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Título del Artículo	Fish waves as emergent collective antipredator behavior
Autores e instituciones de adscripción	Carolina Doran ^[1,9] ; David Bierbach ^[1,2,3] ; Juliane Lukas ^[1,2] ; Pascal Klamser ^[4,5] ; Tim Landgraf ^[3,6] ; Haider Klensz ^[4,5] ; Marie Habedank ^[1,2] ; Lenin Arias-Rodríguez ^[7] ; Stefan Krause ^[8] ; Pawel Romanczuk ^[3,4,5] ; Jens Krause ^[1,2,3] [1] Department of Biology and Ecology of Fishes, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Müggelseedamm 310, 12587 Berlin, Germany [2] Faculty of Life Sciences, Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences, Humboldt-Universität zu Berlin, Invalidenstrasse 42, 10115 Berlin, Germany [3] Cluster of Excellence "Science of Intelligence," Technical University of Berlin, Marchstr. 23, 10587 Berlin, Germany [4] Institute for Theoretical Biology, Department of Biology, Humboldt-Universität zu Berlin, Philippstraße 13, 10115 Berlin, Germany [5] Bernstein Center for Computational Neuroscience Berlin, Philippstr. 13, 10115 Berlin, Germany [6] Freie Universität zu Berlin, FB Mathematik u. Informatik, Arnimallee 7, 14195 Berlin, Germany [7] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, 86150 Villahermosa, México [8] Department of Electrical Engineering and Computer Science, Lübeck University of Applied Sciences, Lübeck 23562, Germany
Resumen	The collective behavior of animals has attracted considerable attention in recent years, with many studies exploring how local interactions between individuals can give rise to global group properties.(1-3) The functional aspects of collective behavior are less well studied, especially in the field,(4) and relatively few studies have investigated the adaptive benefits of collective behavior in situations where prey are attacked by predators.(5,6) This paucity of studies is unsurprising because predator-prey interactions in the field are difficult to observe. Furthermore, the focus in recent studies on predator-prey interactions has been on the collective behavior of the prey (7-10) rather than on the behavior of the predator (but see Ioannou et al. (11) and Handegard et al. (12)). Here we present a field study that investigated the anti-predator benefits of waves produced by fish at the water surface when diving down collectively in response to attacks of avian predators. Fish engaged in surface waves that were highly conspicuous, repetitive, and rhythmic involving many thousands of individuals for up to 2 min. Experimentally induced fish waves doubled the time birds waited until their next attack, therefore substantially reducing attack frequency. In one avian predator, capture probability, too, decreased with wave number and birds switched perches in response to wave displays more often than in control treatments, suggesting that they directed their attacks elsewhere. Taken together, these results support an anti-predator function of fish waves. The attack delay could be a result of a confusion effect or a consequence of waves acting as a perception advertisement, which requires further exploration.
Palabras claves	Pursuit-Deterrence, Evolution Predation Patterns

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Título del Artículo	Exclusive Breastfeeding and factors influencing its abandonment during the 1st month postpartum among women from Semi-rural Communities in Southeast México

Autores e instituciones de adscripción	Inocente Manuel Vázquez-Osorio ^[1,2] ; Rodrigo Vega-Sánchez ^[3] ; Eric Maas-Mendoza ^[1] ; Solange Heller Rouassant ^[3,4] ; María Eugenia Flores-Quijano ^[3] [1] Licenciatura de Nutrición, División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, México [2] Jurisdicción Sanitaria 4 del Municipio de Centro, Secretaría de Salud, Villahermosa, México [3] Departamento de Nutrición y Bioprogramación, Instituto Nacional de Perinatología, México City, México [4] Private Practitioner, Naucalpan, Estado de México, México, México
Resumen	Introduction In this study we describe breastfeeding practices among women from semi-rural communities in southeast México, and explore which factors, modifiable or not, are associated with such practices. Materials and Methods This was a formative cross-sectional study that included 143 mothers with infants 4-6 months old, from semi-rural communities in Tabasco, México. We collected data on two categories of factors: (1) women's sociodemographic characteristics, and (2) maternal / infant factors. We first analyzed the frequency of various breastfeeding practices. Then, we classified participants into the up to 1 month of exclusive breastfeeding group (<= 1 m-EBF) and the beyond 1-month EBF group (>1 m-EBF), if they practiced EBF for less or more than 1 month, respectively. We compared the two categories of factors between groups and then, using logistic regression models, explored which factors were associated with practicing >1 m-EBF. Results By the end of the 1st month postpartum, 51.7% of participants had abandoned EBF, introduced milk formula (35%), other food (9.1%), non-nutritive liquids (7.7%), or had stopped breastfeeding completely. In the next months, EBF practice fell sharply and mixed feeding grew importantly. Logistic regression models showed that women were more likely to be in the >1 m-EBF group if they lived with the baby's father, had complications during pregnancy, delivered vaginally and attended a health center at least three times postpartum. To the contrary, women were less likely to be practice >1 m-EBF if they gave infants other liquids during their hospital stay; experienced pain or discomfort in breasts/nipples, or used a pacifier after hospitalization; had larger bodies (i.e., higher BMI); and believed that you should give the infant powdered milk or some other food when the baby is not full. Conclusion Many factors associated with abandoning EBF, particularly in the early postpartum period, are modifiable and can be altered through timely interventions that include giving correct information and ensuring its comprehension; assertive personal counseling and accompaniment must be provided to mothers; and reinforcement during the early postpartum at health facilities and other settings.
Palabras claves	Exclusive Breastfeeding (EBF), Breastfeeding Beliefs, Food Insecurity.

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ISSN	1665-2738
DOI	10.24275/rmiq/IA2660
Título del Artículo	Estimation of hydrocarbon sequestration in soils: Influence of the chemical characteristics of humic substances
Autores e instituciones de adscripción	Velázquez-Vázquez, VW ^[1] ; Gómez, SA ^[2] ; Gutiérrez -Rojas, M ^[1] ; Díaz-Ramírez, I ^[1] ; Volke-Sepulveda, T ^[1] [1] Licenciatura de Nutrición, División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, Villahermosa, México [2] Jurisdicción Sanitaria 4 del Municipio de Centro, Secretaría de Salud, Villahermosa, México [3] Departamento de Nutrición y Bioprogramación, Instituto Nacional de Perinatología, México City, México [4] Private Practitioner, Naucalpan, Estado de México, México, México

