/telos251.05
Título del Artículo	Competencias emprendedoras de la mujer en el contexto mexicano.
Autores e instituciones de adscripción	Miranda Sánchez, Jennifer Darvelia [1]; Sandoval Caraveo, María del Carmen [1]; Berttolini Díaz, Gilda María [1] [1] Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México.
Resumen	La participación de la mujer en la economía se ha incrementado a partir de su incursión por medio del emprendimiento, la cual no está exenta de retos y desafíos, desde la percepción social hasta políticas públicas deficientes que perpetúan la división del trabajo por roles de género. Es así como las mujeres que emprenden son entes disruptivos para el mundo empresarial que ha sido pensado en masculino, impactando en su forma de hacer negocios y requiriendo de competencias para perdurar y lograr su independencia económica. El objetivo del estudio fue identificar las competencias emprendedoras que poseen las empresarias en Tabasco, México. Se realizó con enfoque cuantitativo descriptivo transeccional, se aplicó un cuestionario compuesto por once dimensiones. Participaron 212 mujeres propietarias de negocios. Se identificó que las empresarias poseen competencias relacionadas con la necesidad de existir, la capacidad para reponerse y aprender y poseen espíritu emprendedor; y en menor medida poseen competencias para trabajar con otros, para priorizar el negocio y trabajar arduamente para mantener su emprendimiento; y tienen dudas sobre considerar a la empresa como un medio para emplear familiares. Los resultados contribuyen a la comprensión del comportamiento de las mujeres, siendo el primero de su tipo en el Estado, invitando a la realización de más estudios sobre el emprendimiento bajo enfoque de género.

Palabras claves	Competencias emprendedoras; emprendimiento femenino; mujeres emprendedoras; familia y negocio; espíritu emprendedor; emprendimiento; perspectiva de género.

Revista	**BRAZILIAN JOURNAL OF POULTRY SCIENCE**
ISSN	ISSN: 1516-635X
DOI	https://doi.org/10.1590/1806-9061-2022-1639
Título del Artículo	Effect of the Line and Age of Female Broiler Breeder on Hatchability Performance of Eggs
Autores e instituciones de adscripción	Rebolledo, O. F. P. [1]; López, M. F. A. [2]; Rivera, J. A. H. [1]; C. Canul, A.[3]; Isaías, G. T. [4]; Casillas, A. C. G. [1] [1] Faculty of Veterinary Medicine and Zootechnics, University of Colima. [2] Student. Faculty of Veterinary Medicine and Zootechnics, University of Colima. [3] Academic Division of Agricultural Science, Juárez Autonomous University of Tabasco. [4] Poultry Science Department, University of Arkansas.
Resumen	An experiment was conducted to assess how hatchability performance of eggs is affected by line and age of female broiler breeders. Response variables analyzed were hatchability, infertility, pipping (i.e., pipped shell but not emerged), embryonic mortality (1st, 2nd, and 3rd wk), and embryonic malposition. The trials involved a total of 2,880 fertile eggs from two broiler breeder lines (Ross 308 and Cobb 500) at two different ages (30 and 50 wk). A 2 x 2 factorial design was used, where the broiler breeder line and broiler breeder age were the main effects. The hatchability in the Ross 308 line was higher than the Cobb 500 line, but its infertility was higher than the Ross 308 line. Hatchability in interaction (50 wk age of the hen in the Cobb 500 line) was less, and their infertility was higher. Embryonic mortality, pipping, and embryonic malposition did not present differences for the interaction between factors. The results suggest that hatchability performance of eggs can be improved, if egg management and incubation procedures are adjusted to account for the interaction between broiler breeder line and broiler breeder age.
Palabras claves	Broiler breeder line; Broiler breeder age; Hatchability; Embryonic mortality

Revista	**JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY**
ISSN	ISSN: 1935-1828
DOI	https://doi.org/10.1002/jctb.7334
Título del Artículo	Effect of phenol concentration on the photocatalytic performance of ZnO nanoparticles
Autores e instituciones de adscripción	López González, Rosendo [1]; de la Fuente, Orbelin [1]; Lezama García, Ruth [1]; López Uribe, Melina del Carmen [2]; Quintana Owen, Patricia [3]; Hidalgo López, María Carmen [4]; Álvarez Lemus, Mayra Angélica [1] [1] Laboratorio de Nanotecnología, División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Cunduacán, Mexico [2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico [3] Departamento de Física Aplicada, CINVESTAV Unidad Mérida, Mérida, Mexico [4] Instituto de Ciencia de Materiales de Sevilla (ICMS), Consejo Superior de Investigaciones Científicas (CSIC)-Universidad de Sevilla, Sevilla, Spain
Resumen	Background: Phenol and its derivatives are considered toxic compounds, even at low concentrations. Their accumulation in water effluents has become a serious problem that could be resolved by using zinc oxide (ZnO)-based photocatalysts. Results: ZnO nanoparticles were synthesized through the precipitation method, using zinc nitrate and sodium carbonate as reagents. The as-synthesized powder was calcined for 4 h at 500 °C (2° C min−1). X-Ray diffraction analysis confirmed a hexagonal crystalline phase (wurtzite) with an average crystallite size of 38 nm. The Kubelka-Munk method was used to determine a band gap of 3.27 eV through UV–Vis diffuse reflectance spectrum and a Brunauer-Emmett-Teller (BET) specific area of 12 m2 g−1 was obtained from N2 adsorption analysis. The photocatalytic activity of ZnO was evaluated under visible light (300 W) lamp, with 1 mg mL−1 of photocatalyst and using phenol solutions at different concentrations of 5, 10, 25, and 50 ppm; the obtained degradation percentages were 98%, 97%, 94%, and 71%, respectively.

Resumen	Three cycles were performed with the ZnO used in the reactions with phenol at 5 and 50 ppm, decreasing the degraded percentages to 87% and 65%, respectively. The generation of hydroxyl radicals was estimated for the ZnO and ZnO samples after three cycles by means of fluorescence spectroscopy analysis. It was observed that the first-used ZnO material generated a significant amount of hydroxyl radicals. Conclusion: When compared to ZnO after three cycles of reaction, the amount of generated hydroxyl radicals decreased. It was observed that the higher the amount of phenol, the lower the generation of hydroxyl radicals after reuse; this was probably due to the presence of some adsorbed by-products of the photocatalytic reaction on the surface of ZnO, as the FTIR spectrum of the post-reaction sample showed. ZnO nanoparticles; phenol degradation; photocatalysis.
Palabras clave	ZnO nanoparticles; phenol degradation; photocatalysis

Revista	**METALS**
ISSN	eISSN 2075-4701
DOI	https://doi.org/10.3390/met13020429
Título del Artículo	Effect of Heat Treatment on the Electrochemical Behavior of AA2055 and AA2024 Alloys for Aeronautical Applications
Autores e instituciones de adscripción	Rivera-Cerezo, Heriberto [1]; Gaona-Tiburcio, Citlalli [1]; Cabral-Miramontes, José [1]; Bautista-Margulis, Raúl German [2]; Nieves-Mendoza, Demetrio [3]; Maldonado-Bandala, Erick [3]; Estupiñán- López, Francisco [1]; Almeraya- Calderón, Facundo [1] [1] Universidad Autónoma de Nuevo León, FIME, Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA), San Nicolás de los Garza 66455, Mexico [2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa 86040, Mexico [3] Facultad de Ingeniería Civil, Universidad Veracruzana, Xalapa 91000, Mexico
Resumen	Since their development, third-generation aluminum–lithium alloys have been used in aeronautical and other applications due to their good properties, replacing conventional Al-Cu and Al-Zn alloys and resulting in an increase in payload and fuel efficiency. The aim of this work was to investigate the influence of different heat treatments on the electrochemical corrosion behavior of the alloys AA2055 and AA2024 in the presence of three different electrolytes at room temperature, using an electrochemical noise (EN) technique in accordance with the ASTM-G199 standard. In the time domain, the polynomial method was employed to obtain the noise resistance (Rn), the localization index (IL), skewness, and kurtosis, and in the frequency domain, employing power spectral density analysis (PSD). The microstructure and mechanical properties of the alloys were characterized using scanning electron microscopy (SEM) and the Vickers microhardness test (HV). The results demonstrated better mechanical properties of the AA2055 alloy, which had a Vickers hardness of 77, 174, and 199 in the heat treatments T0, T6, and T8, respectively. An electrochemical noise resistance (Rn) of 2.72 × 105 Ω·cm2 was obtained in the AA2055 T8 alloy evaluated in a NaCl solution, while the lowest Rn resistance of 2.87 × 101 Ω·cm2 occurred in the AA2024 T8 alloy, which was evaluated in a HCl solution. The highest electrochemical noise resistance (Rn) was obtained in the AA2055 alloys, which had received the T6 and T8 heat treatments in the three solutions.
Palabras claves	Corrosion; electrochemical noise; AA2055 Al-Li alloy; precipitation

Revista	**ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH**
ISSN	ISSN: 0944-1344
DOI	https://doi.org/10.1007/s11356-023-26585-2
Título del Artículo	Effect of Ag content on the nanostructure and antimicrobial activity of CeO2
Autores e instituciones de adscripción	Pérez Jiménez, Limny Esther[1]; Paraguay Delgado, Francisco[2]; Muñoz Castellanos, Laila Nayzzel[3]; Rojas Blanco, Lizeth [1]; López Alejandro, Edicson Macedonio [1]; Ramírez Morales, Erik [4]

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Resumen	The morphological and antibacterial effects of CeO2 nanoparticles (NPs) with different amounts of Ag precursor were studied. The samples were synthesized with different percentages of silver nitrate content by co-precipitation method. The cerium nitrate hexahydrate was a precursor of Ce reagent, polyvinylpyrrolidone as dispersant agent, and ammonium hydroxide as a precipitating agent. The obtained particles were annealed at 400 °C and characterized by X-ray diffraction, scanning electron microscope (SEM), transmission electron microscopy (TEM), and N2 physisorption. The particles show high crystallinity, whose size decreases slightly by the effect of Ag precursor incorporation. These particle morphologies studied by SEM and TEM revealed the spherical shape of CeO2 NPs. Furthermore, the Ag particles were observed with a size of around 30 nm. Selected area electron diffraction patterns confirm the cubic structure of CeO2, also the cubic structure of Ag particles. Besides, it was determined that Ag incorporation has no significant influence on the textural properties of NPs. In addition, the antibacterial activity was evaluated against gram-negative and gram-positive microorganisms. The quantitative results showed that the antimicrobial activity increased depending on the Ag amount incorporated, reaching up to 99.999% of the growing reduction rate.
Palabras claves	Ag-CeO2; Antibacterial activity; Co-precipitation synthesis; Microstructure analysis; P. aeruginosa; S. aureus.

Revista	**JOURNAL OF PARASITOLOGY**
ISSN	ISSN: 1879-0135
DOI	https://doi.org/10.1645/22-44
Título del Artículo	Evaluation of Pelibuey Lambs Born to Mothers Phenotypically Segregated According to Resistance to Gastrointestinal Nematodes in the Humid Tropics of Mexico
Autores e instituciones de adscripción	Zaragoza-Vera, Claudia Virginia [1]; González-Garduño, Roberto [2]; Zaragoza-Vera, Maritza [1]; Arjona-Jiménez, Guadalupe [1]; Ortega-Pacheco, Antonio[3]; Margarito Torres-Chablé, Oswaldo [1] [1] Laboratorio de Enfermedades Tropicales y Transmitidas por Vectores, Division Academica de Ciencias Agropecuarias, Universidad Juárez Autonoma de Tabasco, km. 25, Carretera Villahermosa-Teapa, R/a La Huasteca 2ª. Seccion, C.P. 86298 Villahermosa, Tabasco, Mexico. [2] Unidad Regional Universitaria Sursureste, Universidad Autonoma Chapingo, km 7.5 Carretera Teapa-Vicente Guerrero, C.P. 86800 Teapa, Tabasco, Mexico. [3] Facultad de Medicina Veterinaria y Zootecnia, Campus de Ciencias Biologicas y Agropecuarias, Universidad Autonoma de Yucatán, Km. 15.5, Carretera Merida-Xmatkuil, Apdo. postal 4-116, 97100 Merida, Yucatan, Mexico.
Resumen	The objective was to evaluate the effect of the resistance of ewes to gastrointestinal nematodes (GIN) on the parasitologic and productive performance of their lambs during preweaning and postweaning periods. Offspring from 44 Pelibuey ewes classified as resistant or susceptible to GIN were evaluated. During the preweaning period, birth weight (BW), live weight (LW) at 35 and 70 days of age, and live weight changes (LWC) were determined in 73 lambs. During the postweaning period, 20 lambs to susceptible or resistant ewes were evaluated. The lambs were challenged under natural GIN infections and artificial infection with L3 of Haemonchus contortus. The fecal egg count (FEC), hematocrit (HT), peripheral eosinophil count, plasma protein, LW, and LWC were determined. There were no differences among parameters evaluated during preweaning ($P > 0.05$). The type of lambing (single or multiple) affected the BW, LW, and LWC ($P < 0.01$). The sex (male) of the lamb had a positive effect on BW at 35 and 70 days of age ($P < 0.05$). After weaning, lambs of susceptible ewes showed higher FEC than resistant ewes ($P < 0.05$). The HT of lambs to resistant ewes was higher than those the susceptible group ($P < 0.01$). In conclusion, offspring of resistant ewes show low FEC compared with those susceptible during the postweaning stage.

Palabras clave	Haemonchus contortus; Parasites; resistance; tropical production.

Revista	**BOTANICAL SCIENCES**
ISSN	eISSN: 2007-4476
DOI	https://doi.org/10.17129/botsci.3081
Título del Artículo	Ecogeographical Distribution and Areas of Occupancy of Castilla Elastica Cerv. in Mexico.
Autores e instituciones de adscripción	Montero-Hernández, Diana Beatriz [1]; Vargas-Simón, Georgina [1]; Núñez-Piedra, Manuel Lorenzo [2] [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco [2] El Colegio de la Frontera Sur, Villahermosa, Tabasco
Resumen	Background: Castilla elastica is a tree known since pre-Hispanic times for its latex production. It is an emblematic species for Mexico; imminent deforestation is a threat for its survival in Mexico and Tabasco. Questions: In which ecological conditions is C. elastica distributed in Mexico? In how many areas of occupancy is it located? Studied species: Castilla elastica Cerv. Study site and dates: The Mexico and the state of Tabasco, enero-diciembre 2019. Methods: Records were obtained from different virtual sources and in herbaria, also field visits in Tabasco. The distribution points were geo-referenced, were converted to the shapefile format through the QGis 3.16.16 program. The areas of occupancy (AOO) were calculated according to the Cartographic method by conglomerates. Results: 615 records were obtained. It was found that the species is generally distributed in tropical areas of Mexico, mostly identified in Chiapas; its altitudinal range goes from 0-1,660 m. Associated with 11 soil units, forest ecosystems and agro-ecosystems. The total of the AOO consisted of 43 conglomerates and 20 satellites, which were located mainly in the Gulf of Mexico. Conclusions: Historically, C. elastica has a distribution on both sides in Mexico, prefers warm climates (A), de transition A(C) and Leptosol soils. Current records were established for Tabasco where it is found particularly in cocoa-plantations. The AO with the largest surface corresponds to Campeche, Yucatan, and Quintana Roo, coincides with the area of the Mesoamerican Biological Corridor; this work provides data on their ecological predilections that will serve for their sustainable conservation.
Palabras claves	Agroecosystems, Cartographic methods by Conglomerates, ecological requirements, latex

Revista	**METALS**
ISSN	eISSN 2075-4701
DOI	https://doi.org/10.3390/met13030476
Título del Artículo	Corrosion of Titanium Alloys Anodized Using Electrochemical Techniques
Autores e instituciones de adscripción	Jaquez- Muñoz, Jesús Manuel [1]; Gaona-Tiburcio, Citlalli [1]; Méndez -Ramírez, Ce Tochtli [2]; Baltazar-Zamora, Miguel Ángel [2]; Estupinan -López, Francisco [1]; Bautista-Margulis, Raúl German [3]; Cuevas-Rodríguez, Josefina [2]; Flores de los Ríos, Juan Pablo [4]; Almeraya -Calderón, Facundo [1] [1] Universidad Autónoma de Nuevo León, FIME, Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA), San Nicolás de los Garza 66455, Mexico [2] Facultad de Ingeniería Civil/Facultad de Arquitectura, Universidad Veracruzana, Xalapa 91000, Mexico [3] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa 86040, Mexico [4] Tecnológico Nacional de Mexico-Instituto Tecnológico de Chihuahua, Av. Tecnologico 2909, Chihuahua 31130, Mexico
Resumen	The anodization of titanium has been an excellent option for protecting titanium and its alloys from corrosive environments such as acids and chloride systems, by generating a homogenous oxide layer. The objective of the current investigation was to evaluate the electrochemical corrosion behavior of alloys Ti-6Al-2Sn-4Zr-2Mo and Ti-6Al-4V anodized in 1M H2SO4 and H3PO4 solutions at a current density of 2.5 × 10–3 A/cm2. The anodization's electrochemical characterization was achieved in NaCl and H2SO4 at 3.5% wt. electrolytes. Scanning electron microscopy (SEM) was employed to determine the anodized thickness and morphology.

Resumen	Cyclic potentiodynamic polarization (CPP) and electrochemical impedance spectroscopy (EIS), based on ASTM G61-86 and G106-15 Standards, were the electrochemical techniques mainly employed. The anodized samples presented a change in Ecorr values and a higher passivation zone. The EIS plot showed a higher resistance for samples anodized in H3PO4 and Ti-6Al-2Sn-4Zr-2Mo.
Palabras claves	Titanium; anodized; corrosion; electrochemical impedance spectroscopy; Warburg's diffusion

Revista	**CONSERVATION GENETICS**
ISSN	eISSN: 1572-9737
DOI	https://doi.org/10.1007/s10592-023-01509-2
Título del Artículo	Conservation genetics of the tropical gar Atractosteus tropicus, Lepisosteidae
Autores e instituciones de adscripción	Palacios Mejía, Maura [1,2]; Arias-Rodríguez, Lenin [3]; Arciniega, Martha [4]; Rodríguez, Victoria [1]; Barraza Sandoval, José Enrique [5,6]; Herrera, Néstor [5]; Marroquín Mora, Dora Carolina [7]; Ulloa Rojas, Juan B.. [8]; Marquez Couturier, Gabriel [9]; Voelker, Gary [1]; Tobler, Michael [10]. [1] Department of Ecology and Conservation Biology, Texas A&M University, College Station, TX, USA [2] Biology Department, Mt. San Antonio College, Walnut, CA, USA [3] Division Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México [4] Institute of Marine Sciences, University of California, Santa Cruz, CA, USA [5] Ministerio de Medio Ambiente y Recursos Naturales, San Salvador, El Salvador [6] Universidad Francisco Gavidia, San Salvador, El Salvador [7] Centro de Estudios del Mar y Acuicultura, Universidad de San Carlos, Guatemala City, Guatemala [8] Escuela de Ciencias Biológicas, Universidad Nacional, Heredia, Costa Rica [9] Otot-Ibam La Casa del Pejelagarto, Villahermosa, Tabasco, México [10] Division of Biology, Kansas State University, Manhattan, KS, USA.
Resumen	The tropical gar (Atractosteus tropicus) is the smallest member of the family Lepisosteidae; yet this species has a large socioeconomic impact in México and Central America where it is traditionally harvested commercially and for subsistence. While natural populations of tropical gar have been dwindling throughout its natural range, it is also an emergent aquaculture species that is produced in local hatcheries and grown out in privately owned ponds. The increased pressure on natural populations of A. tropicus and its increasing use in aquaculture production poses potential conflicts for the management and conservation of natural populations. Here, we investigated the population genetic structure of tropical gar populations, including over 200 individuals sampled in México, El Salvador, and Costa Rica. Using 11 microsatellite loci, we identified three genetic clusters with distinct geographic distributions, including a cluster in drainages along the Pacific versant of Central America, a cluster in the Grijalva and Usumacinta River basins that drain into the Gulf of México, and a cluster in the Río San Juan that drains into the Caribbean Sea. Given the degree of divergence observed, these results indicate the potential presence of evolutionary significant units within tropical gar that warrant separate fisheries and conservation management. We also found that tropical gar from an aquaculture facility along the Pacific versant of México were derived from Atlantic versant populations, indicating that individuals have already been translocated across biogeographic boundaries. We discuss how such translocations can negatively impact the natural population structure of tropical gar and provide recommendations for future research and aquaculture practices.
Palabras claves	Aquaculture; Conservation; Gar; Microsatellites; Population genetics; Population structure

Revista	**ANALES DE GEOGRAFÍA DE LA UNIVERSIDAD COMPLUTENSE**
ISSN	ISSN: 0211-9803
DOI	https://dx.doi.org/10.5209/aguc.85944
Título del Artículo	Cambio de uso del suelo y escenarios prospectivos en el Estado de Tabasco (México)

Autores e instituciones de adscripción	Ramos Reyes, Rodimiro [1]; Palomeque de la Cruz, Miguel Ángel [2] [1] Departamento de Observación y Estudio de la Tierra, la Atmósfera y el Océano. Grupo Procesos Oceanográficos y Dinámica de Sistemas Acuáticos. Colegio de la Frontera Sur (ECOSUR). (México). E-mail: rramos@ecosur.mx [2] Laboratorio de Sistemas de Información Geográfica. Cuerpo Académico de Ordenamiento Ecológico y Análisis Socio ambiental. División Académica de Ciencias Biológicas. Universidad Juárez Autónoma de Tabasco (México).
Resumen	Se estudió la evolución de la dinámica espacio temporal en el Estado de Tabasco, en el Sureste de México, mediante Land Change Modeler, y se proyectaron escenarios con Cadenas de Márkov y Autómatas Celulares. Los resultados señalan que durante quince años (2001-2016) se perdieron 76,522 ha de humedales, 18,333 ha de selvas, y 73,591 ha de vegetación secundaria, debido al crecimiento descomunal de 148,129 ha de uso agropecuario, y la expansión de 13,375 ha de zonas urbanas. Además, mediante Cadenas de Markov y Autómatas Celulares (2016-2030), se proyectaron pérdidas de 19,152 ha de humedales, 8,324 ha de selvas, y 10,592 ha de vegetación secundaria. Este escenario demuestra que se mantendrá el incesante crecimiento agropecuario y de zonas urbanas en los próximos años. Este estudio provee información para los modelos de ordenamiento ecológico territorial, debido a que es urgente conservar y restaurar los últimos ecosistemas del sureste de México.
Palabras claves	Humedales; selvas; crecimiento urbano; Land Change Modeler; Cadenas de Markov; Autómatas Celulares.

Revista	**JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS**
ISSN	eISSN: 1573-482X
DOI	https://doi.org/10.1007/s10854-023-10309-w
Título del Artículo	CaTiO3 perovskite synthetized by chemical route at low temperatures for application as a photocatalyst for the degradation of methylene blue
Autores e instituciones de adscripción	García-Mendoza, M. F. [1]; Torres-Ricárdez, R. [1]; Ramírez-Morales, E. [1]; Alvarez-Ramírez, J. G. [1]; Diaz-Flores, L. L. [1]; del Ángel-Meraz, E. [1]; Rojas-Blanco, L. [1]; Pérez -Hernández, G. [1] [1] Universidad Juárez Autónoma de Tabasco, Avenida Universidad S/N, Zona de la Cultura, Col. Magisterial, Centro, 86040 Villahermosa, Tabasco, México
Resumen	CaTiO3 is one of the most versatile oxides of the perovskite family for applications in areas such as electronics, photocatalysis and photovoltaics, due to its properties that it can present, such as ionic conduction, ferroelectric, or photoluminescence. Consequently, the study of the synthesis routes of the material is the fundamental importance. The CaTiO3 powders were synthesized using the sol–gel technique, with different treatment temperatures of 600–1000 °C. The structural, morphological, compositional, and optical properties were analyzed by means of X-ray diffraction (XRD), Raman spectroscopy, scanning electron spectroscopy (SEM), Energy dispersive X-ray (EDX), Fourier transform infrared spectroscopy (FTIR), and UV–Vis spectrophotometry. X-ray diffraction (XRD) indicated the formation of the perovskite phase with an orthorhombic structure from 600 °C with the presence of traces of TiO2 in the anatase and rutile phase, which decreases with increasing heat treatment temperature. The degradation of methylene blue under ultraviolet light irradiation was carried out with the samples that present the highest purity of CaTiO3 treated at 900 and 1000 °C, which were synthesized with an increase in the amount of catalyst and reaction temperature by the sol–gel method, which was viable for obtaining CaTiO3 powders at low temperatures compared to conventional methods for the purpose of applying the photocatalytic degradation of methylene blue, which registered a degradation of up to 97%.
Palabras clave	N/A

Revista	**DIAMOND AND RELATED MATERIALS**
ISSN	ISSN: 0925-9635
DOI	https://doi.org/10.1016/j.diamond.2023.109736
Título del Artículo	CO2 gas sensing properties of graphitic carbon nitride (g-C3N4) thin films
Autores e instituciones de adscripción	Karthik, T. V. K. [1]; Martínez -García, H. [2]; Ortiz-Chi, F. [3]; Espinosa-González, C. G. [3]; Torres-Torres, J. G. [2]; Hernández, A. G. [1]; Godavarthi, S. [3]; Kesarla, M. K.[4] [1] Undergraduate School Campus Tepeji, Industrial Engineering, Autonomous Hidalgo State University, ESTe-UAEH, Av. del Maestro No. 41, Col. Noxtongo 2ª Sección, Tepeji del Rio, Hidalgo C.P. 42855, Mexico [2] Universidad Juárez Autónoma de Tabasco, Centro de Investigación de Ciencia y Tecnología Aplicada de Tabasco (CICTAT), C.P. 86690 Cunduacán, Tabasco, Mexico [3] Investigadoras e Investigadores por México, División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán 86690, Tabasco, Mexico [4] Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, C.P 62210 Cuernavaca, Morelos, Mexico
Resumen	In this work, thin films of graphitic carbon nitride (g-C3N4) obtained at different thermal oxidation temperatures were studied for CO2 sensing abilities. Polycondensation of melamine and simultaneous thermal oxidation were employed to obtain bulk and exfoliated g-C3N4 respectively. Thin films of g-C3N4 for CO2 gas sensing studies were developed by drop casting method. XRD confirms the g-C3N4 structure with (002) preferential orientation and the exfoliation of g-C3N4 was evidenced with the corresponding peak shift. FTIR analysis demonstrated the presence of higher number of amino group functionalization resulted from the exfoliation. 2D lamellar structures resulted from thermal oxidation possess high surface area, pore size and pore volume compared to bulk g-C3N4. Upon exfoliation, a nearly two-fold increase in the Carbon dioxide (CO2) gas sensing response was observed. Highly exfoliated g-C3N4 based sensor registered 80 and 60 s response and recovery times, respectively. CO2 gas sensing mechanism of g-C3N4 sensors was proposed based on the obtained structural and morphological characteristics. Considering the results obtained in this study such as high sensing response, stability, and good repeatability, g-C3N4 in its exfoliated form will be a competitive candidate for future CO2 sensor applications.
Palabras claves	CO2 gas sensing; G-C3N4; Exfoliation; Physicochemical properties

Revista	**CHEMICAL COMMUNICATIONS**
ISSN	ISSN:1359-7345
DOI	https://doi.org/10.1039/D3CC00855J
Título del Artículo	CAl11−: a molecular rotor with a quasi-planar tetracoordinate carbon
Autores e instituciones de adscripción	Bai, Li-Xia [1]; Barroso, Jorge [2]; Orozco-Ic, Mesías [3]; Ortiz-Chi, Filiberto [4]; Guo, Jin-Chang [1]; Merino, Gabriel [1]. 1] Nanocluster Laboratory, Institute of Molecular Science, Shanxi University, Taiyuan 030006, China, [2] Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Unidad Mérida. Km 6 Antigua Carretera a Progreso. Apdo. Postal 73, Cordemex, 97310, Mérida, Yuc, Mexico, [3] Department of Chemistry, Faculty of Science, University of Helsinki, P.O. Box 55, A. I. Virtasen aukio 1, FIN-00014, Helsinki, Finland [4] CONACYT-División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán 86690, Tabasco, Mexico
Resumen	In this work, we analyzed the bonding and fluxional character of the global minimum of CAl11−. Its structure is formed by two stacked layers, one of them resembles the well-known planar tetracoordinate carbon CAl4 on top of a hexagonal Al@Al6 wheel. Our results show that the CAl4 fragment rotates freely around the central axis. The exceptional stability and fluxionality of CAl11− derive from its particular electron distribution. The global minimum of CAl11− is formed by two stacked layers, one of them resembles the well-known planar tetracoordinate carbon CAl4 on top of a hexagonal Al@Al6 wheel. The CAl4 fragment rotates freely around the central axis with a negligible barrier.
Palabras claves	Photoelectron-spectroscopy, Fluxionality, B-19(-), Cluster, Anion, Chemical sciences.

Revista	**PLANTS-BASEL**
ISSN	eISSN 2223-7747
DOI	https://doi.org/10.3390/plants12061374
Título del Artículo	Broad-Spectrum Antifungal, Biosurfactants and Bioemulsifier Activity of Bacillus subtilis subsp. spizizenii—A Potential Biocontrol and Bioremediation Agent in Agriculture
Autores e instituciones de adscripción	Guillen-Navarro, Karina [1]; López -Gutiérrez, Tomas [2]; García-Fajardo, Verónica [1]; Gómez-Cornelio, Sergio [3] [4]; Zarza, Eugenia [1] [5]; De la Rosa-García, Susana [6]; Chan-Bacab, Manuel [7] [1] Grupo Académico de Biotecnología Ambiental, Departamento de Ciencias de la Sustentabilidad, El Colegio de la Frontera Sur Unidad Tapachula, Carretera Antiguo Aeropuerto km 2.5, Tapachula 30700, Chiapas, Mexico [2] Facultad de Ciencias Biologicas, Universidad Autónoma de Campeche, Av. Agustín Melgar s/n, Col. Buenavista, Campeche 24030, Campeche, Mexico [3] Ingeniería en Biotecnología, Universidad Politécnica del Centro, Carretera Federal Villahermosa-Teapa km 22.5, Villahermosa 86290, Tabasco, Mexico [4] Laboratorio de Nanotecnología-CICTAT, División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Carr. Cunduacán-Jalpa de Méndez km 1, Cunduacán 86690, Tabasco, Mexico [5] Investigadora CONACyT—El Colegio de la Frontera Sur. Av. Insurgentes Sur 1582, Col. Crédito Constructor, Benito Juárez, Mexico City 03940, Mexico City, Mexico [6] Laboratorio de Microbiología Aplicada, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas km 0.5, Villahermosa 86000, Tabasco, Mexico [7] Departamento de Microbiología Ambiental y Biotecnología, Universidad Autónoma de Campeche, Av. Agustín Melgar s/n, Col. Buenavista, Campeche 24030, Campeche, Mexico
Resumen	In this study, the antifungal, biosurfactant and bioemulsifying activity of the lipopeptides produced by the marine bacterium Bacillus subtilis subsp. spizizenii MC6B-22 is presented. The kinetics showed that at 84 h, the highest yield of lipopeptides (556 mg/mL) with antifungal, biosurfactant, bioemulsifying and hemolytic activity was detected, finding a relationship with the sporulation of the bacteria. Based on the hemolytic activity, bio-guided purification methods were used to obtain the lipopeptide. By TLC, HPLC and MALDI-TOF, the mycosubtilin was identified as the main lipopeptide, and it was further confirmed by NRPS gene clusters prediction based on the strain's genome sequence, in addition to other genes related to antimicrobial activity. The lipopeptide showed a broad-spectrum activity against ten phytopathogens of tropical crops at a minimum inhibitory concentration of 400 to 25 µg/mL and with a fungicidal mode of action. In addition, it exhibited that biosurfactant and bioemulsifying activities remain stable over a wide range of salinity and pH and it can emulsify different hydrophobic substrates. These results demonstrate the potential of the MC6B-22 strain as a biocontrol agent for agriculture and its application in bioremediation and other biotechnological fields.
Palabras claves	bioemulsifier; biosurfactants; antifungal activity; lipopeptide

Revista	**COMMUNICATION & SOCIETY-SPAIN**
ISSN	ISSN 0214-0039
DOI	https://doi.org/10.15581/003.36.1.113-126
Título del Artículo	A Multilevel Analysis of the representations of Technology in Years and Years
Autores e instituciones de adscripción	Zermeño Flores, Ana Isabel [1]; Cornelio Mari, Elia Margarita [2] [1] Universidad de Colima [2] Univ. Juárez Autónoma de Tabasco
Resumen	The analysis of science fiction narratives is valuable to explore possible futures. This article analyzes the representation of technology in the television series Years and Years (2019), a co-production by the BBC and HBO created by Russell T Davies. This audiovisual narrative depicts key problems of the present in a representation of the near future, enabling the identification of new socio-technological paradigms. We applied the method of Causal Layered Analysis (CLA), a prospective analytical tool used both for the study of diverse current phenomena and for the design of possible futures, which includes the levels of the litany, systemic causes, discourse/world vision, and myth/metaphor. The analysis showed that Years and Years offers a vision of a world in chaos, based on a global capitalist and technological project that threatens fundamental rights, and the existence of the human species. In the series, technologies are imbibed in all the fundamental systems of Western societies, pushing common people into obsolescence.

Resumen	Three narratives uphold the myth of the dominion of science and technology: the technological transcendence of human beings, the irrelevance of humans before technology, and the ubiquitous panopticon of digitized power. Through its bleak version of the future Y&Y puts into focus aspects of technological development that make us reflect critically and urgently about the present
Palabras claves	Representations of technology; television series; science fiction; Causal Layered Analysis; visions of the future.

Revista	**PLANTS-BASEL**
ISSN	eISSN 2223-7747
DOI	https://doi.org/10.3390/plants12040820
Título del Artículo	3′-Demethoxy-6-O-Demethylisoguaiacin and Norisoguaiacin Nematocidal Lignans from Artemisia cina against Haemonchus contortus Infective Larvae
Autores e instituciones de adscripción	Higuera-Piedrahita, Rosa Isabel [1]; Dolores-Hernández, Mariana [1]; de la Cruz-Cruz, Héctor Alejandro [1]; López-Arellano, Raquel [1]; Mendoza-de Gives, Pedro [2]; Olmedo-Juárez, Agustín [2]; Cuellar-Ordaz, Jorge Alfredo [1]; González -Cortázar, Manases [3]; Ble-González, Ever A. [4]; López-Arellano, María Eugenia [2]; Zamilpa, Alejandro [3]. [1] Facultad de Estudios Superiores Cuautitlán, Universidad Nacional Autónoma de México, Cuautitlán 54714, Mexico [2] Centro Nacional de Investigación Disciplinaria en Salud Animal e Inocuidad, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Jiutepec 62574, Mexic [3] Centro de Investigación Biomédica del Sur, Instituto Mexicano del Seguro Social, Argentina No. 1, Centro, Xochitepec 62790, Mexico [4] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa Km. 0.5, Cunduacán 86690, Mexico
Resumen	Artemisia cina is a plant used in traditional Chinese medicine as a remedy for parasitic diseases. This study describes the isolation and chemical characterization of anthelmintic compounds of A. cina against Haemonchus contortus infective larvae (L3) through lethal testing. Previously, three extracts—n-hexane (HexAc), ethyl acetate (EtOAc) and methanol (MeOAc)—were evaluated at concentrations of 4 to 0.5 mg/mL, resulting in the HexAc extract with the greatest effect of 76.6% mortality of the larvae at 4 mg/mL. Then, this was chemically fractioned by polarity, obtaining seven fractions (C1F1–C1F7), and, when evaluated at concentrations from 2 to 0.25 mg/mL, the 2 mg/mL C1F5 fraction produced an effect against the nematode H. contortus of 100% mortality of the larvae. Thus, this fraction was fractionated again by column chromatography, obtaining twelve subfractions (C2F1–C2F12) which were evaluated from 1 to 0.125 mg/mL, with the C2F5 subfraction causing a nematicidal effect of 100% mortality. NMR analysis of one (1H, 13C and DEPT) and two dimensions (COSY, HSQC and HMBC) and mass spectrometry of this fraction allowed us to identify the mixture of 3′-demethoxy-6-O-demethylisoguaiacin and norisoguaiacin. Therefore, it can be assumed that the mixture of these compounds is responsible for the anthelmintic effect. These results indicate that A. cina containing anthelmintic compounds and might be used as an antiparasitic drug against H. contortus.
Palabras claves	Artemisia cina; isoguaiacin; norisoguaiacin; lignans; Haemonchus contortus.

Revista	**EDUCATION SCIENCES**
ISSN	eISSN 2227-7102
DOI	https://doi.org/10.3390/educsci13040370
Título del Artículo	Language Learning Investment in Higher Education: Validation and Implementation of a Likert-Scale Questionnaire in the Context of Compulsory EFL Learning
Autores e instituciones de adscripción	Dauzon-Ledesma, Leonor [1]; Izquierdo, Jesús [1] [1] División Académica de Educación y Artes, Universidad Juárez Autónoma de Tabasco, Ave Universidad S/N, Villahermosa 86040, Tabasco, Mexico
Resumen	Second language learning investment relates to the willingness and effort of learners to develop language competencies which will give them a good return in terms of personal or professional benefits. Research has often explored learning investment through learners in the target language context or language teachers.

Resumen	This study, however, explores learning investment with undergraduate learners who are obligated to learn English as a foreign language, regardless of their future profession. To this end, a Likert-scale questionnaire was first designed to examine four investment dimensions which have been identified in previous qualitative research: motivation, necessity, engagement and agency. For validity and reliability purposes, the questionnaire was administered to six second language research professors and 41 students who completed three compulsory English courses in a BA in Inclusive Education. Content, construct and convergent validity procedures were implemented to test the investment dimensions. Regarding reliability, equivalent forms were used to check the stability of answers and to avoid primacy and fatigue effects. In addition, internal consistency and inter-item correlations were checked through Cronbach Alpha coefficients. After the validity and reliability procedures, the four dimensions of learning investment were explored among the language learners. The statistical analyses revealed favorable motivation and engagement results. Nonetheless, they raised some concerns regarding necessity and agency.
Palabras claves	Learning investment; language learning; higher education; motivation; needs; engagement; agency; L2 quantitative research

Revista	**SCIENTIFIC REPORTS**
ISSN	eISSN 2045-2322
DOI	https://doi.org/10.1038/s41598-023-34171-2
Título del Artículo	Identification and phenotypic characterization of patients with LADA in a population of southeast Mexico
Autores e instituciones de adscripción	Nolasco-Rosales, Germán Alberto[1]; Ramírez-González, Dania [1]; Rodríguez-Sánchez, Ester [2]; Ávila-Fernández, Ángela [1]; Villar-Juárez, Guillermo Efrén [3]; González-Castro, Thelma Beatriz [4]; Tovilla-Zárate, Carlos Alfonso [5]; Guzmán-Priego, Crystell Guadalupe [1]; Genis-Mendoza, Alma Delia [6]; Blé-Castillo, Jorge Luis [1]; Marín-Medina, Alejandro [7]; Juárez-Rojop, Isela Esther [1] [1] División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México. [2] Hospital Regional de Alta Especialidad "Gustavo A. Rovirosa Pérez", Villahermosa, Tabasco, México. [3] Escuela de Medicina, Universidad Anáhuac Querétaro, Querétaro, Querétaro, México. [4] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Jalpa de Méndez, Tabasco, México. [5] División Académica Multidisciplinaria de Comalcalco, Universidad Juárez Autónoma de Tabasco, Comalcalco, Tabasco, México. [6] Departamento de Genética Psiquiátrica, Instituto Nacional de Medicina Genómica, Mexico City, México. [7] Universidad de Guadalajara, CUCS, Guadalajara, Jalisco, México.
Resumen	Latent autoimmune diabetes in adults (LADA) has clinical and metabolic features of type 1 and type 2 diabetes. LADA does not have specific features for its diagnosis apart from autoantibody detection; however, these tests are not affordable in clinical settings. In this cross-sectional study, we analyzed clinical criteria, metabolic control, pharmacological treatment, and diabetic complications in two groups of patients with diabetes -LADA and T2D- in order to identify specific characteristic of these clinical entities. Finally, we evaluated if the estimated glucose disposal rate (eGDR) and age at diagnosis of diabetes could be used as a diagnostic criterion for LADA. Demographic, biochemical, clinical and treatment were measured in 377 individuals with diabetes. The diagnostics of LADA were determined using Glutamic acid decarboxylase autoantibodies levels. Chi-square test or t-Student test were used to establish differences between groups. To identify factors associated with LADA, a logistic regression analysis was used. Finally, a ROC curve was plotted to assess the possible variables as diagnostic criteria for LADA. The 377 patients with diabetes were separated into 59 patients with LADA and 318 patients with T2D. Patients with LADA showed lower fasting glucose values, fewer diabetic complications, younger age at diagnosis of diabetes, higher insulin use, and higher eGDR in comparison to patients with T2D. Both groups had a mean BMI classified as overweight. The ROC evaluated the sensitivity and specificity, this analysis indicated that an age younger than 40.5 years and an eGDR value higher than 9.75 mg/kg/min correlated better with LADA. These parameters could be useful to identify patients suspected to have LADA at the first level of medical care in the population of southeastern Mexico and refer them to a second level of care.
Palabras claves	Biochemistry; Biomarkers; Endocrinology; Medical research

Revista	**REVISTA COLOMBIANA DE CIENCIAS PECUARIAS**
ISSN	eISSN: 2256-2958
DOI	https://doi.org/10.17533/udea.rccp.v36n2a4
Título del Artículo	Comparison of mathematical models to estimate live weight from heart girth in growing Pelibuey sheep
Autores e instituciones de adscripción	Canul-Solís, Jorge-Rodolfo [1]; Portillo-Salgado, Rodrigo [2]; García-Herrera, Ricardo -A. [3]; Castillo-Gallegos, Epigmenio [4]; Castillo-Sánchez, Luis -Enrique [1]; Camacho-Pérez, Enrique [5]; Chaves-Gurgel, Antonio -Leandro [6]; Marques-Costa, Carolina [7]; Bezerra-Fernandes, Patrick [7]; Chay-Canul, Alfonso-Juventino [3] [1] Tecnológico Nacional de México/ Instituto Tecnológico de Tizimín, Tizimín, Yucatán, México. [2] Colegio de Postgraduados - Ciudad Nezahualcóyotl, México, México. [3] División Académica de Ciencias Agropecuarias. Universidad Juárez Autónoma de Tabasco: Villahermosa, Tabasco, México. [4] Universidad Nacional Autónoma de México, Facultad de Medicina Veterinaria y Zootecnia, Centro de Enseñanza, Investigación y Extensión en Ganadería Tropical. [5] Tecnológico Nacional de México/Instituto Tecnológico de Progreso, Progreso, Yucatán, México. [6] Universidade Federal do Piauí, Campus Professora Cinobelina Elvas, Bom Jesus, Piauí, Brasil. [7] Universidade Federal de Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brasil.
Resumen	Background: Assessment of animal growth based on live weight (LW) in traditional sheep production systems is limited by the high cost of purchase and maintenance of livestock scales. Objective: To develop and evaluate equations for LW prediction using heart girth (HG) in growing Pelibuey sheep. Methods: A dataset (n=415) of clinically healthy male Pelibuey sheep from two months to one year of age, with an average LW of 25.96 ± 10.25 kg and HG of 68.31 ± 10.53 cm, were used. Three equations were evaluated: LW (kg) = −37.70 + 0.93 × HG (Eq. 1); LW (kg) = −1.74 + 0.19 × HG + 0.008 × HG2 (Eq. 2); and LW (kg) = 0.003 × HG2.68 (Eq. 3). Results: The correlation coefficient between LW and HG was r = 0.94 (p0.05). On the other hand, for Eqs. 1 and 3 the intercept was different from zero and the slope was different from one (p<0.05). Conclusion: The second-degree equation accurately and precisely estimated body weight of growing Pelibuey sheep using the HG as a sole predictor variable.
Palabras clave	Alternative forages; caprine; chemical composition; chickpea; feed; goats; hay; legumes; Mexico; milk; sunflower

Revista	**JOURNAL OF ALLOYS AND COMPOUNDS**
ISSN	ISSN: 0925-8388
DOI	https://doi.org/10.1016/j.jallcom.2023.170623
Título del Artículo	ZIF-8 derived carbon/g-C3N4 – an all-carbon heterojunction for effective photo-decontamination of Cr(VI) from water
Autores e instituciones de adscripción	Román Abarca, María Esperanza[1] [2]; Kar, Tathagata [1]; Casales-Díaz, Maura [1]; Ramos-Hernández, José Juan [1]; Godavarthi, Srinivas [3]; Pineda-Aguilar, Nayely [4]; Contreras, Víctor [5]; Calixto-Rodríguez, Manuela [2]; Kesarla, Mohan Kumar [1] [1] Laboratorios de Ciencia de Materiales, Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, Morelos, Cuernavaca, C.P. 62210, Mexico [2] Universidad Tecnologica Emiliano Zapata del Estado de Morelos (UTEZ), Av. Universidad Tecnologica, No. 1, Col. Palo Escrito, Emiliano Zapata, Mor, 62760, Mexico [3] Investigadoras e Investigadores por México, División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Tabasco, Cunduacán, 86690, Mexico. [4] Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), Subsede Monterrey, Parque de Investigación e Innovación Tecnológica, Apodaca, Mexico [5] Laboratorio de Óptica y Acústica, Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, C.P. 62210 Cuernavaca, Morelos, Mexico.
Resumen	Carbon-based heterojunctions, because of their low toxicity and non-polluting properties, are considered as metal-free alternatives to the traditional metal oxide semiconductors for energy and environmental applications especially in acidic conditions. In this work, an all-carbon heterojunction using exfoliated graphitic carbon nitride (GCN) and porous carbon derived from zeolitic imidazolate framework (CZ8) is developed for chromium (VI) decontamination.

Resumen	The enhanced charge-transfer in the GCN:CZ8 heterojunctions, due to the suppressed electron-hole pair recombination, is evidenced from photoluminescence (PL) spectroscopy, transient photocurrent (TP) measurements and electrochemical impedance spectroscopy (EIS). This phenomenon significantly contributes towards improving the photo-induced decontamination of the noxious Cr(VI). Moreover, the band gap of the optimized GCN:CZ8 heterojunction is 2.48 eV which is relatively narrow than that of the GCN (2.79 eV). Nearly 100 % removal is achieved with the as-synthesized GCN:CZ8 heterojunction even with chromium solution of 100 ppm concentration. The X-Ray photoelectron spectroscopy (XPS) results suggest the facile reduction of Cr(VI) to Cr(III) under the influence of incident photons, and most importantly, the performance efficiency of the heterojunction is maintained ~100 % up to five continuous cycles. Herein, the optimized GCN:CZ8 heterojunction is established as a potential material towards efficient decontamination of Cr(VI) from water.
Palabras claves	All-carbon heterojunction; Charge-transfer; Chromium (VI) removal; Metal-free photocatalysis; Photo-decontamination.

Revista	**REVISTA BIO CIENCIAS**
ISSN	ISSN 2007-3380
DOI	https://doi.org/10.15741/revbio.10.e1461
Título del Artículo	Wild mammals of the Sierra de Tabasco State Park, Tabasco, Mexico.
Autores e instituciones de adscripción	Gordillo-Chávez, E. J. [1]; Bello-Gutiérrez, J. [1]; Villanueva-García, C. [1]; García-Morales, R. [2] [1] División Académica de Ciencias Biológicas. Universidad Juárez Autónoma de Tabasco.Villahermosa, Tabasco, México. [2] Centro del Cambio Global y la Sustentabilidad AC. Villahermosa, Tabasco, México.
Resumen	In México, terrestrial mastofauna is represented by 522 species, 146 of which are found in Tabasco state. It is worthwhile to contribute to the regional mastofauna knowledge in areas that have been scarcely studied, especially in conservation areas. This research aimed to create a wild mammal record present in the Sierra de Tabasco State Park (STSP), for which nine sampling sites were established in which direct and indirect methods were used to survey mammal species. Nine orders, 25 families, 60 genera, and 69 species were recorded, of which 20 are listed in some risk category according to NOM-059 and the IUCN. Bats (Order: Chiroptera) are the best-represented group with 31 species. Forty-seven percent of the mammal species in the state are found in the STSP, making it the most mammal-rich protected area in the state. The present study provides updated information on the biological knowledge of mastofauna in the STSP that could permit the designing of better conservation strategies, policies, and plans for the sustainable use of mammals in the region.
Palabras claves	Protected area, Chiroptera, Conservation, Wildlife surveys

Revista	**JOURNAL OF CRUSTACEAN BIOLOGY**
ISSN	ISSN: 0278-0372
DOI	https://doi.org/10.1093/jcbiol/ruad024
Título del Artículo	Variations in the activity of proteolytic and lipidic enzymes of wild and cultured individuals of the prawn Macrobrachium tenellum Smith, 1871 (Decapoda: Caridea: Palaemonidae) fed with different diets
Autores e instituciones de adscripción	Martínez-Salazar, Nathali [1]; de los Santos-Romero, Rodolfo [2]; Álvarez-González, Carlos Alfonso [3]; Martínez-García, Rafael [3]; García-Guerrero, Marcelo U. [2] [1] Laboratorio de Acuacultura Experimental, Instituto Politécnico Nacional CIIDIR Unidad Oaxaca, Santa Cruz Xoxocotlán, 71230, Oaxaca, Mexico [2] Laboratorio de Acuacultura y Limnología, Instituto Tecnológico del Valle de Oaxaca, Ex-Hacienda de Nazareno, Santa Cruz Xoxocotlán, 71230, Oaxaca, Mexico [3] Laboratorio de Fisiología en Recursos Acuáticos, DACBiol, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico

Resumen	The freshwater longarm river prawn (Macrobrachium tenellum Smith, 1871) is common in the coastal lagoons and freshwater bodies of the Mexican Pacific region. Its potential for aquaculture has been investigated recently, including evaluating its nutritional needs by investigating the digestive enzymatic activity of wild and culture individuals. We collected wild prawns from three different habitats and fed two laboratory-prepared diets and a commercial food for two months. The levels of lipase, trypsin, and leucine aminopeptidase were measured at the time of sampling and after one and two months of culture. Survival and growth were also recorded. It was observed that food consumption during culture causes a significant increase in growth and survival as well as a tendency towards an increase in the digestive enzymatic activity with time. The habitat of origin can also influence performance in digestion from the start.
Palabras claves	Proteolytic Enzymes; Macrobrachium; Decapoda; Shrimps; Digestive Enzymes; Nutritional Requirements

Revista	**JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY**
ISSN	eISSN: 1588-2926
DOI	https://doi.org/10.1007/s10973-023-12222-0
Título del Artículo	Unsteady numerical modeling, experimental validation and optimization of a solar air heater based on the second law of thermodynamics using genetic algorithm
Autores e instituciones de adscripción	Espinosa, Gustavo [1]; Ibáñez, Guillermo [1]; López, Aracely [1]; Lastres, Orlando [1]; Reyes-Nava, Juan [1]; Pantoja, Joel [2] [1] Universidad de Ciencias y Artes de Chiapas, Libramiento Norte Poniente No. 1150, Col. Lajas Maciel, C.P. 29000, Tuxtla Gutiérrez, Chiapas, Mexico [2] Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico
Resumen	Solar air heaters have a low thermal performance and it is necessary to improve their efficiency. The objective is to find operating conditions with the minimum losses of useful energy by selecting optimal design parameters. For this purpose, an unsteady mathematical model was developed based on six coupled differential equations from the energy balances of six collector components. The equations were solved numerically using Runge-Kutta-Fehlberg method with an iterative code in MATLAB. In the solution procedure, unlike most previous works, the solar heater was divided into differential volume elements of length Δx and optimal time step size was determined at each integration step. The numerical results were validated with experimental data of a built prototype and good agreements were obtained. The results revealed that the exergy efficiency was improved up to 1.1 times when the absorber thickness decreased from 0.001 to 0.0005 m, while the highest value of efficiency increased 3 times when the side frame thickness varied from 0.015 to 0.035 m. Also, for a mass flow of 0.0017 kg s−1, the useful exergy and outlet temperature reached their maximum values of 6.7 W and 58 °C, respectively. Moreover, the genetic algorithm technique was used to obtain an optimal set of heater geometric parameters with maximum exergy gain. An optimal heater area of 1.72 m2 was found. Finally, three models were defined to quantify the effects of different combinations of geometric parameters and materials. It was found that model III improved the highest value of exergy efficiency by 6 and 4% compared to models I and II, respectively. A constant maximum value of 7% between 10 and 16 h was achieved.
Palabras claves	Solar air heater; Heat transfer; Exergy efficiency; Genetic algorithm; Optimization

Revista	**JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY**
ISSN	ISSN: 0268-2575
DOI	https://doi.org/10.1002/jctb.7341
Título del Artículo	Titanium dioxide nanostructures doped with nickel and its performance in photocatalytic reduction of 4-nitrophenol
Autores e instituciones de adscripción	Álvarez Lemus, Mayra A. [1]; Jiménez Rodríguez, Ariana Lizbeth [1]; García Mendoza, Cinthia [1]; Lezama García, Ruth [1]; García Zaleta, David S.[2]; Frías Márquez, Dora M.[1]; Quintana Owen, Patricia[3]; López González, Rosendo [1]

Autores e instituciones de adscripción	[1] Laboratorio de Nanotecnología, División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Tabasco, Mexico [2] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Tabasco, Mexico [3] Departamento de Física Aplicada, CINVESTAV Unidad Mérida, Mérida, Mexico
Resumen	Background: In this work, we investigated the effect of nickel on the photocatalytic properties of TiO2 nanostructures. The photocatalysts were obtained in a two-stage procedure. First, the sol–gel method was used for obtaining TiO2 and Ni-TiO2 at 1.0 wt% of Ni, which was then followed by hydrothermal treatment under highly alkaline conditions with NaOH at 110°C. Results: The obtained powders were thermally treated at 400°C. The main crystalline phase was anatase for all the samples, and a lower Eg value was estimated for the Ni/TiO2 sample (3.13 eV). The specific BET areas were obtained from N2 isotherms at 77 K, being 141 and 153 m2/g for pure TiO2 and 1.0% Ni-TiO2 samples, respectively. Scanning electron microscopy confirmed the rod shape of the particles with diameters between 10 and 20 nm and length between 100 and 400 nm. X-ray photoelectron spectroscopy analysis showed the presence of oxygen vacancies and surface hydroxyl oxygen species in all samples, but in a higher ratio for the Ni/TiO2-HT-400 sample. The photocatalytic test was performed using two different radiation sources: 254 nm and a simulated solar lamp (300 W), for the photoreduction of 4-nitrophenol to 4-aminophenol, which was followed by UV–vis spectroscopy. Conclusions: The Ni/TiO2-HT-400 sample showed a high efficiency, reaching 100% reduction after 15 min (simulated solar radiation) and 40 min (λ = 254 nm) after the first cycle, while for the second cycle these values decreased to 63% and 78%, respectively. The increase in the photocatalytic reduction of TiO2 nanostructures was achieved mainly through the presence of oxygen vacancies along with the decrease in electron–hole recombination.
Palabras claves	TiO2 nanotubes; hydrothermal method; photocatalytic; reduction 4-nitrophenol

Revista	**PATHOGENS**
ISSN	eISSN: 2076-0817
DOI	https://doi.org/10.3390/pathogens12030368
Título del Artículo	The Low Variability of Tc24 in Trypanosoma cruzi TcI as an Advantage for Chagas Disease Prophylaxis and Diagnosis in Mexico
Autores e instituciones de adscripción	Becker, Ingeborg[1]; Miranda-Ortiz, Haydee[2]; Fernández-Figueroa, Edith A.[3]; Sánchez-Montes, Sokani[1][4]; Colunga-Salas, Pablo[1],[5]; Grostieta, Estefanía[1]; Juárez-Gabriel, Javier[1],[4]; Lozano-Sardaneta, Yokomi N.[1]; Arce-Fonseca, Minerva[6]; Rodríguez-Morales, Olivia[6]; Meneses-Ruíz, Gabriela[7]; Pastén-Sánchez, Sergio[7]; Martínez, Irma López[7]; González-Guzmán, Saúl[8],[9]; Paredes-Cervantes, Vladimir[10]; Moreira, Otacilio C.[11]; Finamore-Araujo, Paula[11]; Canseco-Méndez, Julio C.[2]; Coquis-Navarrete, Uriel[3]; Rengifo-Correa, Laura[12]; González-Salazar, Constantino[12]; Alfaro-Cortés, Myrna M.[13]; Falcón-Lezama, Jorge A.[14]; Tapia-Conyer, Roberto[15]; Stephens, Christopher R.[12] [1] Centro de Medicina Tropical, Unidad de Investigación en Medicina Experimental, Facultad de Medicina, Universidad Nacional Autónoma de México, Mexico City 04510, Mexico [2] Unidad de Secuenciación, Instituto Nacional de Medicina Genómica, Mexico City 14610, Mexico [3] Departamento de Genómica Poblacional, Instituto Nacional de Medicina Genómica, Mexico City 14610, Mexico [4] Laboratorio de Diagnóstico, Facultad de Ciencias Biológicas y Agropecuarias Región Poza Rica-Tuxpan, Universidad Veracruzana, Tuxpan de Rodríguez Cano 92870, Mexico [5] Instituto de Biotecnología y Ecología Aplicada, Universidad Veracruzana, Xalapa de Enríquez 91090, Mexico [6] Department of Molecular Biology, National Institute of Cardiology "Ignacio Chávez", Mexico City 14080, Mexico [7] Departamento de Parasitología, Instituto de Diagnóstico y Referencia Epidemiológicos, Secretaría de Salud, Mexico City 01480, Mexico [8] Laboratorio del Banco Central de Sangre del Centro Médico Nacional "La Raza", Instituto Mexicano del Seguro Social, Mexico City 02990, Mexico [9] Departamento de Investigación, Hospital Regional de Alta Especialidad de Zumpango, Zumpango 55600, Mexico [10] Unidad de Investigación Médica en Inmunología e Infectología, Hospital de Infectología, Centro Médico Nacional "La Raza", Instituto Mexicano del Seguro Social, Mexico City 02990, Mexico [11] Laboratorio de Biología Molecular e Doencas Endêmicas, Instituto Oswaldo Cruz, Fiocruz 21040900, RJ, Brazil [12] Centro de Ciencias de la Complejidad, Universidad Nacional Autónoma de México, Mexico City 04510, Mexico [13] Fundación Carlos Slim, Mexico City 11529, Mexico [14] División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa 86100, Mexico [15] Facultad de Medicina, Universidad Nacional Autónoma de México, Mexico City 04510, Mexico

Resumen	(1) Background: Chagas disease is the main neglected tropical disease in America. It is estimated that around 6 million people are currently infected with the parasite in Latin America, and 25 million live in endemic areas with active transmission. The disease causes an estimated economic loss of USD 24 billion dollars annually, with a loss of 75,200 working years per year of life; it is responsible for around ~12,000 deaths annually. Although Mexico is an endemic country that recorded 10,186 new cases of Chagas disease during the period of 1990–2017, few studies have evaluated the genetic diversity of genes that could be involved in the prophylaxis and/or diagnosis of the parasite. One of the possible candidates proposed as a vaccine target is the 24 kDa trypomastigote excretory–secretory protein, Tc24, whose protection is linked to the stimulation of T. cruzi-specific CD8+ immune responses. (2) Methods: The aim of the present study was to evaluate the fine-scale genetic diversity and structure of Tc24 in T. cruzi isolates from Mexico, and to compare them with other populations reported in the Americas with the aim to reconsider the potential role of Tc24 as a key candidate for the prophylaxis and improvement of the diagnosis of Chagas disease in Mexico. (3) Results: Of the 25 Mexican isolates analysed, 48% (12) were recovered from humans and 24% (6) recovered from Triatoma barberi and Triatoma dimidiata. Phylogenetic inferences revealed a polytomy in the T. cruzi clade with two defined subgroups, one formed by all sequences of the DTU I and the other formed by DTU II–VI; both subgroups had high branch support. Genetic population analysis detected a single (monomorphic) haplotype of TcI throughout the entire distribution across both Mexico and South America. This information was supported by Nei's pairwise distances, where the sequences of TcI showed no genetic differences. (4) Conclusions: Given that both previous studies and the findings of the present work confirmed that TcI is the only genotype detected from human isolates obtained from various states of Mexico, and that there is no significant genetic variability in any of them, it is possible to propose the development of in silico strategies for the production of antigens that optimise the diagnosis of Chagas disease, such as quantitative ELISA methods that use this region of Tc24.
Palabras claves	Chagas disease; Tc24; population genetics; DTUs; molecular epidemiology

Revista	**TERRA LATINOAMERICANA**
ISSN	ISSN: 2395-8030
DOI	https://doi.org/10.28940/terra.v41i0.1116
Título del Artículo	Soil fertility and nutrition in cacao cultivation Theobroma cacao L. in three soils of Tabasco, Mexico
Autores e instituciones de adscripción	Francisco-Santiago, Sandra Patricia [1]; Palma-López, David Jesús [2]; Sánchez-Hernández, Rufo [3]; Obrador-Olán, José Jesús [2]; García-Alamilla, Pedro [3] [1] Colegio de Postgraduados, Campus Tabasco, Estudiante de Maestría, [2] Colegio de Postgraduados, Campus Tabasco, Profesor Investigador. Carretera Cárdenas-Huimanguillo km 3.5, Periférico Carlos A. Molina. 86500 Heroica Cárdenas, Tabasco, México [3] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Agropecuarias. Carretera Villahermosa-Teapa km 25.1, Ranchería la Huasteca 2da sección. 86298, Villahermosa, Tabasco, México.Editor de Sección: Dr. Francisco Bautista Zuñiga
Resumen	Cocoa is a traditional crop in southern Mexico, although its productivity is low due to edaphic and nutritional limitations. Hence, the aim of our research was to diagnose edaphic fertility and the nutritional content of cacao plantations in the main groups of cultivated soils in La Chontalpa, the main cocoa production area of Tabasco state, to identify the edaphic and nutritional variables that restrict crop productivity. Through the analysis of satellite images, sampling sites were selected in representative soils of the study area and the coordinates were geopositioned to locate them. Soil profiles were described to classify the soils of the sampling sites. Soil samples were collected at depths of 0-10, 10-30 and 30-50 cm, to determine variables of soil fertility. In producer trees, foliar samples were collected to determine the concentrations of macronutrients. The results indicate that the plantations are cultivated on Vertisols, Cambisols and Fluvisols, which do not show restrictions in most of the edaphic properties. However, due to the low C/N ratio (< 12) of the soils, there is a decrease in the OM and N contents, which are added to a K deficit, causing low concentrations of both macronutrients in the foliage of the plants. In conclusion, the main edaphic restrictions that can affect cocoa cultivation in La Chontalpa are the rapid loss of OM and a deficit of N and K in the soil, which cause low concentrations of both nutrients in the foliage of the trees.

Palabras claves	Agroforestry, foliar nutrition, Chontalpa region, tropical soils

Revista	**JOURNAL OF FOOD AND NUTRITION RESEARCH**
ISSN	ISSN: 1336-8672
DOI	https://www.researchgate.net/publication/371686221_Sensory_physico-chemical_and_microbiological_characterization_of_coffee_substitute_based_on_Brosimum_alicastrum
Título del Artículo	Sensory, physico-chemical and microbiological characterization of coffee substitute based on Brosimum alicastrum.
Autores e instituciones de adscripción	Durán-Mendoza, Temani [1]; Ramírez-Muñoz, Ingrid Y. [1]; Pérez-Sánchez, Carolina C. [1]; Guzmán-Ceferino, Juan[1]; May-Gutiérrez, Martha E. [1]; Acosta-Maas, Gabriel E. [1]; De La Cruz-Leyva, María C. [1]; Hernández-Garfias, Enrique.[1] [1] Universidad Juárez Autónoma de Tabasco,
Resumen	For health or personal reasons, alternatives to the Coffea arabica drink are being investigated. In this work, a coffee substitute based on Brosimum alicastrum seeds was developed and characterized. Two drying and roasting methods were applied, namely, solar dehydration with solar roasting (M1) and solar dehydration with oven roasting (M2). Three treatments were formulated: T1 (417 g·kg-1 M1 and 417 g·kg-1 M2), T2 (500 g·kg-1 M1 and 334 g·kg-1 M2) and T3 (334 g·kg-1 M1 and 500 g·kg-1 M2). Physico-chemical properties and palatability were evaluated using a randomized design. The microbiological properties met the limits established by the corresponding Mexican standards. T1, T2 and T3 had average pH 5.7 and water activity aw of 0.5. No differences were in moisture, ash, protein and fibre (P > 0.05). T2 and T3 presented higher content of fat (43 g·kg-1 and 46 g·kg-1; P < 0.05). Absence of coliforms and fungi was observed. The hedonic test indicated that M2 conferred sensory characteristics to T3, registering the same palatability as commercial coffee. It is concluded that with an adequate treatment, the seeds of Brosimum alicastrum can be a substitute for coffee.
Palabras claves	Brosimum alicastrum; breadnut; coffee substitute

Revista	**BUILDINGS**
ISSN	EISSN 2075-5309
DOI	https://doi.org/10.3390/buildings13041009
Título del Artículo	Seismic Damage *Semaphore* Based on the Fundamental Period Variation: A Probabilistic Seismic Demand Assessment of Steel Moment-Resisting Frames
Autores e instituciones de adscripción	Díaz, Sergio A. [1]; Pinzón, Luis A. [2] [3]; Vargas-Alzate, Yeudy F. [4]; Mora-Ortiz, René S. [1] [1] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco 86040, Mexico [2] Scientific and Technological Research Center, Universidad Católica Santa María La Antigua, Panama City 0819, Panama [3] Sistema Nacional de Investigación (SNI), Secretaría Nacional de Ciencia, Tecnología e Innovación (SENACYT), Panama City 0824, Panama [4] Departament d'Enginyeria Civil y Ambiental, Universitat Politècnica de Catalunya Barcelona Tech (UPC), 08034 Barcelona, Spain
Resumen	During strong earthquakes, structural damage usually occurs, resulting in a degradation of the overall stiffness of the affected structures. This degradation produces a modification in the dynamic properties of the structures, for instance, in the fundamental period of vibration (T1). Hence, the variation of T1 could be used as an indicator of seismic structural damage. In this article, a seismic damage assessment in four generic typologies of steel buildings was carried focused on verifying the variation of T1. To do so, several seismic damage states were calculated using the maximum inter-story drift ratio, MIDR, and following the Risk-UE guidelines. Then, a series of probabilistic nonlinear static analyses was implemented using Monte Carlo simulations. The probabilistic approach allows one to vary the main mechanical properties of the buildings, thus analyzing in this research 4000 buildings (1000 building samples for each of the four generic typologies). The variation of T1 was estimated using the capacity spectrum, and it was related to the MIDR for each damage state. As a main result of this study, the expected variation of T1 for several damage states is provided. Finally, a proposal for a seismic damage preventive "semaphore" and fragility curves are presented. These results may be useful as parameters or criteria in the evaluation of on-site structural monitoring for steel buildings.

Palabras claves	fragility curves; fundamental period; maximum inter-story drift ratio; preventive “semaphore”; steel buildings

Revista	**MODERN STOCHASTICS-THEORY AND APPLICATIONS**
ISSN	ISSN:2351-6054
DOI	https://doi.org/10.15559/23-VMSTA226
Título del Artículo	Ruin probabilities as functions of the roots of a polynomial
Autores e instituciones de adscripción	David J. Santana [1]; Luis Rincón [2] [1] División Académica de Ciencias Básicas, UJAT, Carretera Cunduacán-Jalpa KM. 1, Cunduacán, 86690, Tabasco, México [2] Departamento de Matemáticas, Facultad de Ciencias, UNAM, Circuito Exterior de CU, CDMX 04510 México
Resumen	A new formula for the ultimate ruin probability in the Cramér–Lundberg risk process is provided when the claims are assumed to follow a finite mixture of m Erlang distributions. Using the theory of recurrence sequences, the method proposed here shifts the problem of finding the ruin probability to the study of an associated characteristic polynomial and its roots. The found formula is given by a finite sum of terms, one for each root of the polynomial, and allows for yet another approximation of the ruin probability. No constraints are assumed on the multiplicity of the roots and that is illustrated via a couple of numerical examples.
Palabras claves	RRuin probability; Cramér–Lundberg risk model; Erlang mixture distribution, recurrence sequences

Revista	**ARQUIVO BRASILEIRO DE MEDICINA VETERINARIA E ZOOTECNIA**
ISSN	ISSN: 1678-4162
DOI	https://doi.org/10.1590/1678-4162-12902
Título del Artículo	Relationship between body weight and scrotal circumference in growing Pelibuey sheep raised under tropical conditions
Autores e instituciones de adscripción	Ramírez-Bautista, M. A.[1]; Cruz-Tamayo, A. A.[2]; Gastélum-Delgado, M. Á.[3]; Aguilar-Quiñónez, J. A.[3]; Tyasi, T. L.[4]; Gurgel, A. L. C.[5]; García-Herrera, R. A.[6]; Chay-Canul, A. J.[6] 1] Tecnológico Nacional de México/Instituto Tecnológico de Chiná, Chiná, Campeche, México [2] Facultad de Ciencias Agropecuarias, Universidad Autónoma de Campeche, Escárcega, Campeche, México. [3] Facultad de Agronomía, Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México [4] Department of Agricultural Economics and Animal Production, University of Limpopo, South Africa [5] Universidade Estadual de Maringá, Maringá, Paraná, Brasil [6] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Tabasco, México
Resumen	The body weight (BW) of an animal is a vital economic trait that might help in decision-making in the handling of animals. The objective of the present study was to develop equations for the prediction of BW in Pelibuey sheep using scrotal circumference (SC). The BW (23.40 ± 6.96 kg) and SC (20.25 ± 6.19 cm) have been recorded in 405 male Pelibuey at the Southeastern Center for Ovine Integration, Mexico. Linear, logarithmic, quadratic, exponential, cubic, and power regression models were used for data analysis. Pearson correlation (R), Coefficient of determination (R2), Adjusted coefficient of determination (Adj.R2) Root mean square error (RMSE), Akaike information criterion (AIC), and Bayesian information criterion (BIC) were used to select the best model. Power regression model showed the highest R (0.93), R2 (0.86), Adj.R2 (0.86) and lowest RMSE (0.02), AIC (-989.44) and BIC (-981.44). The current study suggests that SC might be used as the only predictor for BW of growing Pelibuey sheep raised under tropical conditions.
Palabras clave	Body weight estimation; Pelibuey lambs; mathematical models; regression models

Revista	**REVISTA FITOTECNIA MEXICANA**
ISSN	ISSN 0187-7380
DOI	https://doi.org/10.35196/rfm.2023.2.203
Título del Artículo	Reproductive Behavior of Theobroma cacao In Southeastern Mexico
Autores e instituciones de adscripción	Torres –de la Cruz, Magdiel [1]; Ortiz-García, Carlos Fredy [2]; Lagunes-Espinoza, Luz del Carmen [2]; Gaspar-Génico, José Ángel [1]; Leiva-Espinoza, Santos Triunfo [3]; Oliva-Cruz, Segundo Manuel [3] [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Villahermosa, Centro, Tabasco, México. [2] Colegio de Postgraduados, Campus Tabasco, H. Cárdenas, Tabasco, México. [3] Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Instituto de Investigación para el Desarrollo Sustentable de Ceja de Selva, Chachapoyas, Perú.
Resumen	Cacao (Theobroma cacao) is one of the main agricultural crops in Southeastern Mexico. Currently, there is no comprehensive study on reproductive behavior that allows efficient agronomic management. The objective of this study was to characterize the reproductive behavior of T. cacao ecotype Mexican Trinitario Complex in Southeastern Mexico. The number of open flowers, new fruits, fruits of 2 to 7 cm, fruits larger than 7 cm, green fruits and ripe fruits were accounted every week for one year in five plantations. The behavior of the variables was described and the relationship of those variables with temperature and relative humidity was analyzed. The reproductive period spanned the whole year. The flowering pattern was annual, with maximum flowering from April to August. The percentage of flowers that developed into fruits was 6.7 %. The period of maximum amount of fruits of 2 to 7 cm was shown from August to September and the period of highest number of fruits larger than 7 cm was from August to November. The highest number of green fruits was recorded from October to December and the highest number of ripe fruits occurred in November and December. Temperatures above 25 °C showed positive Spearman correlation with the density of open flowers (ρ = 0.68 to 0.81) and new fruits (ρ = 0.41 to 0.54); however, relative humidity negatively correlated with these variables, ρ = -0.36 to -0.65 and ρ = -0.31 to -0.47, respectively. The period of larger quantity of green and ripe fruits negatively correlated with flowering and new fruits. The proposed phenological pattern may be indicative of T. cacao trends in the region. This study could be the basis for comparing clones and planning crop management strategies.
Palabras claves	Theobroma cacao; flowering; pods; reproductive phenology

Revista	**BIOSCIENCE JOURNAL**
ISSN	ISSN 1981-3163
DOI	https://doi.org/10.14393/BJ-v39n0a2023-67626
Título del Artículo	Relationships Between Body Mass Index, Ultrasound Measurements and, Internal Body Fat Depots in Pelibuey Sheep.
Autores e instituciones de adscripción	Salazar-Cuytun, Rosario [1]; Herrera-Camacho, José [2]; García-Herrera, Ricardo A. [2]; Pozo-Leyva, Dixam [3]; Gurgel, Antonio Leandro Chaves [4]; Ítavo, Luís Carlos Vinhas [5]; dos Santos, Geraldo Tadeu [4]; Chay-Canul, Alfonso J.[1]; [1] Academic Division of Agricultural Sciences, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. [2] Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico. [3] Campus Tecnológico Nacional de Mexico I.T. de la Zona Maya, Quintana Roo, Mexico. [4] Department of Animal Science, Universidade Estadual de Maringá, Maringá, Paraná, Brazil. [5] Faculty of Veterinary Medicine and Animal Science, Universidade Federal do Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brazil
Resumen	The objective of this study was to evaluate the relationship between body mass index (BMI), ultrasound measurements (USM), and internal fat (IF) in hair sheep. The BMI and USM were determined 24 hours before laughter in 35 animals finished in intensive fattening. At slaughter, the IF (inner adipose tissue) was dissected, weighed, and grouped as mesenteric, omental, or perirenal fat; these three depots were summed to obtain their total weight. The relationship of the variables was evaluated through Pearson's correlation coefficient (r) using the CORR procedure and by regression models using the REG procedure of SAS ver. 9.3. The IF and BMI presented r= 0.75 (P <.0001), while the IF and USM presented an r that varied from 0.70 to 0.80 (P <.0001).

Resumen	Among the internal fat deposits, the perirenal was the one that presented minor correlation coefficients with BMI (r = 0.55), subcutaneous fat thickness (0.55), and thoracic Longissimus dorsi area) (r = 0.33), and for this, the last correlation was not significant (P>0.05). The regression equation between IF and BMI had a coefficient of determination (r2) of 0.67 (P <.0001). The inclusion of the subcutaneous fat thickness together with the BMI improved the r2 with a range of 0.77. The BMI and the subcutaneous fat thickness could be used to predict the weight of the internal fat in hair sheep.
Palabras claves	Body mass index. Body fat. Energy reserves. Ultrasound measurements.

Revista	**REVISTA DE INVESTIGACIONES VETERINARIAS DEL PERÚ**
ISSN	ISSN 1609-9117
DOI	https://doi.org/10.15381/rivep.v34i2.23474
Título del Artículo	Productive performance and economic analysis of intensive fattening of lambs treated with injectable zeranol and androgens under tropical conditions
Autores e instituciones de adscripción	Luna-Palomera, Carlos [1]; Sánchez-Romero, David [2]; Cervantes-Hernández, Ramsés [2]; Maldonado-García, Noel Mauricio [1]; Orlanzzini Rodríguez, Juan Enrique [3]; Cano-Ascencio, Leonel [4] [1] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Tabasco, México. [2] PE Medicina Veterinaria y Zootecnia, División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Tabasco, México. [3] Productores y Comercializadores de Productos Agrícolas, Pecuarios y Acuícolas SPR de RL de CV, México. [4] Secretaria del Bienestar, Gobierno de México. México.
Resumen	The aim of this study was to compare the productive performance and profitability of the fattening of Kathadin male and female lambs (n=97) in confinement treated with Zeranol (ZNL), androgens (AND) and ZNL+AND under a 2x4 factorial design. The lambs treated with ZNL received 0.2 mg/kg of body weight (BW) every 28 d, those treated with AND received Nandrolone Decanoate + Trenbolone + Boldenone Undecinelate, via IM in doses of 0.3 mg/kg + 0.4 mg/kg + 0.3 mg/kg of BW, respectively, every 28 d, those treated with ZL+AND received the same doses of the mentioned drugs, while those in the control group received 0.5 ml of saline solution. Final body weight (FBW), daily weight gain (DWG), feed conversion (FC) on dry basis (DM) and wet basis (WM), and voluntary intake (VC) in DM and WM were evaluated. The FBW was different (p<0.05) between treatments in males and females. The DWG was higher (p<0.05) for females treated with AND compared to those treated with ZNL and AND+ZNL, being the latter similar to those of the control group. Females treated with AND registered a lower (p<0.05) VC compared to those treated with ZNL and AND+ZNL. Net utility, benefit: cost ratio and profitability were better in animals treated with AND. The administration of AND represents a viable alternative to make more efficient the confinement fattening systems of lambs.
Palabras claves	Anabolic steroids; androgens; profitability; hair lambs

Revista	**JOURNAL OF DAIRY RESEARCH**
ISSN	ISSN: 1469-7629
DOI	https://doi.org/10.1017/s0022029923000249
Título del Artículo	Predicting live weight using body volume formula in lactating water buffalo
Autores e instituciones de adscripción	Ramos-Zapata, Remedio [1]; Domínguez-Madrigal, Camila [1]; García-Herrera, Ricardo-A. [1]; Camacho-Pérez, Enrique [2]; Lugo-Quintal, Jesús Manuel [3]; Tyasi, Thobela Louis [4]; Chaves Gurgel, Antonio Leandro [5]; Vinhas Ítavo, Luís Carlos [6]; Juventino Chay-Canul, Alfonso [1] [1] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Tabasco, México. [2] Facultad de Ingeniería, Universidad Autónoma de Yucatán, Mérida, Yucatán, México. [3] Tecnológico Nacional de México, Instituto Tecnológico de Progreso, Progreso, Yucatán, México [4] Department of Agricultural Economics and Animal Production, University of Limpopo, Sovenga, Limpopo, South Africa. [5] Campus Professora Cinobelina Elvas, Universidade Federal do Piauí, Bom Jesus, Piauí, Brasil [6] Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brasil

Resumen	Live weight (LW) is an important piece of information within production systems, as it is related to several other economic characteristics. However, in the main buffalo-producing regions in the world, it is not common to periodically weigh the animals. We develop and evaluate linear, quadratic, and allometric mathematical models to predict LW using the body volume (BV) formula in lactating water buffalo (Bubalus bubalis) reared in southeastern Mexico. The LW (391.5 ± 138.9 kg) and BV (333.62 ± 58.51 dm3) were measured in 165 lactating Murrah buffalo aged between 3 and 10 years. The goodness-of-fit of the models was evaluated using the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), coefficient of determination (R2), mean-squared error (MSE) and root MSE (RMSE). In addition, the developed models were evaluated through cross-validation (k-folds). The ability of the fitted models to predict the observed values was evaluated based on the RMSEP, R2, and mean absolute error (MAE). LW and BV were significantly positively and strongly correlated ($r = 0.81$; $P < 0.001$). The quadratic model had the lowest values of MSE (2788.12) and RMSE (52.80). On the other hand, the allometric model showed the lowest values of BIC (1319.24) and AIC (1313.07). The Quadratic and allometric models had lower values of MSEP and MAE. We recommend the quadratic and allometric models to predict the LW of lactating Murrah buffalo using BV as a predictor
Palabras claves	Biometric measurements; body weight; Bubalus bubalis; humid tropics; mathematical models

Revista	**REVISTA DE INVESTIGACIONES-UNIVERSIDAD DEL QUINDIO**
ISSN	ISSN: 1794-631X
DOI	https://doi.org/10.33975/riuq.vol35n1.1229
Título del Artículo	Organizational and Contextual Support for the Promotion of Stem Vocations. Psychometrics of a Measurement Scale
Autores e instituciones de adscripción	Magaña-Medina, Deneb Elí [1]; Aguilar-Morales, Norma [1]; Hernández-Mena, Verónica [1] [1] Universidad Juárez Autónoma de Tabasco, Tabasco, México.
Resumen	Introduction: The objective of the study was the psychometric validation of a self-made scale to measure the perception of organizational and contextual support for the promotion of STEM disciplines (science, technology, engineering, and mathematics for its acronym) for high-level student's upper middle. Method: The questionnaire was administered to paper and pencil anonymously and each participant gave their informed consent at the beginning of the questionnaire. A deterministic sampling was carried out on 390 students who met the inclusion criteria. Results: For content validity, experts were consulted on the subject, and construct validity was estimated by performing an exploratory factor analysis (EFA), using the maximum likelihood factor extraction method with direct oblimin rotation, and reporting loads. factorials greater than 0.5. To validate the theoretical model, a Confirmatory Factor Analysis (CFA) was carried out in the same way, which allowed demonstration of the validity of the previously obtained structure, but with adjustments. The fit indicators of the measurement model were estimated ($\chi 2= 15.20$, $gl= 8$, $p > 0.055$, SRMR=0.05, AGFI=0.96, RMSEA 0.04 IC90[0.00-0.08], TLI=0.98, and CFI=0.99)., whose values obtained, as well as those of reliability, are considered acceptable according to the standards reported in the literature. Discussion or Conclusion: The measurement model is corroborated with adjustments to the theoretical structure according to what is reported in the adjustment indicators of both exploratory and confirmatory factor analysis. The results present an important contribution in the measurement of the elements that contribute to the promotion of vocations in STEM disciplines. From a methodological perspective, a consistent tool is proposed for the measurement of the defined constructs.
Palabras clave	STEM; psychometric properties; organizational; contextual support.