Resumen	Soil organic matter (SOM) is a key factor controlling the fate of hydrocarbons in soils; however, there are no standardized methods to accurately estimate their sequestration. This study proposes an accessible analytical approach to estimate the capacity of soils to sequester hydrocarbons using the chemical characteristics of humic acids in SOM, saving time/costs by avoiding the extraction and analysis of hydrocarbons. A natural organic soil was modified by thermal treatments, obtaining five different soils. Their SOM was fractionated into humic (HA) and fulvic (FA) acids, which were characterized by UV-Vis and FTIR. The soils were contaminated with hydrocarbons (hexadecane [HXD], phenanthrene [PHE], and pyrene [PYR]), and the sequestered concentration of each hydrocarbon was quantified. The soil treated at 350 degrees C presented the highest capacity to sequester PHE and PYR (>100 mg.kg soil ⁻¹). The characteristics that significantly improved the sequestration of PHE and PYR were: i) FA of low molecular weight and degree of condensation, and ii) HA with high molecular weight, aromaticity, aliphaticity, polarity, and degree of condensation. Based the HA analysis by UV-Vis and FTIR, two equations are proposed to estimate - with > 80% accuracy - the sequestration of PHE and PYR in soils with different characteristics in their SOM.
Palabras claves	Hydrocarbon, Sequestrations Oil, Organic Matterhumic Acids

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ISSN	ISSN 1540-9295 e ISSN 1540-9309
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Título del Artículo	Conservation of birds in fragmented landscapes requires protected areas
Autores e instituciones de adscripción	Timmers, Robert ^[1] ; van Kuijk, Marijke ^[1, 2] ; Verweij, Pita A. ^[3] ; Ghazoul, Jaboury ^[2,4] ; Hautier, Yann ^[1] ; Laurance, William F. ^[5] ; Arriaga-Weiss, Stefan L. ^[6] ; Askins, Robert A. ^[7] ; Battisti, Corrado ^[8] ; Berg, Ake ^[9] ; Daily, Gretchen C. ^[10] ; Estades, Cristian F. ^[11] ; Frank, Beatrice ^[12] ; Kurosawa, Reiko ^[13] ; Pojar, Rosamund A. ^[14] ; Woinarski, John C. Z ^[14] ; Soons, Merel B. ^[1,15] ; [1] Univ Utrecht, Dept Biol, Ecol & Biodivers Grp, Utrecht, Netherlands [2] Univ Utrecht, Prince Bernhard Chair Int Nat Conservat, Utrecht, Netherlands [3] Univ Utrecht, Copernicus Inst Sustainable Dev, Utrecht, Netherlands [4] Swiss Fed Inst Technol, Dept Environm Syst Sci, Zurich, Switzerland [5] James Cook Univ, Ctr Trop Environm & Sustainabil Sci, Cairns, Australia [6] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [7] Connecticut Coll, Biol Dept, New London, CT 06320 USA [8] Citta Metropolitana Roma Capitale, Protected Areas Serv, Torre Flavia LTER Long Term Ecol Res Stn, Rome, Italy [9] Swedish Agr Univ, Swedish Biodivers Ctr, Dept Urban & Rural Dev, Uppsala, Sweden [10] Stanford Univ, Ctr Conservat Biol & Nat Capital Project, Stanford, CA 94305 USA [11] Univ Chile, Fac Ciencias Forestales & Conservat Nat, Lab Ecol Vida Silvestre, Santiago, Chile [12] Reg Pk, Victoria, BC, Canada [13] Japan Bird Res Assoc, Fuchu, Tokyo, Japan [14] Charles Darwin Univ, Res Inst Environm & Livelihoods, Darwin, NT, Australia [15] Netherlands Inst Ecol, Dept Anim Ecol, Wageningen, Netherlands
Resumen	For successful conservation of biodiversity, it is vital to know whether protected areas in increasingly fragmented landscapes effectively safeguard species. However, how large habitat fragments must be, and what level of protection is required to sustain species, remains poorly known. We compiled a global dataset on almost 2000 bird species in 741 forest fragments varying in size and protection status, and show that protection is associated with higher bird occurrence, especially for threatened species. Protection becomes increasingly effective with

Resumen	increasing size of forest fragments. For forest fragments >50 ha our results show that strict protection (International Union for Conservation of Nature [IUCN] categories I-IV) is strongly associated with higher bird occurrence, whereas fragments had to be at least 175 ha for moderate protection (IUCN categories V and VI) to have a positive effect. This meta-analysis quantifies the importance of fragment size, protection status, and their interaction for the conservation of bird species communities, and stresses that protection should not be limited to large pristine areas.
Palabras claves	Species Responses, Extinction, Dispersal

Revista	ANIMALS (BASEL)
Volumen	12
Número	4
ISSN	2076-2615
DOI	10.3390/ani12040511
Título del Artículo	Antibacterial Potential of <i>Caesalpinia coriaria</i> (Jacq) Willd Fruit against <i>Aeromonas</i> spp. of Aquaculture Importance
Autores e instituciones de adscripción	Lenín Rángel-López ^[1,2] ; Nallely Rivero-Pérez ^[2] ; Benjamín Valladares-Carranza ^[3] ; Agustín Olmedo-Juárez ^[4] ; Lucía Delgadillo-Ruiz ^[5] ; Vicente Vega-Sánchez ^[1] ; Sawako Hori-Oshima ^[6] ; Mohamed A Nassan ^[7] ; Gaber El-Saber Batiha ^[8] ; Adrián Zaragoza-Bastida ^[1] ; [1] Instituto de Ciencias Agropecuarias, Área Académica de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de Hidalgo, Rancho Universitario Av. Universidad km 1, Ex-Hda. de Aquetzalpa, Tulancingo C.P. 43600, Hidalgo, México. [2] División Académica en Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Carretera Villahermosa-Teapa Kilómetro 25+2 Ranchería la Huasteca 2da sección, Villahermosa C.P. 86298, Tabasco, México. [3] Centro de Investigación y Estudios Avanzados en Salud Animal, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, km 15.5 Carretera Panamericana Toluca-Atzacomulco, Toluca C.P. 50200, Estado de México, México. [4] Centro Nacional de Investigación Disciplinaria en Salud Animal e Inocuidad (CENID SAI-INIFAP), Carretera Federal Cuernavaca-Cuahtla No. 8534/Col. Progreso, Jiutepec C.P. 62550, Morelos, México. [5] Unidad Académica de Ciencias Biológicas, Universidad Autónoma de Zacatecas, Zacatecas C.P. 98000, Zacatecas, México. [6] Instituto de Investigaciones en Ciencias Veterinarias, Universidad Autónoma de Baja California, Mexicali C.P. 21000, Baja California, México. [7] Department of Clinical Laboratory Sciences, Turabah University College, Taif University, P.O. Box 11099, Taif 21944, Saudi Arabia. [8] Department of Pharmacology and Therapeutics, Faculty of Veterinary Medicine, Damanhour University, Damanhour 22511, Egypt.
Resumen	Simple Summary Aquaculture remains an important source of food, however, aquaculture systems are affected by different factors including the appearance of resistant or multiresistant bacteria to antimicrobials. An alternative in the search for new treatments for these bacteria is plant extracts. The aim of the present study was to determine the antibacterial activity of <i>Caesalpinia coriaria</i> fruit hydroalcoholic extract and gallic acid over <i>Aeromonas hydrophila</i> , <i>Aeromonas veronii</i> , and <i>Aeromonas dhakensis</i> to identify new molecules for the treatment of diseases caused by <i>Aeromonas</i> spp. The hydroalcoholic extract of <i>Caesalpinia coriaria</i> and its fractions have antibacterial activity against <i>Aeromonas hydrophila</i> , <i>Aeromonas veronii</i> , and <i>Aeromonas dhakensis</i> and could be alternatives for the treatment of diseases caused by the genus <i>Aeromonas</i> . Aquaculture is an important source of food and livelihood for hundreds of millions of people around the world, however, aquaculture systems are affected by different factors, among them the appearance of resistant or multiresistant bacteria to antimicrobials. The secondary metabolites of plants have been proposed as alternatives for the treatment of these bacteria. The aim of the present study was to determine the antibacterial activity of <i>Caesalpinia coriaria</i> fruit hydroalcoholic extract and gallic