Revista	**CERAMICS INTERNATIONAL**
ISSN	ISSN: 0272-8842
DOI	https://doi.org/10.1016/j.ceramint.2023.05.009
Título del Artículo	Microwave-assisted hydrothermal synthesis of type II ZnSe/ZnO heterostructures as photocatalysts for wastewater treatment
Autores e instituciones de adscripción	Arellano-Cortaza, M. [1]; Ramírez-Morales, E. [1]; Castillo, S. J. [2]; Lartundo-Rojas, L. [3]; Zamudio-Torres, I. [1]; López Alejandro, E. M. [1]; Rojas-Blanco, L. [1] [1] Universidad Juárez Autónoma de Tabasco, Avenida Universidad s/n Zona de la Cultura, Colonia Magisterial, CP 86690, Villahermosa Centro, Tabasco, Mexico [2] Departamento de Investigación en Física, Universidad de Sonora, Blvd. Luis Encinas y Rosales S/N, Hermosillo, Sonora, 83000, Mexico [3] Instituto Politecnico Nacional, Centro de Nanociencias y Micro Nanotecnologías, Av. Luis Enrique Erro S/N, U.P. Adolfo Lopez Mateos, Gustavo A. Madero, C.P. 07738, Ciudad de Mexico, Mexico.
Resumen	The ZnSe/ZnO heterostructures were synthesized with the microwave-assisted hydrothermal method, using zinc acetate and zinc nitrate as a source of Zn2+ ions. Materials were characterized by X-ray diffraction (XRD), X-ray photoemitted electron spectroscopy (XPS), Raman spectroscopy, and scanning electron microscopy (SEM). The incorporation of ZnSe into the ZnO matrix produced changes both in the size of the ZnO crystallites and in the lattice parameters. Optical and texture analyses revealed that ZnSe particles cause a decrease in gap energy and a greater than 90% increase in the specific surface area of ZnSe/ZnO heterostructures compared to bare ZnO particles. ZnSe/ZnO heterostructures synthesized using zinc acetate as a Zn ion source exhibited better photocatalytic performance in visible light compared to pure ZnO.
Palabras claves	Heterostructure; Photocatalyst; Semiconductors; Zinc oxide; Zinc selenide.

Revista	**ACTA ICHTHYOLOGICA ET PISCATORIA**
ISSN	ISSN 1734-1515
DOI	https://doi.org/10.3897/aiep.53.102643
Título del Artículo	Microfibers in the gut of invasive armored catfish Pterygoplichthys spp. Actinopterygii: Siluriformes: Loricariidae in an urban lake in the floodplain of the Grijalva River basin, Mexico
Autores e instituciones de adscripción	Angulo-Olmos, Gabriela [1]; Álvarez-Pliego, Nicolás [2]; Sánchez, Alberto J. [2]; Florido, Rosa [2]; Salcedo, Miguel Ángel [2]; Garrido-Mora, Arturo [2]; Cruz-Ramírez, Allan K. [2] [1] Programa de Maestría en Ciencias Ambientales, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico [2] Diagnóstico y Manejo de Humedales Tropicales, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico
Resumen	The intake of microplastics by freshwater fishes has been scarcely studied, and it is not yet clear whether the amount of particles these vertebrates ingest is associated with their feeding strategies. Hence, this study is focused on the suckermouth armored catfish (Pterygoplichthys spp.) under the hypothesis that, due to its detritivorous habits and demersal distribution, it may show evidence of the presence of microplastics in the sediments of a lake located in the Metropolitan Area of Villahermosa. A total of 21 organisms contained plastic microfibers throughout their digestive systems. These were treated with three solutions (hydrogen peroxide, potassium hydroxide, and sodium hypochlorite) to separate the microplastics. A total of 147 plastic particles of two categories were collected: microfibers (92%) and fragments (8%). Considering these results, as well as evidence in the literature, these species may constitute a global indicator of the incorporation into the trophic chain of microfibers deposited in the sediments of freshwater ecosystems.
Palabras claves	Cosmopolitan, demersal, detritivorous, freshwater, invasive, Loricariidae, microfibers, non-native

Revista	**BOLETÍN DE LA SOCIEDAD GEOLÓGICA MEXICANA**
ISSN	ISSN: 1405-3322
DOI	http://dx.doi.org/10.18268/BSGM2023v75n2a280323
Título del Artículo	Magnetism and color as indicators of changes in soil by stubble burning
Autores e instituciones de adscripción	Iniesta-Martínez, Lizeth [1]; García-Ruiz, Rafael [2]; Sánchez, Rufo [3]; Goguitchaichvili, Avto [2]; Bautista, Francisco. [1] [1] Laboratorio Universitario de Geofísica Ambiental, Centro de Investigaciones en Geografía Ambiental, Universidad Nacional Autónoma de México, Michoacán, México. [2] Laboratorio Universitario de Geofísica Ambiental, Instituto de Geofísica, Universidad Nacional Autónoma de México, Michoacán, México. [3] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Tabasco, México.
Resumen	Agricultural burning is a common practice in sugarcane plantations in Mexico that exerts positive and negative effects on the soil. However, there is no consensus on the soil changes caused by the burning, thus highlighting the need to study this phenomenon through low-cost and quick-to-analyze indicators. Magnetic and color techniques can be indirect, fast, and cheap methods that can help to understand the chemical changes that agricultural burning causes to soils. We aim to evaluate the color and magnetic susceptibility of the soil as indicators of changes caused by agricultural burning. The study was carried out on a Vertisol grown with sugarcane in Tabasco, Mexico. Soil samples were taken at ten sites within the plot, at each site soil samples were collected every two centimeters up to 20 cm of soil depth, before and after agricultural burning. In total, 200 soil samples were analyzed. Temperatures were recorded during agricultural burning at 0, 2, and 5 cm depths. The parameters and color indices were analyzed in the CIE-L*a*b* system in the soil samples, and the high and low-frequency magnetic susceptibility were measured with Bartington MS2 equipment. After agricultural burning, the soils showed increased dark tones at four centimeters depth. Also, magnetic parameters showed changes in soil for the 4 cm in depth after the agricultural burning. The results show that color and magnetic susceptibility are efficient soil properties for identifying soil modifications caused by agricultural burning. In this case study, the effect of agricultural burning on sugarcane crops was short-term and shallow in the soil.
Palabras claves	Magnetic Susceptibility; CIE-L*a*b*; RGB; Redness Index; Vertisol.

Revista	**REVISTA DE GESTAO E SECRETARIADO-GESEC**
ISSN	e-ISSN: 2178-9010
DOI	https://doi.org/10.7769/gesec.v14i6.2325
Título del Artículo	Latin America and its role in international trade
Autores e instituciones de adscripción	Martínez Prats, Germán. [1] [1] Doctor en Gobierno y Administración Pública, Universidad Juárez Autónoma de Tabasco, Av Universidad, s/n, Magisterial, 86040, Villahermosa, Tab., México.
Resumen	El comercio internacional ha desempeñado un papel fundamental en el desarrollo económico de América Latina. En este artículo, se realiza un análisis exhaustivo de la evolución del comercio internacional en la región, así como de los desafíos que enfrenta. En primer lugar, se examina el crecimiento significativo que ha experimentado el comercio internacional en América Latina en las últimas décadas. Se destacan los avances en la apertura económica, la firma de acuerdos comerciales y la participación en cadenas de valor globales como factores clave en este crecimiento. Se destaca la importancia de los recursos naturales, la industria manufacturera y los servicios como pilares fundamentales de la actividad comercial. El presente trabajo tiene como objetivo el describir a través de una metodología cualitativa como se desarrolla el comercio internacional en América latina y el impacto que este tiene en los países que la conforman.
Palabras claves	América Latina, Comercio Internacional, Economía, Recursos

Revista	**HERITAGE**
ISSN	ISSN: 2571-9408
DOI	https://doi.org/10.3390/heritage6050226
Título del Artículo	Lacquer and Imitation Lacquer Folding Screens in New Spain
Autores e instituciones de adscripción	Ocaña-Ruiz, Sonia I. [1] [1] División Académica de Ciencias Sociales y Humanidades, Universidad Juárez Autónoma de Tabasco, Villahermosa 86180, Mexico.
Resumen	Folding screens were very popular in New Spain beginning in the late 16th century. From the second half of the 17th century on, many Chinese and some European lacquer folding screens circulated in New Spain, inspiring the development of Novohispanic lacquer, imitation lacquer, and Chinese-style folding screens. The decorative technique of these Novohispanic folding screens has not been studied, but evidence suggests that some of them were made with techniques that have pre-Columbian roots, others with European lacquer techniques, and others still with paint and varnish adapted to produce a shiny surface resembling that of Asian lacquer. Thus, 18th-century New Spain was the place where there was the widest variety of lacquer folding screens in the world. Hitherto this variety has remained unnoticed, but studying it is essential to understand to what extent the globalization of the taste for lacquer gave rise to innovative solutions in the Americas.
Palabras claves	folding screens; lacquer; painting; New Spain; Novohispanic; biombo; Mexican lacquer; maque.

Revista	**MATTER**
ISSN	ISSN: 2590-2385
DOI	https://doi.org/10.1016/j.matt.2023.02.014
Título del Artículo	Joining and arrangement of multilayers: A string representation for honeycomb layered materials
Autores e instituciones de adscripción	Arcudia, Jessica [1]; Ortíz-Chi, Filiberto [2]; Sánchez-Valenzuela, Adolfo [3]; Aspuru-Guzik, Alán ; Merino, Gabriel. [1] [1]. Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Unidad Mérida, km 6 Antigua carretera a Progreso, Apdo Postal 73, Cordemex, Mérida 97310, Yucatan, Mexico [2] Investigador por México-División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán, Tabasco, México [3] Centro de Investigación en Matemáticas A.C. Unidad Mérida, km 5.5 Carretera Sierra Papacal - Chuburná Puerto, Mérida 97302, Yucatán, México [4] Department of Chemistry, University of Toronto, Toronto, ON, Canada
Resumen	Here, we introduce the joining and arrangement of multilayers (JAM) notation, a new and straightforward way to represent stacking sequences in highly symmetric honeycomb-lattice layered materials via character strings, using only chemical and geometrical information. JAM is a robust language that exploits the symmetry of these extended systems allowing us to mathematically propose two well-defined rules to find all possible non-equivalent stacking configurations, given the number of layers. An open-source algorithm for automating the JAM construction by applying the proposed rules is introduced. JAM is the first step in transcribing layered materials into a character set for more accurate identification of stacking sequences.
Palabras claves	stacking; honeycomb layered materials; 2D materials; notation; algorithm; strings

Revista	**SOFTWAREX**
ISSN	ISSN: 2352-7110
DOI	https://doi.org/10.1016/j.softx.2023.101452
Título del Artículo	JMetaBFOP: A tool for solving global optimization problems

Autores e instituciones de adscripción	García-López, Adrián [1]; Chávez-Bosquez, Oscar [1]; Hernández-Torruco, José [1]; Hernández-Ocaña, Betania. [1] [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias y Tecnologías de la Información, 86690 Cunduacán, Tabasco, Mexico
Resumen	The Two-Swim Modified Bacterial Foraging Optimization Algorithm (TS-MBFOA) is a bio-inspired algorithm that emulates the foraging behavior of E. Coli bacteria to solve optimization problems. JMetaBFOP (Bacterial foraging-based METAheuristics for Optimization Problems) is a framework implementing the TS-MBFOA processes as a library to solve optimization problems with preloaded constraints or defined by the end user. This paper presents the framework's design using the Unified Modeling Language (UML), the implementation of a user interface (UI) in the Java platform, and the use of a mathematical expression evaluator called mXparser. JMetaBFOP allows faster calibration of TS-MBFOA parameters with the help of the UI; it eases the experimental design setup, visualization, and evaluation of feasible and optimal results for different optimization problems with constraints, such as benchmarks and particular problems. The framework was tested in 24 test problems with results: competitive in 14 problems, feasible in 7 ones, and no feasible solutions in 3 highly constrained problems. JMetaBFOP is an open-source project available on the GitHub platform.
Palabras claves	Global optimization; Metaheuristics; Framework

Revista	**PLANTS-BASEL**
ISSN	EISSN 2223-7747
DOI	https://doi.org/10.3390/plants12132440
Título del Artículo	Intra- and Interspecies Differences of Two Cecropia Species from Tabasco, Mexico, Determined through the Metabolic Analysis and H-1-NMR-Based Fingerprinting of Hydroalcoholic Extracts
Autores e instituciones de adscripción	Medrano-Sánchez, Eric Jaziel [1]; Hernández-Bolio, Gloria Ivonne [2]; Lobato-García, Carlos Ernesto [1]; González-Cortazar, Manasés [3]; Antunez-Mojica, Mayra [4]; Gallegos-García, Ammy Joana [5]; Barredo-Hernández, Cristian Octavio [1]; López-Rodríguez, Ricardo [1]; Aguilar-Sánchez, Nelly Cristina [6]; Gómez-Rivera, Abraham. [1] [1] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa Km. 0.5, Cunduacán 86690, Tabasco, Mexico [2] Departamento de Física Aplicada, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, Unidad Mérida, Antigua Carretera a Progreso Km. 6, Mérida 97310, Yucatán, Mexico [3] Centro de Investigación Biomédica del Sur, Instituto Mexicano del Seguro Social, Argentina No. 1, Col. Centro, Xochitepec 62790, Morelos, Mexico [4] CONACYT-Centro de Investigaciones Químicas-IICBA, Universidad Autónoma del Estado de Morelos, Avenida Universidad 1001, Chamilpa, Cuernavaca 62209, Morelos, Mexico [5] División de Ciencias Básicas e Ingeniería, Universidad Popular de la Chontalpa-Carretera Cárdenas-Huimanguillo Km 2 S/N, Ranchería, Invitab Paso y Playa, Heroica, Cárdenas 86556, Tabasco, Mexico [6] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Carretera Estatal Libre Villahermosa Comalcalco Km 27 S/N, Ranchería Rivera Alta, Jalpa de Méndez 86205, Tabasco, Mexico
Resumen	The genus Cecropia is used in the traditional medicine of Tabasco, Mexico, in diabetes and hypertension treatments, mainly without distinction of the species. This contribution aimed to carry out the metabolic analysis and Proton Nuclear Magnetic Resonance (1H-NMR) spectroscopy-based fingerprinting of the hydroalcoholic leaf extracts of Cecropia peltata (Cp) and Cecropia obtusifolia (Co) collected in five sub-regions of the State of Tabasco (Cp1, "Centro"; Cp2, "Chontalpa"; Cp3, "Pantanos"; Cp4, "Ríos" and Co5, "Sierra"). Firstly, the extracts were evaluated for their Total Phenol Content (TPC) and Total Flavonoid Content (TFC) by spectrophotometric methods. In addition, metabolic analysis was performed using High-Performance Liquid Chromatography with Diode-Array Detection HPLC–DAD, which allowed the quantification of the chemical markers: chlorogenic acid, isoorientin, and orientin, as well as a vitexin analog. Finally, metabolomic analysis was carried out based on the 1H-NMR spectra. The Cp4 extract (C. peltata from the "Ríos" sub-region) presented the highest values of TPC (155 ± 9.1 mg GAE/g E) and TFC (724 ± 22.2 mg RE/g E). The metabolic analysis was similar among the five samples; the highest concentrations of the four chemical markers were found in Cp3 (C. peltata from the "Pantanos" sub-region) for chlorogenic acid (39.8 ± 2.3 mg/g) and isoorientin (51.5 ± 2.9 mg/g), in Cp4 for orientin (49.9 ± 0.6 mg/g), and in Cp2 (C. peltata from the "Chontalpa" sub-region) for the vitexin analog (6.2 ± 0.2 mg/g).

Resumen	The metabolic analysis and the 1H-NMR fingerprint analysis showed intraspecies differences among the C. peltata samples and interspecies between C. peltata and C. obtusifolia, which were attributed to variations in the metabolite groups as well as in the proportion of sugars such as glucose and xylose.
Palabras claves	Cecropia peltata; Cecropia obtusifolia; metabolomic profile; chemical markers

Revista	**RSC ADVANCES**
ISSN	ISSN: 2046-2069
DOI	https://doi.org/10.1039/D3RA01910A
Título del Artículo	Improvement of photocatalytic activity in the degradation of 4-chlorophenol and phenol in aqueous medium using tin-modified TiO2 photocatalysts
Autores e instituciones de adscripción	Rangel-Vázquez, I. [1]; Del Ángel, G. [2]; Ramos-Ramírez, E. [1]; González, F. [3]; Acevedo-Peña, Próspero [4]; Gómez, C. Martínez [1]; Tzompantzi, F. [2]; Gutiérrez-Ortega, Norma [5]; Torres-Torres, J. G. [6] [1] Departamento de Química, División de Ciencias Naturales y Exactas, Campus Guanajuato de la Universidad de Guanajuato, Noria Alta s/n, Col. Noria Alta, Gto, Guanajuato, Mexico E-mail: efren35200390@gmail.com [2] Departamento de Química, Av. Ferrocarril San Rafael Atlixco, Núm. 186, Col. Leyes de Reforma 1 A Sección, Alcaldía Iztapalapa, Ciudad de México, México [3] Departamento de Ingenieria de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, Av. Ferrocarril San Rafael Atlixco, Núm. 186, Col. Leyes de Reforma 1 A Sección, Alcaldía Iztapalapa, Ciudad de México, México [4] CONACYT-Laboratorio Nacional de Conversión y Almacenamiento de Energía CICATA-Legaria, Instituto Politecnico Nacional, Calzada Legaria 694. Col. Irrigación, Ciudad de México, Mexico [5] División de Ingenierias, Departamento de Ingeniería Civil y Ambiental, Universidad de Guanajuato, Gto, Guanajuato, Mexico [6] Universidad Juárez Autónoma de Tabasco, Laboratorio de Nanomateriales Catalíticos Aplicados al Desarrollo de Fuentes de Energía y de Remediación Ambiental, Centro de Investigación de Ciencia y Tecnología Aplicada de Tabasco (CICTAT), DACB, Km. 1 Carretera Cunduacán-Jalpa de Méndez AP. 24, Cunduacán, Tabasco, Mexico
Resumen	In this work, we present the synthesis of TiO2 photocatalysts modified with different % mol of tin using the sol–gel method. The materials were characterized using different analytical techniques. The Rietveld refinement, XPS, Raman and UV-Vis techniques confirm the substitution of tin in the TiO2 structural lattice due to changes in crystal lattice parameters, the low-energy shift of the Sn 3d5/2 orbital, generation of oxygen vacancies and the decreased band gap and increased BET surface area. The material with 1 mol% tin shows superior catalytic activity compared to the references for the degradation of 40 ppm 4-chlorophenol (3 hours of reaction) and 50 ppm phenol (6 hours of reaction). Reactions fit pseudo first order kinetics in both instances. The increase in photodegradation efficiency was attributed to the generation of energy levels below the TiO2 conduction band caused by the incorporation of 1% mol of tin, oxygen vacancies, and the heterojunction formed between the brookite–anatase–rutile, causing inhibition of the recombination of the electron (e−) and hole (h+) photogenerated species. The easy synthesis, low cost and increased photodegradation efficiency of the photocatalyst with 1 mol% tin have the potential to favor the remediation of recalcitrant compounds in water.
Palabras claves	N/A

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	ISSN: 0049-4747
DOI	https://doi.org/10.1007/s11250-023-03664-7
Título del Artículo	Haematological values in cattle reared in humid and subhumid tropics of Mexico
Autores e instituciones de adscripción	González-Garduño, Roberto [1]; Zaragoza-Vera, Claudia [2]; Chay-Canul, Alfonso J.[2]; Flores-Santiago, Ever del Jesús. [1] [1] Sursureste Regional Unity, Chapingo Autonomous University, CP, 86800, Teapa, Tabasco, Mexico [2] Academic Division of Agricultural Science, Juárez Autonomous University of Tabasco, Centro, Tabasco, Mexico

Resumen	The objective of this study was to determine some factors that influence the haematological values of cattle reared in the humid and subhumid tropics of Mexico. Whole blood samples were taken from 1355 crossbred cattle in the years 2017 to 2019. Haematocrit (HTC, %), total plasma protein (TPP, g/dL) and peripheral eosinophils count (PEOS, ×103/µL) were determined manually, and the main haematological variables were recorded with an automatic analyser. The statistical analysis considered as classification variables age, sex, season (cold, dry and rainy), year (2017, 2018 and 2019) and origin of the cattle. The mean of the haematological parameters was determined along with the confidence limits (CL) of the different categories of animals according to age. Calves younger than 1-year-old presented higher levels of HTC, red blood cell count (RBC), haemoglobin (HGB), red blood cell distribution width (RDW), platelet number (PLT), white blood cell count (WBC) and lymphocyte count (LYMF) than animals older than 2 years of age. However, they showed the lowest mean cell volume (MCV) and TPP values. In cows, the highest levels of PEOS, granulocytes (GRAN), MCV and medium cells (MID) were observed and the lowest HTC, RBC, RDW and WBC levels. Intervals were determined with the 1st quartile (Q1) or lower confidence interval (90% CI) as the minimum values and the 3rd quartile (Q3) or upper confidence interval (90% CI) as the maximum values. The haematological parameters of cattle reared in the Southeast of Mexico are significantly affected by age, sex and environmental conditions.
Palabras claves	Erythron; Leucon; Platelets; Physiological stage; Cows

Revista	**BOTANICAL SCIENCES**
ISSN	eISSN 200-4476
DOI	https://doi.org/10.17129/botsci.3253
Título del Artículo	High Vascular Plant Species Richness in the Usumacinta River Basin: A Comprehensive Floristic Checklist for a Natural Region in the Mesoamerican Biodiversity Hotspot.
Autores e instituciones de adscripción	Jiménez-López, Derio Antonio [1][2]; Gallardo-Cruz, José Alberto [3]; Véliz, Mario Esteban [4]; Martínez-Camilo, Rubén [1][5]; Méndez, Claudio [6]; V. Solórzano, Jonathan [1][7]; Velázquez-Méndez, Luis [4]; Carabias, Julia [8]; García-Hidalgo, Gabriela [1]; Peralta-Carreta, Candelario [1][9]; Sánchez-González, Miguelina [1]; Castillo-Acosta, Ofelia [10]; Luna-Kamyshev, Nikolay Marievich [1]; Villaseñor, José Luis [11]; Meave, Jorge A. [8] [1] Centro del Cambio Global y la Sustentabilidad A.C., Villahermosa, Tabasco, Mexico. [2] Doctorado en Ciencias en Ecología y Desarrollo Sustentable, Departamento de Conservación de la Biodiversidad, El Colegio de la Frontera Sur, San Cristóbal de Las Casas, Chiapas, Mexico. [3] Centro Transdiciplinar Universitario para la Sustentabilidad, Universidad Iberoamericana, Ciudad de México, Mexico. [4] Herbario BIGU, Escuela de Biología, Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Ciudad de Guatemala, Guatemala. [5] Unidad Villa Corzo, Facultad de Ingeniería, Universidad de Ciencias y Artes de Chiapas, Villa Corzo, Chiapas, Mexico. [6] Escuela de Biología, Universidad de San Carlos de Guatemala, Ciudad de Guatemala, Guatemala. [7] Posgrado en Geografía, Centro de Investigaciones en Geografía Ambiental, Universidad Nacional Autónoma de México, Morelia, Michoacán, Mexico. [8] Departamento de Ecología y Recursos Naturales, Facultad de Ciencias, Universidad Nacional Autónoma de México, Coyoacán, Ciudad de México, Mexico. [9] Posgrado en Ciencias en Ecología y Manejo de Sistemas Tropicales, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. [10] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. [11] Departamento de Botánica, Instituto de Biología, Universidad Nacional Autónoma de México, Coyoacán, Ciudad de México, Mexico.
Resumen	Background: Mesoamerica is one of the most important biodiversity hotspots on the planet. Despite significant efforts made over two centuries to contribute to the floristic knowledge of this region, our understanding of its flora is still scattered and uneven. Questions: What is the magnitude of the vascular plant species richness in the Usumacinta River Basin? Study site and dates: Usumacinta River Basin (Guatemala and Mexico), 1838-2018. Methods: We compiled the checklist by systematizing the floristic information acquired from various sources derived from numerous floristic and ecological studies. Results: We recorded 6,977 species, 1,892 genera and 274 families. The largest numbers of species (5,746) and records (58,859) correspond to the Mexican portion of the Usumacinta River Basin, compared to its Guatemalan counterpart (4,445 species and 19,952 records). The most species-rich families were Orchidaceae (598 species), Fabaceae (512), and Asteraceae (476).

Resumen	The prevalence of these and all other families with significant contributions to the flora varied among three elevation-defined sectors into which the Usumacinta River Basin was subdivided (lower, middle, and upper basin). Conclusions: The Usumacinta River Basin is a strategic region for plant biodiversity conservation as it hosts almost one third of all vascular plant species known for Mesoamerica and ca. 6 % of the entire flora in the Americas. Further botanical exploration should focus on those areas of the basin for which little or no information is available in order to gain a better appreciation of its flora.
Palabras claves	Floristic database; elevational gradient; plant distribution; tropical montane forest; tropical rainforest; wetland vegetation.

Revista	**REVISTA MEXICANA DE CIENCIAS PECUARIAS**
ISSN	eISSN 2448-6698
DOI	https://doi.org/10.22319/rmcp.v14i2.6286
Título del Artículo	Growth curves in purebred and crossbred Limousin cattle
Autores e instituciones de adscripción	Domínguez-Viveros, Joel [1]; Reyes-Cerón, Antonio [2]; Aguirre-Calderón, Carlos Enrique [3]; Martínez-Rocha, Ricardo [4]; Luna-Palomera, Carlos [5]; Aguilar-Palma, Nelson. [1] [1] Universidad Autónoma de Chihuahua. Facultad de Zootecnia y Ecología. Chihuahua, México. [2] Asociación Mexicana de Criadores de Ganado Limousin. Zacatecas, México. [3] Instituto Tecnológico de México. Instituto Tecnológico de El Salto. El Salto, Durango, México. [4] Universidad Nacional Autónoma de México. Facultad de Estudios Superiores Cuautitlán. Ciudad de México, México. [5] Universidad Juárez Autónoma de Tabasco. División Académica de Ciencias Agropecuarias. Tabasco, México.
Resumen	The objective was to fit a non-linear model (NLM) to evaluate the growth curve in purebred (PB) Limousin cattle and in five degrees of crossbreeding (DCBs: 1/2, 3/4, 7/8, 15/16, 31/32 Limousin). Live weight, the birth weight interval at 500 d of age, was analyzed. Four NLMs were evaluated: Brody, Bertalanffy, Gompertz, and logistic. Growth parameters were estimated: adult weight (ADW); growth rate (GR); age (AIP; months) and weight (WIP; kg) at inflection point; age (months; A50M) to reach 50 % maturity and degree of maturity at 15 mo (DM15). The growth curve in DCB was characterized using the NLM selected for BP. The best-fitting model was Bertalanffy. The ADW for purebred (PB) males was 566.1, for crossbred (CB) males it was in the range of 446.9 to 527.4; for CB females it was in the range of 374.5 to 419.9, and for PB females, it was 443.0. The NLMs exhibited correlations below -0.75 between ADW and GR. In PB heifers, AIP was estimated at 3.7, and WIP, at 131.2; in CB heifers, AIP and WIP were in the ranges of 2.9 to 3.7 and 110.9 to 124.4, respectively. A50M for PB females was 10.6, and for CB females, within the range of 8.9 to 10.5. DM15 for CB females, the average was 90.5 %, and 87.9 % for PB females. PB males reach A50M at the age of 13 mo.
Palabras claves	Bos Taurus; Crossover; Growth parameters; Heterosis; Nonlinear models

Revista	**JOURNAL OF SURGICAL EDUCATION**
ISSN	ISSN: 1931-7204
DOI	https://doi.org/10.1016/j.jsurg.2023.01.013
Título del Artículo	Gender Differences in Professional Adversities and Mental Health Among Surgical and Nonsurgical Medical Trainees: An Internet-Based Survey
Autores e instituciones de adscripción	Fresán, Ana [1]; Guízar-Sánchez, Diana [2]; Yoldi-Negrete, María [1]; Robles-García, Rebeca [3]; Tovilla-Zárate, Carlos-Alfonso [4]; Saracco-Álvarez, Ricardo [1] [1] Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico City, Mexico [2] Departamento de Fisiología de la Facultad de Medicina, Universidad Nacional Autónoma de México, UNAM, Copilco Universidad, Mexico City, Mexico [3] Centro de Investigación en Salud Mental Global, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico City, Mexico [4] División Académica Multidisciplinaria de Comalcalco, Universidad Juárez Autónoma de Tabasco, Ranchería Sur, Cuarta sección, Comalcalco, Tabasco, Mexico

Resumen	Background: Physicians in training face a variety of stressors throughout their professional development and according to their gender. Among them, surgical trainees appear to be especially at risk for mental health problems. Objective: The aim of the present study was to compare demographic features, professional activities and adversities, depression, anxiety, and distress among men and women trainees of surgical and nonsurgical medical specialties. Design and participants: A cross-sectional, retrospective, comparative study was conducted on a total of 12,424 trainees (68.7% nonsurgical and 31.3% surgical) from Mexico through an online survey. Demographic features, variables related to professional activities and adversities, depression, anxiety, and distress were evaluated through self-administered measures. Comparative analyses using the Cochran-Mantel-Haenszel test for categorical variables and multivariate analysis of variance including medical residency program and gender as fixed factors to test their interaction effect for continuous variables were used. Results: An important interaction between medical specialty and gender was found. Women trainees from surgical specialties report more frequent psychological and physical aggressions. Women from both specialties had higher distress, significant anxiety, and depression than men. Men from surgical specialties worked more hours per day. Conclusions: Gender differences are evident in trainees for medical specialties, with a larger impact in surgical fields. Mistreatment of students is a pervasive behavior that affects society as a whole, and actions to improve learning and working environments in all medical specialties, but mostly in surgical fields, are urgently needed.
Palabras claves	Doctors' healthcare; gender; medical specialty; mental health; surgical training; women.

Revista	**JOURNAL OF EVOLUTIONARY BIOCHEMISTRY AND PHYSIOLOGY**
ISSN	eISSN 1608-3202
DOI	https://doi.org/10.1134/S0022093023020072
Título del Artículo	Functional Differences of Digestive Proteases in Three Fish Species of the Genus Poblana (*Atheriniformes: Atherinopsidae*)
Autores e instituciones de adscripción	Cruz-Aviña, J. R. [1]; Álvarez-González, C. A. [2]; Aranda-Morales, S. A. [2]; Figueroa-Lucero, G. [3]; Nieves-Rodríguez, K. N. [4]; Peña-Marín, E. S. [5] [1] Faculty of Veterinary Medicine and Animal Zootechnics, Meritorious Autonomous University of Puebla, Puebla, México [2] Academic Division of Biological Sciences, Juárez Autonomous University of Tabasco, Villahermosa, Tabasco, México [3] Department of Hydrobiology, Autonomous Metropolitan University, Iztapalapa, CDMX, México [4] Department of Biological Sciences, University Center of the Coast, University of Guadalajara, Puerto Vallarta, Jalisco, México [5] Institute of Oceanological Research, Autonomous University of Baja California, Ensenada, Baja California, México
Resumen	The populations of three members of the Neotropical silverside fish from the Poblana genus of the Atherinopsidae family (Poblana alchichica, P. letholepis, and P. squamata) are microendemic species restricted to the eastern basin of central Mexico, where each Poblana species is limited to each crater lake. The aim of this study was to characterize the potential differences in functionality and diversity of digestive proteases between three Poblana species as a likely result of physiological digestive adaptations over the speciation process. Adults of the three Poblana species were collected from three different crater lakes and the activity of digestive proteases and their functional characteristics under different pH and temperature conditions and the number and size of alkaline proteases were determined using biochemical and electrophoretic techniques. The three Poblana species showed acid protease activity and high chymotrypsin activity; likewise, the optimum pH was 8 for alkaline proteases and ranged between 2 and 3 for acid proteases. Alkaline proteases showed an optimum temperature peak at 60°C, while acid proteases showed two peaks (at 30°C and 60°C). The presence of aspartyl peptidases in all three species was confirmed using an inhibitor pepstatin A. The SDS-PAGE zymogram showed four activity bands with alkaline proteolytic activity (45.4, 39.0, 27.9, and 17.4 kDa) in P. alchichica, five bands (58.0, 45.4, 39.0, 27.9, and 17.4 kDa) in P. letholepis, and five bands (126.9, 69.7, 39.0, 27.9, and 17.4 kDa) in P. squamata. Therefore, the studied Poblana display slight differences in protease function and in the number of protease isoforms as a result of allopatric speciation processes and probably of diet selectivity.
Palabras claves	Digestive physiology; interspecific adaptation-, genus Poblana; proteases.

Revista	**APPLIED INTELLIGENCE**
ISSN	eISSN 1573-7497.
DOI	https://doi.org/10.1007/s10489-023-04571-y
Título del Artículo	Full single-type deep learning models with multihead attention for speech enhancement
Autores e instituciones de adscripción	Zacarias-Morales, Noel [1]; Hernández-Nolasco, José Adán [1]; Pancardo, Pablo[1] [1] Academic Division of Sciences and Information Technology, Juárez Autonomous University of Tabasco, Cunduacan, 86690, Tabasco, Mexico
Resumen	Artificial neural network (ANN) models with attention mechanisms for eliminating noise in audio signals, called speech enhancement models, have proven effective. However, their architectures become complex, deep, and demanding in terms of computational resources when trying to achieve higher levels of efficiency. Given this situation, we selected and evaluated simple and less resource-demanding models and utilized the same training parameters and performance metrics to conduct a fair comparison among the four selected models. Our purpose was to demonstrate that simple neural network models with multihead attention are efficient when implemented on computational devices with conventional resources since they provide results that are competitive with those of hybrid, complex and resource-demanding models. We experimentally evaluated the efficiency of multilayer perceptron (MLP), one-dimensional and two-dimensional convolutional neural network (CNN), and gated recurrent unit (GRU) deep learning models with and without multiheaded attention. We also analyzed the generalization capability of each model. The results showed that although these architectures were composed of only one type of ANN, multihead attention increased the efficiency of the speech enhancement process, yielding results that were competitive with those of complex models. Therefore, this study is helpful as a reference for building simple and efficient single-type ANN models with attention.
Palabras claves	Artificial neural network; Attention; Deep learning models; Speech enhancement

Revista	**ACTA SCIENTIAE VETERINARIAE**
ISSN	ISSN 1679-9216
DOI	https://doi.org/10.22456/1679-9216.130294
Título del Artículo	Fasciola hepatica and Rumen Flukes - In Vitro Evaluation of Main Commercial Anthelmintics
Autores e instituciones de adscripción	Jiménez-Penago, Gerardo [1]; González-Garduño, Roberto [2]; Torres-Hernández, Glafiro [1]; Torres-Chablé, Oswaldo Margarito[3]; Ramírez-Bribiesca, Efrén[1]; Hernández-Sánchez, David [1] [1] Campus Montecillo, College of Postgraduate. Montecillo, State of Mexico, Mexico. [2] Southeast Regional University Unit. Chapingo Autonomous University. Teapa, Tabasco, Mexico. [3] Academic Division of Agricultural Sciences, Juárez Autonomous University of Tabasco. Villahermosa, Tabasco, Mexico. Tabasco, México.4 Secretaria del Bienestar, Gobierno de México. México..[2]
Resumen	Background: Trematode infections are of great importance as they affect the health of many species of mammals as cattle, sheep and goat. Fasciola hepatica represents the main trematode zoonosis and risks to human and cattle and paramphistomosis is one emerging parasitic diseases of ruminants widely distributed in the world. The economic expenses are incurred by the use of ineffective anthelmintics for trematode control. Besides to faecal egg count reduction test (FECRT) to determine the anthelmintic efficacy, can be used in vitro assays, by this the aim of the study was to determine the lethal doses (LD) with hatching egg test (EHT) of the main commercial anthelmintics used for the control of trematodes in cattle. Materials, Methods & Results: Liver and rumen were examined from cattle slaughtered in Tabasco, Chiapas and Campeche states from Mexico. F. hepatica eggs were recovered from gallbladder and rumen fluke eggs collected from adult parasites in saline solution. Subsequently, the hatching egg assays were performed placing 100 trematode eggs in distilled water in each one of 96 wells of polystyrene plates. After making the appropriate dilutions, several concentrations of commercial anthelmintics were evaluated, ranging from 0.04 to 80.63 mM for triclabendazole + 0.046 to 96.87 mM febendazole (TC+FBZ), from 0.04 to 91 mM for rafoxanide (RAFOX), from 0.02 to 43.74 mM for closantel (CLOS), from 0.036 to 76.18 mM for clorsulon + 0.002 to 3.31 mM ivermectin (CLORS+ IVM) and from 0.163 to 334.47 mM for nitroxynil (NITROX).

Resumen	A control group (water) was included in each plate. Lethal doses were obtained using the Probit procedure and analysis of the means with a one-way statistical design. Most drugs used against rumen fluke eggs presented a high LD50 and therefore were ineffective to cause egg mortality, such was the case of RAFOX that presented LD50 from 4,580 to 10,790 µg/mL (7 to 17 mM). CLOS presented the lowest LD50 (80 µg/mL or 0.12 mM) on rumen fluke eggs. TC+FBZ was found to be effective drug against the development of F. hepatica eggs in many samples. In the same way NITROX showed a low LD50 (37 to 63 µg/mL or 0.13 to 0.22 mM), but RAFOX presented a highest LD50 (1,450 µg/mL or 2.32 mM). Discussion: The present study focused on screen the ovicidal activity and determining in vitro lethal doses 50 of main commercial anthelmintics used to control F. hepatica and rumen fluke as rapid tests in a tropical region from Mexico. The FECRT is the main method to detect effectiveness of anthelmintic and other method is the coproantigen reduction test (CRT) by ELISA. Both tests require many infected animals depending the number of treatments and by this the egg hatch assay (EHA) represent a complementary diagnosis of effectiveness of anthelmintic products to compare between regions and even between farms, because few animals are required from the farm to collect trematode eggs, and it is possible to know the effectiveness against various anthelmintics at the same time. Efficacy studies on trematodes using egg hatching tests are scarce, although they have the advantage that they can be applied to both F. hepatica and rumen fluke. TC+FBZ was one of the most effective products in inhibiting the development of F. hepatica eggs. However, RAFOX showed low effectiveness against trematode eggs, with very high lethal doses. These results agree with a study that show low efficacy against the development of Paramphistomum cervi eggs and with the FECRT test reductions of 75% and 80.58% were obtained, in times from 7 to 84 days after treatment with RAFOX. NITROX and CLORS were drugs that had good efficacy on the development of F. hepatica eggs. A differential response between liver and rumen fluke was observed. The anthelmintics used against rumen fluke eggs show low ovicidal activity and in Fasciola hepatica TC+FBZ show the best activity.
Palabras claves	trematodes, cattle, effectiveness, anthelmintics, ovicidal activity, egg hatching.

Revista	**MATHEMATICAL AND COMPUTATIONAL APPLICATIONS**
ISSN	ISSN 2297-8747
DOI	https://doi.org/10.3390/mca28030075
Título del Artículo	Evolutionary Selection of a Set of Association Rules Considering Biological Constraints Describing the Prevalent Elements in Bacterial Vaginosis
Autores e instituciones de adscripción	Salvador-González, María Concepción [1]; Canul-Reich, Juana [1]; Rivera-López, Rafael [2]; Mezura-Montes, Efrén [3]; de la Cruz-Hernández, Erick [4] [1] DACyTI, Universidad Juárez Autónoma de Tabasco, Cunduacán 86690, Tabasco, Mexico [2] DSC, Tecnológico Nacional de México, Instituto Tecnológico de Veracruz, Veracruz 91897, Veracruz, Mexico [3] IIIA, Universidad Veracruzana, Xalapa 91097, Veracruz, Mexico [4] DAMC, Universidad Juárez Autónoma de Tabasco, Comalcalco 86658, Tabasco, Mexico
Resumen	Bacterial Vaginosis is a common disease and recurring public health problem. Additionally, this infection can trigger other sexually transmitted diseases. In the medical field, not all possible combinations among the pathogens of a possible case of Bacterial Vaginosis are known to allow a diagnosis at the onset of the disease. It is important to contribute to this line of research, so this study uses a dataset with information from sexually active women between 18 and 50 years old, including 17 numerical attributes of microorganisms and bacteria with positive and negative results for BV. These values were semantically categorized for the Apriori algorithm to create the association rules, using support, confidence, and lift as statistical metrics to evaluate the quality of the rules, and incorporate those results in the objective function of the DE algorithm. To guide the evolutionary process, we also incorporated the knowledge of a human expert represented as a set of biologically meaningful constraints. Thus, we were able to compare the performance of the rand/1/bin and best/1/bin versions from Differential Evolution to analyze the results of 30 independent executions. Therefore the experimental results allowed a reduced subset of biologically meaningful association rules by their executions, dimension, and DE version to be selected.

Palabras clave	Differential evolution; association rules; bacterial vaginosis

Revista	**CHEMOSPHERE**
ISSN	ISSN: 0045-6535
DOI	https://doi.org/10.1016/j.chemosphere.2023.138898
Título del Artículo	Evaluation of polycyclic aromatic hydrocarbons in sediments of Balsas River Mouth, Pacific Coast, Mexico: Sources, risks, and genotoxicity
Autores e instituciones de adscripción	Sujitha, S. B. [1]; López-Hernández, Jenny-Fabiola [2]; García-Alamilla, Pedro [3]; Morales-García, S. S. [4]; Márquez-Rocha, Facundo J. [5] [1] Escuela Superior de Ingeniería y Arquitectura (ESIA), Unidad Ticoman, Instituto Politécnico Nacional (IPN), Calz. Ticomán 600, Delg. Gustavo A. Madero, C.P. 07340, Ciudad de México (CDMX), Mexico [2] Tecnológico Nacional de México, Campus Comalcalco, Paraíso-Comalcalco km 2, RA. Occidente 3era, Sección. CP. 86650, Comalcalco, Tabasco, Mexico [3] Divison Académica de Ciencias Agropecuaria, Universidad Autónoma Juárez de Tabasco, Carretera Villahermosa -Teapa Km 25, Ranchería La Huasteca 2da Sección, C.P. 86298 Villahermosa, Tabasco, Mexico [4] Centro Mexicano para La Producción Más Limpia, Instituto Politécnico Nacional, Av. Acueducto S/n, Col. Barrio La Laguna Ticomán, Del Gustavo A. Madero, C.P. 07340, Ciudad de México (CDMX), Mexico [5] Centro Mexicano para La Producción Más Limpia-Unidad Tabasco, Instituto Politécnico Nacional, Cunduacán, Tabasco, CP 86691, Mexico
Resumen	Polycyclic aromatic hydrocarbons (PAHs) were assessed in sediments (n = 7) collected from the mouth of the Balsas River, Pacific Coast, Mexico. The total PAH levels ranged between 142.1 and 3944.07 μg kg−1 in the summer and 137.65–3967.38 μg kg−1 in the winter, probably reflecting the anthropogenic activities of the region. Calculation of the four analytical ratios of [Anthracene/(Anthracene + Phenanthrene)]:[Fluoranthene/(Fluoranthene + Pyrene)], [Fluoranthene/Pyrene: Fluoranthene/(Fluoranthene + Pyrene)], [Indeno [123-cd]Pyrene/(Indeno [123-cd]Pyrene + Benzo [ghi]Perylene)]: [Benzo [a]anthracene/(Benzo [a]Anthracene + Chrysene)], and [Anthracene/Phenanthrene]: [Fluoranthene/(Fluoranthene + Pyrene)] revealed a mixed PAH source, from petroleum and biomass combustion. Significant statistical correlations (r2 = 0.90) between the 4 and 5 ringed PAHs denote that adsorption is the principal mechanism for accumulation in sedimentary archives. Ecotoxicological indices (Mean Effect Range Medium Quotient and Mean Probable Effect Level Quotient) indicated moderate pollution with adverse biological impacts on ambient benthonic organisms. The calculations of Toxicity Equivalent Quotient and Mutagen Equivalent Quotient values proposed that the region is highly polluted by mutagenic and carcinogenic PAH compounds. The genotoxic evaluation of Lutjanus guttatus (Spotted rose snapper) presented significant DNA damage and discrepancies in Ethoxyresorufin-O-Deethylase activity. Based on the toxicological and genotoxicological evaluation of PAHs in sediments, the region was observed to be largely impacted from biological damage.
Palabras claves	CYP1A; DNA oxidative Damage; EROD activity; Ecotoxicological risk; PAHs.

Revista	**SMALL RUMINANT RESEARCH**
ISSN	ISSN: 0921-4488
DOI	https://doi.org/10.1016/j.smallrumres.2023.106905
Título del Artículo	Effect of supplementing magnesium oxide or brucite on plasma magnesium, rumen pH, rumen protozoa and plasma glucose levels in dairy goats
Autores e instituciones de adscripción	Arbez-Abnal, T. A. [1]; García-Martínez, J. E. [2]; Ángel-García, O. [1]; Anzures-Olvera, F. [3]; Rodríguez-Martínez, R. [1]; Véliz-Deras, F. G. [1]; Chay-Canul, A. J. [4]; Legarreta-González, M. A. [5,6]; Vargas-Bello-Pérez, E. [7]; Robles-Trillo, P. A. [1] [1] Universidad Autónoma Agraria Antonio Narro, Unidad Laguna, Periférico Raúl López Sánchez S/N, Torreón 27054, Coahuila, Mexico [2] Universidad Autónoma Agraria Antonio Narro, Departamento Nutrición Animal, Saltillo 25315, Coahuila, Mexico [3] Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Campus Experimental Iguala, Carretera Iguala-Tuxpan km 2.5, Iguala 40000, Guerrero, Mexico [4] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carr. Villahermosa-Teapa, km 25, Villahermosa 8628, Tabasco, Mexico

Autores e instituciones de adscripción	[5] University of Makeni (UniMak), Azzolini Highway, Makeni City, Northern Province, Sierra Leone [6] Universidad Tecnológica de la Tarahumara, Carr. Guachochi-Yoquivo km 1.5, CP 33180 Chihuahua, Mexico [7] Department of Animal Sciences, School of Agriculture, Policy and Development, University of Reading, P.O. Box 237, Earley Gate, Reading RG6 6EU, UK
Resumen	This study determined the effect of supplementing magnesium oxide (MgO) or brucite on plasma magnesium, rumen pH, rumen protozoa and plasma glucose levels in dairy goats. Fifteen Alpine goats were used and assigned to three treatments: control (CON) = Rolled corn, cottonseed hulls, soybean meal, molasses, alfalfa hay and calcium carbonate; MgO = CON + 0.5 % MgO; and brucite = CON + 2 % brucite. The study lasted for 16 days with 10 days for diet adaptation and 6 days for sample collection. Samples of blood, urine, feces, milk, and ruminal fluid were taken. Concentration of magnesium in plasma from brucite was 22.3 % higher compared to the control. In addition, MgO and brucite had higher Mg values in feces (28.9 % and 95.5 %, respectively) and urine (58.3 % and 45 %, respectively). Brucite decreased rumen pH, ruminal protozoan population and dry matter intake compared to other treatments. Milk production and milk fat and protein were not affected by Mg treatments, but blood glucose was increased with MgO. Overall, results showed that at least in a relatively short-term, MgO can be used in goat diets as compared to the control treatment and brucite, kept dry matter intake without reducing rumen pH and rumen protozoa.
Palabras claves	Brucite, Blood glucose, Ruminal protozoa, Dairy goat

Revista	**JOURNAL OF PHYSICS-CONDENSED MATTER**
ISSN	eISSN: 1361-648X
DOI	https://doi.org/10.1088/1361-648x/ace2a4
Título del Artículo	Disorder effect on intersubband optical absorption of n-type δ-doped quantum well in GaAs
Autores e instituciones de adscripción	Noverola-Gamas, H. [1]; Rojas, L. G. Macias [2]; Azalim, S. [3]; Oubram, O. [2] [1] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa de Méndez Km. 1 Col. La Esmeralda, Cunduacán 86680, Mexico [2] Facultad de Ciencias Químicas e Ingeniería, Universidad Autónoma Del Estado de Morelos, Av. Universidad 1001, Col. Chamilpa 62209 Cuernavaca, Morelos, Mexico [3] Department of Physics, St. John's University, 8000 Utopia Parkway, Queens, NY 11439, United States of America
Resumen	The inevitable structural disorder associated with the fluctuation of the applied external electric field, laser intensity, and bidimensional density in the low dimensional quantum system can affect noticeably optical absorption properties and the related phenomena. In this work, we study the effect of structural disorder on the optical absorption properties in delta-doped quantum wells (DDQWs). Starting from effective mass approximation and the Thomas-Fermi approach as well as using the matrix density, the electronic structure and the optical absorption coefficients of DDQWs are determined. It is found that the optical absorption properties depend on the strength and the type of structural disorder. Particularly, the bidimensional density disorder suppresses strongly the optical properties. Whilst, the disordered external applied electric field fluctuates moderately in the properties. In contrast, the disordered laser holds absorption properties unalterable. So, our results specify that to have and preserve good optical absorption properties in DDQWs, requires precise control of the bidimensional. Besides, the finding may improve the understanding of the impact of the disorder on the optoelectronic properties based on DDQWs.
Palabras claves	Absorption coefficient; delta-doped quantum well; structural disorder.

Revista	**NUTRITION RESEARCH AND PRACTICE**
ISSN	ISSN: 1976-1457
DOI	https://doi.org/10.4162/nrp.2023.17.2.228
Título del Artículo	Cocoa: a functional food that decreases insulin resistance and oxidative damage in young adults with class II obesity
Autores e instituciones de adscripción	González-Garrido, José Arnold [1]; García-Sánchez, José Rubén [2]; López-Victorio, Carlos Javier [1]; Escobar-Ramírez, Adelma [1]; Olivares-Corichi, Ivonne María. [2]

Autores e instituciones de adscripción	[1] Centro de Investigación de Ciencia y Tecnología Aplicada de Tabasco (CICTAT), División Académica de Ciencias Básicas. Laboratorio de Bioquímica y Biología Molecular, Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa KM. 1 Colonia la Esmeralda, Tabasco, C.P. 86690, México. [2] Sección de Estudios de Posgrado e Investigación, Escuela Superior de Medicina del Instituto Politécnico Nacional. Laboratorio de Oncología Molecular y Estrés Oxidativo, Instituto Politécnico Nacional, Plan de San Luis y Díaz Mirón, C.P. 11340 Ciudad de México, México.
Resumen	Background/Objectives: Cocoa consumption is associated with health benefits due to its high content of polyphenols. However, the effects of short-term cocoa consumption remain unclear. We aimed to determine the effects generated by cocoa consumption (for 7 days) in young adults in normoweight and class II obesity. Subjects/Methods: Before-and-after study was carried out in normoweight (NW) (n = 15) and class II obesity (CIIO) (n = 15) young adults. The NW and CIIO participants consumed 25 and 39 g of cocoa, respectively, per day for 7 days. The effect of cocoa consumption was evaluated on the lipid profile, insulin resistance (IR), and inflammation. Oxidative damage was also examined by assessing the biomarkers of oxidative damage in plasma. In addition, recombinant human insulin was incubated with blood obtained from the participants, and the molecular damage to the hormone was analyzed. Results: Cocoa consumption resulted in decreased low-density lipoprotein-cholesterol in both groups (P = 0.04), while the total cholesterol, high-density lipoprotein cholesterol, and triglycerides were maintained at the recommended levels. Initially, IR was detected in the CIIO group (homeostasis model assessment [HOMA] = 4.78 ± 0.4), which is associated with molecular damage to insulin. Interestingly, intervention with cocoa resulted in improved IR (HOMA = 3.14 ± 0.31) (P = 0.0018) as well as molecular damage to insulin. Finally, cocoa consumption significant decreased the arginase activity (P = 0.0249) in the CIIO group; this is a critical enzymatic activity in the inflammatory process associated with obesity. Conclusions: The short-term consumption of cocoa improves the lipid profile, exerts anti-inflammatory effects, and protects against oxidative damage. Results of this study indicate that cocoa consumption can potentially improve IR and restore a healthy redox status.
Palabras claves	Polyphenols, prediabetic state, antioxidants, free radicals, inflammation

Revista	**JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS**
ISSN	eISSN 1573-482X
DOI	https://doi.org/10.1007/s10854-023-10381-2
Título del Artículo	Characterization of natural dyes on ZnO and TiO2 thin films for applications in DSSC
Autores e instituciones de adscripción	Flota Robledo, A. G. [1]; Pantoja Enríquez, J. [1]; Meza Avendaño, C. A. [1]; Pérez Hernández, G. [2]; Juárez Gutiérrez, P. J. [1] [1] Instituto de Investigación e Innovación en Energías Renovables, Universidad de Ciencias y Artes de Chiapas, 39039, Tuxtla Gutiérrez, Chiapas, México [2] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, 86040, Villahermosa, Tabasco, México
Resumen	In this work, we present a comparative study of two types of dye-sensitized solar cells (DSSCs) fabricated using natural dyes extracted from Achiote seeds, Brazil and Taray bark. The dyes were impregnated in ZnO and TiO2 thin films. ZnO, TiO2, ZnO/dyes and TiO2/dyes structures were characterized by X-ray diffraction (XRD), atomic force microscopy (AFM), ultraviolet–visible spectroscopy (UV–Vis), infrared spectroscopy (IR spectroscopy) and current–voltage (I–V) techniques. IR analysis shows that the films impregnated with the dyes show anchoring to them and bands characteristic of COOH and OH functional groups. The results of UV–Vis spectroscopy show that the strongest absorption in the visible region is provided by dyes of the Achiote seeds, bark of Brazil and bark of Taray. The performance of the DSSCs device was evaluated to determine the influence of ZnO/dyes and TiO2/dyes photoanodes with platinum photocathodes. The manufactured DSSCs showed a conversion efficiency for TiO2 of $\eta = 3.65$, 3.63 and 3.98% and for ZnO-based DSSCs of $\eta = 3.09$, 2.81 and 2.54% for Achiote seed, Brazilian bark and Taray bark, respectively.
Palabras claves	N/A

Revista	**CANADIAN JOURNAL OF ZOOLOGY**
ISSN	ISSN: 0008-4301
DOI	https://doi.org/10.1139/cjz-2022-0188
Título del Artículo	Behavioral observations of Molossus nigricans in a Neotropical city: a contribution toward understanding its urban tolerance
Autores e instituciones de adscripción	Ávila-Flores, Rafael [1]; León-Madrazo, Rafael [1]; Pérez-Pérez, Lucio [1]; Rodas-Martínez, Alba Z. [1] [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México
Resumen	The family Molossidae includes several species of bats that thrive in tropical and subtropical cities of the world. It has been suggested that the remarkable tolerance of some molossid species to urban life might partially result from a suite of behavioral preadaptations. In this study, we described some aspects of the roosting, social, vocal, and foraging behavior of one of these species, Molossus nigricans Miller, 1902, in the tropical city of Villahermosa, in southeastern Mexico. We described roosting attributes and colony size in 54 roosts of M. nigricans between 2016 and 2018. In a subsample of roosts, we registered emergence and return times throughout the night, described colony composition, and recorded vocalizations using a full-spectrum ultrasonic detector. We found that M. nigricans exhibits high plasticity in its roosting behavior, occupying both natural and anthropogenic structures with narrow gaps and cracks. Their social structure appears to be flexible, and their colonies are variable in size, allowing them to exploit a wide variety of roosts. Their high foraging efficiency, tolerance to artificial light, and its remarkable vocal plasticity seem to be other elements that may help us to better understand the success of M. nigricans in tropical urban environments.
Palabras claves	Behavioral plasticity; fast-flying bats; Molossidae; Molossus nigricans; Northern black-mastiff bat; urbanization.

Revista	**JOURNAL OF PSYCHIATRIC RESEARCH**
ISSN	eISSN: 0022-3956
DOI	https://doi.org/10.1016/j.jpsychires.2023.04.007
Título del Artículo	Assessment of cognitive impairment and depressive signs in patients with type 2 diabetes treated with metformin from Southeast Mexico: A cross-sectional study
Autores e instituciones de adscripción	Nolasco-Rosales, Germán Alberto [1]; Villar-Juárez, Guillermo Efrén [2]; Pérez-Osorio, Daniel Arturo [1]; Cruz-Castillo, Juan Daniel [1]; Molina-Guzmán, Gabriel [3,8]; González-Castro, Thelma Beatriz [4]; Tovilla-Zárate, Carlos Alfonso [5]; Rodríguez-Sánchez, Ester [6]; Genis-Mendoza, Alma Delia [7]; Hernández-Palacios, Filiberto [1]; Juárez-Rojop, Isela Esther. [1] [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de la Salud, Villahermosa, Tabasco, Mexico [2] Escuela de Medicina. Universidad Anahuac Querétaro. Querétaro, Querétaro, Mexico [3] Instituto Mexicano del Seguro Social, Hospital General de Zona 46, Villahermosa, Tabasco, Mexico [4] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Jalpa de Méndez, Jalpa de Méndez, Tabasco, Mexico [5] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Comalcalco, Comalcalco, Tabasco, Mexico [6] Hospital Regional de Alta Especialidad "Gustavo A. Rovirosa Perez", Villahermosa, Tabasco, Mexico [7] Departamento de Genética Psiquiátrica, Instituto Nacional de Medicina Genómica, Ciudad de México, Mexico [8] Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, Hospital General Dr. Daniel Gurría Urgell, Villahermosa, Tabasco, Mexico
Resumen	Multiple factors associate diabetes with cognitive impairment and depression. Antidiabetic drugs have reported antidepressant and pro-cognitive effects in diabetic and non-diabetic subjects. Antidepressant and pro-cognitive effects of metformin are reported in various studies; however, these effects are not consistent among researches. We designed a cross-sectional study. We recruited patients with T2D diagnosis from the Diabetes Clinic of the Regional Hospital of High Specialty "Dr. Gustavo A. Rovirosa Pérez" from January 2019 to May 2022. We included 431 subjects with T2D, 374 patients with metformin treatment and 57 subjects without metformin. These patients were on intensive therapies and had not a previous diagnosis of cognitive impairment or depression. We applied Mini-Mental State Examination (MMSE) to evaluate cognitive impairment, and Hamilton Depression Rating Scale (HAM-D) to assess depressive signs. Our sample had a mean age of 53.77 ± 13.43 years. Metformin users were 374 individuals, and 57 subjects didn't use metformin. MMSE found cognitive impairment in 8.3% (n = 31) of metformin users, and 14.8% (n = 8) of patients without metformin.

Resumen	HAM-D scale showed that 39.5% (n = 147) of patients with metformin had depression signs, subjects without metformin and depressive signs were 44.6% (n = 25). We found no differences between groups for cognitive impairment and depression grades. We did not find associations between metformin treatment, cognitive impairment measures and depression sign measures. However, chronic metformin treatment, insulin use, glycemic control and age could influence our results.
Palabras claves	Cognitive impairment; Depression; Metformin; Type 2 diabetes mellitus.

Revista	**INTELLIGENT DATA ANALYSIS**
ISSN	eISSN 1571-4128
DOI	https://doi.org/10.3233/IDA-216488
Título del Artículo	An agglomerative hierarchical clustering approach to identify coexisting bacteria in groups of bacterial vaginosis patients
Autores e instituciones de adscripción	Hernández-Gómez, Henry Jesús [1]; Canul-Reich, Juana [1]; Hernández-Ocaña, Betania [1]; de la Cruz Hernández, Erick. [2] [1] Academic Division of Sciences and Information Technologies, Juárez Autonomous University of Tabasco, Cunduacán-Jalpa KM highway. 1 Col. The Esmeralda, Cunduacán, Tabasco, Mexico [2] Comalcalco Multidisciplinary Academic Division, Juárez Autonomous University of Tabasco, Ranchería South 4th. Section. Comalcalco, Tabasco, Mexico
Resumen	Polymicrobial syndromes such as Bacterial Vaginosis (BV), where there is a great diversity of microorganisms and causal connotations, turn it into a disease with complex dynamics in the bacteria's coexistence in groups of patients. The main aim of this study was to explore a dataset of patients with BV to determine a more informed number of groups to create for further analysis of bacteria's coexistence. The Agglomerative Hierarchical Clustering (AHC) algorithm was applied to a BV dataset from an urban population in southeastern Mexico consisting of 201 patient records with 59 patient attributes and three classes (BV-positive, BV-negative, BV-indeterminate). In the clustering results obtained, it is possible to identify different remarkable groups of patients. The most prevalent coexisting bacteria among patients with BV were Atopobium + Gardnerella vaginalis with 37.50%, Atopobium + Megasphaera with 15.68% in the first experiment. Whereas, in the second experiment, the coexisting bacteria were Atopobium + Megasphaera + Mycoplasma hominis with 33.33% and Atopobium + Gardnerella vaginalis + Mycoplasma hominis with 25%. Finally, we provided evidence that via the AHC algorithm, it was possible to identify an optimal number of clusters with high intra-similarity and inter-dissimilarity. Furthermore, this approach allowed us to create a clustering model that helps analyze the complex dynamics between bacteria in groups of patients with BV.
Palabras claves	Hierarchical clustering, bacterial vaginosis, data mining, coexisting bacteria

Revista	**WORLD ALLERGY ORGANIZATION JOURNAL**
ISSN	ISSN: 1939-4551
DOI	https://doi.org/10.1016/j.waojou.2023.100779
Título del Artículo	Aeroallergen immunotherapy associated with reduced risk of severe COVID-19 in 1095 allergic patients
Autores e instituciones de adscripción	Larenas-Linnemann, Désirée[1]; Morfin-Maciel, Blanca María[2]; Bedolla-Barajas, Martín[3]; López-Bago, Ana[4]; Navarrete Rodríguez, Elsy Maureen[5]; Mogica-Martínez, María Dolores[6]; Gereda, José E.[7]; Sarrazola Sanjuan, Mauricio[8]; Cano Pedroza, Rosa Yazmín[9]; Cavallo, María Cecilia[10]; Romero Tapia, Sergio de Jesús[11]; Jossen, Roberto A.[12]; Fuentes Pérez, José Miguel[13]; Del Rio Navarro, Blanca E.[14]; Rodríguez Zagal, Erendira[15]; Piraino Sosa, Pedro A.[16]; Huerta Villalobos, Yunuen Rocío[9]; Chávez-Vereau, Pierre[17]; García Imperial, Daniel Alberto[18]; Olivares Gómez, Margarita[19]; Valle Rodríguez, Francisco[20]; Zúñiga Reyes, Carlos Omar[21]; Rodríguez-González, Monica[9]; Gallego Corella, Claudia Ivonne[22]; Ivancevich, Juan Carlos[23]; García Cruz, María de la Luz Hortencia[24]; Repka-Ramírez, María Susana[25]; Flores Morales, Mauricio Ernesto [26]; Fernández De Córdova Aguirre, Juan Carlos[27]; Luna-Pech, Jorge A.[28]; Rivero Yeverino, Daniela[29]; Martínez Guzmán, Edgar[30]; Pérez Ortiz, Cinthia Elizabeth[31]; Villa Médica, Leonor.[32]

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Resumen	Introduction: Allergen immunotherapy (AIT) brings along changes in the immune system, restoring dendritic cell function, reducing T2 inflammation and augmenting the regulatory cell activation. Coronavirus disease (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections, interferes with the immune system causing immune suppression during the first phase and over-activation in more advanced disease. We decided to explore the interaction of both in a real-world observational trial. Methods: We registered COVID-19 outcomes in patients with allergic disorders in Latin America, treated with and without AIT. The registry was conducted during the first 1.3 years of the pandemic, with most of the data collected before COVID-19 vaccination was concluded in most countries. Data collection was anonymous via a web-based instrument. Ten countries participated. Results: 630/1095 (57.6%) of the included patients received AIT. Compared to patients without AIT, those treated with AIT had a reduced risk ratio (RR) for COVID-19 lower respiratory symptoms (RR 0.78, 95% CI: 0.6703-0.9024; p = 0.001662) and need for oxygen therapy (RR 0.65, 95% CI: 0.4217-0.9992; p = 0.048). In adherent patients on maintenance sublingual immunotherapy/subcutaneous immunotherapy (SLIT/SCIT) the RR reduction was larger [RR = 0.6136 (95% CI 0.4623-0.8143; p < 0.001) and RR: 0.3495 (95% CI 0.1822-0.6701; p < 0.005), respectively]. SLIT was slightly more effective (NS). We excluded age, comorbidities, level of health care attendance, and type of allergic disorder as confounders, although asthma was related to a higher frequency of severe disease. When analyzing patients with allergic asthma (n = 503) the RR reduction favoring AIT was more pronounced with 30% for lower respiratory symptoms or worse (RR 0.6914, 95% CI 0.5264 to 0.9081, p = 0.0087) and 51% for need of oxygen therapy or worse (RR 0.4868, 95% CI 0.2829-0.8376, p = 0.0082). Among severe allergic patients treated with biologics (n = 24) only 2/24 needed oxygen therapy. There were no critical cases among them. Conclusion: In our registry AIT was associated with reduced COVID-19 severity.
Palabras claves	Allergen immunotherapy; Allergic asthma; COVID-19; Oxygen therapy; Registry; Severe COVID-19.

Revista	**PAIN**
ISSN	eISSN: 1872-6623
DOI	http://dx.doi.org/10.1097/j.pain.0000000000002763
Título del Artículo	Activation of α6-containing GABAA receptors induces antinociception under physiological and pathological conditions.
Autores e instituciones de adscripción	Rodríguez-Palma, Erick J. [1]; De la Luz-Cuellar, Yarim E. [1]; Islas-Espinoza, Ana M. [1]; Félix-Leyva, Adalberto E. [1,2]; Shiers, Stephanie, I [3]; García, Guadalupe [4]; Torres-López, Jorge E. [5]; Delgado-Lezama, Rodolfo [6]; Murbartián, Janet [4]; Price, Theodore J. [3]; Granados-Soto, Vinicio. [1] [[1] Neurobiology of Pain Laboratory, Departamento de Farmacobiología, Cinvestav, Mexico City, Mexico [2] Facultad de Biología, Universidad Autónoma de Sinaloa, Culiacán, Mexico [3] School of Behavioral and Brain Sciences, Center for Advanced Pain Studies, University of Texas at Dallas, Richardson, TX, United States [4] Departamento de Farmacobiología, Cinvestav, Mexico City, Mexico [5] Laboratorio de Mecanismos de Dolor, División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico [6] Departamento de Fisiología, Biofísica y Neurociencias, Cinvestav, Mexico City, Mexico
Resumen	The loss of GABAergic inhibition is a mechanism that underlies neuropathic pain. Therefore, rescuing the GABAergic inhibitory tone through the activation of GABAA receptors is a strategy to reduce neuropathic pain. This study was designed to elucidate the function of the spinal α6-containing GABAA receptor in physiological conditions and neuropathic pain in female and male rats. Results show that α6-containing GABAA receptor blockade or transient α6-containing GABAA receptor knockdown induces evoked hypersensitivity and spontaneous pain in naive female rats. The α6 subunit is expressed in IB4+ and CGRP+ primary afferent neurons in the rat spinal dorsal horn and dorsal root ganglia but not astrocytes. Nerve injury reduces α6 subunit protein expression in the central terminals of the primary afferent neurons and dorsal root ganglia, whereas intrathecal administration of positive allosteric modulators of the α6-containing GABAA receptor reduces tactile allodynia and spontaneous nociceptive behaviors in female, but not male, neuropathic rats and mice. Overexpression of the spinal α6 subunit reduces tactile allodynia and restores α6 subunit expression in neuropathic rats. Positive allosteric modulators of the α6-containing GABAA receptor induces a greater antiallodynic effect in female rats and mice compared with male rats and mice. Finally, α6 subunit is expressed in humans. This receptor is found in CGRP+ and P2X3+ primary afferent fibers but not astrocytes in the human spinal dorsal horn. Our results suggest that the spinal α6-containing GABAA receptor has a sex-specific antinociceptive role in neuropathic pain, suggesting that this receptor may represent an interesting target to develop a novel treatment for neuropathic pain.
Palabras claves	α6-containing GABAA receptor, Neuropathic pain, Allodynia, Spontaneous pain

Revista	**ONCOLOGY REPORTS**
ISSN	eISSN:1791-2431
DOI	https://doi.org/10.3892/or.2023.8496
Título del Artículo	Modulating epigenetic modifications for cancer therapy Review
Autores e instituciones de adscripción	Leonardo Josué Castro-Muñoz[1]; Elenaé Vázquez Ulloa [2][3]; Cecilia Sahlgren [2][3][4][5]; Marcela Lizano [6][7]; Erick De La Cruz-Hernández [8]; Adriana Contreras-Paredes [6] [1] The Wistar Institute, Philadelphia, PA 19104, USA. [2] Faculty of Science and Engineering/Cell Biology, University of Turku and Åbo Akademi University, Turku 20500, Finland.[3] Turku Bioscience, University of Turku and Åbo Akademi University, Turku 20500, Finland [3] Unidad de Investigacion Biomedica en Cancer, Instituto Nacional de Cancerología-Universidad Nacional Autonoma de Mexico, Ciudad de Mexico 14080, Mexico. [4} Laboratory of Research in Metabolic and Infectious Diseases, Multidisciplinary Academic Division of Comalcalco, Juarez Autonomous University of Tabasco, Comalcalco, Tabasco 86650, Mexico.
Resumen	Cancer is a global public health concern. Alterations in epigenetic processes are among the earliest genomic aberrations occurring during cancer development and are closely related to progression. Unlike genetic mutations, aberrations in epigenetic processes are reversible, which opens the possibility for novel pharmacological treatments. Non coding RNAs (ncRNAs) represent an essential epigenetic mechanism, and emerging evidence links ncRNAs to carcinogenesis.

Resumen	Epigenetic drugs (epidrugs) are a group of promising target therapies for cancer treatment acting as coadjuvants to reverse drug resistance in cancer. The present review describes central epigenetic aberrations during malignant transformation and explains how epidrugs target DNA methylation, histone modifications and ncRNAs. Furthermore, clinical trials focused on evaluating the effect of these epidrugs alone or in combination with other anticancer therapies and other ncRNA based therapies are discussed. The use of epidrugs promises to be an effective tool for reversing drug resistance in some patients with cancer.
Palabras claves	Cancer; therapy; epigenetic mechanisms; non-coding RNA; epigenetic drugs

Revista	**ECOSISTEMAS Y RECURSOS AGROPECUARIOS**
ISSN	eISSN: 2007-901X
DOI	https://doi.org/10.19136/era.a10n1.3269
Título del Artículo	Age and growth of Aplodinotus grunniens (Perciform: Sciaenidae) in the mid-Usumacinta River
Autores e instituciones de adscripción	Hernández-Gómez, R. E. [1], Contreras -Sánchez, W. M. [2], Perera-García, M. A. [3], Cuenca-Soria, C. A. [2], & Valenzuela-Córdova, I. [2] [1] División Académica Multidisciplinaria de los Ríos, Universidad Juárez Autónoma de Tabasco. Col. Solidaridad, Tenosique-Estapilla Km. 1. CP. 86900. Tabasco, México. [2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco. VillahermosaCárdenas Km. 0.5 S/N, Entronque a Bosques de Saloya. CP. 86039.Tabasco, México. [3] División Académica de Ciencias Agropecuarias, División Académica de Ciencias Agropecuarias, Km. 25.0 Villahermosa-Teapa. CP. 86900. Tabasco, México.
Resumen	Aplodinotus grunniens represent a crucial artisanal fishery in the Usumacinta River's middle basin that generates food and a subsistence economy. This study aimed to create a model that best describes growth for A. grunniens and provides information on the growth of this poorly known species from the Usumacinta River. Data collection was carried out over one year through monthly sampling. A total of 447 specimens were collected from January to December 2017.Von Bertalanffy's growth constants were calculated by separate sexes using linear fit and the non-linear Levenberg-Marquardt method. Hotelling's T-squared test showed that growth was significantly faster in females than males. The estimated age at first maturity was two years in males and three in females. Considering the age reported for A. grunniens in other studies, the age determined in this study indicates that the population could be overexploited. Larger fish are more vulnerable to fishing pressure, mainly during their highest reproductive activity when they aggregate for spawning. More research is needed to evaluate the population status, catch per uniteffort, distribution, and abundance of adults, juveniles, and larvae.
Palabras claves	Topuche, Freshwater drum, artisanal fishery, fishing pressure.

Revista	**ECOSISTEMAS Y RECURSOS AGROPECUARIOS**
ISSN	ISSN-e 2007-901X,
DOI	https://doi.org/10.19136/era.a10n1.3586
Título del Artículo	Análisis beneficio-costo de techos verdes extensivos en condiciones del trópico húmedo en Villahermosa, México
Autores e instituciones de adscripción	De la Cruz-Uribe, A. [1], Jesús-Castañeda, M. Ángel [1], Bolívar-Fuentes, R. C. [1], Laines-Canepa, J. R. [1], & Hernández-Barajas, J. R. [1] [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas km 0.5, CP. 86287, Villahermosa, Tabasco, México.
Resumen	El objetivo fue analizar la rentabilidad del proyecto de instalación de techos verdes extensivos en viviendas ubicadas en un clima tropical húmedo, considerando el efecto de diversos parámetros sobre la relación beneficio costo y el periodo de recuperación de la inversión.

Resumen	Los beneficios ambientales se estimaron a partir del análisis de ciclo de vida, mientras que el análisis de costos unitarios permitió determinar el efecto de la disponibilidad de materiales sobre los costos de instalación. El análisis monetizó dos beneficios ambientales: el ahorro de energía eléctrica y la captura de carbono, a partir del valor presente neto de los costos de instalación, mantenimiento, desmantelamiento y disposición final. Se determinó que la relación beneficio-costo varía entre 1.1 y 3.8 con periodos de recuperación de 3.4 a 8.9 años, en función de la disponibilidad de materiales, los indicadores económicos, las acciones de mantenimiento y la recompensa potencial con bonos de carbono al propietario.
Palabras claves	Cambio climático; COVID; inversión; periodo de recuperación; sostenibilidad

Revista	**ECOSISTEMAS Y RECURSOS AGROPECUARIOS**
ISSN	eISSN: 2007-901X
DOI	https://doi.org/10.19136/era.a10n2.3535
Título del Artículo	Diversidad de murciélagos filostómidos en vegetación ribereña, Tabasco, México
Autores e instituciones de adscripción	Pérez-Netzahual, E. [1], Santiago- Plata, V. M. [2], & García-Morales, R. [3] [1] División Académica de Ciencias Biológicas (DACBiol), Universidad Juárez Autónoma de Tabasco (UJAT). Carretera Villahermosa-Cárdenas km 0.5, entronque a Bosques de Saloya. CP. 86039. Villahermosa, Tabasco, México. [2] Department of Fish and Wildlife Sciences, College of Natural Resources, University of Idaho, Moscow, Idaho 83844-1136, USA. [3] Centro de Cambio Global y la Sustentabilidad A.C. Calle Centenario del Instituto Juárez S/N Col. Reforma. CP. 86080. Villahermosa, Tabasco, México
Resumen	La vegetación ribereña en la cuenca del río Usumacinta en Tabasco, México constituye un ecosistema importante para el mantenimiento de la diversidad biológica, desgraciadamente es el más afectado por la expansión de la ganadería y la agricultura. Entender cómo la diversidad de murciélagos filostómidos se distribuye a lo largo de la franja de vegetación ribereña, es información para la toma de decisiones en la conservación del hábitat de la comunidad de murciélagos. El objetivo del estudio fue comparar la estructura y composición de los ensambles de murciélagos filostómidos en diferentes sitios de vegetación ribereña a lo largo del rio Usumacinta en Tabasco, México. Durante siete meses se realizaron capturas de murciélagos filostómidos con cuatro redes de niebla en seis diferentes sitios con vegetación ribereña. La estructura y composición se describió y comparó entre sitios con base en el número efectivo de especies, curvas-rango abundancia e índice de complementariedad. Se registraron 541 individuos agrupados en 15 especies, el 67% de las especies pertenecen a la subfamilia Stenodermatinae. No se encontraron diferencias entre la riqueza y diversidad de murciélagos filostómidos, sin embargo, se observó diferencias en la composición del ensamble entre sitios. El presente estudio aporta información básica que servirá en la toma de decisiones para conservar la diversidad de murciélagos en vegetación ribereña en el estado y la región.
Palabras claves	Chiroptera; composición; frugívoros; matriz agropecuaria; Stenodermatinae.

Revista	**HORIZONTE SANITARIO**
ISSN	ISSN: 2007-7459,
DOI	https://www.scielo.org.mx/pdf/hs/v22n1/2007-7459-hs-22-01-181.pdf
Título del Artículo	Food guide of the Mexicanized Mediterranean Diet
Autores e instituciones de adscripción	Sierra, Ángel [1]; Cortés García, M. F. [2]; Hernández Núñez, Y. [3]; Priego Álvarez, H. R. V [4]; Vergara Galicia, J. [5]; & Hernández Díaz, V. [6] [1]. Doctor en Medicina Universidad Autónoma de Barcelona, Docente investigador en Universidad Olmeca, Red Iberoamericana de Mercadotecnia en Salud; Laboratorio Kakawlabs, Tabasco, México. [2]. Estudiante de la Licenciatura en Enfermería, Universidad Olmeca, Tabasco, México. [3]. Estudiante de la Licenciatura en Enfermería, Universidad Olmeca, Tabasco, México. [4]. Doctor en Ciencias de la Salud (orientación en ciencias socio médicas). Universidad Juárez Autónoma de Tabasco, Red Iberoamericana de Mercadotecnia en Salud, Tabasco, México.

Autores e instituciones de adscripción	[5]. Doctor en Farmacia. Centro Universitario de Tonalá de la Universidad de Guadalajara, Jalisco, Laboratorio Kakawlabs. Tabasco, México. [6]. Maestra en Docencia en Ciencias de la Enfermería. Universidad Olmeca, Tabasco, México.
Resumen	Objective: To create the infographic of the Mexicanized Mediterranean Diet food guide and evaluate its understanding. Material and Methods: Descriptive type study, which consisted of two phases, the 1st. The infographic of the Mexicanized Mediterranean Diet food guide was created. 2nd Appreciation and comprehension of the food guide infographic was evaluated online for the university population, including relatives and acquaintances. Results: 273 participants with an average age of 42, 74% women and 26% men, more than 94% of the participants responded that they understood the infographic in its entirety. DMM is practical, applicable, affordable, understandable, good for humans and the environment. Conclusion: The Mediterranean Diet can partially or totally prevent metabolic syndrome, the Mexicanized Mediterranean Diet food guide promotes a healthy life and well-being for all ages, supports the objectives of sustainable development, will be a practical, applicable public health tool, affordable, understandable, suitable for promotion in the Mexican population.
Palabras claves	Mediterranean Diet; Prevention; Dietary guidelines; Metabolic syndrome.

Revista	**HORIZONTE SANITARIO**
ISSN	eISSN 2007-7459
DOI	https://www.scielo.org.mx/pdf/hs/v22n2/2007-7459-hs-22-02-411.pdf
Título del Artículo	Quality assesment of the program to detect breast cancer Tabasco 2018
Autores e instituciones de adscripción	Hernández Vasconcelos, J. M. [1]; Santos Padrón, H. [2].; & Martínez Calvo, S. I. [3]; [1]. Licenciado en Enfermería, Máster en Salud Pública, Instituto Mexicano del Seguro Social. Cárdenas, Tabasco. México. [2]. Doctora en Ciencias de la Salud, Doctora en Gerencia Pública y Política Social, Profesora Adjunta de la Universidad Juárez Autónoma de Tabasco. Tabasco, México. [3]. Doctora en Ciencias, Profesora de Mérito, Investigadora de Mérito, Profesora Consultante. Escuela Nacional de Salud Pública. Habana, Cuba.
Resumen	Objective: To evaluate the quality of activities for the detection of breast cancer in the Strengthening Program for Medical Care in Tabasco in 2016. Materials and Method: A descriptive and retrospective research was carried out, through a documentary analysis using an ad hoc instrument, composed of (46 items) to evaluate the structure, processes and results, when executing the preventive activities of the Breast Cancer Program, included in the Strengthening Program to Medical Attention, operated by 13 Mobile Medical Units, in three municipalities of Tabasco during 2016. Results: In the structure was relevant the reduction in financing to operate the 13 Units, which contributed to the deterioration of activities, and although the number of operational personnel reached 84.62%, it lacked certified training on breast cancer; in the processes, the situational diagnosis was insufficient in 53.8%; the clinical breast examinations reached 25.69% of compliance in the target population, 19% in the teaching of clinical breast self-examination and the preparation of official records in 30.8% and in the results, user satisfaction was low (30.77%) and the impact of the program was not evaluated because it was not carried out in the period studied. Conclusions: The reduction in financing was considered as one of the main factors in the deterioration of the activities that for the detection of breast cancer, were carried out in the 13 Mobile Medical Units assigned to the Strengthening of Medical Care Program, which contributed to its low quality.
Palabras claves	Program evaluation; Breast neoplasms; Prevention & control; Quality of health care.

Revista	**HORIZONTE SANITARIO**
ISSN	eISSN 2007-7459
DOI	https://doi.org/10.19136/hs.a22n2.5485
Título del Artículo	Ethics and human rights in the hospital service by COVID-19

Autores e instituciones de adscripción	Leticia Palomeque Cruz. [1]; [1] Doctora en Derecho, Profesora Investigadora de la División Académica de Ciencias Sociales y Humanidades. Universidad Juárez Autónoma de Tabasco, México.
Resumen	Objective: To analyze the experiences of international organizations and the Government of Mexico in establishing recommendations to protect the human rights of users of hospital services due to COVID-19, taking into account medical ethics. Materials and methods: This research focused on a qualitative approach, where experiences, perspectives, and approaches to ethics and human rights during the COVID-19 pandemic were analyzed. With this, books, scientific articles, reports and official documents of the organizations and dependencies involved were studied. Results: In the coronavirus pandemic, health systems were forced to seek support from civil society to counter its negative effects on the economy and the protection of human rights. However, today, the task of the health sector continues, since cases of COVID-19 continue to arise, in addition, there are patients who still have sequelae and who must be treated without exclusion. So that timely, acceptable and affordable access to health services with sufficient quality continues to be privileged. Conclusions: The COVID-19 pandemic modified the enjoyment of human rights, including the right to health, for which reason medical work was modified based on the recommendations of international organizations and governments of the three levels. In the care of the health emergency, it was essential to protect human integrity; act with respect, solidarity, empathy and reciprocity; and understanding that everyone should be cared for without discrimination, that is, with inclusion and considering the existence of vulnerable groups, basing care on medical ethics and values.
Palabras claves	Human rights; COVID-19; Ethics; Public politics

Revista	**HORIZONTE SANITARIO**
ISSN	eISSN 2007-7459
DOI	https://www.scielo.org.mx/pdf/hs/v22n2/2007-7459-hs-22-02-247.pdf
Título del Artículo	Prevalence of surgical treatment in congenital heart disease
Autores e instituciones de adscripción	Vázquez Salinas, L. [1], Juan Martínez, M. E. [2], Mendoza Rendón, J. [3], Gutiérrez Chablé, L. E. [4], García Flores, M. [5], & Méndez Martínez, S. [6]; [1] Médico Pediatra, Instituto Mexicano del Seguro Social Hospital General Zona 20 "La Margarita" Puebla México. Departamento de Pediatría. Puebla, Puebla. [2] Médico Pediatra, Instituto Mexicano del Seguro Social HGZ 20 Puebla México. Departamento de Pediatría. Puebla, Puebla. [3] Médico Cirujano Universidad Popular Autónoma del Estado de Puebla México. Departamento de Ciencias de la Salud. Puebla, Puebla. [4] Médico Cirujano, Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de la Salud. Tabasco, México. [5] Médico Especialista en Medicina Familiar, Instituto Mexicano del Seguro Social, Coordinación Clínica de Educación e Investigación en Salud, Coordinación de Educación en Salud, Puebla, Puebla. [6] Médico Pediatra con Subespecialidad en Neonatología Coordinación de Planeación y Enlace Institucional, Instituto Mexicano del Seguro Social, Puebla, Puebla.
Resumen	Objective: To determine the prevalence of congenital heart disease (CHD) in a second level hospital that required surgical treatment. Material and methods: Descriptive study carried out in patients diagnosed with CHD in a second level hospital of the Mexican Social Security Institute (IMSS) in Puebla, Mexico during the period 2016-2017. Records of full-term newborns (NB) up to 14 years of age analyzing sociodemographic variables, type of CHD and short-circuit, presence of associated anomalies, and referral to a third level hospital for surgical treatment were included. Data were collected and analyzed using the SPSS Statistics v25 program. Results: The hospital prevalence of CHD that required referral to the third level hospital for surgical treatment was 6.8% in 2016 and 6.6% in 2017; the median age was 1 year. The 77.2% of CHDs were non-cyanotic, patent ductus arteriosus (PDA) was the most common shunt, and 19.2% had Down syndrome as an associated congenital anomaly. Conclusion: We obtained a similar prevalence to other regions of Mexico, with acyanotic CHD being the most frequent cause of surgical treatments. Timely detection and referral will improve care and quality of life in these patients.