Resumen	acid over <i>Aeromonas hydrophila</i> , <i>Aeromonas veronii</i> , and <i>Aeromonas dhakensis</i> to identify new molecules for the treatment of diseases caused by <i>Aeromonas</i> spp. The C. coriaria fruit hydroalcoholic extract (HECc) was obtained by hydroalcoholic maceration and subjected to bipartition with ethyl acetate and water to obtain an aqueous fraction (Ac-FrCc) and an organic fraction (Ac-FrEtCc); gallic acid was purchased commercially. The Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), MBC/MIC ratio, and cytotoxicity of HECc, its fractions, and gallic acid were determined. The results indicate that HECc fractions (Ac-FrCc and Ac-FrEtCc) and gallic acid have bactericidal activity against <i>A. hydrophila</i> and <i>A. dhakensis</i> , but only gallic acid showed bactericidal activity against <i>A. veronii</i> . The HECc and Ac-FrCc showed no toxicity, Ac-FrEtCc showed low toxicity, and gallic acid showed medium toxicity. The HECc, Ac-FrCc, and Ac-FrEtCc may be alternatives for the treatment of diseases caused by the genus <i>Aeromonas</i> , however, in vivo assays are necessary to corroborate these results.
Palabras claves	<i>A. dhakensis</i> ; <i>A. veronii</i> ; <i>Aeromonas hydrophila</i>

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Volumen	137
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DOI	10.1140/epjp/s13360-022-03051-5
Título del Artículo	Testing the equivalence principle with time-diffracted free-falling quantum particles
Autores e instituciones de adscripción	Juan A. Cañas ^[1] ; J. Bernal ^[1] ; A. Martín-Ruiz ^[2] [1] División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, 86690, Cunduacán, Tabasco, México [2] Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, 04510, Ciudad de México, México
Resumen	The equivalence principle of gravity is examined at the quantum level using the diffraction in time of matter waves in two ways. First, we consider a quasi-monochromatic beam of particles incident on a shutter which is removed at time $t = 0$ and fall due to the gravitational field. The probability density exhibits a set of mass-dependent oscillations which are genuinely quantum in nature, thereby reflecting quantum violations to the weak equivalence principle, although the strong equivalence principle remains valid. We estimate the degree of violation in terms of the width of the diffraction-in-time effect. Second, motivated by the recent advances in the manipulation of ultracold atoms and neutrons as well as the experimental observation of quantum states of ultracold neutrons in the gravitational field above a flat mirror, we study the diffraction in time of a suddenly released beam of particles initially prepared in gravitational quantum bound states. In this case, we quantify the degree of violation by comparing the time of flight from the mean position of the initial wave packet versus the time of flight as measured from the mirror. We show that, in this case both the weak and strong versions of the equivalence principle are violated. We demonstrate that compatibility between equivalence principle and quantum mechanics is recovered in the macroscopic (large-mass) limit. Possible realizations with ultracold neutrons, cesium atoms and large molecules are discussed.
Palabras claves	Arrival-Time, Distributions, Mechanics

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ISSN	ISSN: 0266-0032 E ISSN: 1475-2743
DOI	10.1111/sum.12799
Título del Artículo	Silvopastoral systems improve carbon stocks at livestock ranches in Tabasco, México
Autores e instituciones de adscripción	Que, FGV ^[1] ; Villanueva-López, G ^[2] ; Alcudia-Aguilar, A ^[3,4] ; Medrano-Pérez, OR ^[5] ; Cámara-Cabrales, L ^[1] ; Martínez-Zurimendi, P ^[2] ; Casanova-Lugo, F ^[6] ; Aryal, DR ^[7] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [2] Colegio Frontera Sur, Grp Agroecol, Carr Reforma Km 15-5 S-N, Villahermosa 86280, Tabasco, México [3] Ctr Cambio Global & Sustentabilidad AC Ctr, Villahermosa, Tabasco, México [4] Univ Calif Berkeley, Lawrence Berkeley Natl Lab, Climate & Ecosyst Sci Div, Berkeley, CA 94720 USA [5] CONACYT Ctr Cambio Global & Sustentabilidad AC Ct, Villahermosa, Tabasco, México [6] Tecnol Nacl México IT Zona Maya, Othon P Blanco, Quintana Roo, México [7] CONACYT UNACH, Fac Ciencias Agron, Villaflores, Chiapas, México
Resumen	Silvopastoral systems have great potential for storing carbon because of carbon assimilation in tree woody biomass, carbon input through litterfall and below-ground carbon turnover. In this study, we quantified and compared the carbon stocks at livestock ranches in Tabasco, México, containing either scattered trees in grazing pastures (STP) or grass monocultures. Sampling plots were randomly established at each ranch where the above- and below-ground carbon stocks, carbon input from litterfall, grass production and arboreal biomass growth were measured. We found that silvopastoral systems stored an average of 257.45 Mg C ha (-1) of soil organic carbon (SOC) compared to 119.17 Mg C ha (-1) at grass monoculture ranches (to 30 cm depth); silvopastoral systems also stored 44.64 Mg C ha (-1) in wood biomass; and, grass monocultures had greater cumulative grass biomass production. Overall, it is concluded that livestock ranches in Tabasco, México, with scattered trees in grazing pastures stored 58.8% more carbon than those grass monocultures, with carbon stocks of 327.01 Mg C ha (-1) and 134.47 Mg C ha (-1), respectively. The results are useful for land management decision making for sustainable livestock systems framed in the Sustainable Development Goals (SDGs).
Palabras claves	Carbon Storage, Grass Production, Litterfall