Palabras claves	Congenital Heart Disease; Prevalence; Congenital Defects; Cardiology; Pediatrics.

Revista	**HORIZONTE SANITARIO**
ISSN	eISSN 2007-7459
DOI	https://www.scielo.org.mx/pdf/hs/v22n2/2007-7459-hs-22-02-445.pdf
Título del Artículo	Involuntary confinement during the COVID -19 Pandemic: Mental and psychosocial health costs
Autores e instituciones de adscripción	Viviana Castellanos-Suarez. [1]; [1] Doctora en Métodos Alternos de Solución de Conflictos y Derechos Humanos. Maestra en Psicología Jurídica y Criminología. Profesor Investigador Psicología, Universidad Juárez Autónoma de Tabasco. México. Investigador Principal, C.S.V. México.
Resumen	Objective: To identify the costs of involuntary confinement due to the COVID-19 pandemic in the mental and psychosocial health. Materials and methods: An exploratory documentary review of involuntary confinement and its costs in the human nature was carried out. Four descriptors and their combinations, mental health, health psychosocial, costs in the COVID -19 pandemic, and involuntary confinement were searched in bibliographic databases and online in journals and public organizations from 2019 to 2021. 20 studies were found. After selecting and analyzing the documentation five studies were excluded as they were not relevant. To analyze the data, the information was classified in mental health costs, identifying neurophysiological effects such as confusion in the fight-flight system and hyperactivation and/or hypoactivation of the nervous system, and in psychosocial costs in the face of confinement, such as the feeling of anticipated and continuous threat, anxiety, fear, sadness, pain, depression, over stress, trauma, vulnerability, and cultural changes. Results: The COVID-19 pandemic is unprecedented, historical, multinational and has a multidimensional impact. The lack of mitigation and the time exceeded resisting it has exposed the humans to continuous stressors that undermine confidence and cause uncertainty. In addition, during the pandemic, confinement brought with it high mental health costs of a neurological and psychosocial nature, such as overstress, anxious-depressive symptoms, vulnerability in personal and social integrity. Conclusions: It is necessary to generate emotional well-being strategies to reduce the impact on mental and psychic health and the social fabric by promoting the recovery of networks of empathy, benevolence, compassion, solidarity support, collectivizing pain and losses, thus recovering confidence and security in oneself and in others.
Palabras claves	Confinement; Mental Health Costs; Psychosocial Health Costs; Collectivization Of Pain.

Revista	**AMERICAN JOURNAL OF PRIMATOLOGY**
ISSN	eISSN:1098-2345
DOI	https://doi.org/10.1002/ajp.23538
Título del Artículo	Differences in sperm morphology between Alouatta palliata and Alouatta pigra are consistent with the intensity of sperm competition in each species
Autores e instituciones de adscripción	Hirst, Molly A. [1]; Rodas-Martínez, Alba Z.[2]; Milich, Krista M.[3]; Cortes-Ortiz, Liliana.[1] [1] Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, Michigan, USA [2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Tabasco, México [3] Department of Anthropology, Washington University in St. Louis, St. Louis, Missouri, USA
Resumen	The intensity of sperm competition, in which sperm compete within the female reproductive tract to reach and fertilize her eggs, varies in species with different mating systems. Sperm competition is more intense in species where males cannot monopolize access to reproductive females and females'mate with multiple males. In this scenario, a morphological change that increases the ability of sperm to reach and fertilize eggs should rapidly spread in the population, leading to sperm morphological differences between closely related species. Differences in sperm morphology have been reported among primate species with different mating systems. However, due to the inherent logistical and ethical difficulties to sample sperm from wild primates, the extent of variation in sperm morphology within species and among closely related species remains understudied.

Resumen	Here, we compared sperm morphological traits from two sister howler monkey species (Alouatta palliata and Alouatta pigra) that have different mating systems to investigate the effect of sperm competition on sperm morphological traits. We predicted that sperm from A. palliata, where females have more opportunities to mate with multiple males, would show differences in traits associated with increase sperm competitiveness compared to A. pigra where females mostly mate with the central male. We used linear mixed models to determine species differences in sperm morphology, controlling for individual variation. We found that midpieces and heads in A. palliata sperm were on average 26.2% and 11.0% longer, respectively, than those of A. pigra. Differences in these traits are important for sperm speed and hydrodynamic movement in other species and can affect fertilization success. This study provides empirical evidence of sperm morphological traits that evolved through sexual selection in sister primate species with different mating systems.
Palabras claves	Howler monkey, platyrrhines, sexual selection, sperm morphology

Revista	**CHEMISTRY-A EUROPEAN JOURNAL**
ISSN	ISSN: 0947-6539
DOI	https://doi.org/10.1002/chem.202301338
Título del Artículo	Reconsidering the Structures of C2Al4− and C2Al5−
Autores e instituciones de adscripción	Zhang, Chao-Jiang [1,2]; Ortiz-Chi, Filiberto [3]; Xu, Xi-Ling [1,2]; Xu, Hong-Guang [1,2]; Merino, Gabriel [4]; Zheng, Wei-Jun. [1,2]; [1] Beijing National Laboratory for Molecular Sciences (BNLMS) StateKey Laboratory of Molecular Reaction Dynamics Institute of Chemistry, Chinese Academy of Sciences Beijing 100190 (China) [2] University of Chinese Academy of Sciences Beijing 100049 (China) [3] Conahcyt-División Académica de Ciencias Básicas Universidad Juárez Autónoma de Tabasco Cunduacán 86690 Tabasco, (México) [4] Departamento de Física Aplicada Centro de Investigación y de Estudios Avanzados Unidad Mérida, km 6 Antigua Carretera a Progreso Apdo.Postal 73, Cordemex 97310 Mérida, Yucatán (México) E-mail: gmerino@cinvestav.mx
Resumen	The study of C2Al4−/0 and C2Al5−/0 was conducted using anion photoelectron spectroscopy and quantum chemical computations. The present findings reveal that C2Al4− has a boat-like structure, with a single C2 unit surrounded by four aluminum atoms. In contrast, the neutral C2Al4 species adopts a D2h planar structure with two planar tetracoordinate carbon (ptC) units, consistent with previous reports. Furthermore, the global minimum isomer of C2Al5− adopts a D3h symmetry, where the C2 unit interacts with five aluminum atoms. It was also found that a lower symmetry structure of C2Al5−, where all five aluminum atoms are located on the same side of the C2 unit, albeit slightly higher in energy compared to the D3h structure. These computations show that the D3h structure of C2Al5− is highly stable, exhibiting a large HOMO-LUMO gap.
Palabras claves	Carbon-aluminum cluster; computational chemistry; electronic structure; photoelectron spectroscopy

Revista	**JOURNAL OF MORPHOLOGY**
ISSN	eISSN:1097-4687
DOI	https://doi.org/10.1002/jmor.21641
Título del Artículo	From zero to ossified: Larval skeletal ontogeny of the Neotropical Cichlid fish Cichlasoma dimerus.
Autores e instituciones de adscripción	Beriotto, Agustina C. [1][2]; Vissio, Paula G. [1][2]; Gisbert, Enric [3]; Fernández, Ignacio [4]; Álvarez González, Carlos A. [5]; Di Yorio, Maria P. [1][2]; Sallemi, Julieta E. [1][2]; Sirkin, Daniela I. Pérez. [1][2]; [1] Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Departamento de Biodiversidad y Biología Experimental, Buenos Aires, Argentina [2] CONICET – Universidad de Buenos Aires, Instituto de Biodiversidad y Biología Experimental y Aplicada (IBBEA), CONICET, Buenos Aires, Argentina

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Resumen	The identification of skeletal elements, the analysis of their developmental sequence, and the time of their appearance during larval development are essential to broaden the knowledge of each fish species and to recognize skeletal abnormalities that may affect further fish performance. Therefore, this study aimed to provide a general description of the development of the entire skeleton highlighting its variability in Cichlasoma dimerus. Larvae of C. dimersus were stained with alcian blue and alizarin red from hatching to 25 days posthatching. Skeletogenesis began with the endoskeletal disk and some cartilage structures from the caudal fin and the splachnocranium, while the first bony structure observed was the cleithrum. When larvae reached the free-swimming and exogenous feeding stage, mostly bones from the jaws, the branchial arches, and the opercle series evidenced some degree of ossification, suggesting that the ossification sequence of C. dimerus adjusts to physiological demands such as feeding and ventilation. The caudal region was the most variable regarding meristic counts and evidenced higher incidence of bone deformities. In conclusion, this work provides an overview of C. dimerus skeletogenesis and lays the groundwork for further studies on diverse topics, like developmental plasticity, rearing conditions, or phylogenetic relationships.
Palabras claves	Alcian blue; Alizarin red; Bone; Cartilage; Deformities.

Revista	**INTERNATIONAL JOURNAL OF QUANTUM CHEMISTRY**
ISSN	eISSN:1097-461X
DOI	https://doi.org/10.1002/qua.27194
Título del Artículo	SurfinPES: Performing automated analysis of activation strain, energy decomposition, and reaction force
Autores e instituciones de adscripción	Quintal, Alan [1]; Dzib, Eugenia [1]; Murillo, Fernando [1]; Ortiz-Chi, Filiberto [2]; Fernández, Israel [3]; Merino, Gabriel. [1]; [1] Departamento de Física Aplicada, Centro de Investigacion y de Estudios Avanzados, Unidad Mérida, Mérida, Yucatán, Mexico [2] Conahcyt Division Académica de Ciencias Básicas, Universidad Juárez Autonoma de Tabasco, Cunduacán, Tabasco, Mexico [3] Departamento de Química Orgánica y Centro de Innovacion en Química Avanzada (ORFEO-CINQA), Facultad de Ciencias Químicas, Universidad Complutense, Madrid, Spain
Resumen	Analyzing activation strain, energy decomposition, and reaction force models is crucial for studying chemical reactivity and gaining quantitative insights into the factors that control energy barriers. However, manually preparing and processing the necessary data can be challenging and prone to errors. To address this issue, we introduce SurfinPES, a Python-based module in Eyringpy that automates data extraction and processing for these analyses. SurfinPES also allows monitoring of the evolution of primitive properties (geometrical and electronic) along the reaction coordinate. The module is user-friendly with a simple input format, making it accessible to any user inthe field of computational chemistry.
Palabras claves	Analysis of activation strain, energy decomposition analysis, reaction force analysis

Revista	**JOURNAL OF SOLID-STATE ELECTROCHEMISTRY**
ISSN	eISSN 1433-0768
DOI	https://doi.org/10.1007/s10008-023-05592-w
Título del Artículo	Electrochemical characterization of Al-Li alloys AA2099 and AA2055 for aeronautical applications: effect of thermomechanical treatments
Autores e instituciones de adscripción	Rivera Cerezo, H. [1]; Gaona Tiburcio, C. [1]; Cabral Miramontes, J. A. [1]; Bautista-Margulis, Raúl Germán [2]; Nieves Mendoza, D. [3]; Maldonado Bandala, E. [3]; Estupinan-López, F. H. [1]; Almeraya Calderón, F. [1]; [1] FIME-Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA), Universidad Autónoma de Nuevo Léon, Av. Universidad s/n Ciudad Universitaria, San Nicolás de los Garza N. L. 66455, Mexico [2] División Académica de Ciencias Bilógicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco C. P. 86040, Mexico [3] Facultad de Ingeniería Civil, Universidad Veracruzana, Xalapa 91000, Mexico
Resumen	Third-generation Al–Li alloys are high-performance materials that are very attractive for aircraft and aerospace applications due to their relatively low density, high specific strength, and stiffness.

Resumen	To study the effect of heat treatments on the electrochemical behavior of two high-performance aluminum-lithium alloys, in this work the electrochemical noise technique was used to evaluate the corrosion behavior of AA2099 and AA2055 alloys under three conditions of different heat treatments, an annealing treatment (T0), a second treatment in solid solution, followed by rapid cooling (quenching) and subsequent artificial aging (T6), and a third treatment in solid solution, tempering, cold deformation, and maturation artificial (T8). The time series obtained from the electrochemical noise tests were visually analyzed, as well as the statistical parameters such as localization index (LI), bias, and kurtosis. Analysis in the frequency domain was also performed by means of power spectral density (PSD) signals. In general, it was observed that the distribution of precipitates on the surface of the alloys considerably affects the corrosion performance, as well as the concentration of Cl-1 ions in the test electrolytes.
Palabras claves	Aluminum-lithium alloy T1 phase Electrochemical noise Precipitation Corrosion

Revista	**INTERNATIONAL JOURNAL OF DIABETES IN DEVELOPING COUNTRIES**
ISSN	eISSN 1998-3832
DOI	https://doi.org/10.1007/s13410-023-01232-1
Título de Artículo	Evaluation of HbA1c levels as probable diagnostic of depression symptoms in Mexican individuals with type 2 diabetes mellitus
Autores e instituciones de adscripción	Juárez-Rojop, Isela Esther [1]; Tovilla-Vidal, Gisselle [1]; López-Narváez, María Lilia [2]; Tovilla-Zarate, Carlos Alfonso [2]; Rodríguez-Sánchez, Esther [3]; González-Castro, Thelma Beatriz [4]; Fresan, Ana[5]; Ramírez-González, Dania [1]; Hernández-Diaz, Yazmín. [4]; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de La Salud, Gregorio Méndez 2838, Villahermosa, Comalcalco, Tabasco, Mexico [2] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Comalcalco, Comalcalco, Tabasco, Mexico [3] Hospital de Alta Especialidad Gustavo A. Rovirosa Pérez, Secretaría de Salud, Villahermosa, Tabasco, Mexico [4] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Jalpa de Méndez, Jalpa de Méndez, Tabasco, Mexico [5] Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de La Fuente Muñiz, Mexico City, Mexico
Resumen	Background: Depression is present in individuals with type 2 diabetes mellitus. Objective: We evaluated the sociodemographic, anthropometric, and clinical features of Mexican individuals with clinical depressive symptoms in order to identify predictors for depression symptoms; finally, we evaluated if HbA1c levels could be used as a probable diagnostic of depressive symptoms in individuals with type 2 diabetes mellitus. Methods: The population studied consisted of 376 Mexicans with diabetes who were interviewed to collect information about comorbidities and habits. The evaluation of depressive symptoms was performed using the Hamilton scale. For a possible clinical association between HbA1c levels and depressive symptoms, we performed chi-square tests ($\chi 2$)/ t tests. A multivariate logistic regression model with the backward conditional method was used to identify predictors of depressive symptoms. An ROC curve was plotted to assess the possible role of HbA1c as a diagnostic predictive test of depression symptoms. Results: A total of 42.8% ($n = 161$) individuals showed clinical depressive symptoms. When comparing individuals with and without depression symptoms, those with depression symptoms showed higher levels of glucose and HbA1c; additionally, gender ($p = 0.04$), age ($p = 0.006$), HbA1c ($p < 0.01$), and complications related to diabetes were predictive factors for clinical depressive symptoms ($p < 0.01$). However, HbA1c showed a low diagnostic accuracy for depressive symptoms, with an area under the ROC curve of 0.59. Conclusions: Our findings provided evidence of the sex, age, HbA1c levels, and medical complications as predictors of clinical depressive symptoms in individuals with diabetes mellitus. Nevertheless, HbA1c levels are not useful as a diagnostic instrument for depressive symptom severity in these Mexican individuals.
Palabras claves	Diabetes; HbA1c; ROC curve; Mexican population; Depression

Revista	**BOLETÍN DE LA SOCIEDAD ESPAÑOLA DE CERÁMICA Y VIDRIO**
ISSN	eISSN: 2173-0431
DOI	https://doi.org/10.1016/j.bsecv.2022.05.004
Título del Artículo	Sol-gel/hydrothermal synthesis of well-aligned ZnO nanorods
Autores e instituciones de adscripción	Torres Gómez, Fabiola del Carmen [1]; López Cervantes, José Luis[1]; López Rodríguez, Angélica Silvestre[1]; Sifuentes Gallardo, Pio[1,2]; Ramírez Morales, Erik [1]; Pérez Hernández, German [1]; Guillen Díaz, Juan Carlos[2]; Díaz Flores, Laura Lorena[1]; [1] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Col. Magisterial, Villahermosa, Tabasco, Mexico [2] Catedrático CONACYT in COMIMSA, Corporación Mexicana de Investigación en Materiales S.A. de C.V., Ciencia y Tecnología No. 790, Fracc. Saltillo 400, Saltillo, Coahuila, Mexico
Resumen	The nucleation and growth of ZnO nanorods by hydrothermal method onto seed layer deposited onto an ITO/PET substrate. Concentrations of 10 and 15 mM were used for the synthesis of the seed layer solution, as well as 10 and 15 mM for the hydrothermal treatment, it is noted that the entire process was carried out at low temperature (<100 °C). The synthesis of ZnO nanorods was carried out in two stages: (i) A nucleation process, using the sol–gel method to obtain a seed layer; and (ii) a growth process, using the hydrothermal process to promote the perpendicular growth of ZnO nanostructures. The X-ray diffraction (XRD) ZnO results revealed a preferential orientation along the (002) axis, with a wurtzite hexagonal structure. The crystallite size (27 nm) and Gibbs free energy of the films were calculated, which exhibited a minimum diameter for the nucleation of ZnO nanorods (22 and 30 nm of the core diameter). The thickness layer is between 200 and 500 nm. These results indicate that ZnO nanorods with an average diameter between 50 and 195 nm are obtained, oriented perpendicularly to the ITO/PET substrate, synthesized by a low temperature process. Their potential applications are in power generators and sensors.
Palabras claves	Zinc oxide Chemical synthesis Polymer-ceramic nanocomposites Gibbs free energy Thin films

Revista	**PAIN MANAGEMENT NURSING**
ISSN	ISSN: 1524-9042
DOI	https://doi.org/10.1016/j.pmn.2023.02.004
Título del Artículo	Chronic Pain and Depression are Increased in Outpatient Adults with Somatic Symptoms from Secondary Health Care Services
Autores e instituciones de adscripción	Fresan, Ana [1]; González-Castro, Thelma Beatriz [2]; Pool-García, Sherezada [3]; Tovilla-Zárate, Carlos Alfonso [4]; Cruz, Juan Pablo Sánchez de la [4]; López-Narváez, María Lilia [5]; Castillo-Ávila, Rosa Giannina [6]; Ramos-Méndez, Miguel Ángel [6]; [1] Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México [2] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Jalpa de Méndez, Tabasco, México [3] Hospital General de Comalcalco "Dr. Desiderio G. Rosado Carbajal", Secretaría de Salud, Comalcalco, Tabasco, México [4] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Comalcalco, Comalcalco, Tabasco, México [5] Hospital Chiapas Nos Une Dr. Gilberto Gómez Maza, Secretaría de Salud de Chiapas, Tuxtla Gutiérrez, Chiapas, México [6] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de la Salud, Villahermosa, Tabasco, México
Resumen	Background: Somatic symptom disorder is described as excessive thoughts, feelings, or behaviors related to physical symptoms. The presence of somatic symptoms has been associated with depression, alexithymia, and the presence of chronic pain. Individuals with somatic symptom disorder are frequent attenders of primary health care services. Aim: We focused on investigating if the presence of psychological symptoms, alexithymia, or pain could be risk factors for somatic symptoms in a secondary health care service. Methods: A cross-sectional and observational study. A total of 136 Mexican individuals who regularly attend a secondary health care service were recruited. The Visual Analogue Scale for Pain Assessment, the Symptom Checklist 90, and the Patient Health Questionnaire-15 were applied. Results: Of all the participants, 45.2% showed somatic symptoms. We observed that these individuals more frequently presented with complaints of pain ($\chi 2 = 18.4$, $p < .001$), as well as more severe ($t = –4.6$, $p < .001$), and prolonged ($\chi 2 = 4.9$, $p = 0.02$). They also exhibited higher severity in all psychological dimensions assessed ($p < .001$).

Resumen	Finally, cardiovascular disease (t = 2.52, p = .01), pain intensity (t = 2.94, p = .005), and SCL-90 depression (t = 7.58, p < .001) were associated with somatic symptoms. Conclusions: In this study, we observed a high frequency of somatic symptoms in outpatients attending secondary health care services. They may be accompanied by comorbid cardiovascular conditions, higher pain intensity, and other mental health-related symptoms, which may aggravate the general clinical picture presented by the patient seeking health care. The presence and severity of somatization should be taken into consideration in the first and second level health care services for an early mental state evaluation and treatment of these outpatients to have a better clinical assessment and health outcome.
Palabras claves	Somatization; health care services; pain intensity; depression.

Revista	**SMALL RUMINANT RESEARCH**
ISSN	eISSN: 1879-0941
DOI	https://doi.org/10.1016/j.smallrumres.2023.107031
Título del Artículo	Performance, milk fatty acid profile and oxidative status of lactating small ruminants supplemented with microalgae: A meta-analysis
Autores e instituciones de adscripción	Orzuna-Orzuna, José Felipe [1]; Chay-Canul, Alfonso Juventino [2]; Lara-Bueno, Alejandro[1]; [1] Departamento de Zootecnia, Universidad Autónoma Chapingo, Texcoco, Mexico [2] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico
Resumen	Microalgae are considered an effective strategy to improve the polyunsaturated fatty acid profile of ruminant milk. This meta-analysis aimed to evaluate the effects of dietary supplementation with microalgae (MIAs) on milk yield, oxidative status, and milk quality of lactating small ruminants. The data used were obtained from 20 peer-reviewed scientific articles. The weighted mean difference between experimental treatments (diets added with MIAs) and control treatments (diets without MIAs) was evaluated using the random-effects meta-analysis model. Higher dry matter intake and milk yield were observed in response to MIAs supplementation (P < 0.05). In addition, MIAs supplementation increased (P < 0.05) the contents of conjugated linoleic, α-linolenic, γ-linolenic, eicosapentaenoic, docosahexaenoic, total polyunsaturated, and total omega-3 fatty acids in milk. In blood plasma, higher (P < 0.05) concentrations of superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase were observed in response to MIAs supplementation. In milk, MIAs supplementation decreased fat content (P < 0.001) and increased SOD and CAT content (P < 0.05). In conclusion, the dietary inclusion of MIAs could be used as a nutritional strategy to improve the performance and fatty acid profile in the milk of small ruminants. Furthermore, MIAs supplementation could be used to improve the oxidative status of blood plasma and milk of lactating small ruminants.
Palabras claves	Polyunsaturated fatty acids; milk constituents; milk components; plasma (blood); feeding stuffs; butterfat

Revista	**VACUUM**
ISSN	ISSN: 0042-207X
DOI	https://doi.org/10.1016/j.vacuum.2023.112276
Título del Artículo	Ag nanoparticle dispersed TiO2 thin films by single step sol gel process: Evaluation of the physical properties and photocatalytic degradation
Autores e instituciones de adscripción	Pérez, J. A. Borrego [1,2]; Morales, E. R. [3]; Delgado, F. Paraguay [4]; Avendaño, C. A. Meza [5]; Guzmán, E. M. Alonso [2]; Mathews, N. R. [1]; [1] Instituto de Energías Renovables, Universidad Nacional Autónoma de México, Temixco, Morelos 62580, México [2] Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, 58040, México [3] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Av. Universidad S/N, Col. Magisterial, C.P. 86040, Villahermosa, Tabasco, México [4] Centro de Investigación en Materiales Avanzados SC, CP 31136 Chihuahua, México [5] Instituto de Investigación e Innovación en Energías Renovables, Universidad de Ciencias y Artes de Chiapas, Tuxtla Gutiérrez, Chiapas, 29039, México.

Resumen	The photocatalyst must be low cost, high performing, and recyclable for efficient water treatment applications. Herein, we deposited TiO2 and Ag-dispersed TiO2 thin films via sol-gel spin coating and post-deposit annealing at 400 °C for 50 min. The physical properties of TiO2 and Ag: TiO2 thin films were analyzed by X-ray, Raman analysis, Atomic Force Microscope, Scanning Electron Microscopy, Electron Dispersive Spectroscopy, Transmission Electron Microscopy, and UV–visible transmittance spectroscopy. The structural evaluation established that the films were of anatase phase without any peaks related to metallic Ag or Ag oxides. The scanning transmission electron microscopy images demonstrated the presence of Ag nanoparticles with a diameter of ~8 nm distributed on the film surface. The cross-sectional images from the high-angle annular dark-field scanning transmission electron microscopy confirmed the presence of Ag nanoparticles along the thickness of the Ag: TiO2 thin films. The optical bandgap of the Ag: TiO2 samples red shifted from 3.35 eV to 3.00 eV when the doping concentration reached 8 wt%. Photocatalysis showed by all samples were analyzed following the degradation of methylene blue (MB) with UV-light illumination. The Ag: TiO2 thin films demonstrated a substantial improvement in photocatalytic efficiency. The 4 wt% Ag doped TiO2 sample degraded 98% of MB in 180 min, a degradation efficiency 60% higher than the undoped samples.
Palabras claves	Ag nanoparticle TiO2 thin films; Structural; Optoelectronic properties; Photocatalysis.

Revista	**JOURNAL OF THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM**
ISSN	eISSN: 1469-7769
DOI	https://doi.org/10.1017/S0025315423000413
Título del Artículo	Encountering the morphological and molecular complexity in the bramble shark Echinorhinus cf. E. brucus (Bonnaterre 1788) from the Oman Sea
Autores e instituciones de adscripción	Morales-Ávila, José Raúl [1,2]; Al-Jufaili, Sarah [1]; Alvarez-Pliego, Nicolas [3]; Saldierna-Martínez, Ricardo J. [4]; [1] Fishery Quality Control Centre, Ministry of Agriculture, Fisheries Wealth, and Water Resources, P.O. Box 427, 100 Al Bustan-Muscat, Oman [2] Aquaculture Center, Ministry of Agriculture, Fisheries Wealth, and Water Resources, P.O. Box 427, 100 Al Bustan-Muscat, Oman [3] Diagnóstico y Manejo de Humedales Tropicales, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, 0.5 km carretera Villahermosa-Cárdenas, 86039 Villahermosa, Tabasco, Mexico [4] Departamento de Plancton y Ecología Marina, Instituto Politécnico Nacional, Centro Interdisciplinario de Ciencias Marinas (CICIMAR), Avenida IPN s/n, La Paz, BCS, 23096, México
Resumen	This is the first simultaneous morphological and barcoding characterization with the cytochrome c oxidase subunit I (COI) of the bramble shark Echinorhinus from the coast of Oman. The morphology of the specimen was consistent with previous records of Echinorhinus from the Gulf of Oman and the Arabian Sea (Northwestern Indian Ocean). However, the new COI haplotype clustered together with homologous sequences of specimens from India. The specimen from Oman distinguished morphologically and genetically from an E. brucus from the Western Atlantic Ocean on the shape and size of the dermal denticles, the proportions of twelve morphometric measurements (differences ≥ 3%) and the genetic p-distance = 3.8% of the COI fragment. The haplotype reported here increases the genetic diversity in genus Echinorhinus in the Northwest Indian Ocean, demonstrates conspecificity between specimens from Oman and Echinorhinus cf. E. brucus distributed in India and extends its range of distribution. The limited morphological and molecular data available constrained assigning our specimen to other than Echinorhinus cf. E. brucus (Bonnaterrez, 1788). Our findings highlight the urgent need of morphological review, redescription and the assignment of a neotype in order to guarantee accurate species identification and thus effective conservation measures for these deep-sea sharks. The existence of a third living species in the genus is briefly discussed.
Palabras claves	COI; echinorhinidae; Indian Ocean; morphology

Revista	**SYNTHESIS-STUTTGART**
ISSN	eISSN: 1437-210X
DOI	https://doi.org/10.1055/s-0041-1738451
Título del Artículo	Synthesis and Cytotoxic Evaluation of 2-Aryl-7,8-dihydroquinolin-65 H -ones
Autores e instituciones de adscripción	Bautista, Diego Diaz [1]; Ble González, Ever A. [1]; Chávez Santos, Rosa María [2]; Ramírez Apan, María Teresa [2]; Vilchis Reyes, Miguel A. [1]; Martínez, Roberto. [2]; [1] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa Km 1, Col. La Esperanza, Cunduacán, C.P. 86690, Tabasco, Mexico [2] Instituto de Química, Universidad Nacional Autónoma de México, Circuito Exterior, Ciudad Universitaria, Coyoacán, Ciudad de México, 04510, México
Resumen	Herein we present a facile four-step synthetic method for the synthesis of novel 2-aryl-substituted 7,8-dihydroquinolin-6(5H)-ones as cytotoxic agents. The key step was the use of Mannich salts derived from acetophenones as a Michael acceptor in the reaction with cyclohexane-1,4-dione monoethylene acetal to give 1,5-dicarbonyl compounds that were treated with ammonium acetate to give the 7,8-dihydroquinolin-6(5H)-ones. The cytotoxic activity of the synthesized compounds was evaluated against seven cell lines. The observed data showed good selectivity for chronic myeloid leukemia line K-562. The synthetic route was simple and applicable to various functional group containing substrates. These types of compounds may be utilized as lead compounds in cancer research and drug discovery.
Palabras claves	7,8-dihydroquinolin-6(5H)-one; cytotoxic test; Mannich salts; leukemia; K-562 cell line

Revista	**PHYSICA SCRIPTA**
ISSN	eISSN: 1402-4896
DOI	https://doi.org/10.1088/1402-4896/acf3b5
Título del Artículo	Canonical analysis and modified Faddeev-Jackiw approach for the Jackiw-Teitelboim model in two dimensions.
Autores e instituciones de adscripción	Cabrera, Jaime Manuel [1]; Paulin Fuentes, Jorge Mauricio[1]; [1] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Km 1 Carretera Cunduacán-Jalpa, Apartado Postal 24, 86690 Cunduacán, Tabasco, Mexico
Resumen	This article presents an analysis of the constraints of the Jackiw-Teitelboim model in two dimensions via the canonical analysis using the Dirac algorithm and modified Faddeev-Jackiw (FJ) approach. The analysis primarily focuses on the identification of constraints, gauge transformations, counting of physical degrees of freedom, and the generalized FJ brackets and Dirac's brackets. To ensure gauge symmetry within the symplectic formalism and maintain consistency with the Dirac formalism, we employ the Montani-Wotzasek method, which effectively utilizes the zero modes of the symplectic matrix. Additionally, the Poincaré symmetry and diffeomorphisms in the model are identified. Finally, we present the equivalence between the generalized FJ and Dirac brackets when all the second-class constraints are treated as zero equations.
Palabras claves	Hamilton dynamics; Faddeev-Jackiw symplectic formalism; topological theories

Revista	**COMMUNICATIONS IN THEORETICAL PHYSICS**
ISSN	ISSN: 1572-9494
DOI	https://doi.org/10.1088/1572-9494/acded8
Título del Artículo	A charged star with geometric Karmarkar condition
Autores e instituciones de adscripción	Estevez-Delgado, Gabino [1]; Estevez-Delgado, Joaquín [6,2]; Soto-Espitia, Rafael [3]; Romero, Antonio Rendon [4]; Paulin-Fuentes, Jorge Mauricio. [5]; [1] Facultad de Químico Farmacobiología de la Universidad Michoacana de San Nicolás de Hidalgo, Tzintzuntzan No. 173, Col. Matamoros, Morelia Michoacán, C.P. 58240, México

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Resumen	In this paper, we analyse an analytical solution of the Einstein–Maxwell field equations that considers matter with anisotropic pressures in a static and spherically symmetric geometry. We report the manner in which we obtained the solution, which is by means of the Karmarkar condition. For the model, we assume a state equation that describes the interaction of matter from quarks $P = (c2\rho - 4Bg)/3$ and we consider the presence of electric charge, which can generate that the radial and tangential pressures are not equal. In a graphic manner, we analyse the physical properties of the model, taking as the observational data those of mass $1M_{\odot}$ and radius 7.69 km which were reported for the star Her X-1. The charge values are found between $5.57 \times 1018C \leq Q \leq 1.31 \times 1020C$ and the interval of the Bag constant $Bg \in [118.7, 122.13]$MeV/fm3. Also, we show the stability of the configuration by means of the static stability criteria of Harrison–Zeldovich–Novikov ($\partial M \partial \rho c > 0$), as well as in regards to infinitesimal radial adiabatic perturbation, since the adiabatic index $\gamma > 3.3$ which guarantees the stability of the solution.
Palabras claves	General relativity; exact solutions; anisotropic fluid; Karmarkar condition

Revista	**COMMUNICATIONS IN THEORETICAL PHYSICS**
ISSN	ISSN: 0253-6102
DOI	https://doi.org/10.1088/1572-9494/acded8
Título del Artículo	Relativistic charged stellar modeling with a perfect fluid sphere
Autores e instituciones de adscripción	Estevez-Delgado, Joaquín [1]; Rodríguez Ceballos, Joel Arturo [2]; Paulin-Fuentes, Jorge Mauricio [3]; Vega Cabrera, José [1]; Rendón Romero, Antonio. [4]; [1] Facultad de Ciencias Físico Matemáticas de la Universidad Michoacana de San Nicolás de Hidalgo, Edificio B, Ciudad Universitaria, Morelia Michoacán, CP 58040, Mexico [2] Facultad de Químico Farmacobiología de la Universidad Michoacana de San Nicolás de Hidalgo, Tzintzuntzan No. 173, Col. Matamoros, Morelia Michoacán, C.P. 58240, Mexico. [3] División Académica de Ciencias Básicas de la Universidad Juárez Autónoma de Tabasco, Carretera Cunduacán-Jalpa Km. 1, Col. La Esmeralda, 86690, Cunduacán, Tabasco, Mexico [4] Facultad de Ingenieria Mecanica de la Universidad Michoacana de San Nicolás de Hidalgo Edificio W, Ciudad Universitaria, CP 58030, Morelia Michoacán, Mexico.
Resumen	In this report we present the generalization of a solution to Einstein's equations with perfect fluid for the case of Einstein–Maxwell with perfect fluid. The effect of the charge is reflected by a parameter, ν, and its interval is determined by the positivity condition from the pressure in the interior of the star. It is shown that the solution is stable according to the Zeldovich criteria as well as in relation to the criteria of the adiabatic index. The compactness, $u = GM/c2R$, of this charged model is greater than it is for the chargeless case as a result of the effect of the presence of the charge. This allows it to represent stars with a high compactness, in particular a graphic analysis is presented for the star SAX J1808.4-3658 with mass $M = 1.435M_{\odot}$ and radius R = 7.07 km. From these data and employing the solution, we obtain that the total maximum charge for the star is $Q = 2.4085 \times 1020$ C.
Palabras claves	General relativity; exact solutions; charged fluid; stars models

Revista	**JOURNAL OF THE WORLD AQUACULTURE SOCIETY**
ISSN	eISSN: 1749-7345
DOI	https://doi.org/10.1111/jwas.13014
Título del Artículo	Growth performance and gene expression of FAS, CPT1, G6P, and HK in juveniles of the freshwater prawn, Macrobrachium acanthurus, fed diets with different levels of protein, lipids, and carbohydrates

Autores e instituciones de adscripción	Frías Gómez, Susana Alejandra [1]; S. Powell, Madison [2]; Álvarez González, Carlos Alfonso [3]; Hernández Hernández, Luis Héctor [4]; [1] Posgrado en Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, Ciudad de México, Mexico. [2] Hagerman Fish Culture Experimental Station, Aquaculture Research Institute, University ofIdaho, Hagerman, Idaho, USA. [3] Laboratorio de Acuacultura Tropical, División Academica de Ciencias Biológicas, Universidad Juaréz Autónoma de Tabasco, Villahermosa, Tabasco, Mexico. [4] Laboratorio de Producción Acuícola, UNAMFES Iztacala, Tlalnepantla, Estado deMéxico, México
Resumen	A feeding trial with Macrobrachium acanthurus juveniles was performed to determine growth performance and utilization of diets varying in protein, lipid, and carbohydrate level. Twelve diets were formulated with three levels of protein (P) and supplemented with different proportions of lipids (L) and carbohydrates (C): P30-L20-C8, P30-L15-C19, P30-L12-C25, P30-L10-C31, P35-L20-C3, P35-L15-C15, P35-L10-C26, P35-L5-C38, P40-L15-C8, P40-L10-C19, P40-L5-C31, and P40-L1-C40. Lipids and carbohydrates were added allowing an overall energy content limit of 400 kcal per 100 g of diet. Each diet was fed to triplicate groups of juveniles with an initial weight of 60.9 ± 10.9 mg (mean ± SD) for 60 days. Overall growth performance and gene expression of fatty acid synthase (FAS), carnitine palmitoyltransferase 1 (CPT1), glucose-6-phosphatase (G6P), and hexokinase (HK) in the hepatopancreas were assessed. Highest weight gain values and specific growth rates were observed in prawns fed diets with 35% of protein inclusion. Expression of FAS was downregulated when fed 30% of protein. Results indicate M. acanthurus use protein as their primary source of energy and when this is low in the diet, lipids are used to spare the energy from proteins. Suggested inclusion of protein, lipids, and carbohydrates in diets for M. acanthurus should be 35%, 15%, and 15%, respectively.
Palabras claves	Freshwater prawn; gene expression; growth; nitrogen excretion; oxygen consumption.

Revista	**INTERNATIONAL JOURNAL OF PSYCHIATRY IN MEDICINE**
ISSN	ISSN: 0091-2174
DOI	https://doi.org/10.1177/00912174231199216
Título del Artículo	To the bone: Prevalence and correlates of depression and anxiety among orthopedic residents in Mexico
Autores e instituciones de adscripción	Fresan, Ana [1]; Robles-García, Rebeca [2]; Yoldi-Negrete, Maróa [1]; Guizar-Sánchez, Diana [3]; Tovilla-Zárate, Carlos-Alfonso. [4]; [1] Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico. [2] Centro de Investigación en Salud Mental Global, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico. [3] Departamento de Fisiología de la Facultad de Medicina, Universidad Nacional Autónoma de México, Mexico [4] División Académica Multidisciplinaria de Comalcalco, Universidad Juárez Autónoma de Tabasco, Mexico
Resumen	Objective: The present study examined among orthopedic residents the relationship between the presence of depressive or anxious symptoms and the degree of perfectionism, perceived work-related distress, and involvement in the care of patient(s) who died. Method: A cross-sectional online survey based on self-reported measures was used to collect the data from October 2019 to April 2021. Results: The sample consisted of 642 orthopedic residents (50.6% response rate; 70.9% male; average age 29.8 years old). A total of 12.5 and 18.4% reported depressive or anxious symptoms, respectively. On a scale of 0-100, the mean score of perceived work-related distress was 51.9. A third (33.6%) reported being involved in the care of patient(s) who had died. Higher levels of perceived work-related distress and higher scores on the indecision of action/perfectionism dimension were associated with depressive and anxious symptoms. Being involved in the care of patient(s) who had died was associated with having anxious symptoms (OR = 1.79; 95%CI = 1.18-2.72). Conclusions: These results highlight the need for the systematic monitoring of the mental health status of orthopedic residents in Mexico, particularly those who report a high level of work-related distress or perfectionism or who have recently experienced the death of a patient.
Palabras claves	Anxiety; depression; medical residency; orthopedics; patient death; perfectionism

Revista	**TROPICAL CONSERVATION SCIENCE**
ISSN	eISSN: 1940-0829
DOI	https://doi.org/10.1177/19400829231197966
Título del Artículo	Genetic Relationship Between Founders of a Threatened Freshwater Turtle in a Mexican Wildlife Management Unit. A Conservation Strategy
Autores e instituciones de adscripción	Gallardo-Álvarez, Manuel Ignacio [1]; Lesher-Gordillo, Julia María [1]; Machkour-MRabet, Salima [2]; Zenteno-Ruiz, Claudia Elena [1]; Olivera-Gómez, León David [1]; Recino-Reyes, Elsi Beatriz [1]; Montejo-Méndez, Heidi Beatriz [1]; Gómez-Carrasco, Guadalupe [1]; Hernández-Marón, Aminta [1]; Valdés-Marín, Alejandra. [1]; [1] Centro de Investigación para la Conservación y Aprovechamiento de los Recursos Tropicales (CICART) de la DACBiol, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico. [2] Laboratorio de Ecología Molecular y Conservación, Departamento de Conservación de la Biodiversidad, El Colegio de la Frontera Sur (ECOSUR), Chetumal, Mexico.
Resumen	Management Units for Wildlife Conservation (UMAs according to its Spanish acronym), are used for the ex-situ reproduction of freshwater turtles. These areas, often administered by local communities, are dedicated to conservation and sustainable management. The critically endangered freshwater turtle Dermatemys mawii has been successfully reproduced in several UMAs; however, no genetic management plan has been developed to maintain offspring genetic variability. Therefore, this study aims to determine the kinship relationship and homozygosity through the loci index of founder individuals in three UMAs devoted to the reproduction of D. mawii for the establishment of breeding groups. We collected skin samples of D. mawii in 2017 from 117 founder individuals from three UMAs located in the state of Tabasco, southeast Mexico. Ten specific D. mawii microsatellite markers were used for genotyping the founder individuals. We estimated the pedigree relationship between founders and proposed the formation of three breeding groups to optimize the use of related and non-related individuals to meet UMA-specific objectives and evaluated the genetic diversity retention of the breeding groups. The breeding groups were integrated as follows: 1) conservation breeding group consisting of 16 unrelated females and 7 unrelated males that presented a lower level of homozygosity (< 0.4); 2) research breeding group consisting of 45 females and 16 males that were unrelated or presented a half-sibling relationship and with a medium level of homozygosity (<0.6); and 3) a sustainable breeding group comprising 29 females and 4 males that were not necessarily unrelated and with a high level of homozygosity (> 0.6). Genetic diversity retention (Ho, He) was highest for the conservation breeder group and research breeder group. UMAs can create 3 breeding groups with different objectives: 1) species conservation, 2) research, and 3) sustainable use of species. All breeding groups can retain genetic diversity. Our proposal can enrich conservation actions and sustainable use for D. mawii at both national and international levels, specifically within the Mesoamerican corridor.
Palabras claves	Genetic diversity, genetic relatedness, Dermatemys mawii, captive breeding, breeding groups, conservation

Revista	**COMPUTACIÓN Y SISTEMAS**
ISSN	eISSN 2007-9737
DOI	https://doi.org/10.13053/cys-27-2-4621
Título del Artículo	A Partitional Clustering Approach for the Identification and Analysis of Coexisting Bacteria in Groups of Bacterial Vaginosis Patients
Autores e instituciones de adscripción	Hernández Gómez, Henry Jesús [1]; Canul-Reich, Juana. [1]; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias y Tecnologias de la Informacion, México.
Resumen	Bacterial vaginosis is a condition where there is a large ecosystem of microorganisms and an unclear pathogenesis, making it a disease complex in the dynamic of coexistence of bacteria in groups of patients. The main objective of this study is to provide a partitioning clustering model that allows further analysis of coexisting bacteria in a grouped way in BV-positive patients. K-Means variants (Lloyd, Forgy, Hartigan & Wong, and MacQueen) with three distance measures were applied to a BV dataset from an urban population in southeastern Mexico, which consists of 201 patient records with 15 attributes. In the clustering results obtained, it is possible to identify different notable groups of patients. The most prevalent coexisting bacteria between patients with BV were Atopobium + Gardnerella vaginalis with 31.37%, Atopobium + Megasphaera with 15.68% in the cluster that assigned all BV-positive patients.

Resumen	Whereas, the model that achieved to group BV-positive elements into different clusters, the coexisting bacteria were Atopobium + Gardnerella vaginalis with 56.25% and Atopobium + Megasphaera with 68.75% for group C1. The second group bacterial coexistence was Atopobium + Gardnerella vaginalis with 37.14%. Finally, we provided evidence that, using the partitioning algorithm, it was possible to create a clustering model that helps analyze the complex dynamics among bacteria in groups of patients with BV.
Palabras claves	Clustering, bacterial vaginosis, coexisting bacteria

Revista	**COMPUTACIÓN Y SISTEMAS**
ISSN	eISSN 2007-9737
DOI	https://doi.org/10.13053/cys-27-2-4622
Título del Artículo	Comparative Analysis of the Bacterial Foraging Algorithm and Differential Evolution in Global Optimization Problems
Autores e instituciones de adscripción	García-López, Adrián [1]; Chávez-Bosquez, Oscar [1]; Hernández-Torruco, José [1]; Hernández-Ocaña, Betania. [1]; [1] Universidad Juárez Autóonoma de Tabasco, División Académica de Ciencias y Tecnologias de la Informacion, México.
Resumen	There are bio-inspired metaheuristics in nature rarely used in areas where there is not domain or knowledge of computational algorithms, to mention some, medicine, finance and administration. TS-MBFOA, a bacteria-based algorithm and the Differential Evolution Algorithm (DEA), are metaheuristic algorithms proposed for the optimization of complex problems mathematically modeled as linear or non-linear problems. In this paper, these algorithms are implemented to analyze their performance in the search for better solutions in constrained optimization problems. Tests were conducted on four optimization problems known in the literature as benchmark problems. Both algorithms were run in 30 independent executions for each problem with the same number of generations and evaluations. Although the parameters of each algorithm are different, the number of evaluations was selected for a fair comparison. Results are similar for both algorithms, however, DEA obtains better results for the problem with the larger number of constraints. Additionally, DEA generates solutions in less time than TS-MBFOA. The nonparametric Wilcoxon Signed Rank Test indicates significant differences in only 3 problems. The convergence graph of both algorithms for each problem shows that after 50 generations, both algorithms are close to the best-known solution in the state of the art.
Palabras claves	Bacterial foraging, differential evolution, global optimization, metaheuristics

Revista	**REVISTA ESPAÑOLA DE NUTRICIÓN HUMANA Y DIETÉTICA**
ISSN	eISSN: 2174-5145
DOI	https://dx.doi.org/10.14306/renhyd.27.3.1918
Título del Artículo	Analysis of the relationship between the Body Mass Index and daytime sleepiness in university students from Mexico
Autores e instituciones de adscripción	Rodríguez-Pérez, Candelario [1]; Carreno-Ruiz, Santa Dolores [2]; Ojeda Ortiz, Rosa Felicitas [1]; Avalos Lázaro, Abisag Antonieta. [2]; [1] Universidad Juárez Autónoma de Tabasco. División Académica Multidisciplinaria de Jalpa de Méndez. (DAMJM) Tabasco, México. [2] Universidad Autónoma de Chiapas: Facultad Maya de Estudios Agropecuarios. (FMEA) Chiapas, México.
Resumen	Introduction: The prevalence of overweight, obesity and sleepiness are increasing more and more in the young Mexican population, however, this relationship has been scarcely studied in university students, therefore, the objective of this study was to analyze the relationship of the Body Mass Index (BMI) with sleepiness in an undergraduate student population in Tabasco, Mexico. Methodology: An analytical cross-sectional study was carried out in 155 students, determining their BMI, while sleepiness was evaluated using the Epworth Sleepiness Scale (ESS). The data obtained were analyzed independently and were combined in order to analyze the possible relationship between them. The statistical validity of this study was obtained through analysis developed in the SPSS statistics version 21 software.

Resumen	Results: 69.7% of the population was made up of men. The presence of overweight and obesity occurred in almost half of the population with 41.2%, being the group of women who have altered BMI means compared to men [mean 25.9 kg/m2 (SD: 4.7) vs. mean 24,1 kg/m2 (SD: 3.9)] p<0.01). With the ESE it was possible to observe that 37.4% of the students present some type of drowsiness, being the group of men the one that was observed with the greatest affectations. Regarding the analysis of the BMI with sleepiness, a p=0.00 with a confidence level of 95% was shown, confirming a relationship between these factors, with a low correlation coefficient. Conclusions: The degree of BMI tends to increase the level of sleepiness.
Palabras claves	Body Mass Index; Overweight; Obesity; Sleepiness.

Revista	**DIGEST JOURNAL OF NANOMATERIALS AND BIOSTRUCTURES**
ISSN	ISSN: 1842-3582
DOI	https://doi.org/10.15251/DJNB.2023.183.941
Título del Artículo	Synthesis of Ag-modified ZnO/MWCNT nanoparticles and their application as a catalyst in the degradation of methylene blue
Autores e instituciones de adscripción	Alejandro, E. M. López [1]; Ramírez Morales, E. [1]; Arellano Cortaza, M. C. [1]; Lázaro, J. P. Morán [2]; Pérez Hernández, G. [1]; Rojas Blanco, L. [1]; [1] Juárez Autonomous University of Tabasco, Avenida Universidad S/N, Col. Magisterial, Villahermosa, Tabasco. CP. 86040 México. [2] University of Guadalajara de Guadalajara, Los Valles University Center (CUValles), Carretera Guadalajara - Ameca Km. 45.5, 46600, Ameca, Jalisco, México.
Resumen	Ag-ZnO/MWCNT composites were obtained by microwave-assisted, varying-charge synthesis of multiwalled carbon nanotubes (MWCNT). The structural, morphological and optical properties were characterized by: XRD, SEM, TEM, Physisorption of N2 and UVVis. The incorporation of Ag ions and MWNTC caused changes in the structure tension and in the average crystallite size of ZnO. The micrographs revealed that ZnO agglomerates were distributed on the MWNTC and that Ag particles were deposited on the surface of the heterostructure, thus the energy gap decreased. The percentages of degradation of methylene blue were 98 and 75% under ultraviolet and visible radiation, respectively, in the Ag-ZnO/CNT composites.
Palabras claves	Semiconductor, Carbon nanotubes, Doping, Photocatalysis, Organic dyes.

Revista	**REVISTA MEXICANA DE BIODIVERSIDAD**
ISSN	eISSN: 2007-8706
DOI	https://doi.org/10.22201/ib.20078706e.2023.94.5013
Título del Artículo	New records of the genus Ganoderma Agaricomycetes, Polyporales for Mexico and Tabasco
Autores e instituciones de adscripción	Cappello-García, Silvia [1]; García-García, Manuel Antonio [1]; Rivas-Acuna, Ma. Guadalupe [1]; Carreno-Ruiz, Santa Dolores [2]; Cifuentes-Blanco, Joaquín. [3]; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Laboratorio de Micología, Km. 0.5, Carr. VillahermosaCárdenas entronque a Bosque de Saloya, 86150 Villahermosa, Tabasco, México [2] Universidad Autónoma de Chiapas, Facultad Maya de Estudios Agropecuarios, Carr. Catazajá-Palenque, Km. 4, 29980 Catazajá, Chiapas, México [3] Universidad Nacional Autónoma de México, Facultad de Ciencias, Herbario FCME, Ciudad Universitaria, Apartado postal 70-181, 04510 Ciudad de México, México
Resumen	The genus Ganoderma has been poorly studied in southeastern Mexico. The aim of this study was to contribute to the knowledge of diversity of species of the Ganoderma for Mexico and Tabasco. Two hundred and forty-seven herbarium specimens from 16 municipalities of the state were analyzed. The macro and micromorphological characteristics of the basidiomes were observed. Microscopic observations were made in KOH at 5%, and taxonomic determination was made using various specialized keys. Twenty-one species of Ganoderma were identified and described, of which 17 correspond to the subgenus Ganoderma

Resumen	and 4 to the subgenus Elfvingia. G. carnosum, G. dunense, G. lipsiense, G. multipileum, G. multiplicatum, G. neojaponicum, G. orbiforme, G. philippii, G. sichuanense, G. stipitatum, and G. subresinosum are new records for Mexico. These species are also new reports for Tabasco, including G. australe, G. oerstedii, G. oregonense, G. sessiliforme, G. tsugae, and G. zonatum. A dichotomous key is presented for the identified species. The inventory reflects the diversity of Ganoderma in Mexico and the Tabasco tropics.
Palabras claves	Subgenus Elfvingia; Lacquered basidioma; Xylophagous fungi; Echinulate basidiospores; Chorology

Revista	**INVESTIGACIÓN BIBLIOTECOLÓGICA**
ISSN	ISSN: 2448-8321
DOI	https://doi.org/10.22201/iibi.24488321xe.2023.95.58712
Título del Artículo	Satisfaction of the library service in a public university of the state of Tabasco
Autores e instituciones de adscripción	Juárez Solís, Sandra [1]; Zetina Pérez, Carlos David [1]; Martínez Flores, Bertha Juliana. [2]; [1] Grupo de Investigación GI-DACEA-21-2022, División Académica de Ciencias Económico Administrativas, Universidad Juárez Autónoma de Tabasco, México [2] Universidad Juárez Autónoma de Tabasco, México
Resumen	The main objective of the research is to analyze the level of user satisfaction, as well as to identify the influencing factors in the Manuel Bartlett Bautista central library lo-cated at the Juárez Autónoma University in the Centro municipality, Tabasco. The research is of a quantitative type with a descriptive scope and a non-experimental de-sign, the variables are analyzed independently, the unit of analysis was the Academic Division of Administrative Economic Sciences (DACEA), with a total population of 3,956 active students, of which 458 participated in the satisfaction study, five dimensions of service quality. The factors that significantly influenced the results are: the female gender, who showed greater satisfaction in the dimensions of tangibility, response time and security; the economics and marketing degrees also marked differences between the security dimension, one more factor that influenced was internet connectivity in the empathy dimension, adding that users with a job show less satisfaction. It was concluded that the users are satisfied, having to improve in the aspects of significance for the well-being and increase of the users in the library.
Palabras claves	Satisfaction; Library; Analysis; University

Revista	**REVISTA INTERNACIONAL DE MÉTODOS NUMÉRICOS PARA CALCULO Y DISEÑO EN INGENIERÍA**
ISSN	ISSN 0213-1315
DOI	https://doi.org/10.23967/j.rimni.2023.06.005
Título del Artículo	Application of the Discrete Elements Method for the simulation of a beam-column connection based on a self-centering system
Autores e instituciones de adscripción	Alvarez, Juan [1]; Gallegos, Sergio [1]; Cordero, Raymundo [1]; Ramírez, Aldo [1]; Zarate, Francisco [2]; Diaz, Sergio A.[3]; [1] Departamento de Ingeniería Civil, Instituto Tecnológico y de Estudios Superiores de Monterrey, México [2] Centro Internacional de Métodos Numéricos en Ingeniería (CIMNE), Universidad Politécnica de Cataluña - BarcelonaTech, España [3] Universidad Juárez Autónoma de Tabasco, México
Resumen	At present, the beam-column connection system through a self-centering post-tensioned connection is currently an alternative to improve the seismic behavior in reinforced concrete buildings; by allowing its elements to have a linear behavior (no damage) in the face of displacements produced by seismic actions. This paper deals with the numerical modeling of the seismic behavior for a self-centering connection based on the Discrete Element Method (MED) is presented, with the aim of validating the hysterical response of the numerical model with an experimental test of the literature. The results demonstrated the horizontal distortions in the column, which are the product of the numerical simulation of the model subjected to a load that increases over time with 4 different stiffness coefficients.

Resumen	In addition, the hysteretic graph is presented as a result of the numerical simulation of the model, with an adequate stiffness coefficient and normal damping, subject to a cyclic load that is reversed as a function of time. The movement of the connection is controlled by the horizontal distortions of the column, achieving an approximate reproduction of the hysterical behavior expected in this type of connection. With the results shown, a simple bilinear hysteresis law is proposed, which allows its simplified use for its application in the modeling of reinforced concrete buildings with self-centering connections.
Palabras claves	Discrete Element Method; self-centering; post-tensioning; numerical simulation; cable elements; hysteretic graph

Revista	**ETIC NET-REVISTA CIENTÍFICA ELECTRÓNICA DE EDUCACIÓN Y COMUNICACIÓN EN LA SOCIEDAD DEL CONOCIMIENTO**
ISSN	ISSN: 1695-324X
DOI	http://dx.doi.org/10.30827/eticanet.v23i1.27709
Título del Artículo	Digital marketing trends for digital platform-based social entrepreneurship
Autores e instituciones de adscripción	Guatemala Mariano, Alfredo [1]; Martínez Prats, German [1]; Martínez de Escobar Fernández, Arturo. [1]; [1] Universidad Juárez Autónoma de Tabasco (México)
Resumen	The aim of this research is to determine trends in digital marketing that can be applied to social entrepreneurship based on digital platforms, with a focus on the use of technologies such as artificial intelligence, virtual reality, and augmented reality. This presentsa range of opportunities for undertaking endeavors in the digital economy, fostering the development of solutions to social issues. However, it is important to understand the challenges and obstacles involved in successfully implementing the latest digital marketing trends for social entrepreneurship, with the goal of constructing high-impact, scalable value propositions. This necessitates up-to-date knowledge of the state of the art in the field. For this reason, a systematic literature analysis was conducted on the ScienceDirect platform to identify existing theoretical and practical knowledge. Four dimensions were identified: trends and technologies in digital marketing; implications of entrepreneurship based on digital platforms; digital marketing and social entrepreneurship; and strategies and tactics of digital marketing for social entrepreneurship.
Palabras claves	Digital marketing trends, digital platforms, social entrepreneurship.

Revista	**AGRICULTURE-BASEL**
ISSN	eISSN 2077-0472
DOI	https://doi.org/10.3390/agriculture13071446
Título del Artículo	Mathematical Models to Predict Dry Matter Intake and Milk Production by Dairy Cows Managed under Tropical Conditions
Autores e instituciones de adscripción	Gurgel, Antonio Leandro Chaves [1][2]; dos Santos, Geraldo Tadeu [2]; Itavo, Luis Carlos Vinhas [3]; Itavo, Camila Celeste Brandao Ferreira [3]; Difante, Gelson dos Santos [3]; Dias, Alexandre Menezes [3]; Longhini, Vanessa Zirondi [3]; Dias-Silva, Tairon Pannunzio [1]; de Araujo, Marcos Jacome [1]; Emerenciano Neto, Joao Virginio [4]; Fernandes, Patrick Bezerra [5]; Chay-Canul, Alfonso Juventino. [6]; [1] Campus Professora Cinobelina Elvas, Federal University of Piauí, Bom Jesus 64900-000, Piauí, Brazil [2] Department of Animal Science, State University of Maringá, Maringá 87020-900, Paraná, Brazil [3] College of Veterinary Medicine and Animal Science, Federal University of Mato Grosso do Sul, Campo Grande 79070-900, Mato Grosso do Sul, Brazil [4] Academic Unit Specialized in Agricultural Sciences, Federal University of Rio Grande do Norte, Macaíba 59280-000, Rio Grande do Norte, Brazil [5] Goiás Federal Institute, Campus Rio Verde, Rio Verde 75901-970, Goiás, Brazil [6] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa 86298, Tabasco, México

Resumen	This study aimed to create an equation to predict dry matter intake (DMI) and milk production and N-ureic in the milk of dairy cows managed in tropical conditions in Brazil. We used 113 observations from three experiments using lactating Jersey, Girolando, and Holstein cows. The goodness of fit of the developed equations was evaluated using the coefficients of determination (r2) and root mean square error (RMSE). There was a positive correlation between body weight and milk yield (MY) of r = 0.73. The equation considered DMI to be the most important variable to estimate the MY (r2 = 0.65). Four equations were adjusted to estimate the DMI, where, by a stepwise procedure, the first variable included in the equation was the neutral detergent fibre intake, which explained 92% of the DMI of the cows. However, when the variables BW, MY, and milk fat were included in the equation, there was a reduction of 0.06 in RMSE and an increase in precision (r2 = 0.94). The nutrient intake, milk production, and characteristics prediction equations present satisfactory precision and accuracy for dairy cows managed in tropical conditions in Brazil.
Palabras claves	Fat; intake; milk composition; milk yield; milk urea nitrogen; protein

Revista	**AGRICULTURE-BASEL**
ISSN	eISSN 2077-0472
DOI	https://doi.org/10.3390/agriculture13081610
Título del Artículo	Extra Virgin Olive Oil: Does It Modify Milk Composition of Hair Sheep?
Autores e instituciones de adscripción	Arcos-Alvarez, Darwin N.[1]; Aguilar-Urquizo, Edgar [1]; Ramon-Ugalde, Julio [1]; Hernández-Núñez, Emanuel [2]; Giacoman-Vallejos, German [3]; González-Sánchez, Avel Adolfo [3]; Alvarado-López, Carlos Juan [1]; Gonzalez-Ronquillo, Manuel [4]; Chay-Canul, Alfonso J.[5]; Vargas-Bello-Pérez, Einar [6][7]; Pineiro-Vázquez, Ángel T. [1]; [1] Tecnológico Nacional de México/Campus Conkal, Avenida Tecnológico s/n Conkal, Conkal 97345, Yucatán, Mexico [2] Cátedra CONACyT, Departamento de Recursos del Mar, Centro de Investigación y de Estudios Avanzados del IPN, Unidad Mérida, Mérida 97310, Yucatán, Mexico [3] Facultad de Ingeniería, Universidad Autónoma de Yucatán, Industrias no Contaminantes S/N por Periférico Norte. CP., Mérida 97310, Yucatán, Mexico [4] Departamento de Nutrición Animal, Instituto Literario 100, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca 50000, Estado de México, Mexico [5] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa 86280, Tabasco, Mexico [6] Department of Animal Sciences, School of Agriculture, Policy and Development, University of Reading, Reading RG6 6EU, UK [7] Facultad de Zootecnia y Ecología, Universidad Autónoma de Chihuahua, Chihuahua 31453, Mexico
Resumen	The aim of this study was to determine the effect of olive oil addition on the production, chemical composition, and fatty acid profile of sheep's milk. Twenty-four lactating ewes with a live weight of 34.6 ± 4.61 kg were used. The animals were randomly distributed into four treatments (n = 6) with dietary addition of 0%, 2%, 4%, and 6% (dry matter basis) olive oil for 45 days. Milk samples were taken every 7 days for fatty acid (FA) and chemical analyses. A decrease ($p < 0.05$) in dry matter and crude protein intake was observed with 4% oil inclusion. Milk production and milk components were similar between treatments. The kilograms of meat from weaned lambs linearly increased as the oil inclusion increased. Milk C4:0 to C17:0 decreased with 2% olive oil. The monounsaturated and polyunsaturated FA content in the milk increased with the oil inclusion. There was an increase in the milk's linoleic acid, linolenic acid, and eicosapentaenoic acid content with 2% olive oil. Overall, the addition of 2% extra virgin olive oil is recommended to improve milk's FA profile without negative effects on animal performance.
Palabras claves	Olive; atherogenic; milk; sheep; lipids; small ruminants; supplementation

Revista	**PLANTS-BASEL**
ISSN	eISSN 2223-7747
DOI	https://doi.org/10.3390/plants12162908
Título del Artículo	Plant Extracts from the Yucatan Peninsula in the In Vitro Control of Curvularia lunata and Antifungal Effect of Mosannona depressa and Piper neesianum Extracts on Postharvest Fruits of Habanero Pepper

Autores e instituciones de adscripción	Cruz-Cerino, Patricia [1]; Cristóbal-Alejo, Jairo [2]; Ruiz-Carrera, Violeta [3]; Gamboa-Angulo, Marcela. [1]; [1] Unidad de Biotecnología, Centro de Investigación Científica de Yucatán, Merida 97205, Mexico [2] Laboratorio de Fitopatología, Tecnológico Nacional de México, Campus Conkal, Conkal 97345, Mexico [3] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa 86039, Mexico
Resumen	Plant extracts are a valuable alternative for the control of phytopathogenic fungi in horticultural crops. In the present work, the in vitro antifungal effect of ethanol and aqueous extracts from different vegetative parts of 40 native plants of the Yucatan Peninsula on Curvularia lunata ITC26, a pathogen of habanero pepper (Capsicum chinense), and effects of the most active extracts on postharvest fruits were investigated. Among these, the ethanol extracts of Mosannona depressa (bark from stems and roots) and Piper neesianum (leaves) inhibited 100% of the mycelial growth of C. lunata. The three extracts were partitioned between acetonitrile and n-hexane. The acetonitrile fraction from M. depressa stem bark showed the lowest mean inhibitory concentration (IC50) of 188 µg/mL against C. lunata. The application of this extract and its active principle α-asarone in the postharvest fruits of C. chinense (500 µg/mL) was shown to inhibit 100% of the severity of the infection caused by C. lunata after 11 days of contact. Both samples caused the distortion and collapse of the conidia of the phytopathogen when observed using electron microscopy at 96 h. The spectrum of M. depressa enriched antifungal action is a potential candidate to be a botanical fungicide in the control of C. lunata in cultivating habanero pepper.
Palabras claves	Antifungal; α-asarone; Capsicum chinense; plant extracts; Mosannona depressa; Piper neesianum

Revista	**REVISTA DE INVESTIGACIONES-UNIVERSIDAD DEL QUINDIO**
ISSN	ISSN: 1794-631X
DOI	https://doi.org/10.33975/riuq.vol35nS1.1129
Título del Artículo	Conceptual Analysis of Foreign Trade in Mexico (Food Sector)
Autores e instituciones de adscripción	Martínez-Prats, German. [1]; [1] Universidad Juárez Autónoma de Tabasco
Resumen	Trade is an essential part for economic development both locally, nationally as well as globally through the exchange of goods and services between different actors. It is an integral part of the global economy and plays a crucial role in the economic development of countries. Trade also presents challenges and problems, such as trade imbalances, unfair competition, trade barriers, environmental and social impacts, among others. That's why many countries negotiate trade agreements and establish regulations to facilitate fair and equitable trade. That is why this research is carried out to know how foreign trade develops within Mexico and the impact it generates on its economy, this will be carried out through a descriptive methodology with which it seeks to have a more appropriate approach around the objective of this work that is to be able to analyze foreign trade around Mexico, where it could be concluded that Mexico is an important country within the foreign trade environment both in its imports and exports, having an efficient and global economy.
Palabras claves	Foreign trade; economy; export; import.

Revista	**CIENCIAS MARINAS**
ISSN	ISSN: 0185-3880
DOI	https://doi.org/10.7773/cm.y2023.3355
Título del Artículo	Composition and spatiotemporal diversity of the aquatic bird community in Laguna de las Ilusiones, Tabasco, Mexico
Autores e instituciones de adscripción	Jerez-Ramírez, Nelly Alejandra [1]; Arriaga-Weiss, Stefan Louis [1]; Ruiz-Campos, Gorgonio [2]; Gama-Campillo, Lilia María [3]; Salcedo-Mesa, Miguel Ángel [4]; Villanueva-García, Claudia [3]; Mata-Zayas, Ena Edith [3]; Valdez-Leal, Juan de Dios. [4]; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Laboratorio de Vertebrados, 86039 Villahermosa, Tabasco, Mexico.

Autores e instituciones de adscripción	[2] Universidad Autónoma de Baja California, Facultad de Ciencias, 22860 Ensenada, Baja California, Mexico. [3] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Laboratorio de Ecología del Paisaje y Cambio Global, 86039 Villahermosa, Tabasco, Mexico. [4] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Laboratorio de Diagnóstico y Manejo de Humedales Tropicales, 86039 Villahermosa, Tabasco, Mexico.
Resumen	In Laguna de las Ilusiones, Villahermosa, Tabasco, Mexico, bird species interact with the anthropic elements of the landscape. Waterfowl sightings were made with the fixed-point counting method during the dry and rainy seasons of the year 2020 at 12 sampling sites in the lagoon. Urban, water physicochemical, vegetation, and macrohabitat variables were recorded at these sites to assess their influence on waterfowl. A total of 1,134 individuals belonging to 8 orders, 12 families, and 25 species were recorded. The most sighted species were Ardea alba, Egretta thula, and Butorides virescens. Species diversity (Shannon index) was higher in the dry season (H = 2.40 bits) and lower in the rainy season (H = 1.89 bits). The canonical analysis showed that species richness decreased as the percentage of urbanization in the vicinity of the sampling sites increased.
Palabras claves	Urban wetland; indicator species; canopy-grass macrohabitat; landscape urbanization; riparian vegetation.

Revista	**REVISTA CONRADO**
ISSN	eISSN 1990-8644
DOI	https://conrado.ucf.edu.cu/index.php/conrado/article/view/3157
Título del Artículo	Evaluation of An Immersive Learning Experience in Medical Propaedeutic Training
Autores e instituciones de adscripción	Priego Alvarez, Heberto Romeo [1]; Fernández Quintana, Querubín [1]; Córdova Hernández, Juan Antonio [1]; Busquet García, Jaime[4]; [1] Universidad Juárez Autónoma de Tabasco. México.
Resumen	Immersive learning provides different experiences that can enhance the effectiveness of learning and improve student motivation in class. The objective of this work is to evaluate the acquired knowledge and degree of acceptance and motivation of medical students in an immersive learning intervention. Mixed process (quantitative-qualitative) educational research of the sequential type was carried out in a pilot group. In the quantitative phase of data collection, the questionnaire "Analysis of immersive learning through virtual reality and augmented reality in Medical Propedeutics training. For the qualitative phase, a focus group was conducted. The results of the survey showed that 76.92% of the students understood the tasks performed, 84.65% were able to contrast the previous knowledge with the new knowledge of the subject and 92.30% were helped to be more responsible in self-learning. The difficulties reported for the development of learning focus on internet connectivity, management of viewer controls and the resolution of the graphics card in the computer equipment. Finally, the experiences are described as exciting and low experimental risk It is concluded that the educational intervention with this technology was an incentive for the students, making evident the great potential and high degree of acceptance of emerging technologies (Virtual Reality, Augmented Reality).
Palabras claves	Immersive learning; Augmented reality; Virtual reality; Medical education

Revista	**REVISTA HITOS DE CIENCIAS ECONÓMICO ADMINISTRATIVAS**
ISSN	ISSN: 2448-4733
DOI	https://doi.org/10.19136/hitos.a29n85.5979
Título del Artículo	Percepción del Impacto Económico de la Pandemia de COVID-19 en las Microempresas de Tabasco y el Papel del Internet en su Preservación
Autores e instituciones de adscripción	Cristina del Carmen López Moreno [1]; José Félix García Rodríguez. [1]; [1] Universidad Juárez Autónoma de Tabasco
Resumen	Objetivo: Analizar e identificar el impacto económico de la pandemia en las MIPYMES de Tabasco, así como describir el papel jugado por el internet en la preservación de estas empresas.

Resumen	Material y Método: El diseño de la investigación es descriptivo, documental y exploratorio con enfoque cuantitativo. La población objeto de estudio está compuesta por 70 microempresas de Villahermosa, Tabasco. En la recopilación de información, se aplicó un cuestionario adaptado del instrumento aplicado por INEGI acerca del impacto económico generado por el COVID-19 en las empresas. Resultados: La disminución de ingresos de las MIPYMES constituyó el principal problema, ya que condujo al cierre parcial o definitivo de la empresa, puesto que éstos ya no eran suficientes para mantenerlas operando. Como respuesta, optaron por realizar home office y tratar de adaptarse a la nueva realidad. Conclusiones: Las microempresas entrevistadas sufrieron afectaciones económicas durante la pandemia, como son: reducción del personal, incremento de retrasos en el pago de sus adeudos por parte de sus clientes y compradores, disminución de la demanda, cancelación de sus pedidos y disminución de sus ingresos. El uso del internet significó una estrategia fundamental para su permanencia.
Palabras claves	COVID-19, Mipymes, Internet, Tecnología de la información.

Revista	**REVISTA HITOS DE CIENCIAS ECONÓMICO ADMINISTRATIVAS**
ISSN	ISSN: 2448-4733
DOI	https://doi.org/10.19136/hitos.a29n85.6082
Título del Artículo	Producción y Consumo Responsables en un Entorno Local: Municipio, Ciudadanía e Industria del Reciclaje.
Autores e instituciones de adscripción	Priscila Nayeli Ramos Martínez [1]; Rosa María Martínez Jiménez [1]; Leonardo Hernández Triano.; [1] Universidad Juárez Autónoma de Tabasco
Resumen	Objetivo: Conocer la relación de los Gobiernos locales, la ciudadanía y las organizaciones dedicadas al reciclaje con la producción y el consumo responsable, y sus efectos para el desarrollo sostenible. Materiales y Método: La investigación es cualitativa, se basa en técnicas como la observación en sitio, realizada a las rutas de recolección, y la entrevista, aplicada a los trabajadores del servicio de recolección del municipio de Centro, Tabasco. Resultados: La contribución de Residuos Sólidos Urbanos (RSU) del Estado de Tabasco es de 2.3 toneladas por día, derivado de una población de 2'402,598 que genera .98 kg. de residuos diariamente. El municipio de Centro, Tabasco tiene una población de 683,607 habitantes, que aportan en promedio 663 toneladas diarias de RSU, alcanzando un aproximado de 19,893 toneladas al mes. Conclusiones: El incremento de RSU se relaciona con el crecimiento urbano, el desarrollo industrial, las modificaciones tecnológicas y el cambio en los patrones de consumo de la población, a mayores ingresos, mayor consumo. México encabeza la generación de RSU en América Latina, con un promedio estimado en 46 millones de toneladas para el año 2022, por lo que existe una relación proporcional entre el ingreso y el consumo con la generación de desechos.
Palabras claves	Consumo responsable, Entorno de negocios, Gestión RSU.

Revista	**REVISTA HITOS DE CIENCIAS ECONÓMICO ADMINISTRATIVAS**
ISSN	ISSN: 2448-4733
DOI	https://doi.org/10.19136/hitos.a29n84.5735
Título del Artículo	Análisis del Proceso de la Planificación Estratégica de una Institución Bancaria Colombiana
Autores e instituciones de adscripción	Julián David Giraldo Gómez [1]; Cecilia García-Muñoz Aparicio [1].; [1] Corporación Universitaria Remington, Colombia [2] Universidad Juárez Autónoma de Tabasco
Resumen	Objetivo: Demostrar cómo está relacionada la estrategia corporativa de la institución bancaria, el mercado y sus stakeholders para obtener una visión académica. Material y Método: El diseño de la investigación es de tipo exploratorio descriptivo y documental, debido a que la recolección de la información se realizó a través de fuentes secundarias

Resumen	como documentos oficiales y artículos científicos para observar el funcionamiento del Banco de Occidente, una de las instituciones financieras más importantes en Colombia formado por inversionistas y una amplia gama de productos y servicios financieros. Esta empresa ha desarrollado diferentes tipos de planeaciones estratégicas interesantes durante su trayectoria, con el fin de estar vigente en el mercado de acuerdo con los cambios del entorno, y realizando vigilancia tecnológica permanente. Resultados: Se realizó un análisis de lineamientos estratégicos en los cuales se muestra la forma en que la institución lleva a cabo la planeación financiera. Conclusiones: se demuestra la postura del objeto de estudio hacia el medio ambiente, aspectos sociales y económicos que implican a las partes interesadas.
Palabras claves	Banco, Estrategia, Estructura, Planificación estratégica, Partes interesadas.

Revista	**REVISTA HITOS DE CIENCIAS ECONÓMICO ADMINISTRATIVAS**
ISSN	ISSN: 2448-4733
DOI	https://doi.org/10.19136/hitos.a29n84.5854
Título del Artículo	Influencia de la Formación Universitaria del Contador Público en la Eficiencia de la Administración de Recursos Públicos
Autores e instituciones de adscripción	Josseline Aidee Castro De la Cruz [1]; Candelaria Vázquez Ramos [1].; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Económico Administrativas. Tabasco, México.
Resumen	Objetivo: Evaluar si los futuros Contadores Públicos cuentan con conocimientos fundamentales sobre la relevancia de la auditoría gubernamental en la administración de los recursos públicos, de igual manera, se pretende resaltar la importancia de este proceso en la administración eficiente y transparente, y su potencial para contribuir a la lucha contra la corrupción en el ámbito gubernamental. Material y Método: Se implementó un enfoque cuantitativo con alcance descriptivo, mediante técnicas documentales y de campo puesto que se aplicaron encuestas a una población muestra de 100 alumnos de la Licenciatura en Contaduría Pública perteneciente a una universidad pública mexicana. Resultados: De lo investigado, destaca que el 72% de los encuestados si saben que es la fiscalización, el 88% sabe reconocer la definición básica, el 62% la considera muy importante, y el 73% estima que es indispensable para mitigar la corrupción. Conclusiones: La auditoría gubernamental a través de la fiscalización, marca la pauta en la administración de recursos públicos, para demostrar que se debe realizar de manera diligente, poniendo en claro que cualquier acto de fraude y corrupción relacionado puede ser detectado y sancionado.
Palabras claves	Formación profesional, Auditoría gubernamental, Transparencia, Fiscalización, Recursos públicos; analista.

Revista	**EMERGING TRENDS IN EDUCATION**
ISSN	eISSN: 2594-2840
DOI	https://doi.org/10.19136/etie.a6n11.5166
Título del Artículo	Los modelos del mercado y la educación superior del siglo XXI. En la búsqueda de la internacionalización, entendimientos de una singularidad
Autores e instituciones de adscripción	Leonel García León [1]; Blanca Estela Arciga Zavala [1].; [1] Universidad Juárez Autónoma de Tabasco
Resumen	Dentro de la educación superior resulta imprescindible considerar la perspectiva del mercado, a fin de entender los caminos hacia la internacionalización que muchas de nuestras instituciones buscan para acrecentar su prestigio y posibles recursos. Sin embargo, reflexiones concernientes a la aplicación de modelos del mercado, diversidad institucional, perfiles institucionales, aplicabilidad y sostenimiento de los grados duales y programas conjuntos, nos conducen a tratar de entender los entrecruces y las posibles paradojas que caracterizan nuestros entornos latinoamericanos de educación superior pública, en la que se continúa buscando un equilibrio entre la responsabilidad social y los intereses individuales para dar identidad a una “buena institución” dentro de los llamados contextos de globalización.

Resumen	Para tal fin se adoptó una estrategia analítica de textos y documentos clave sobre las teorías y modelos de mercado y la educación superior.
Palabras claves	Educación superior; modelos del mercado; internacionalización; grados duales; programas conjuntos.

Revista	**EMERGING TRENDS IN EDUCATION**
ISSN	ISSN: 2594-2840
DOI	https://doi.org/10.19136/etie.a5n10.5218
Título del Artículo	Modelos familiares y permanencia escolar en estudiantes de telesecundaria
Autores e instituciones de adscripción	Pablo Marín-Olán [1]; Iván Alberto Morales Ocaña. [1].; [1] Universidad Juárez Autónoma de Tabasco
Resumen	La mayor parte de las investigaciones sobre el abandono escolar han privilegiado analíticamente a los sujetos que abandonan la escuela, relegando así a los sujetos que permanecen. Esto ha traído como secuela un vacío empírico y conceptual en los estudios sobre abandono escolar y, por ende, una visión sesgada sobre el fenómeno. Por ello, el propósito de este artículo radica en identificar los mecanismos que habilitan la permanencia y saber si estos mecanismos guardan alguna relación con los modelos de familia encontrados durante el trabajo de campo. Se realizó una investigación de tipo cualitativa bajo un estudio de caso. Los sujetos de análisis fueron familias cuyos hijos cursan el tercer grado en el subsistema de telesecundaria. Después de analizar la evidencia empírica con un programa de análisis cualitativo de datos, se concluyó que la permanencia escolar está asociada a un modelo de familia nuclear. Así también, se muestra que existe una relación causal entre el nivel socioeconómico de estas familias y la inversión extracurricular en sus hijos.
Palabras claves	Educación básica; Familia nuclear; Permanencia escolar; Telesecundaria; Relaciones intrafamiliares; Sociedades rurales.

Revista	**COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY PART B: BIOCHEMISTRY AND MOLECULAR BIOLOGY**
ISSN	ISSN: 1096-4959
DOI	https://doi.org/10.1016/j.cbpb.2023.110881
Título del Artículo	pH evaluation in the digestive tract of the pygmy octopus, Paractopus digueti
Autores e instituciones de adscripción	N. Perales-García [1], D. Tovar-Ramírez [1], M.G. Martínez Morales [2] B.P. Ceballos-Vázquez [2], D.A. Corona-Rojas [1], M.A. Salcedo-Meza [3], A. Garrido-Mora [3], F. Vega-Villasante [4], H. Nolasco-Soria [1] [1] Centro de Investigaciones Biológicas del Noroeste, S.C. Av. IPN # 195, Col. Playa Palo de Santa Rita Sur, 23096 La Paz, Baja California Sur, Mexico [2] Instituto Politécnico Nacional, Centro Interdisciplinario de Ciencias Marinas, Av. IPN s/n, Col. Playa Palo de Santa Rita, 23096 La Paz, Baja California Sur, Mexico [3] Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, Mexico [4] Universidad de Guadalajara, CUCOSTA, Puerto Vallarta, Mexico
Resumen	This study is considered the first report on the digestive tract pH of the pygmy octopus (Paroctopus digueti). Adult octopuses obtained from the wild (mean ± SD) (42.1 ± 15.1 g), and those acclimated to captivity in a fed (25.4 ± 9.0 g, n = 15) or fasted (23.1 ± 6.1 g, n = 15) state, were studied. The digestive tract regions of buccal mass (BMA), anterior salivary glands (ASG), posterior salivary glands (PSG), crop (CRO), stomach (STO), caecum (CAE), digestive gland (DGL) and intestine (INT) were dissected. The pH of the internal part of the digestive tract regions was measured. Food intake (dry weight) per octopus was 53.8 ± 35.1 mg to 214.9 ± 157.6 mg at 15 min and 8 h, respectively. The apparent food transit time was approximately 8 h for the appearance of feces in the posterior intestine. In all cases, the pH of the digestive tract regions was lower than pH 7.0. No statistical difference was found when comparing the pH by digestive tract regions between wild octopuses and octopuses in captivity (fasting and feeding).