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DOI	10.1016/j.anifeedsci.2022.115284
Título del Artículo	Selection and improvement of alternative raw materials for rainbow trout (<i>Oncorhynchus mykiss</i>) aquafeeds through a multiparametric screening tool
Autores e instituciones de adscripción	Toledo-Solis, FJ ^[1,2] ; Hilerio-Ruiz, AG ^[3] ; Martínez, FP ^[1] ; Barrios, A ^[4] ; Aznar, MJ ^[1] ; Larran, AM ^[5] ; Fernández, I ^[5] ; Moyano, FJ ^[1] [1] Univ Almeria, Dept Biol & Geol, Almeria 04120, Spain [2] Consejo Nac. Ciencia & Tecnol CONACYT, Ave Insurgentes 1582, Alcaldía Benito Juárez, México City 03940, México [3] Univ Juárez Autónoma Tabasco, Div Academ Ciencias Biol, Lab Acuicultura Trop, Villahermosa, México [4] Agrotechnol Inst Castilla & Leon ITACyL, Unidad Cult Herbaceos, Ctra Burgos Km 119, Finca Zamaduenas, Valladolid 47071, Spain [5] Agrotechnol Inst Castilla & Leon ITACyL, Acuaculture Res Ctr, Ctra Arévalo, Segovia 40196, Spain

Resumen	Aquaculture growth and sustainability mainly rely on the identification and implementation of alternative raw materials to replace fish meal (FM) and fish oil (FO) and/or its major substitute, the soybean meal (SBM). A five-step screening tool has been designed to identify and improve the use of promising alternative raw materials. To validate it, nine raw materials, including the standard reference (the SBM), were sequentially analyzed regarding (i) the total buffer capacity, alkaline protease activity inhibition and soluble protein content, (ii) soluble phosphorus and phenolic compound content, (iii) modification of nutrients bioavailability and presence of anti-nutritional factors after treatment with exogenous enzyme (Rovabio® Phy), (iv) release of nutrients after <i>in vitro</i> digestion, and (v) the palatability of the formulated diet. SBM partial replacement by selected raw material, the Narbonne vetch (<i>Vicia narbonensis</i>) meal (NVM), was evaluated in a 63-day nutritional trial using rainbow trout (<i>Oncorhynchus mykiss</i>) juveniles. One Control (no SBM replacement) and 4 experimental diets with SBM replacement in two levels (33% and 66%), treated or not with exogenous enzyme Rovabio® Phy, were compared. Fish growth performance and amino acid profile in fish fillet was not significantly affected when SBM was replaced by 33% of NVM treated with exogenous enzyme. Altogether, the present screening tool might be a wise strategy to identify promising alternative raw materials for European aquaculture sustainability, reducing the use of animals in experimentation, the SBM dependency from third countries, and its carbon footprint.
Palabras claves	European crops, Narbonne vetch, Soybean meal

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Volumen	27
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DOI	10.15446/abc.v27n1.88615
Título del Artículo	Saurochory in crocodiles does not favor seed dispersal and viability
Autores e instituciones de adscripción	González-Solorzano, M ^[1,2] ; Gómez-Torres, MA ^[1] ; López-Luna, MA ^[1,2] ; Escobedo-Galván, AH ^[3] <small>[1] Univ Veracruzana, Inst Neuroetol, Ave Dr Luis Castelazo, Xalapa 91190, Veracruz, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Carr Villahermosa Cardenas Km 0-5, Villahermosa 86039, Tabasco, México [3] Univ Guadalajara, Ctr Univ Costa, Ave Univ 203, Puerto Vallarta 48280, Jalisco, México</small>
Resumen	Seed dispersal by reptiles (saurochory) has recently received attention, and the consumption of fruits and seeds has been reported in crocodylians despite being mainly carnivores, acting as potential seed dispersers. We evaluate whether saurochory by <i>Crocodylus acutus</i> and <i>C. moreletii</i> affect the seed viability of three species of plants (<i>Delonix regia</i> , <i>Inga</i> sp., and <i>Citrullus lanatus</i>). We performed feeding trials, using three juvenile individuals of each species of crocodile, and fed them 22 seeds per plant species for a total of 66 seeds per enclosure (132 for both species). Seeds were combined with the usual diet each week. The unconsumed and excreted seeds were collected and planted in soil treated with compost to evaluate the relative germination rate. A total of 99 seeds were consumed, of which only 14 seeds of <i>C. lanatus</i> were recovered from the faeces, and only one of those germinated (7.14 %) with respect to 50 % in the control group. The results indicate that saurochory by <i>C. acutus</i> and <i>C. moreletii</i> has a negative effect on seed viability and germination of the plant species studied, as found in other studies using different species.
Palabras claves	Crocodylia, endozoochory, frugivory