Resumen	In acclimatized octopuses, the average pH was 6.41 ± 0.22 and 6.41 ± 0.23 for fasting and fed octopuses, respectively. Although DGL had the lowest pH values relative to other digestive tract tissues ($p < 0.05$), pH was always >5.0 (6.04 ± 0.12 in the wild and 5.97 ± 0.17 in feeding octopuses). In conclusion, the pygmy octopus has an acidic pH in its digestive tract under fasting and feeding conditions.
Palabras claves	Digestive tract; Digestive transit; Lumen pH; Octopus; Paroctopus digueti.

Revista	**THE ROYAL SOCIETY OF CHEMISTRY**
ISSN	ISSN: 2753-8125
DOI	https://doi.org/10.1039/D3DT02652C
Título del Artículo	Unveiling the electronic and structural consequences of removing two electrons from B12H122
Autores e instituciones de adscripción	Hernández-Juárez, Gerardo [1]; Vásquez-Espinal, Alejandro [2]; Murillo, Fernando [1]; Quintal, Alan [1]; Ortiz-Chi, Filiberto [3]; Zarate, Ximena [4]; Barroso, Jorge [1][5]; Merino, Gabriel [1].; [1] Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Unidad Mérida, Km 6 Antigua Carretera a Progreso. Apdo, Postal 73, Cordemex, 97310, Mérida, Yuc., México. E-mail: gmerino@cinvestav.mx [2] Química y Farmacia, Facultad de Ciencias de la Salud, Universidad Arturo Prat, Casilla 121, Iquique 1100000, Chile [3] CONAHCYT-División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán 86690, Tabasco, Mexico [4] Instituto de Ciencias Aplicadas, Facultad de Ingeniería, Universidad Autónoma de Chile, Av. Pedro de Valdivia 425, Santiago, Chile [5] Department of Chemistry, University of South Dakota, Vermillion, South Dakota 57069, USA
Resumen	The notion that a regular icosahedron is unattainable in neutral B12H12 has persisted for nearly 70 years. This is because 24 valence electrons are used for B–H bonds, while another 24 electrons are necessary to maintain the deltahedron, unlike the 26 used in the dianion. According to Wade–Mingos rules, the neutral system should be a deltahedron with a capped face. Nevertheless, our exploration of the potential energy surface of B12H12 reveals that the global minimum is a closed-shell form with an H2 unit attached to a boron vertex of B12H10, preserving the deltahedral boron skeleton.
Palabras claves	N/A

Revista	**EUROPEAN JOURNAL OF WILDLIFE RESEARCH**
ISSN	eISSN: 1439-0574.
DOI	https://doi.org/10.1007/s10344-023-01722-x
Título del Artículo	Seroepidemiological analyses of rabies virus in two procyonid species from La Venta urban park, in Tabasco, Mexico
Autores e instituciones de adscripción	Rendon-Franco, Emilio [1]; García-Baltazar, Anahí [2]; Muñoz-García, Claudia I. [1]; Villanueva-García, Claudia [3]; Gama-Campillo, Lilia María [3]; Suzan, Gerardo [4][5]; Aguilar-Setien, Álvaro [2]; Aréchiga-Ceballos, Nidia [6].; [1] Departamento de Producción Agrícola y Animal, Universidad Autónoma Metropolitana Xochimilco, Calzada del Hueso 1100, Col. Villa Quietud, Alcaldía Coyoacán, 04960, Mexico City, México [2] Unidad de Investigación Médica en Inmunología. Hospital de Pediatría Centro Médico Nacional Siglo XXI, Av. Cuauhtémoc 330, Doctores, Alcaldía Cuauhtémoc, 06720 Mexico City, México [3] Laboratorio de Ecología del Paisaje y Cambio Global, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas Km. 0.5 S/N Entronque a, Bosques de Saloya, 86150, Villahermosa, Tabasco, México [4] Laboratorio de Ecología de Enfermedades y Una Salud, Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de México, Ciudad Universitaria, Coyoacán, 04510 Mexico City, México [5] Joint Laboratory ELDORADO, UNAM/IRD, Mérida, Yucatán, México. [6] Instituto de Diagnóstico y Referencia Epidemiológicos, Francisco de P. Miranda 177, Col. Unidad Lomas de Plateros, Alcaldía Álvaro Obregón, 01480, Mexico City, México
Resumen	A limited number of meso-carnivores act as reservoirs of the rabies virus (RABV) globally and play a key role in its maintenance in the wild. Rabies virus–neutralizing antibodies (RVNA) indicate a response to rabies vaccination but are also detected in unvaccinated populations suggesting non-fatal exposure.

Resumen	In the ecological park La Venta, in Mexico's Tabasco state, we conducted a 4-year (from 2009 to 2012) serological survey in order to chart the trends of rabies-neutralizing antibodies in 239 white-nosed coatis (Nasua narica) and 74 raccoons (Procyon lotor). No wild carnivores had been vaccinated in this region. Oral swabs were taken from 44 animals to assess RABV in their saliva. RVNA titers were determined using the rapid fluorescent focus inhibition test (RFFIT). The overall prevalence of RVNA was 19.4% (CI 95% 15.3–24.1). In coatis the prevalence was 16.7% (CI 95% 12.4–21.9) and in raccoons it was 28.4% (CI 95% 19.0–39.4). Variations over time were detected, with two peaks in June 2009 and June 2011, respectively. The median IU/ml was 0.81 (±0.13) for both species. Antibody titers ranged from 0.24 to 0.90 IU for coatis and from 0.12 to 5.70 IU for raccoons. All saliva samples were negative for RABV, indicating that the animals were not excreting the virus in saliva at the time of collection. The antibody prevalence and titer dynamics are consistent with subclinical infections, suggesting that both species in La Venta have been exposed to RABV.
Palabras claves	Nasua narica, Neutralizing antibody, Procyon lotor, Rabies virus, Seroprevalence

Revista	**ISA TRANSACTIONS**
ISSN	ISSN: 0019-0578
DOI	https://doi.org/10.1016/j.isatra.2023.06.009
Título del Artículo	Robust cascade controller for the power factor of the three-phase supply and the induction motor velocity
Autores e instituciones de adscripción	Morfin, Onofre A. [1]; Ruiz-Cruz, Riemann [2]; Valenzuela, Fredy A. [3]; Ramírez-Betancour, Reymundo [3]; Castaneda, Carlos E. [4]; Ornelas-Téllez, Fernando [5].; [1] Depto. de Electrica y Computacion, Instituto de Ingenieria y Tecnologia, Universidad Autonoma de Ciudad Juárez, Mexico [2] Laboratorio de Investigacion en Diseño Optimo, Dispositivos y Materiales Avanzados (OPTIMA), Depto. de Matematicas y Fisica, ITESO, Tlaquepaque, Mexico [3] Division Academica de Ingenieria y Arquitectura, Universidad Juárez Autonoma de Tabasco, Cunduacan, Mexico [4] Centro Universitario de los Lagos de la Universidad de Guadalajara, Jalisco, Mexico [5] Facultad de Ingenieria Electrica, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico
Resumen	It is well known that induction motors consume active and reactive energy from the utility grid to operate; additionally, when a power converter drives the motor, a high content of current harmonics is produced, and both circumstances decrease the utility grid power factor, which later requires to be improved. To this end, this paper presents a novel complete solution through a robust control system employed in a back-to-back topology power converter to deliver, instead of consuming, regulated reactive power toward the main grid, which comes from a capacitor bank in a DC-bus. This salient feature of delivering reactive power, and simultaneously, regulating the speed for an induction motor, becomes one of the contributions of this work to enhance the power factor. The robust converter controller is synthesized in a cascade form, by applying the linearization block control and state-feedback techniques. These techniques are combined with the super-twisting strategy for canceling the nonlinearities and the effect of the external disturbances. The complete system consists of a back-to-back converter, an LCL filter coupled to the main grid for mitigating the current harmonic content, and an induction motor under variable load conditions. Experimental tests expose the performance and robustness of the proposed controller, where a robust control for the reactive power acts under sudden changes in the active power produced through abrupt variations in the motor load.
Palabras claves	Controllable rectifier; Induction motor; Motor speed controller; Power factor; Reactive power controller.

Revista	**SMALL RUMINANT RESEARCH**
ISSN	ISSN: 0921-4488
DOI	https://doi.org/10.1016/j.smallrumres.2023.107072
Título del Artículo	Microalgae as a dietary additive for lambs: A meta-analysis on growth performance, meat quality, and meat fatty acid profile

Autores e instituciones de adscripción	Orzuna-Orzuna, José Felipe [1]; Hernández -García, Pedro Abel [2]]; Chay-Canul, Alfonso Juventino [3]; Galván, Cesar Diaz [4]; Ortiz, Pablo Benjamín Razo [2].; [1] Departamento de Zootecnia, Universidad Autónoma Chapingo, Texcoco, México [2] Centro Universitario UAEM Amecameca, Universidad Autónoma del Estado de México, Amecameca, México [3] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa, México [4] Departamento de Producción Agrícola y Animal, Universidad Autónoma Metropolitana, Xochimilco, Mexico City, México
Resumen	This study aimed to evaluate the effects of dietary inclusion of microalgae (MIAs) on growth performance, meat quality, and fatty acid (FAs) profile of lamb meat, using a meta-analytic method. The data used were obtained from 18 peer-reviewed publications. The effect size was assessed using weighted mean differences (WMD) between experimental treatments (diets with MIAs) and control treatments (diets without MIAs). Dietary supplementation with MIAs increased ($P < 0.05$) dry matter intake and average daily gain and decreased feed conversion ratio ($P = 0.005$). In meat, MIAs supplementation decreased ($P < 0.05$) drip loss and Warner-Bratzler shear force and increased lightness ($P < 0.001$). The content of pentadecanoic, stearic, oleic, total ω-6 FAs, and the ω-6/ω-3 ratio of meat decreased in response to the dietary inclusion of MIAs ($P < 0.05$). In addition, MIA supplementation increased ($P < 0.05$) the content of linoleic, conjugated linoleic, eicosapentaenoic, docosahexaenoic, and total ω-3 FAs in meat. In conclusion, the dietary inclusion of microalgae can be used as a nutritional strategy to improve animal performance, meat quality, and fatty acid profile in lamb meat.
Palabras claves	Liveweight gains; octadecanoic acid; aquatic species

Revista	**ANIMALS**
ISSN	EISSN: 2076-2615
DOI	https://doi.org/10.3390/ani13203274
Título del Artículo	Thermal Balance in Male Water Buffaloes Transported by Long and Short Journeys
Autores e instituciones de adscripción	Rodríguez-González, Daniela [1]; Legarreta, Isabel Guerrero [2]; Chay-Canul, Alfonso [3]; Hernández-Avalos, Ismael [4]; Napolitano, Fabio [5]; García-Herrera, Ricardo [3]; Pereira, Alfredo M. F. [6]; Domínguez-Oliva, Adriana [7]; Casas-Alvarado, Alejandro [7]; Reyes-Sotelo, Brenda [7]; Mota-Rojas, Daniel [7]. [1] Master in Science Program [Maestría en Ciencias Agropecuarias], Universidad Autónoma Metropolitana (UAM), Xochimilco Campus, México City 04960, México [2] Department of Biotechnology: Food Science, Universidad Autónoma Metropolitana, Iztapalapa Campus (UAM-I), Mexico City 09340, Mexico [3] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa 86040, México [4] Department of Biological Science, FESC, Universidad Nacional Autónoma de México (UNAM), Cuautitlán 04510, México [5] Scuola di Scienze Agrarie, Forestali, Alimentari ed Ambientali, Università degli Studi della Basilicata, 85100 Potenza, Italy [6] Mediterranean Institute for Agriculture, Environment and Development (MED), Institute for Advanced Studies and Research, Universidade de Évora, 7006-554 Évora, Portugal [7] Neurophysiology, Behavior, and Animal Welfare Assessment, Department of Animal Production and Agriculture (DPAA), Universidad Autónoma Metropolitana (UAM) Xochimilco Campus, Mexico City 04960, México
Resumen	Transport is a stressor that can cause physiological and metabolic imbalances in livestock, resulting in stress-induced hyperthermia. In water buffaloes, studies regarding the thermal state of animals during mobilization are scarce. Therefore, this study aimed to compare the thermal response of 1516 water buffaloes using infrared thermography (IRT) during 15 short trips (783 animals, 60,291 records, average duration = 50.33 min ± 5.48 min) and 14 long trips (733 animals, 56,441 records, average duration = 13.31 h ± 47.32 min). The surface temperature was assessed in 11 regions (periocular, lacrimal caruncle, nasal, lower eyelid, auricular, frontal-parietal, pelvic limb, torso, abdominal, lumbar, and thoracic) during seven phases from pasture to post-transport. It was found that the surface temperature of the periocular, lacrimal caruncle, nasal, auricular, frontal-parietal, pelvic limb, torso, abdominal, lumbar, and thoracic regions was significantly higher during SJs (+3 °C) when compared to LJs ($p < 0.0001$). In particular, the frontal-parietal region had a significant increase of 10 °C during the post-transport phase ($p < 0.0001$) in both groups, recording the highest temperatures during this phase. Likewise, a strong positive significant correlation between the different regions was found ($r = 0.90$, $p < 0.0001$).

Resumen	It is worth mentioning that the herding, loading, pre-, and post-transport phases were the ones where the greatest thermal response was recorded, possibly due to the influence of human interaction. Finally, a strong positive correlation (r above 0.9, p > 0.001) between the periocular, lacrimal caruncle, pinna, and pelvic limb was found. According to the results, SJ could be considered a stressful event that hinders thermal generation, contrarily to LJ.
Palabras claves	Water buffalo; infrared thermography; journey time; thermostability; stress-induced hyperthermia

Revista	**BIOLOGICAL JOURNAL OF THE LINNEAN SOCIETY**
ISSN	eISSN: 1095-8312
DOI	https://doi.org/10.1093/biolinnean/blad157
Título del Artículo	The relationship between wing morphology and foraging guilds: exploring the evolution of wing ecomorphs in bats
Autores e instituciones de adscripción	Ospina-Garces, Sandra M. [1,2]; Zamora-Gutiérrez, Verónica [3]; Lara-Delgado, Juan Manuel [4]; Morelos-Martinez, Mercedes [1]; Ávila-Flores, Rafael [5]; Kurali, Aniko [1,6]; Ortega, Jorge [7]; Selem-Salas, Celia Isela [8]; MacSwiney G, M. Cristina [1].; [1] Centro de Investigaciones Tropicales, Universidad Veracruzana, José María Morelos No. 44 y 46. Col. Centro, CP 91000, Xalapa, Veracruz, México [2] Centro de Investigación en Biodiversidad y Conservación, Universidad Autónoma del Estado de Morelos, Avenida Universidad 1001, Col. Chamilpa, CP 62209 Cuernavaca, Morelos, México [3] CONACYT—Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional Unidad Durango (CIIDIR), Instituto Politécnico Nacional, Durango, México [4] Maestría en Ciencias Biológico-Agropecuarias, Universidad Autónoma de Nayarit, Km 9, carretera Tepic—Compostela, Xalisco, Nayarit, México [5] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, México [6] Department of Nature Conservation Fertő-Hanság National Park Directory 9435 Sarród, Rév-Kócsagvár, Hungary [7] Departamento de Zoología, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Ciudad de México, México. [8] Campus de Ciencias Biológicas-Agropecuarias, Universidad Autónoma de Yucatán, Mérida, México.
Resumen	Different aspects of foraging strategies in bats have been studied to understand the evolution of flight in mammals. General descriptors of wing morphology associated with flight performance, such as aspect ratio and wing loading, allowed us to describe ecomorphs determined by the dietary preferences of bat species. However, the role of wing shape divergence in the evolution of bat foraging strategies remains little explored. We adopted a two-dimensional geometric morphometric approach to quantify the wing shape and size variation explained by phylogenetic relatedness (families) and to evaluate the covariance between foraging guilds and flight descriptors based on phylogenetic comparative methods in 69 Neotropical bat species. We tested whether wing morphology represents a reliable marker of the foraging guild, and we explored the rate of shape evolution among foraging guilds to describe divergent trends that could explain the morphological and ecological diversification. Our results suggest that the earliest bat ancestor was an aerial forager occupying the edge space, which is congruent with the observed evolution of wing shape from an edge space wing morphology. The relationship between wing shape and foraging space defines wing ecomorphs, which probably evolved early in bat ancestors; a process other than convergence could explain this association.
Palabras claves	Chiroptera, bat evolution, ecomorphology, Mexico, Phyllostomidae, wing shape, geometric morphometrics, foraging space

Revista	**MATERIALS LETTERS**
ISSN	ISSN: 0167-577X
DOI	https://doi.org/10.1016/j.matlet.2023.135183
Título del Artículo	SrTiO3/g-C3N4 mesostructured heterojunctions for photocatalytic evaluation using methylene blue
Autores e instituciones de adscripción	Córdova-Almeida, Francisco Javier [1]; Rajput, Darshana [2]; Torres-Torres, J. G. [1]; Gallardo-Hernández, S. [3]; Cervantes-Uribe, Adrien [1]; Diaz-Real, Jesús A. [2]; Godavarthi, Srinivas [4]; Oza, Goldie [2].;

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Resumen	SrTiO3/g-C3N4 mesostructured heterojunctions were synthesized using hydrothermal method with different weight percentages of SrTiO3 (ST) in carbon nitride (CN). The samples are named as CN-ST05, CN-ST10, CN-ST15, CN-ST20, and CN-ST25 based on 5, 10, 15, 20 and 25 wt% of ST respectively in CN. The surface area of the heterojunctions ranged between 33.7 to 63.4 m2/gm. The optical, structural, and elemental properties of the heterojunctions were evaluated. Finally, the photocatalytic tests confirmed that CN-ST15 showed 97% degradation of methylene blue (MB) after 4 h of visible light irradiation, (the bare CN and ST showed 70% and 34% degradation respectively). The photocatalytic activity for methylene blue degradation followed the trend: CN-ST15 > CN-ST10 ≈ CN-ST20 > CN-ST25 > CN-ST05 > CN > ST.
Palabras claves	N/A

Revista	**JOURNAL OF THE WORLD AQUACULTURE SOCIETY**
ISSN	eISSN:1749-7345
DOI	https://doi.org/10.1111/jwas.13025
Título del Artículo	Sperm quality of Litopenaeus vannamei fed fresh or experimental food in two culture systems
Autores e instituciones de adscripción	Barral-Pintos, Xurxo [1]; Arévalo, Miguel [2]; Escalante, Karla [2]; Arenas, Martin [3]; Morones, Rodrigo [4]; Velázquez, Eduardo [4]; Gaxiola, Gabriela [2].; [1] Posgrado en Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, Ciudad de México, Mexico [2] Unidad Multidisciplinaria de Docencia eInvestigación de Sisal, Facultad de Ciencias, Universidad Nacional Autónoma de México, Ciudad de México, México [3] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico [4] Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de México, Ciudad de Mexico, Mexico
Resumen	The growth of shrimp production through aquaculture has led to efforts to optimize processes such as nutrition during the prematuration and reproductive phases. This study sought an optimal culture system and diet to enhance the reproductive characteristics of male Litopenaeus vannamei during prematuration: this compared biofloc with clear water, and an experimental pellet (EP) with a mix of fresh food. Effects were measured in terms of shrimp survival, sperm quality, immunological parameters including prophenoloxidase (ProPO) and hemocyte count, nutritional condition measured as metabolites in hemolymph, hepatopancreas, and reproductive tract, oxidative stress biomarkers in the hepatopancreas and reproductive tract, and relative expression of superoxide dismutase, catalase, glutathione peroxidase, ProPO, alpha2-macroglobulin and caspase in reproductive tract. Survival was higher with pellets (100%) than with fresh food (87%). Shrimp that were fed pellets had a higher hepatosomatic index, higher nutrient concentration in the hepatopancreas, and a higher antioxidant activity in the reproductive tract. Notably, sperm quality remained similar regardless of culture system or diet. These promising results should be ratified with a bioeconomic study to check the feasibility of hatcheries to use monosex tanks and feeding the males with EPs.
Palabras claves	Biofloc, experimental pellet, Litopenaeus vannamei, sperm quality

Revista	**VETERINARY RESEARCH COMMUNICATIONS**
ISSN	eISSN: 1573-7446
DOI	https://doi.org/10.1007/s11259-023-10248-1
Título del Artículo	Search for antibodies against Trichinella in two synanthropic Procyonidae species from southeast Mexico: white-nosed coatis (Nasua narica) and raccoons (Procyon lotor)

Autores e instituciones de adscripción	Hernández-Ortiz, Adrián [1,2]; Rendon-Franco, Emilio [3]; Muñoz-García, Claudia-Irais [3]; Villanueva-García, Claudia [4]; Caballero-Ortega, Heriberto [5]; de-la-Rosa-Arana, Jorge-Luis [6].; [1] Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de México, Mexico City, México [2] Department of Veterinary Microbiology, University of Saskatchewan, Saskatoon, Canada [3] Departamento de Producción Agrícola y Animal, Universidad Autónoma Metropolitana, Mexico City, México [4] Laboratorio de Ecología del Paisaje y Cambio Global, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, México [5] Laboratorio de Inmunología Experimental, Instituto Nacional de Pediatría, Mexico City, México [6] Facultad de Estudios Superiores Cuautitlán, Universidad Nacional Autonoma de México, Cuautitlán Izcalli, México
Resumen	Trichinella is a nematode that are spread by the consumption of parasitized meat. Carnivora, a mammalian order, serve as key hosts for this parasite. However, evidence of Trichinella in wildlife from the Neotropics is extremely scarce, with reports documenting its presence only for five carnivore species: two Felidae, one Otariidae and two Mustelidae. Other widely distributed species that are consumed as bushmeat, such as Procyonidae, have not been studied in this context. A long-term study was performed for antibodies against Trichinella in coatis (Nasua narica) and common raccoons (Procyon lotor) in southeastern Mexico. Between the summer of 2009 to the winter 2013, a total of 291 coati samples and 125 raccoon samples were collected from a tropical green area located within an urban zone. An Enzyme-linked immunosorbent assay (ELISA) was used to detect antibodies against the excretory and secretory products of Trichinella spiralis muscle larva. ELISA-positive samples were further confirmed by Western Blot analysis. Results showed no evidence of antibodies during the first two years of study. However, in 2011, a sudden appearance of anti-Trichinella occurred. The seroprevalence reached its highest peak of 43% for coatis during winter 2013 and 53% for raccoons in summer 2013. This is the first study that provides evidence of Trichinella circulation within a neotropical procyonid community.
Palabras claves	Trichinellosis; Immunosorbent assay (ELISA); Western blot (WB); Carnivore; Wildlife.

Revista	**CERAMICS INTERNATIONAL**
ISSN	eISSN: 1873-3956
DOI	https://doi.org/10.1016/j.ceramint.2023.08.084
Título del Artículo	Rationally designed C3N4/ TiO2 (anatase/brookite) heterojunction for enhanced photocatalytic hydrogen generation under visible light
Autores e instituciones de adscripción	Martínez-García, H. [1]; Salazar-Marín, D. [1]; Collins-Martínez, V. [2]; Torres-Torres, J. G. [1]; Kesarla, M. K. [3]; Jaramillo-Quintero, O. A. [4]; Hernández-Como, N. [5]; Oza, Goldie [6]; Ortiz-Chi, F. [7]; Diaz-Real, J. A. [6]; Godavarthi, S. [7].; [1] Universidad Juárez Autónoma de Tabasco, Centro de Investigación de Ciencia y Tecnología Aplicada de Tabasco (CICTAT), C.P. 86690, Cunduacán, Tabasco, Mexico [2] Departamento de Ingeniería y Química de Materiales, Centro de Investigación en Materiales Avanzados, S.C., Miguel de Cervantes 120, Chihuahua, 31136, Mexico [3] Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, C.P 62210, Cuernavaca, Morelos, Mexico [4] Instituto de Energías Renovables, Universidad Nacional Autónoma de México, Privada Xochicalco S/N, C.P. 62580, Temixco, Mor., Mexico [5] Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México City, Mexico [6] Centro de Investigación y Desarrollo Tecnológico en Electroquímica, Parque Tecnológico Querétaro, Pedro Escobedo, Querétaro, C.P. 76703, Mexico [7] Investigadoras e Investigadores por México, División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán, 86690, Tabasco, Mexico
Resumen	In this study, C3N4 was prepared using the polycondensation method, and TiO2 (ansate/Brookite) was synthesized using the solvothermal method. These materials were subsequently utilized to prepare C3N4/TiO2 heterojunction materials via the photoanchoring method, with the aim of improving photocatalytic hydrogen production. The physical, chemical, and optical properties of the composites were investigated to verify the formation of heterojunctions, as well as to assess the impact of varying levels of C3N4 content (1%, 5%, and 10%) in the C3N4/TiO2 composite on hydrogen production. Notably, the composite with 5% C3N4 demonstrated superior photocatalytic hydrogen production (approximately 692 μmol h-1 g-1), and the underlying reasons were elucidated using photoelectrochemical characterization.

Resumen	To establish the band alignment of C3N4 and TiO2 before and after contact, a comprehensive array of techniques was employed, encompassing Kelvin force microscopy to acquire work functions, UV–Vis spectral analysis to ascertain band gaps, XPS valence spectra to identify the Valence Band Maxima, and the Kraut method to calculate Band Offsets. These analyses revealed that the formation of the heterojunction is staggered in nature. Finally, utilization of ESR analysis has conclusively verified that the charge transfer mechanism inherent in the C3N4/TiO2 heterojunction adheres to the Z-scheme
Palabras claves	N/A

Revista	**GELS**
ISSN	eISSN: 2310-2861
DOI	https://doi.org/10.3390/gels9090682
Título del Artículo	Protective Effect of Alginate Microcapsules with Different Rheological Behavior on Lactiplantibacillus plantarum 299v
Autores e instituciones de adscripción	Hernández-Gallegos, Minerva Aurora [1,2]; Solorza-Feria, Javier [3]; Cornejo-Mazon, Maribel [4]; Velázquez-Martínez, José Rodolfo [5]; Rodríguez-Huezo, María Eva [6]; Gutiérrez-López, Gustavo F. [1]; Hernández-Sánchez, Humberto. [1].; [1] Departamento de Ingeniería Bioquímica, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Av. Wilfrido Massieu esq. M. Stampa, UP Adolfo López Mateos, Ciudad de México CP 07738, Mexico [2] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Carretera Estatal Libre Villahermosa-Comalcalco Km 27 S/N, Ranchería, Jalpa de Méndez CP 86205, Mexico [3] Centro de Desarrollo de Productos Bióticos del IPN, Km 8.5 carr. Yautepec-Jojutla, Yautepec CP 62731, México [4] Departamento de Biofísica, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Carpio y Plan de Ayala, Col. Santo Tomás, Ciudad de México CP 11340, México [5] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Teapa Km. 25, Teapa CP 86291, Mexico [6] División Ingeniería Química y Bioquímica, Tecnológico de Estudios Superiores de Ecatepec, Ecatepec, Estado de México CP 55010, México
Resumen	Alginate encapsulation is a well-known technique used to protect microorganisms from adverse conditions. However, it is also known that the viscosity of the alginate is dependent on its composition and degree of polymerization and that thermal treatments, such as pasteurization and sterilization, can affect the structure of the polymer and decrease its protection efficiency. The goal of this study was to evaluate the protective effect of encapsulation, using alginates of different viscosities treated at different temperatures, on Lactiplantibacillus plantarum 299v under in vitro gastrointestinal conditions and cold storage at 4 °C and −15 °C, respectively. Steady- and dynamic-shear rheological tests were used to characterize the polymers. Thermal treatments profoundly affected the rheological characteristics of alginates with high and low viscosity. However, the solutions and gels of the low-viscosity alginate were more affected at a temperature of 117 °C. The capsules elaborated with high-viscosity alginate solution and pasteurized at 63 °C for 30 min provided better protection to the cells of L. plantarum 299v under simulated gastrointestinal and cold storage conditions.
Palabras claves	Encapsulation; probiotics; alginate; thermal treatment; viscosity; Lactiplantibacillus plantarum 299v

Revista	**MEDICINA**
ISSN	eISSN: 1648-9144
DOI	https://doi.org/10.3390/medicina59091633
Título del Artículo	Prevalence of Poor Sleep Quality and Associated Factors in Individuals with Rheumatoid Arthritis: A Cross-Sectional Study
Autores e instituciones de adscripción	Juárez-Rojop, Isela Esther [1]; Fresan, Ana [2]; Genis-Mendoza, Alma Delia [3,4]; Cerino-Palomino, Carolina [1]; Nolasco-Rosales, German Alberto [1]; González-Castro, Thelma Beatriz [5]; López-Narváez, María Lilia [6]; Olan, Francisco [7]; Villar-Soto, Mario [7]; Tovilla-Zarate, Carlos Alfonso [6]; Nicolini, Humberto. [4]. 1] Departamento de Ingeniería Bioquímica, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Av. Wilfrido Massieu esq. M. Stampa, UP Adolfo López Mateos, Ciudad de México CP 07738, Mexico

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Resumen	Background and Objectives: Poor sleep quality has been frequently observed in individuals with rheumatoid arthritis. In the present study, we analyzed the presence of poor sleep quality in a sample of Mexican individuals with rheumatoid arthritis; then, we compared sociodemographic and clinical characteristics among patients to determine risk factors for poor sleep quality. Materials and Methods: In this cross-sectional study, we included 102 individuals with rheumatoid arthritis from a hospital in Mexico. We evaluated disease activity (DAS28), quality of sleep using the Pittsburgh Sleep Quality Index, and the presence of depression and anxiety with the Hospital Anxiety and Depression Scale. We performed a Chi-square test and a t-test. Then, we performed a logistic regressions model of the associated features in a univariable analysis. Results: Poor sleep quality was observed in 41.75% of the individuals with rheumatoid arthritis. Being married was a proactive factor (OR 0.04, 95% CI 0.1–0.9, p = 0.04), whereas having one's hips affected or presenting with anxiety and depression was associated with poor sleep quality (OR 4.6, 95% CI 1.2–17.69, p = 0.02). After a multivariate analysis, having anxiety (OR 5.0, 95% CI 1.4–17.7, p < 0.01) and depression (OR 9.2, 95% CI 1.0–8.1, p < 0.01) remained associated with a higher risk of having poor sleep quality. Other clinical characteristics among patients were not significantly different. Conclusions: Our results showed that individuals with rheumatoid arthritis who also presented with depression or anxiety had a higher risk of suffering from poor sleep quality. However, more studies with larger samples are necessary to replicate these results in the Mexican population.
Palabras claves	Rheumatoid arthritis; depression; anxiety; Mexican population

Revista	**VETERINARIA MÉXICO OA**
ISSN	ISSN 2448-6760
DOI	https://doi.org/10.22201/fmvz.24486760e.2023.1150
Título del Artículo	Predictive biometrics of hair sheep through digital imaging
Autores e instituciones de adscripción	Chay-Canul, Alfonso J. [1]; Tapia-González, Jorge [1]; Canul-Solís, Jorge Rodolfo [2]; Casanova-Lugo, Fernando [3]; Pineiro-Vázquez, Ángel T. [4]; Portillo-Salgado, Rodrigo [5]; García-Herrera, Ricardo [1]; Vargas-Bello-Pérez, Einar. [6][7].; [1] Universidad Juárez Autónoma de Tabasco. División Académica de Ciencias Agropecuarias. Villahermosa, Tabasco, México División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa 86100, Mexico [2] Tecnológico Nacional de México. Instituto Tecnológico de Tizimín. Tizimín, Yucatán, México [3] Tecnológico Nacional de México. Instituto Tecnológico de la Zona Maya. Othón P. Blanco, Quintana Roo, México [4] Tecnológico Nacional de México. Instituto Tecnológico de Conkal. Conkal, Yucatán, México [5] Colegio de Postgraduados. Programa en Recursos Genéticos y Productividad-Ganadería. Texcoco, Estado de México, México [6] School of Agriculture. Policy and Development New Agriculture Building. Earley Gate Whiteknights Road, Berkshire, United Kingdom. [7] Universidad Autónoma de Chihuahua. Facultad de Zootecnia y Ecología. Chihuahua, México.
Resumen	Direct collection of biometric measurements (BM) from sheep is an expensive and stressful procedure for animals; instead, indirect and novel methods have recently been used. The objective of this study was to use digital image analysis (DIA) to predict biometric measurements of Pelibuey sheep as a non-invasive approach under on-farm conditions. Withers height (WH), body length (BL), body diagonal length (BDL), and rib depth (RD) were predicted in Pelibuey ewes using DIA. Images were taken from the left flank of 65 nonpregnant and nonlactating Pelibuey ewes using a digital camera and analyzed by DIA. The BM determined from both in vivo and by DIA presented positive and moderate ($P < 0.05$) correlation coefficients (r) of 0.43, 0.66, 0.73, and 0.75 for BL, BDL, WH, and RD, respectively. Regression equations from BM by DIA had determination coefficients (r2) of 0.19, 0.44, 0.54, and 0.56 for BL, BDL, WH, and RD, respectively.

Resumen	The equations developed were from low to moderate precision (r2 = 0.18 to 55), moderate to high accuracy with a bias correction factor (Cb > 0.69), and low to moderate reproducibility index (> 0.30). Overall, the use of DIA was able to predict the BM in Pelibuey ewes with low to moderate precision and accuracy. Factors affecting the accuracy and precision of this relationship should be further investigated.
Palabras claves	Body measurements; Image analysis; Linear regression equations; Image-processing; Tropical conditions; Body weight

Revista	**SMALL RUMINANT RESEARCH**
ISSN	ISSN: 0921-4488
DOI	https://doi.org/10.1016/j.smallrumres.2023.107090
Título del Artículo	Prediction of carcass tissues composition using the neck and shoulder traits in hair lambs with multiresponse multivariate adaptive regression splines
Autores e instituciones de adscripción	Aguilar-Quiñonez, José Antonio [1]; Tirink, Cem [2]; Gastelum-Delgado, Miguel A. [1,3]; Camacho-Pérez, Enrique [4]; Tyasi, Thobela Louis [5]; Herrera-Camacho, José [3]; Portillo-Salgado, Rodrigo [3]; Vázquez-Martínez, Ignacio [3]; Chay-Canul, Alfonso J. [3].; [1] Facultad de Agronomía, Universidad Autónoma de Sinaloa, km 17.5 Carretera Culiacán-El Dorado, Culiacán 80000, Sinaloa, Mexico [2] Biometry and Genetics Unit, Department of Animal Science, Faculty of Agriculture, Igdir University, TR76000 Igdir, Turkey [3] Facultad de Ingeniería. Universidad Autónoma de Yucatán, Av. Industrias No Contaminantes s/n, Mérida, Yucatán, Mexico [4] Division Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carr. Villahermosa-Teapa, km 25, CP 86280 Villahermosa, Tabasco, Mexico [5] Department of Agricultural Economics and Animal Production, University of Limpopo, Private Bag X1106, Sovenga 0727, Limpopo, South Africa
Resumen	The present study aimed to predict the carcass tissue composition of hair sheep lambs using a multiresponse multivariate adaptive regression splines algorithm. The left half of sixty-six hair lambs were divided into five commercial cuts (neck, shoulder, rib, loin, and leg), each cut was weighed and dissected in total soft tissue (fat and muscle, TSTW) and bone (BOW). The independent variables included variables obtained from neck and shoulder dissection: weights of the neck (NWE) and shoulder (SWE), neck soft STW (NSTW), neck BW (NBOW), shoulder STW (SSTW), and shoulder BW (SBOW). The prediction of hot carcass weight (HCW), cold carcass weight (CCW), carcass soft tissue weight (CSTW), and carcass bone weight (CBWE) had an R2 that ranged from 0.90 to 0.96. It is concluded that some neck traits and all shoulder traits could be used to predict the carcass tissue weights of hair-suckling lambs correctly.
Palabras claves	Algorithms; carcass composition; carcasses; lambs; neck; shoulders; soft tissues; weight.

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	eISSN:1573-7438
DOI	https://doi.org/10.1007/s11250-023-03854-3
Título del Artículo	Prediction models of carcass characteristics from non-castrated Nellore cattle finished in the feedlot system under tropical conditions
Autores e instituciones de adscripción	de Figueiredo Moura, Jessika Rodrigues [1]; Vinhas Itavo, Luis Carlos [1]; Chaves Gurgel, Antonio Leandro [2]; Ferreira Itavo, Camila Celeste Brandao [1]; Bonin Gomes, Marina de Nadai [1]; Zirondi Longhini, Vanessa [1]; Menezes Dias, Alexandre [1]; dos Santos Difante, Gelson [1]; Tadeu dos Santos, Geraldo [1]; Moreira Arcanjo, Angelo Herbert [1]; Chay-Canul, Alfonso Juventino [3].; [1] Faculdade de Medicina Veterinária e Zootecnia – FAMEZ, Universidade Federal de Mato Grosso Do Sul, Av. Senador Filinto Müller, 2443. Cidade Universitária. CEP, 79070-900 Campo Grande, MS, Brasil [2] Campus Professor Cinobelina Elvas, Universidade Federal Do Piauí, Bom Jesus, Piauí 64900-000, Brazil [3] División Académica de Ciencias Agropecuarias, Universidade Juárez Autónoma de Tabasco, Villahermosa, Tabasco 86280, México
Resumen	Our objective was to use measures of intake and productive performance to adjust prediction models for the carcass traits of non-castrated Nellore cattle finished in a feedlot. Individual data from 168 non-castrated male Nellore steers finished in feedlot between the years 2016-2021 were used. Descriptive statistical analyzes and Pearson correlation coefficients were performed.

Resumen	The outliers were tested by evaluating the studentized residuals in relation to the values predicted by the equations. Residues that were outside the range of -2.5 to 2.5 were removed. The goodness of fit of the developed equations was evaluated by the coefficients of determination (R2) and root mean square error (RMSE). Models for carcass yield, subcutaneous fat thickness, ribeye area, and shear force were adjusted. Means of 53.5% carcass yield, 4.8 mm subcutaneous fat thickness, 73 cm2 loin eye area, and 8.1 kg shear force were observed. The observed average intakes were 9.9 kg/day of dry matter, 3.3 kg/day of neutral detergent fiber content, 1.5 kg/day of crude protein, and 7.1 kg/day of total digestible nutrients. The average confinement time was 113 days, the average total weight gain was 152.2 kg and the average daily gain was 1.35 kg/day. Intake measures significantly correlated with shear force and subcutaneous fat thickness and ribeye area. Carcass yield was significantly correlated with total weight gain, feedlot time, and hot carcass weight. Measures of nutrient intake, performance, and confinement time can be used as predictors of carcass yield, ribeye area, fat thickness, and shear force of non-castrated Nellore cattle finished in a feedlot. The prediction equations for ribeye area, carcass yield, subcutaneous fat thickness, and shear force showed sufficient precision and accuracy for non-castrated Nellore cattle finished in confinement systems under tropical conditions. All equations can be used with caution to estimate carcass traits of cattle finished in a feedlot using measures of intake and productive performance.
Palabras claves	Mathematical models; Carcass yield; Subcutaneous fat thickness; Ribeye area; Shear force.