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Título del Artículo	Parasite community analysis of the gray snapper <i>Lutjanus griseus</i> (Perciformes, Lutjanidae) in a tropical region of the Southern Gulf of México
Autores e instituciones de adscripción	Rodríguez-Santiago, MA ^[1,2] ; Ramos-Colorado, L ^[3] ; García-Magaña, L ^[3] ; Grano-Maldonado, MI ^[4] ; Iannacone, J ^[5,6] ; Vázquez-Caballero, A ^[7] <small>[1] Consejo Nacl Ciencia Tecnol CONACYT, Ciudad De México, México [2] Univ Autónoma Carmen, Fac Ciencias Nat, Ctr Invest Ciencias Ambient, Ciudad del Carmen 24155, Campeche, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [4] Univ Autónoma Sinaloa, Fac Ciencias Mar, Mazatlan, Sinaloa, México [5] Univ Nacl Federico Villarreal UNFV, Escuela Univ Postgrad, Fac Ciencias Nat & Matemat, Lab Ecol & Biodiversidad Anim, Grp Invest & Sosten, Lima, Perú [6] Univ Cient UCSUR, Fac Ciencias Ambient, Lima, Perú [7] Ctr Invest Cient Yucatán AC CICY, Mérida, Yucatán, México</small>
Resumen	The gray snapper <i>Lutjanus griseus</i> is a commercially important fish species along its distribution range in the western Atlantic Ocean. However, despite its importance, there is still little knowledge about its parasitic fauna for the Mexican coasts of the Gulf of México. The aims of this research were to generate a list of the parasitic fauna present in juvenile gray snapper <i>L. griseus</i> from a coastal lagoon located in southeastern México, to evaluate the infection levels of parasites and to determine the relationship between the abundance of parasites and the fish size and condition factor. Samples of <i>L. griseus</i> (12 – 29.2 mm) were obtained in two periods of the year (dry and rainy seasons) to examine the intra-annual variability of its parasitic fauna. A total of 17 parasite species were recorded belonging to six taxonomic groups (Myxozoa, Monogenea, Digenea, Cestoda, Nematoda and Acanthocephala). The highest levels of infection (abundance, prevalence and intensity of infection) were found for the monogeneans <i>Euryhaliootrema griseus</i> and <i>Euryhaliootrema fastigatum</i> . There were no significant correlations between the total abundance of parasites and the fish condition and size (total length) in not any of the two seasons studied, suggesting that the body size and the biological condition index of the host did not directly influence the abundance of parasites in early life stages of <i>L. griseus</i> . Moreover, the species of parasites found that could be zoonotic for humans through the consumption of raw or inadequately cooked fish were the nematodes <i>Contracaecum</i> sp. type 1, <i>Contracaecum</i> sp. type 2, <i>Cucullanus pargi</i> and <i>Pseudoterranova</i> sp. The presence of the monogeneans <i>E. griseus</i> and <i>E. fastigatum</i> was also highlighted because these ectoparasite species are known to cause harm to fish under culture systems. All the parasite species found in this study, except nematodes, were new records of geographic distribution
Palabras claves	Intestinal helminths, Nematoda, Yucatan

Revista	CANADIAN JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY
Volumen	100
Número	4
ISSN	ISSN: 0008-4212 E ISSN: 1205-7541
DOI	10.1139/cjpp-2021-0526
Título del Artículo	PPARα/γ, adiponectin, and GLUT4 overexpression induced by moronic acid methyl ester influenced glucose and triglyceride levels of experimental diabetic mice

Autores e instituciones de adscripción	<p>Estrada-Soto, S ^[1]; Ceron-Romero, L ^[2]; Navarrete-Vázquez, G ^[1]; Rosales-Ortega, E ^[1]; Gómez-Zamudio, J ^[3]; Cruz, M ^[3]; Villalobos-Molina, R ^[4]</p> <p>[1] Univ Autónoma Estado Morelos, Fac Farm, Cuernavaca, Morelos, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Básicas, Cunduacán, Tabasco, México [3] Hosp Especialidades Ctr Med La Raza, IMSS, CMNSXXI, México City, DF, México [4] Univ Nacl Autónoma México, FES Iztacala, Unidad Biomed, Estado De México, México</p>
Resumen	<p>The current study aimed to determine the antidiabetic and antidyslipidemic activities of moronic acid methyl ester (1) (compound 1) by in vivo, in vitro, in silico, and molecular biology studies. Compound 1 was evaluated to establish its dose-dependent antidiabetic and antihyperglycemic (50 mg/kg) activities, in diabetic and normoglycemic male CD1 mice, respectively. Also, compound 1 was subjected to a subacute study (50 mg/kg per day for 8 days) to determine blood biochemical profiles and the expression of protein tyrosine phosphatase 1B (PTP-1B), glucose transporter type 4 (GLUT4), peroxisome proliferator-activated receptor α (PPAR-α), PPAR-γ, adiponectin, interleukin-1β (IL-1β), and monocyte chemoattractant protein 1 (MCP-1) in adipose tissue of animals after treatment. Different doses in acute administration of compound 1 decreased glycemia ($p < 0.05$) compared with vehicle, showing greater effectiveness in the range 50–160 mg/kg. Also, the oral glucose tolerance test showed that compound 1 induced a significant antihyperglycemic action by opposing the hyperglycemic peak ($p < 0.05$). Moreover, compound 1 subacute administration decreased glucose and triglyceride levels after treatment ($p < 0.05$); while the expression of PPAR-α and PPAR-γ, adiponectin, and GLUT4 displayed an increase ($p < 0.05$) compared with the diabetic control group. In conclusion, compound 1 showed antihyperglycemic, antidiabetic, and antidyslipidemic effects in normal and diabetic mice, probably due to insulin sensitization through increased mRNA expression of GLUT4, PPAR-α, PPAR-γ, and adiponectin genes.</p>
Palabras claves	In-Vitro, Insulin-Resistance, Oleanolic Acid

Revista	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES
Volumen	23
Número	6436
ISSN	E ISSN: 1422-0067
DOI	10.3390/ijms23126436
Título del Artículo	<i>Mycobacterium tuberculosis</i> Infection Induces BCSFB Disruption but No BBB Disruption In Vivo: Implications in the Pathophysiology of Tuberculous Meningitis
Autores e instituciones de adscripción	<p>Sánchez-Garibay, C ^[1,2]; Salinas-Lara, C ^[1,2,3,17]; Gómez-López, MA ^[4]; Soto-Rojas, LO ^[2,3]; Castillon-Benavides, NK ^[5]; Castillon-Benavides, OJ ^[6]; Hernández-Campos, ME ^[5]; Hernández-Pando, R ^[8]; Marquina-Castillo, B ^[9]; Flores-Barrada, MA ^[10]; Chorenno-Parra, JA ^[2,11,12]; León-Contreras, JC ^[13]; Tena-Suck, ML ^[1]; Mata-Espinosa, DA ^[8]; Nava, P ^[14]; Medina-Mendoza, J ^[2,15]; Rodríguez-Balderas, CA ^[16]</p> <p>[1] Inst Nacl Neurol & Neurocirugia Manuel Velasco Su, Dept Neuropatol, México City 14269, DF, México [2] Univ Nacl Autónoma México, Fac Estudios Super Iztacala, Red MEDICI, Tlalnepantla 54090, México [3] Univ Nacl Autónoma México, Fac Estudios Super Iztacala, Lab Patogenesis Mol, Lab 4, Edificio A4, Tlalnepantla 54090, México [4] Inst Nacl Rehabil INR, México City 14389, DF, México [5] Unidad Especialidades Med Secretaría Def Nacl, México City 11200, DF, México [6] Amer British Cowdry Hosp, Neurol Ctr, México City 05330, DF, México [7] Inst Politecn Nacl, Escuela Super Med, Secc Estudios Posgrad & Invest, Plan San Luis & Díaz Miron S-N, México City 11340, DF, México [8] Natl Inst Med Sci & Nutr Salvador Zubiran, Dept Pathol, Expt Pathol Sect, México City 14080, DF, México [9] Natl Inst Med Sci & Nutr Salvador Zubiran, Dept Pathol, México City 14080, DF, México [10] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Comalcalco, Comalcalco 86658, México</p>