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	eISSN:1573-7438
DOI	https://doi.org/10.1007/s11250-023-03759-1
Título del Artículo	Predicting carcass tissue composition in Blackbelly sheep using ultrasound measurements and machine learning methods
Autores e instituciones de adscripción	Camacho-Pérez, Enrique [1]; Lugo-Quintal, Jesús Manuel [2]; Tirink, Cem [3]; Aguilar-Quiñonez, José Antonio [4]; Gastelum-Delgado, Miguel A. [4]; Lee-Rangel, Héctor Aaron [5]; Roque-Jiménez, José Alejandro [5]; García-Herrera, Ricardo Alfonso [6]; Chay-Canul, Alfonso J. [6].; [1] Facultad de Ingeniería, Universidad Autónoma de Yucatán, Av. Industrias No Contaminantes S/N, Mérida, Yucatán, México. [2] Tecnológico Nacional de México, Instituto Tecnológico Superior Progreso, Progreso, Yucatán, México. [3] Faculty of Agriculture, Department of Animal Science, Igdir University, TR76000, Igdir, Turkey. [4] Facultad de Agronomía, Universidad Autónoma de Sinaloa, Km 17.5 Carretera Culiacán-El Dorado, Culiacán, 80000, Sinaloa, México. (2 authors) [5] Centro de Biociencias, Facultad de Agronomía y Veterinaria, Instituto de Investigaciones en Zonas Desérticas, Universidad Autónoma de San Luis Potosí, Km 14.5 Carr, San Luis Potosí-Matehuala, 78321, México. (2 authors) [6] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carr. Villahermosa-Teapa, Km 25, CP 86280, Villahermosa, Tabasco, México.
Resumen	This study aimed to predict Blackbelly sheep carcass tissue composition using ultrasound measurements and machine learning models. The models evaluated were decision trees, random forests, support vector machines, and multi-layer perceptrons and were used to predict the total carcass bone (TCB), total carcass fat (TCF), and total carcass muscle (TCM). The best model for predicting the three parameters, TCB, TCF, and TCM was random forests, with mean squared error (MSE) of 0.31, 0.33, and 0.53; mean absolute error (MAE) of 0.26, 0.29, and 0.53; and the coefficient of determination (R2) of 0.67, 0.69, and 0.76, respectively. The results showed that machine learning methods from in vivo ultrasound measurements can be used as determinants of carcass tissue composition, resulting in reliable results.
Palabras claves	Ultrasound measurements; Carcass composition; Machine learning

Revista	**TROPICAL ANIMAL HEALTH AND PRODUCTION**
ISSN	eISSN:1573-7438
DOI	https://doi.org/10.1007/s11250-023-03717-x
Título del Artículo	Predicting body weight through biometric measurements in growing hair sheep using data mining and machine learning algorithms

Autores e instituciones de adscripción	Vázquez-Martínez, Ignacio [1,2]; Tirink, Cem [3]; Salazar-Cuytun, Rosario [1]; Mezo-Solís, Jesús A. [1]; García Herrera, Ricardo A. [1]; Orzuna-Orzuna, José Felipe [4]; Chay-Canul, Alfonso J. [1].; [1] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, km 25, Carretera Villahermosa-Teapa, R/A La Huasteca, 86280 Villahermosa, Tabasco, Mexico [2] Benemérita Universidad Autónoma de Puebla, Complejo Regional Norte, Tetela de Ocampo, Puebla, Mexico [3] Faculty of Agriculture, Departments of Animal Science, Igdir University, TR76000 Igdir, Turkey [4] Departamento de Zootecnia, Universidad Autónoma Chapingo, Texcoco, Mexico.
Resumen	Determination of live weight, which is one of the most important features that determine meat production, is a very important issue for herd management and sustainable livestock. In this context, the necessity of finding alternative methods has emerged, especially in rural conditions, due to the difficulties to be experienced in finding the weighing tool. Especially for conditions with no weighing tool, it has been tried to establish relations between the information obtained from body measurements and live weight. Since these studies will differ from species to species and breed to breed, the need for new studies is extremely high. For this aim, it is to evaluate the body measurement information obtained with the present study using several statistical approaches. To implement this aim, several data mining and machine learning algorithms such as multivariate adaptive regression splines (MARS), classification and regression tree (CART), and support vector machine regression (SVR) algorithms were used for training (70%) and test (30%) sets. To predict final body weight, 280 hair sheep breeds (162 female and 118 male) ranging from 2 months to 3 years were used with different data mining and machine learning approaches. Various goodness-of-fit criteria were used to evaluate the performances of the aforementioned algorithms. Although the MARS and SVR algorithms gave the same and highest results in terms of R2 and r values for both the train and the test sets, the SVR algorithm is one of the methods to be recommended as a result of this study, especially when other goodness-of-fit criteria are evaluated. In conclusion, the usage of SVR algorithms may be a useful tool of machine learning approaches for detecting the hair sheep breed standards and may contribute to increasing the sheep meat quality in Mexico.
Palabras claves	Biometric measurements; Mathematical equations; Hair sheep breeds; Data mining

Revista	**JOURNAL OF CRUSTACEAN BIOLOGY**
ISSN	eISSN 1937-240X
DOI	https://doi.org/10.1093/jcbiol/ruad053
Título del Artículo	Partial characterization of digestive proteases in the river prawn Macrobrachium americanum (Spence Bate, 1868) (Decapoda: Caridea: Palaemonidae) in Mexico
Autores e instituciones de adscripción	Laguna-Natarén, Víctor M. [1]; Uscanga-Martínez, Arkady [1]; Perales-García, Natalia [1]; Alvarez-González, Carlos A. [2]; López-Rasgado, Francisco J. [3]; Diaz-Gallegos, José R. [4]; Velazco-Ortiz, Alexis F. [4].; [1] Laboratorio de Nutrición y Producción Acuícola, Centro de Investigaciones Costeras, Instituto de Biología, Universidad de Ciencias y Artes de Chiapas, CP 30500, Tonalá, Chiapas, Mexico [2] Laboratorio de Fisiología en Recursos Acuáticos, DACBiol, Universidad Juárez Autónoma de Tabasco, CP. 86139, Villahermosa, Tabasco, Mexico [3]Laboratorio de Ecología de Recursos Pesqueros, Centro de Investigaciones Costeras, Instituto de Biología, Universidad de Ciencias y Artes de Chiapas, CP 30500, Tonalá, Chiapas, Mexico [4]Laboratorio de Geoinformación y Análisis Geoespacial, Centro de Investigaciones Costeras, Instituto de Biología, Universidad de Ciencias y Artes de Chiapas, CP 30500, Tonalá, Chiapas, Mexico
Resumen	We characterized the digestive enzymes in adults of Macrobrachium americanum (Spence Bate, 1868) in southeastern Mexico. The digestive enzyme extracts were made from the specimens' hepatopancreas. Alkaline proteases, trypsin, chymotrypsin, carboxypeptidase A, leucine aminopeptidase, lipases, α-amylase and alkaline phosphatase activities were determined, as well as the percentage of inhibition, pH, and temperature stabilities through biochemical and electrophoretic techniques. The maximum digestive activity of proteases was at 35 °C and pH 11. Alkaline digestive proteases were highly stable at pHs 4, 9 and 11 at 55 °C after 30 min pre-incubation. PMSF inhibited two bands with proteolytic activity (35.1 and 23.2 kDa), and SBT1 inhibited all bands, including the one with the highest molecular weight (64.2 kDa). We concluded that enzymes in M. americanum coincide with those of omnivorous decapods with a tendency to carnivory.

Palabras claves	Mexico; Macrobrachium; Carboxypeptidases; Digestive Enzymes; Proteolytic Enzymes; Decapoda; Lipases; Alkaline Phosphatase

Revista	**ANIMALS**
ISSN	eISSN 2076-2615
DOI	https://doi.org/10.3390/ani13223515
Título del Artículo	In Vitro Digestibility and Models of Cumulative Gas Production of Forage-Free Diet
Autores e instituciones de adscripción	Vinhas Itavo, Luis Carlos [1]; Chaves Gurgel, Antonio Leandro [1]; Ferreira itavo, Camila Celeste Brandao [1]; Soares Cunha, Camila [1]; Zirondi Longhini, Vanessa [1]; dos Santos Difante, Gelson [1]; Menezes Dias, Alexandre [1]; Santos Santana, Juliana Caroline [1]; Moreira Arcanjo, Angelo Herbet [1]; Garcia Niwa, Marcus Vinicius [1]; Modesto Nonato, Lucimara [1]; Tadeu dos Santos, Geraldo [1]; Chay-Canul, Alfonso Juventino. [2].; [1] College of Veterinary Medicine and Animal Science, Federal University of Mato Grosso do Sul, Campo Grande 79070-900, Brazil [2] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa 86025, Mexico
Resumen	Our objectives were to evaluate the use of cottonseed cake in replacing corn silage in a diet without forage and to identify the model with higher precision and accuracy of adjustment of parameters of ruminal degradation kinetics. A diet containing corn silage and another with cottonseed cake as a fiber source were formulated. Gompertz, Dual-pool Logistic, Brody, and Ørskov models were evaluated for goodness of fit to gas production. There were significant differences in dry matter (DM), organic matter (OM), and neutral detergent fiber (NDF) in the in vitro digestibility for diets and fiber sources. The estimated values of the Gompertz (6.77), Brody (6.72), and Ørskov (6.73) models were similar to the observed mean of gas production in the corn silage diet (6.73 mL/100 mg DM). Similarly, the estimated values of the Brody (5.87) and Ørskov (5.89) models were similar to the observed mean of gas production in the cottonseed cake diet (5.87 mL/100 mg DM). The roughage-free diet containing cottonseed cake as a fiber source stimulated higher gas production. Brody and Ørskov models presented higher precision and accuracy in the fitting of kinetics of degradation independent of the fiber source in the diet.
Palabras claves	Cumulative gas production; digestibility; effective fiber; mathematical models; nonlinear models

Revista	**COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY PART A: MOLECULAR & INTEGRATIVE PHYSIOLOGY**
ISSN	ISSN: 1095-6433
DOI	http://doi.org/10.1016/j.cbpa.2023.111501
Título del Artículo	Identification and expression analysis of transcripts involved in taurine biosynthesis during early ontogeny of tropical gar Atractosteus tropicus
Autores e instituciones de adscripción	Martínez-Burguete, Talhia [1]; Pena-Marín, Emyr Saúl [2]; Llera-Herrera, Raúl Antonio [3]; Jiménez-Martínez, Luis Daniel [4]; Martínez-García, Rafael [1]; Álvarez-Villagómez, Carina Shianya [1]; Álvarez-González, Carlos Alfonso. [1].; [1] Laboratorio de Fisiología en Recursos Acuáticos, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas Km. 0.5, CP.86139 Villahermosa, Tabasco, Mexico [2] Instituto de Investigaciones Oceanológicas, Universidad Autónoma de Baja California (UABC), Ensenada 21100, Baja California, Mexico [3] Instituto de Ciencias del Mar y Limnología – Unidad Académica Mazatlán, Universidad Nacional Autónoma de México, Joel Montes Camarena S/N, PO Box 811, Mazatlán, Sinaloa, Mexico [4] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Carretera Nacajuca-Jalpa de Méndez R7a Rivera Alta, C.P. 86200 Jalpa de Méndez, Tabasco, Mexico
Resumen	In fishes, the availability of taurine is regulated during ontogenetic development, where its endogenous synthesis capacity is species dependent. Thus, different pathways and involved enzymes have been described: pathway I (cysteine sulfinate-dependent pathway), cysteine dioxygenase type 1 (cdo1) and cysteine sulfinic acid decarboxylase (csad); pathway II (cysteic acid pathway), cdo1 and glutamic acid decarboxylase (gad); and pathway III (cysteamine pathway), 2-aminoethanethiol dioxygenase (ado); whereas taurine transporter (taut) is responsible for taurine entry into cells on the cell membrane and the mitochondria.

Resumen	This study determined if the tropical gar (Atractosteus tropicus), an ancient holostean fish model, has the molecular mechanism to synthesize taurine through the identification and analysis expression of transcripts coding for proteins involved in its biosynthesis and transportation, at different embryo-larvae stages and in different organs of juveniles (31 dah). We observed a fluctuating expression of all transcripts involved in the three pathways at all analyzed stages. All transcripts are expressed during the beginning of larval development; however, ado and taut show a peak expression at 9 dah, and all transcripts but csad decreased at 23 dah, when the organism ended the larval period. Furthermore, at 31 dah, we observed taut expression in all examined organs. The transcripts involved in pathways I and III are expressed differently across all organs, whereas pathway II was only observed in the brain, eye, and skin. The results suggested that taurine biosynthesis in tropical gar is regulated during its early development before first feeding, and the pathway might also be organ-type dependent.
Palabras claves	Ancestral fish; Larvae; Taurine biosynthesis; Transcript expression; Tropical gar.

Revista	**PLOS ONE**
ISSN	eISSN: 1932-6203
DOI	https://doi.org/10.1371/journal.pone.0292352
Título del Artículo	How diverse are the mountain karst forests of Mexico?
Autores e instituciones de adscripción	Molina-Paniagua, María Eugenia [1,2]; Alves de Melo, Pablo Hendrigo Alves [3]; Ramírez-Barahona, Santiago [2]; Monro, Alexandre K. [4]; Burelo-Ramos, Carlos Manuel [5]; Gómez-Domínguez, Héctor [6]; Ortiz-Rodríguez, Andrés Ernesto. [2].; [1] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México. [2] Departamento de Botánica, Instituto de Biología, UNAM, Ciudad Universitaria, Apartado Postal 70-367, 04510, Ciudad de México, México. [3] UNESP-Universidade Estadual Paulista "Julio de Mesquita Filho", Río Claro, São Paulo, SP, Brazil, 13506-900. [4] Americas Team, The Herbarium, Royal Botanic Gardens Kew, UK, TW9 3AB 5 11 [5]Herbario UJAT, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México,86150. [6] Senda sustentable, A.C., Tuxtla Gutiérrez, Chiapas, México. *
Resumen	Tropical forests on karstic relief (tropical karst forest) are among the most species-rich biomes. These forests play pivotal roles as global climate regulators and for human wellbeing. Their long-term conservation could be central to global climate mitigation and biodiversity conservation. In Mexico, karst landscapes occupy 20% of the total land surface and are distributed mainly in the southeast of the country, along the eastern slope, and in the Yucatan Peninsula. Within each of these areas, the following types of karst occur: coastal karst, plain karst, hill karst, and mountain karst (low, medium, high). Mountain karst cover 2.07% of Mexico's land surface and are covered by tropical rainforests, montane cloud forests, and tropical deciduous forests. These are probably one of the most diverse biomes in Mexico. However, the mountain karst forests of Mexico have received little attention, and very little is known about their diversity. Here, we evaluated the vascular plant species richness within the mountain karst forests of Mexico. We assembled the first, largest, and most comprehensive datasets of Mexican mountain karst forest species, from different public databases (CONABIO, GBIF, IBdata-UNAM), which included a critical review of all data. We compiled a list of the families, genera, and species present within the mountain karst forests of Mexico. Taxa that best characterize these forests were identified based on their spatial correlation with this biome. We explored biodiversity patterns, identifying areas with the highest species richness, endemism centers, and areas of relatively low sampling intensity. We found that within the mountain karst forests of Mexico there are representatives of 11,771 vascular plant species (253 families and 2,254 genera), ca. 50% of the Mexican flora. We identified 372 species endemic to these forests. According to preliminary IUCN red list criteria, 2,477 species are under some category of conservation risk, of which 456 (3.8%) are endangered. Most of the Mexican mountain karst forests have been extensively explored and six allopatric, species-rich areas were identified. Compared to other regions in the world, the mountain karst forests of Mexico are one of the most diverse biomes. They contain more species than some entire montane systems in Mexico such as Sierra Madre Oriental, and Sierra Madre del Sur. Also, the mountain karst forests of Mexico are most diverse than similar forests of South America and Asia, even if considering the effect of different sampling areas.

Resumen	The fact that mountain karst forests are embedded in areas of high biotic diversity, probably contributes to their great floristic diversity. Thus, the mountain karst forests of Mexico are an important source of diversity and shelters a large percentage of the Mexican flora.
Palabras claves	Endemic organism; threatened species

Revista	**CIENCIAS MARINAS**
ISSN	ISSN 0185-3880
DOI	https://doi.org/10.7773/cm.y2023.3368
Título del Artículo	Evaluation of different levels of dietary protein and lipids on the growth, feed efficiency, and biometric and hematological indexes of juvenile white snooks, Centropomus viridis
Autores e instituciones de adscripción	Abdo-de la Parra, María Isabel [1]; Rodríguez-Ibarra, Luz Estela [1]; Ibarra-Castro, Leonardo [1]; Martínez-Brown, Juan Manuel [1]; Alvarez-González, Carlos Alfonso [2]; Peña, Emyr [3]; Velasco-Blanco, Gabriela [1]; Domínguez-Jiménez, Patricia [1]; Rodríguez-Montes de Oca, Gustavo. [4].; [1] Centro de Investigación en Alimentación y Desarrollo, Unidad Mazatlán, 82112 Mazatlán, Sinaloa, Mexico. [2] Laboratorio de Fisiología de Recursos Acuáticos, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, 86039 Villahermosa, Tabasco, Mexico. [3] Instituto de Investigaciones Oceanológicas, Universidad Autónoma de Baja California, 22860 Ensenada, Baja California, Mexico. [4] Laboratorio de Reproducción y Cultivo de Peces, Facultad de Ciencias del Mar, Universidad Autónoma de Sinaloa, 82000 Mazatlán, Sinaloa, Mexico. *
Resumen	An experiment was conducted to evaluate the effect of various levels of protein and dietary lipids on white snook (Centropomus viridis) performance. A 4 × 2 factorial design was used with 4 protein levels (40%, 46%, 52%, and 58%) and 2 lipid levels (10% and 13%), with 3 replicates per treatment. Fish with an initial weight of 14.80 ± 0.80 g were fed to apparent satiety 3 times a day for 6 weeks. Juvenile growth showed no significant differences among treatments. Feed efficiency was only affected by the protein level in the diet, and the best feed efficiency ratio was obtained with the 52% protein diets; the protein efficiency ratio was significantly lower with the 58% protein diets. The hepatosomatic index decreased with increasing protein content, and the peritoneal fat index increased with dietary lipid level. The condition factor was not affected by the dietary protein or lipid level. Hematocrit and total plasma protein were significantly higher at 40% protein; blood glucose and triglycerides were affected by both nutrients. It is concluded that juvenile C. viridis can be fed diets containing 40% protein and 10% lipids and a protein/energy ratio of 20.69 mg·kJ-1, under the experimental conditions of this study.
Palabras claves	Protein; lipids; protein/energy ratio; Centropomus viridis

Revista	**AQUATIC SCIENCES**
ISSN	eISSN: 1420-9055
DOI	https://doi.org/10.1007/s00027-023-01013-2
Título del Artículo	Epiphytes support aquatic consumers of a large floodplain lake ecosystem in the southern Gulf of Mexico
Autores e instituciones de adscripción	Cazzanelli, Matteo [1]; Castillo, María Mercedes [2]; Soria-Barreto, Miriam [3]; Ochoa-Gaona, Susana [4]; Sepúlveda-Lozada, Alejandra [3]; Patiño-Espinosa, Sandra Gisele [3]; Jiménez-Pérez, Nelly C. [5]; Rodiles-Hernández, Rocio. [3].; [1] Departamento de Conservación de la Biodiversidad, CONAHCYT-El Colegio de La Frontera Sur, San Cristóbal de las Casas, Chiapas, Mexico [2] Departamento de Ciencias de la Sustentabilidad, El Colegio de la Frontera Sur, Villahermosa, Tabasco, Mexico [3] Departamento de Conservación de la Biodiversidad, El Colegio de la Frontera Sur, San Cristóbal de las Casas, Chiapas, Mexico [4] Departamento de Ciencias de la Sustentabilidad, El Colegio de la Frontera Sur, Unidad Campeche, Av. Rancho Polígono 2A, Ciudad Industrial, Lerma, 24500 Campeche, Campeche, Mexico [5] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas Km 0.5 S/N, Entronque a Bosques de Saloya, Ra Emiliano Zapata, 86150 Nacajuca, Tabasco, Mexico
Resumen	Floodplain lakes are highly productive and biodiverse ecosystems whose food webs depend on a variety of autochthonous and allochthonous resources.

Resumen	Thus far, the role of attached algae, and epiphytes in particular has been understudied, although often high densities of macrophytes in these lakes may provide extensive substrate for attached algal growth. Our goal was to evaluate spatial and temporal variability in food web dynamics of three floodplain lakes permanently connected to the Usumacinta River, with emphasis on the role of epiphytes as a carbon source for upper trophic levels. To achieve this, we analyzed the physicochemical properties of water and stable isotopes of fish and invertebrate consumers and potential autochthonous (macrophytes, phytoplankton, epiphytes, epipelon) and allochthonous (terrestrial organic matter) basal resources during the rainy and dry seasons. The mixing model output highlighted the crucial role of epiphytes as the main energy pathway supporting secondary production year-round, while aquatic macrophytes were of secondary importance. The contribution of terrestrial organic matter to consumers was low, mostly limited to invertebrates, and overall increased from the rainy to the dry season, countering expectations of higher allochthony following strong seasonal flow pulses. Community-wide metrics further revealed higher trophic diversity among invertebrates as compared to fish. Our findings highlight the importance of preserving epiphytic energy pathways and macrophyte-periphyton linkages, as they provide key support to food webs of these vital fishery ecosystems.
Palabras claves	Stable isotope analysis; Lake food webs; Periphyton; Aquatic macrophytes; Algal communities; Tropical fish.

Revista	**REVISTA MEXICANA DE BIODIVERSIDAD**
ISSN	eISSN 2007-8706
DOI	https://doi.org/10.22201/ib.20078706e.2023.94.4913
Título del Artículo	Avifauna in commercial agroforestry monocultures in Huimanguillo, Tabasco, Mexico
Autores e instituciones de adscripción	Cadenas-Madrigal, Calixto [1]; Mata-Zayas, Ena Edith [1]; Olivera-Gómez, León David [1]; Cornelis Van der Wal, Johannes [2]; Arriaga-Weiss, Stefan Louis. [1].; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Entronque Bosques de Saloya, Km 0.5 Carr. Villahermosa-Cárdenas, 86000 Villahermosa, Tabasco, México [2] El Colegio de la Frontera Sur, Campus Villahermosa, Carretera a Reforma Km 15.5 s/n Ra, Guineo 2da. Sección, 86280 Villahermosa, Tabasco, México
Resumen	The southeast of Mexico has undergone a great landscape transformation, partly due to the presence of forest harvesting systems. We describe bird communities in eucalyptus and rubber tree monocultures in Huimanguillo, Tabasco, and evaluate the structural influence of these monocultures on bird communities. We sampled 118 bird count points (with 6 replicates) and established vegetation plots for assessment. Across the 708 survey points, 4,699 individuals of 148 bird species were observed. The highest richness and abundance of birds were found in eucalyptus. The ANOSIM showed significant differences between rubber tree and eucalyptus sites. SIMPER analysis indicated that Psilorhinus morio and Eupsittula nana contributed the highest percentages of dissimilarity. The vegetation structure differed statistically between sites, particularly regarding tree variables within plantations compared to their surrounding matrices. Generalized linear models (GLM) indicated that bird diversity is influenced by understory structure and plantation type. In Huimanguillo, eucalyptus monocultures support a richer bird community than the rubber tree one. The eucalyptus seems to play a vital role as a winter habitat for migratory birds in this region. The presence of understory in agroforestry systems is an essential element for birds in landscapes dominated by anthropic activities.
Palabras claves	Birds; Plantations; Eucalyptus; Rubber tree.

Revista	**SUSTAINABILITY**
ISSN	eISSN 2071-1050
DOI	https://doi.org/10.3390/su152316399
Título del Artículo	Annual Evaluation of Natural Ventilation Induction in Solar Chimneys under Tropical, Dry, and Temperate Climates of Mexico: A Case Study

Autores e instituciones de adscripción	Torres-Aguilar, Carlos E. [1]; Moreno-Bernal, Pedro [2]; Nesmachnow, Sergio [3]; Aguilar-Castro, Karla M. [1]; Cisneros-Villalobos, Luis [4]; Arce, Jesús. [5].; [1] División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Cunduacán 86690, Tabasco, Mexico [2] Facultad de Contaduría, Administración e Informática, Universidad Autónoma del Estado de Morelos, Cuernavaca 62209, Morelos, Mexico [3] Facultad de Ingeniería, Universidad de la República, Montevideo 11300, Uruguay [4] Facultad de Ciencias Químicas e Ingeniería, Universidad Autónoma del Estado de Morelos, Cuernavaca 62209, Morelos, Mexico [5] Centro Nacional de Investigación y Desarrollo Tecnológico, Cuernavaca 62490, Morelos, Mexico
Resumen	This article presents an annual performance evaluation of single- and double-air-channel solar chimneys for natural ventilation induction under weather conditions in Mexico. The global energy balance method modeled both types of solar chimneys in an unsteady state. The case study evaluated five cities in Mexico. Experimental data of a single-air-channel chimney prototype evaluated under controlled conditions were used to validate the GEB numerical solution. Model validation considers climatic parameters to increase the accuracy of ventilation calculations, e.g., solar radiation, ambient temperature, wind speed, relative humidity, and atmospheric pressure. Experimental evaluation was performed considering the warmest and coldest days in each month of 2018. The modeling time to achieve the initial condition independence for each configuration was 72 h of the physical phenomenon. Results show that double-air-channel solar chimney tested configurations induced at least 70% more airflow than single-air-channel solar chimneys. Both solar chimney airflows were higher than the dwelling-unit ventilation for a space of 54 m3, and volumetric flows up to 120 m3h−1 were identified for two studied cities.
Palabras claves	Solar chimney; natural ventilation; energy balance model; heat transfer

Revista	**INTERNATIONAL JOURNAL OF GENERAL MEDICINE**
ISSN	ISSN: 1178-7074
DOI	https://doi.org/10.2147/IJGM.S426249
Título del Artículo	Aftereffects in Epigenetic Age Related to Cognitive Decline and Inflammatory Markers in Healthcare Personnel with Post-COVID-19: A Cross-Sectional Study
Autores e instituciones de adscripción	Nolasco-Rosales, German Alberto [1]; Alonso-García, Cecilia Yazmín [1]; Hernández-Martínez, David Gustavo [1]; Villar-Soto, Mario [2]; Martínez-Magaña, José J. [3]; Genis-Mendoza, Alma Delia [4]; González-Castro, Thelma Beatriz [5]; Tovilla-Zarate, Carlos Alfonso [6]; Guzman-Priego, Crystell Guadalupe [1]; Martínez-López, Mirian Carolina [1]; Nicolini, Humberto [7]; Juárez-Rojop, Isela Esther. [1].; [1] División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México; [2] Hospital Regional de Alta Especialidad de Salud Mental, Villahermosa, Tabasco, México; [3] Department of Psychiatry, Yale University School of Medicine, New Haven, CT, USA; [4] Hospital Psiquiátrico Infantil "Dr. Juan N. Navarro", Ciudad de México, México; [5] División Académica Multidisciplinaria de Jalpa de Méndez, Universidad Juárez Autónoma de Tabasco, Jalpa de Méndez, Tabasco, México; [6] División Académica Multidisciplinaria de Comalcalco, Universidad Juárez Autónoma de Tabasco, Comalcalco, Tabasco, México; [7] Departamento de Genética Psiquiátrica, Instituto Nacional de Medicina Genómica (INMEGEN), Ciudad de México, México
Resumen	Purpose: Epigenetic age and inflammatory markers have been proposed as indicators of severity and mortality in patients with COVID-19. Furthermore, they have been associated with the occurrence of neurological symptoms, psychiatric manifestations, and cognitive impairment. Therefore, we aimed to explore the possible associations between epigenetic age, neuropsychiatric manifestations and inflammatory markers (neutrophil-lymphocyte ratio [NLR], platelet-lymphocyte ratio [PLR], monocyte-lymphocyte ratio [MLR], and systemic immune-inflammation index [SII]) in healthcare personnel with post-COVID condition. Patients and Methods: We applied the Montreal Cognitive Assessment (MoCA) and Mini-Mental State Examination (MMSE) tests to 51 Mexican healthcare workers with post-COVID-19 condition; we also estimated their epigenetic age using the PhenoAge calculator. Results: The participants had a post-COVID condition that lasted a median of 14 months (range: 1–20). High NLR (>1.73) had association with mild cognitive impairment by MMSE (p=0.013). Likewise, high MLR (>0.24) were associated with language domain in MOCA (p=0.046). Low PLR (<103.9) was also related to delayed recall in MOCA (p=0.040). Regarding comorbidities, hypertension was associated with SII (p=0.007), overweight with PLR (p=0.047) and alcoholism was associated with MLR (p=0.043). Interestingly, we observed associations of low PLR (<103.9) and low SII (<1.35) levels with increased duration of post-COVID condition (p=0.027, p=0.031).

Resumen	Likewise, increases in PhenoAge were associated with high levels of SII (OR=1.11, p=0.049), PLR (OR=1.12, p=0.035) and MLR (OR=1.12, p=0.030). Conclusion: We observed neurocognitive changes related to inflammatory markers and increases in epigenetic age in healthcare personnel with post-COVID-19 condition. Future research is required to assess mental and physical health in individuals with post-COVID-19 symptoms.
Palabras claves	Post-COVID-19; cognitive manifestation; inflammatory markers; epigenetic age

Revista	**CHEMISTRY AND ECOLOGY**
ISSN	eISSN: 1029-0370
DOI	https://doi.org/10.1080/02757540.2023.2263427
Título del Artículo	Aerobic biotransformation of Sargassum fluitans in combination with sheep manure: optimization of control variables
Autores e instituciones de adscripción	López-Torres, María I. [1]; Sosa-Olivier, José A. [1]; Laines-Canepa, José R. [1]; Padilla-Rivera, Alejandro [2]; Santiago-Cortez, Irma [1]; Jiménez-Hernández, Fabiola J. [1].; [1] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Tabasco, México; [2] Faculty of Environmental Design, University of Calgary, Calgary, Canada;
Resumen	Sargassum fluitans was composted alongside sheep manure, in a transformative process that significantly enhanced the algal material's properties. Post the screening/washing/screening pretreatment, the content of total volatile solids escalated to 73.20%, while ash content reduced to 16.45%. Concurrently, lignin values surged to 30.12% as the biodegradability factor declined to 21%. The pretreatment decreased electrical conductivity from 11.60 to 1.32 DS/m. Employing a central composite design and response surface analysis pinpointed the optimal substrate combinations for carbon/nitrogen ratios of 35:1 and 25:1. The chosen combinations presented a high coefficient of determination (R2 = 0.9589, carbon/nitrogen ratio; R2 = 0.6584, pH), indicative of a robust statistical fit. Over a 45-day period, composting was conducted using bioreactors or biopiles, maintaining near-neutral pH values and temperatures slightly above ambient levels. The composting process reduced up to 94% of fecal coliforms in the 1:1 combination. Physicochemical analyses confirmed that the final product is a valuable compost-soil improver, with great potential for usage in organic agriculture, reforestation, and urban green spaces. Hence, this research underscores composting as an efficient technique in managing organic waste, including the emergent and seasonal Sargassum fluitans, thus addressing a pressing environmental concern with an innovative, effective solution.
Palabras claves	Central composite method; composting; response surface; waste

Revista	**AGROFORESTRY SYSTEMS**
ISSN	eISSN: 1572-9680
DOI	https://doi.org/10.1007/s10457-023-00928-x
Título del Artículo	Above-ground biomass estimation by developing allometric equations for Theobroma cacao in Tabasco, Mexico
Autores e instituciones de adscripción	Moran-Villa, Vanessa Lisbeth [1]; Monterroso-Rivas, Alejandro Ismael [2]; Mata-González, Ricardo [3]; Marquez-Berber, Sergio Roberto [4]; Abdallah, Mohamed A. B. [3]; Valdés-Velarde, Eduardo [4]; Hernández-Sánchez, Rufo [5].; [1] Multifunctional Agriculture for Sustainable Development Program, Fitotecnia Department, Universidad Autónoma Chapingo, Km. 38.5 Carretera México-Texcoco, C.P. 56230, Texcoco, Mexico; [2] Soils Department, Universidad Autónoma Chapingo, Km. 38.5 Carretera México-Texcoco, C.P. 56230, Texcoco, Mexico; [3] Department of Animal and Rangeland Sciences, Oregon State University, 120 Withycombe Hall, Corvallis, OR, 97330, USA [4] Fitotecnia Department, Universidad Autónoma Chapingo, Km. 38.5 Carretera México-Texcoco, C.P. 56230, Texcoco, Mexico [5] Universidad Juárez Autónoma de Tabasco, C.P. 86040, Villahermosa, Tabasco, Mexico
Resumen	The cocoa tree (Theobroma cacao L.), widely distributed in southern and central Mexico, has many economic and ecological functions.

Resumen	However, there is a lack of data and information regarding the aboveground biomass (AGB) of this species in Mexico, which hampers understanding of its carbon sequestration potential. The objectives of this study were (1) to develop allometric equations to estimate AGB and (2) to determine the relationships of AGB components in cacao trees. Twenty-one trees were destructively sampled and separated into components (trunk, branches, leaves) at the Chontalpa subregion of Tabasco, a large cocoa production area. Samples of biomass cocoa trees were used to determine their carbon content. A typical cacao tree in our study area is 6.64 m in height, with a diameter at breast height (dbh) of 13.29 cm and with dry aboveground biomass of 37.02 kg. We found that about 50% of the biomass of a cacao tree is concentrated in the trunk while stems of different sizes, leaves, and fruits account for the other 50%. Seven AGB models were designed using dbh, basal diameter at 30 cm (d30), total height (h), canopy area (Ac), canopy height (Ch), and crown width (Cw) as biomass predictors. The dbh was the best-correlated independent variable with all AGB components. Selected models showed adequate fit and performance with high R2 (ca. 95%) in estimating AGB, but the most appropriate allometric equation was Ln (TB) = −4.20 + 1.19 * ln(dbh) + 2.34 * ln(h) because this model had higher R2, lower Akaike criterion, and Mallow's cp values. We recommend the use of this model to calculate aboveground biomass and carbon content for cacao trees in agroforestry systems similar to those of our study area.
Palabras claves	Aboveground biomass; Allometric equations; Carbon stock; Cocoa agroforestry systems; Theobroma cacao; Mexico

Revista	**AQUACULTURE REPORTS**
ISSN	eISSN: 2352-5134
DOI	https://doi.org/10.1016/j.aqrep.2023.101578
Título del Artículo	Effect of dietary protein, lipid and carbohydrate ratio on growth, digestive and antioxidant enzyme activity of prawn Macrobrachium acanthurus postlarvae
Autores e instituciones de adscripción	Frías-Gómez, Susana Alejandra [1][2]; Hernández, Luis Héctor Hernández [2]; Powell, Madison S.[3]; Álvarez-González, Carlos Alfonso [4]; Cortés-Jacinto, Edilmar [5]; Cigarroa-Ruiz, Laura [4]; Arellano-Carrasco, Gabriel [4] [1] Posgrado en Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, Av. Ciudad Universitaria 3000, C.P. 04510, Coyoacán, Ciudad de México, Mexico [2] Laboratorio de Producción Acuícola, UNAM FES Iztacala, Av. de los Barrios 1, Los Reyes Iztacala, C.P. 54090, Tlalnepantla, Estado de México, Mexico [3] Hagerman Fish Culture Experimental Station, Aquac. Res. Institute, University of Idaho, 3059F National Fish Hatchery Road, Hagerman, ID 83332, USA [4] Laboratorio de Fisiología en Recursos Acuáticos, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Cárdenas Km 0.5. C.P.86039, Villahermosa, Tabasco, Mexico [5] Programa de Acuicultura, Centro de Investigaciones del Noroeste, Av. Instituto Politécnico 195, C.P. 23096, La Paz, Baja California Sur, Mexico.
Resumen	Macrobrachium acanthurus is a freshwater prawn with aquaculture potential. However, little is known about its nutrient requirements, particularly regarding protein and lipid-carbohydrate ratio interactions in the diet. To assess the effect of these macronutrients in growth performance and the activity of digestive and antioxidant enzymes, a 2 × 3 factorial design experiment was conducted using two different levels of protein (P35 and P40) and three lipid-carbohydrate ratios (L:C ratio): 2:1 (20 % L and 10 % C), 1:2 (10 % L and 20 %) and 1:6 (5 % L and 30 % C). Each diet was fed to triplicate groups of juveniles with an initial mean weight of 0.075 ± 0.015 g for 60 days. No significant differences in growth performance were found. Although treatment P35 LC 1:2 showed the highest values of weight gain and specific growth performance, survival rate in this diet was lowest among treatments. Interaction between protein and L:C ratio influenced trypsin, chymotrypsin, leucine aminopeptidase and amylase activities, but protein content alone affected the alkaline proteases. Lipase did not differ among treatments. Catalase, glutathione peroxidase, total antioxidant capacity, phenoloxidase and prophenoloxidase activities were also influenced by protein and lipid-carbohydrate interaction; however, super oxide dismutase activity was only affected by dietary protein level. The highest activities of phenoloxidase and prophenoloxidase were observed in prawns fed diet P40 and L:C ratio 1:6 which suggests oxidative stress. These results suggest that 35 % dietary protein and 10 % lipids and 20 % carbohydrates (L:C ratio 1:2) are optimal for growth performance and activity of digestive and antioxidant enzymes.

Resumen	However, measures should be taken to avoid cannibalism and increase the survival rate.
Palabras claves	Macrobrachium Acanthurus; Protein; Lipid-carbohydrate ratio; Digestive enzymes; Antioxidant enzymes

Revista	**MEAT SCIENCE**
ISSN	eISSN: 1873-4138
DOI	https://doi.org/10.1016/j.meatsci.2023.109369
Título del Artículo	Using fat thickness and longissimus thoracis traits real-time ultrasound measurements in Black Belly ewe lambs to predict carcass tissue composition through multiresponse multivariate adaptive regression splines algorithm
Autores e instituciones de adscripción	Munoz-Osorio, Germani Adrian [1]; Tirink, Cem [2]; Tyasi, Thobela Louis.[3]; Ramirez-Bautista, Marco Antonio [4]; Cruz-Tamayo, Alvar Alonzo[5]; Dzib-Cauich, Dany Alejandro [6]; Garcia-Herrera, Ricardo A.[1]; Chay-Canul, Alfonso J.[1] [1] División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carr, Villahermosa-Teapa, km 25, Villahermosa CP 86280, Tabasco, Mexico [2] Igdir University, Faculty of Agriculture, Department of Animal Science, Igdir TR76000, Türkiye [3] Department of Agricultural Economics and Animal Production, University of Limpopo, Private Bag X1106, Sovenga 0727, South Africa [4] Tecnológico Nacional de México/Instituto Tecnológico de Chiná, Chiná, Campeche, Mexico [5] Facultad de Ciencias Agropecuarias, Universidad Autónoma de Campeche, Escárcega, Campeche, Mexico [6] Tecnológico Nacional de México, Instituto Tecnológico Superior de Calkiní, Av. Ah-Canul, Calkiní C.P. 24900, Campeche, Mexico
Resumen	The main idea of the current study was to estimate carcass tissue composition using fat thickness and longissimus thoracis (LT) traits real-time ultrasound measurements (USM) in Black Belly ewe lambs through multiresponse multivariate adaptive regression splines (MARS) algorithms. Twenty-four hours before slaughter, subcutaneous (SFT) and kidney-fat thickness (KFT), LT depth (LTD), width (LTA, cm) and area (LTMA) were measured in 60 lambs (BW of 26.40 ± 7.01 kg). Information on carcass and non-carcass components was recorded after slaughter. The total carcass muscle (TCM), total carcass bone (TCB), and total carcass fat (TCF) had a low to high correlation ($P < 0.01$) with BW, cold carcass weight (CCW), and LTD, SFT, KFT, and LDMA. The CCW (%65.58) and SFT (%16.70) were the most effective variables, whilst LTD (%9.57) and LTMA (%8.15) were the lowest variables for determining TCB, TCM, and TCF. The multiresponse MARS algorithm provides an accurate and efficient means of estimating TCF, TCB, and TCM.
Palabras claves	Carcass dissection; Data mining; In vivo measurements; Predictions methods.

Revista	**SCIENCE OF THE TOTAL ENVIRONMENT**
ISSN	eISSN: 1879-1026
DOI	https://doi.org/10.1016/j.scitotenv.2023.167563
Título del Artículo	Fungal community dynamics on limestone at the Chichén Itzá archaeological site in Mexico driven by protective treatments
Autores e instituciones de adscripción	De la Rosa-Garcia, Susana; [1]; Sierra-Fernández, Aránzazu [2]; Garcia Solis, Claudia [3]; Soberanes García, Neftali [4]; Quintana, Patricia [5]; Gómez-Cornelio, Sergio [4,6]; Fort, Rafael [2] [1] Laboratorio de Microbiología Aplicada, División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, 0.5 km Carretera Villahermosa-Cárdenas, Villahermosa 86000, Tabasco, Mexico [2] Instituteo de Geociencias (CSIC, UCM), Severo Ochoa 7, CP 28040 Madrid, Spain [3] Sección de Conservación y Restauración, Centro INAH-Yucatán, Calle 10 No. 310-A, Col. Gonzalo Guerrero, 97310 Mérida, Yucatán, Mexico [4] Universidad Politécnica del Centro, Km. 22.5 Carretera Federal Villahermosa-Teapa, Tumbulushal, Centro, 86290 Villahermosa, Tabasco, Mexico [5] Laboratorio Nacional de Nano y Biomateriales, Departamento de Física Aplicada, CINVESTAV-IPN, A.P. 73, Ciordemex, 973109 Mérida, Yucatán, Mexico [6] Laboratorio de Nanotecnología-CICTAT, División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, Carr. Cunduacán-Jalpa de Méndez, Km 1, Cunduacán, Tabasco 86690, Mexico DACB, Km. 1 Carretera Cunduacán-Jalpa de Méndez AP. 24, Cunduacán, Tabasco, Mexico3 División A
Resumen	Microorganisms naturally colonize rock-based materials in outdoor environments, thereby contributing to their degradation.

Resumen	Fungi, especially in tropical environments with abundant water and favorable temperatures, play a significant role in biodegradation. However, many aspects of the microorganism-stone interaction, including fungal colonization dynamics and the impact of treatment applications, remain unclear. This study conducted a four-year in-situ evaluation of fungal community dynamics on limestone surfaces in the Temple of the Warriors at the Chichén Itzá archaeological site in Mexico, focusing on cleaning and treatment using nanoparticles (NPs). These NPs included zinc oxide (ZnO) and CaZn2(OH)6·2H2O (CZ)-based NPs synthesized via sol-gel (CZ-SG) and mechanochemical methods (CZ-MC), as well as CZ/Ca(OH)2-based products (CZ:Ca-SG). The microbial colonization cover was assessed using colorimetric measurements, and the surface was sampled for fungal community isolation and identification. The results demonstrated significant impacts of cleaning and nanomaterial applications on cultivable fungal communities (melanized filamentous, hyaline, and microcolonial fungi), altering composition, dynamics, and stone surface coloration. In particular, ZnO NPs caused 50 % decline in fungal species and individuals, whereas CZ:Ca-SG NPs displaced most species, indicating effective inhibition of the cultivable fungal community. Microcolonial fungi (MCF), known for their tolerance to withstand harsh environmental conditions, were the only fungal group found in the CZ:Ca-SG treatment. In contrast, CZ-SG and CZ-MC increased the abundance of melanized species, resulting in darkening and reduced color intensity. This study highlights the importance of microcolonial fungi that are tolerant to cleaning and coating procedures in the preservation of stone cultural heritage. These findings enhance our understanding of fungal colonization dynamics following treatment and provide valuable insights into the challenges associated with preserving stone materials in tropical environments.
Palabras claves	Tropical environment; Biodeterioration; Limestone bioreceptivity; Calcium zinc hydroxide dihydrate nanoparticles; ZnO nanoparticles; Microcolonial fungi

UJAT

LEGADO UJAT