Autores e instituciones de adscripción	<p>[11] Inst Nacl Enfermedades Resp Ismael Cosío Villegas, Lab Inmunobiol & Genet, México City 14080, DF, México [12] Tecnol Monterrey, Escuela Med & Ciencias Salud, México City 14380, DF, México [13] Inst Nacl Ciencias Med & Nutr Salvador Zubiran, Dept Patol, Lab Microscopia Elect, México City 14080, DF, México [14] Dept Physiol Biophys & Neurosci, México City 07360, DF, México [15] Secretaría Salud México, Hosp Juárez México, Serv Pediat, México City 07760, DF, México [16] Inst Nacl Neurol & Neurocirugia Manuel Velasco Su, Dept Bioterio, México City 14269, DF, México [17] Natl Inst Neurol & Neurosurg Manuel Velasco Suarez, Neuropathol Dept, Insurgentes Sur Ave 3877, México City 14269, DF, México</p>
Resumen	<p>Central nervous system (CNS) tuberculosis is the most lethal and devastating form among the diseases caused by <i>Mycobacterium tuberculosis</i>. The mechanisms by which <i>M. tuberculosis</i> bacilli enter the CNS are still unclear. However, the BBB and the BCSFB have been proposed as possible routes of access into the brain. We previously reported that certain strains of <i>M. tuberculosis</i> possess an enhanced ability to cause secondary CNS infection in a mouse model of progressive pulmonary tuberculosis. Here, we evaluated the morphostructural and molecular integrity of CNS barriers. For this purpose, we analyzed through transmission electron microscopy the ultrastructure of brain parenchymal microvessels and choroid plexus epithelium from animals infected with two mycobacterial strains. Additionally, we determined the expression of junctional proteins and cytokines by immunological techniques. The results showed that the presence of <i>M. tuberculosis</i> induced disruption of the BCSFB but no disruption of the BBB, and that the severity of such damage was related to the strain used, suggesting that variations in the ability to cause CNS disease among distinct strains of bacteria may also be linked to their capacity to cause direct or indirect disruption of these barriers. Understanding the pathophysiological mechanisms involved in CNS tuberculosis may facilitate the establishment of new biomarkers and therapeutic targets.</p>
Palabras claves	Blood-Brain Barrier; Blood-Cerebrospinal Fluid Barrier; Central Nervous System

Revista	ENERGY EXPLORATION & EXPLOITATION
Volumen	40
Número	6
ISSN	ISSN: 0144-5987 E ISSN: 2048-4054
DOI	10.1177/01445987211073175
Título del Artículo	Multivariate inverse artificial neural network to analyze and improve the mass transfer of ammonia in a Plate Heat Exchanger-Type absorber with NH ₃ /H ₂ O for solar cooling applications
Autores e instituciones de adscripción	<p>Tzuc, OM ^[1]; Chan-González, JJ ^[1]; Castañeda-Robles, IE ^[2]; Lezama-Zarraga, F ^[1]; Moheño-Barrueta, M ^[3]; Torres, MJ ^[4]; Best, R ^[5]</p> <p>[1] Univ Autónoma Campeche, Fac. Ingn, Campus V, Av Humberto Lanz, San Francisco de Campech 24085, Campeche, México [2] Univ Autónoma Estado Hidalgo, Mineral De La Reforma, México [3] Univ Juárez Autónoma Tabasco, Villahermosa, Tabasco, México [4] Univ Autónoma Yucatán, Fac Ingn, Mérida, México [5] Univ Nacl Autónoma México, Inst Energías Renovables, Temixco, México</p>
Resumen	<p>This work presents a numerical approach to compute optimal operating conditions that maximize the absorption flux into a heat exchanger designed for absorption refrigeration systems. Experimental data were obtained from a test circuit that operates in bubble absorption mode with an inner vapor distributor into a Plate Heat Exchanger-type (PHE-type) and interacts with ammonia vapor, NH₃-H₂O refrigerant, and cooling water. An artificial neural network (ANN) was trained to correlate the thermal properties of the solution and absorption flux in function of easily measurable parameters (concentrations, mass flows, and pressures of</p>

Resumen	saturated and diluted solutions, flow and temperature of the ammonium vapor, environment temperature, and solution temperature). According to results, ANN is adequate to correlate the operational parameters and the transport phenomena inside the heat exchanger with a precision > 99%. ANN also quantitatively identified the ammonium vapor flow (43.1%), dilute solution flow (18.1%), and dilute solution concentration (13.1%) as the variables most importantly in influencing absorption flux optimization. Subsequently, a multivariable inverse artificial neural network was applied to improve the mass transfer into the PHE-type. It was identified that simultaneous optimization of the ammonia and dilute concentration flow rates improves the absorption flow performance by up to 96.3% under a worst-case scenario (ammonia flow rate < 1.4 kg/min) and even 7.04% when even when operating near the amino vapor flow limit (ammonia flow rate > 2.0 kg/min). Finally, it was confirmed that incorporating the diluted solution concentration into the optimization contributes to improving the performance of the absorption process 1%. Results obtained are relevant in the search to produce more competitive absorption cooling systems, demonstrating the feasibility of improving the performance of heat exchangers without structural modifications. The proposed methodology represents an interesting option to be implemented to improve performance in solar cooling systems.
Palabras claves	Artificial intelligence, Metaheuristic Optimization, Absorption Refrigeration

Revista	NUTRIENTS
Volumen	14
Número	10
ISSN	E-ISSN: 2072-6643
DOI	10.3390/nu14102017
Título del Artículo	Infant Feeding Practices that substitute exclusive Breastfeeding in a Semi-Rural Mexican Community: Types, Moments, and Associated Factors
Autores e instituciones de adscripción	Maas-Mendoza, E ^[1] ; Vega-Sánchez, R ^[2] ; Vázquez-Osorio, IM ^[1,3] ; Heller-Rouassant, S ^[4] ; Flores-Quijano, ME ^[2] <small>[1] Univ Juárez Autónoma Tabasco, Div Academ Ciencias Salud, Nutr, Villahermosa 86040, Tabasco, México [2] Inst Nacl Perinatol Isidro Espinosa Reyes, Dept Nutr & Bioprogramac, Miguel Hidalgo 11000, México [3] Secretaría Salud, Jurisdicc Sanitaria 4 Municipio Ctr, Villahermosa 86190, Tabasco, México [4] Acad Mexicana Pediat, Ciudad De México 03810, México</small>
Resumen	International organizations recommend mothers practice exclusive breastfeeding (EBF) during the first six months of their infant's life and introduce complementary feeding (CF) thereafter while continuing breastfeeding. However, the earlier introduction of liquids and foods is common worldwide and may have negative effects on breastfeeding practice, nutrition, and health. In this formative cross-sectional study, we interviewed 143 mothers from semi-rural communities in Tabasco, México, whose infants were 4-6 months old. We explored (1) which feeding practices substituted EBF and (2) which factors were associated with each practice. During the first month of life, 42.7% of infants received formula milk (FM); this proportion increased to 74.5% by the sixth month. Adjusted Poisson regression analyses showed that giving FM was positively related to working away from home (PR 1.27; 95% CI 1.06, 1.54) and the perception that FM is an important food to accompany breast milk (PR 1.38; 95% CI 1.19, 1.70). Giving FM was negatively associated with not being sure the infant is full after breastfeeding (PR 0.75; 95% CI 0.61, 0.92). Regarding CF, less than half (47.5%) of infants had not received it by the fifth month. Factors positively associated with timely CF introduction were: the mother was told during prenatal care visits the optimal age to start CF is 6 months (PR 1.17, 95% CI 1.06, 1.29); she is convinced that giving only breast milk is best for her baby (PR 1.15, 95% CI 1.03, 1.29), and

Resumen	a higher infant weight-for-length (PR 1.04, 95% CI 1.00, 1.08) and length for age (PR 1.04, 95% CI 1.00, 1.09) z-scores at the study visit; conversely, it was negatively associated to the idea that if the infant is not full, she/he should receive formula milk or some other food (PR 0.87, 95% CI 0.78, 0.96). In these communities, EBF is lost to the use of FM and early CF. The factors associated with these inadequate feeding practices are related to returning to work, information received during prenatal visits, and the mother's beliefs and thoughts. This work will guide the design of an intervention on infant feeding practices for these communities and other similar ones.
Palabras claves	National-Health, Hmilk, Toddlers

Revista	AVIAN RESEARCH
Volumen	13
Número	n/a
ISSN	2053-7166
DOI	10.1016/j.avrs.2022.100019
Título del Artículo	Abundance of White-fronted Parrots and diet of an urban parrot assemblage (Aves: Psittaciformes) in a green Neotropical city
Autores e instituciones de adscripción	Álvarez-Castillo, C ^[1] ; MacGregor-Fors, I ^[2] ; Arriaga-Weiss, SL ^[1,3] ; Mota-Vargas, C ^[4] ; Santiago-Alarcon, D ^[1,5] <small>[1] AC CONACYT, Inst Ecol, Biol & Conservac Vertebrados, Xalapa, Veracruz, México [2] Univ Helsinki, Biol & Environm Sci, Lahti, Finland [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [4] AC CONACYT, Biol Evolut, Inst Ecol, Xalapa, Veracruz, México [5] Univ S Florida, Dept Integrat Biol, Tampa, FL 33620 USA</small>
Resumen	Urban ecosystems are evolutionarily recent novel environments acting as biodiversity filters. Psittacidae birds are considered successful urban adapters mainly due to their generalist feeding and opportunistic behavior, allowing them to occupy environments from cold temperate to dry xeric areas. Therefore, it is important to understand how these species interact in the urban environment. We studied the interannual (2013-2016) abundance of the White-fronted Parrot (<i>Amazon albifrons</i>) in the Neotropical cities of Xalapa and Coatepec, in Central Veracruz, México. Additionally, we studied the feeding ecology during 13 months of 6 parrot species detected in the city of Xalapa. The abundance of the White-fronted Parrot was significantly higher in Xalapa than in Coatepec, and it was homogeneous across years. Non-native plants represented 30-41% of Psittacidae diets in Xalapa, where seeds were the most commonly consumed resource. We recorded the highest Psittacidae species richness and highest diet overlap among species by the end of the dry season (April-May). The White-fronted Parrot had the highest plant richness in its diet, followed by the Monk Parakeet (<i>Myiopsitta monachus</i>) and the Green Parakeet (<i>Psittacara holochlorus</i>); yet, the White-fronted Parrot had a specialized diet dominated by two plant species (<i>Grevillea robusta</i> and <i>Ficus aurea</i>). The diet overlap among the three above-mentioned parrot species was not significantly different to a null model, where the White-fronted Parrot and the Monk Parakeet overlapped during the months of February, April, June, and September. The White-fronted Parrot is an urban adapter that has successfully expanded its geographic range via natural means and by human activities. The invasive Monk Parakeet is currently restricted to one park in Xalapa, and it has remained in that stage for many years (i.e., pre-expansion phase). Exotic plant species in Xalapa represent similar to 55% of the woody vegetation, some of which have longer flowering and fruiting periods that may have aided the successful establishment of parrot species in urban environments.
Palabras claves	Monk Parakeet, <i>Myiopsitta-Monachus</i> , Species Richness

Revista	AVIAN RESEARCH
Volumen	13
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ISSN	2053-7166
DOI	10.1016/j.avrs.2022.100019
Título del Artículo	Abundance of White-fronted Parrots and diet of an urban parrot assemblage (<i>Aves: Psittaciformes</i>) in a green Neotropical city
Autores e instituciones de adscripción	Álvarez-Castillo, C ^[1] ; MacGregor-Fors, I ^[2] ; Arriaga-Weiss, SL ^[1,3] ; Mota-Vargas, C ^[4] ; Santiago-Alarcon, D ^[1,5] [1] AC CONACYT, Inst Ecol, Biol & Conservac Vertebrados, Xalapa, Veracruz, México [2] Univ Helsinki, Biol & Environm Sci, Lahti, Finland [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [4] AC CONACYT, Biol Evolut, Inst Ecol, Xalapa, Veracruz, México [5] Univ S Florida, Dept Integrat Biol, Tampa, FL 33620 USA
Resumen	Urban ecosystems are evolutionarily recent novel environments acting as biodiversity filters. Psittacidae birds are considered successful urban adapters mainly due to their generalist feeding and opportunistic behavior, allowing them to occupy environments from cold temperate to dry xeric areas. Therefore, it is important to understand how these species interact in the urban environment. We studied the interannual (2013-2016) abundance of the White-fronted Parrot (<i>Amazon albifrons</i>) in the Neotropical cities of Xalapa and Coatepec, in Central Veracruz, México. Additionally, we studied the feeding ecology during 13 months of 6 parrot species detected in the city of Xalapa. The abundance of the White-fronted Parrot was significantly higher in Xalapa than in Coatepec, and it was homogeneous across years. Non-native plants represented 30-41% of Psittacidae diets in Xalapa, where seeds were the most commonly consumed resource. We recorded the highest Psittacidae species richness and highest diet overlap among species by the end of the dry season (April-May). The White-fronted Parrot had the highest plant richness in its diet, followed by the Monk Parakeet (<i>Myiopsitta monachus</i>) and the Green Parakeet (<i>Psittacara holochlorus</i>); yet, the White-fronted Parrot had a specialized diet dominated by two plant species (<i>Grevillea robusta</i> and <i>Ficus aurea</i>). The diet overlap among the three above-mentioned parrot species was not significantly different to a null model, where the White-fronted Parrot and the Monk Parakeet overlapped during the months of February, April, June, and September. The White-fronted Parrot is an urban adapter that has successfully expanded its geographic range via natural means and by human activities. The invasive Monk Parakeet is currently restricted to one park in Xalapa, and it has remained in that stage for many years (i.e., pre-expansion phase). Exotic plant species in Xalapa represent similar to 55% of the woody vegetation, some of which have longer flowering and fruiting periods that may have aided the successful establishment of parrot species in urban environments.
Palabras claves	Monk Parakeet, <i>Myiopsitta-Monachus</i> , Species Richness

Revista	REVISTA SAN GREGORIO
Volumen	1
Número	50
ISSN	ISSN:1390-7247 E ISSN: 2528-7907
DOI	10.36097/rsan.v0i50.2080
Título del Artículo	Marketing information system: Tool for decision-making and company management

Autores e instituciones de adscripción	Mezquita, ECZ ^[1] ; Fernández, AMD ^[1] [1] Univ Juárez Autónoma Tabasco, Villahermosa, Tabasco, México
Resumen	This study describes the application of marketing information systems in the company and the subsystems that comprise it from two aspects: decision-making and business management. Documentary research, searching Google Scholar, EBSCO Host and Elsevier Science Direct, finding 15 articles that supported the development of the work. The relevance of the implementation of a SIM in the company is reflected in accordance with the empirical evidence found, which helps in decision-making and in the management of the company and the information obtained both internally and externally. It is concluded that the development of information systems has been given by the need of the company to manage all the data that it constantly receives from customers, suppliers, competitors, the market, and other actors both inside and outside of it. As a marketing discipline tool, its evolution is confirmed by the need to create models that facilitate its management. As a concept it is theoretically defined in the company, but, as it is a network of elements, actors, and resources, this makes it difficult to understand and apply in the company.
Palabras claves	Business performance, Decision Making, Information Management

Revista	REVISTA UNIVERSIDAD Y SOCIEDAD
Volumen	14
Número	2
ISSN	2218-3620
DOI	N/A
Título del Artículo	Educational marketing to prevent pregnancy and sexually transmitted diseases in high school students
Autores e instituciones de adscripción	Álvarez, HRP ^[1] ; Pérez, EDD ^[1] ; García, MHM ^[1] ; García, MIA ^[1] ; [1] Univ Juárez Autónoma Tabasco, Villahermosa, Tabasco, México
Resumen	A social marketing strategy that consisted of an educational intervention in 24 adolescents. Before and after the strategy, a questionnaire was applied to assess their knowledge and attitudes about STD prevention and contraceptive methods. For data analysis, the SPSS version 21 program and the Student's T test for related samples were used. In the diagnostic phase, low knowledge was obtained in 91.7% of the adolescents, an unfavorable attitude in cognitive and affective areas in 79.2%, in the behavioral area 33.3%. In the 2nd phase, the strategy was designed and implemented in 24 educational sessions, lasting 2 hours each. In the final evaluation phase, 54.2% obtained high knowledge in STDs and contraceptive methods. 70.8% obtained a very favorable attitude in the cognitive area, 37.5% in the affective area and 87.5% in the behavioral area, with statistically significant pre-test and post-test differences with p value = 0.0001. The research carried out shows that the marketing strategy was effective in increasing knowledge and improving attitudes towards the prevention of STDs and unwanted pregnancies.
Palabras claves	Social marketing, Prevention, Pregnancy

Revista	ITEA-INFORMACIÓN TÉCNICA ECONÓMICA AGRARIA
Volumen	119
Número	2
ISSN	ISSN: 1699-6887 E ISSN: 2386-3765
DOI	10.12706/itea.2022.014

Título del Artículo	The reused progesterone device in short-term protocols has the same effect on reproductive performance and progesterone profiles in Pelibuey ewes
Autores e instituciones de adscripción	Luna-Palomera, C ^[1] ; Macías-Cruz, U ^[2] ; Sánchez-Davila, F ^[3] ; Ojeda-Robertos, NF ^[1] ; Peralta-Torres, JA ^[1] <p>[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Lab Reprod & Genet Anim, Av Univ S-N, Villahermosa 86400, Tabasco, México [2] Univ Autónoma Baja California, Inst Ciencias Agrícolas, Mexicali, Baja California, México [3] Univ Autónoma Nuevo León, Lab Reprod Anim, Fac Agron, Francisco I Madero S-N, Escobedo 66050, Nuevo León, México</p>
Resumen	The aim was to evaluate the estrous behavior, gestation rate and P4 concentrations in Pelibuey ewes treated under a short synchronization protocol with new intravaginal devices (CIDRn) and reused (CIDR1 and CIDR2). The percentage of females in estrus, withdrawal time at estrus presentation, duration of estrus, gestation rate and percentage of retained devices were evaluated, likewise P4 concentrations on days -10 (input), -8, -6, -2 (withdrawal) and 0 (estrus day). Categorical variables were analyzed by Chi-square test, continuous variables by analysis of variance and P4 concentrations with repeated measures over time. There were no differences ($P > 0.05$) among ewes treated with CIDRn, CIDR1 and CIDR2 for any of the reproductive variables analyzed. It was concluded that the P4 release in reused devices is sufficient to achieve an adequate synchronization of estrus and pregnancy rate in Pelibuey breed ewes.
Palabras claves	Estrous behavior, Reused Device, Progesterone

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Volumen	119
Número	2
ISSN	ISSN: 1699-6887 E ISSN: 2386-3765
DOI	10.12706/itea.2022.013
Título del Artículo	The equine Chorionic Gonadotropin (eCG) modifies testosterone levels, but not reproductive activity in Holstein bulls during winter
Autores e instituciones de adscripción	Ledezma-Torres, RA ^[1] ; Sánchez-Davila, F ^[1] ; Luna-Palomera, C ^[2] ; Vásquez-Armijo, JF ^[3] <p>[1] Univ Autónoma Nuevo Leon, Agron Vet, Gen Escobedo 66054, Nuevo León, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86280, Tabasco, México [3] Univ Autónoma Estado México, Ctr Univ UAEM Temascaltepec, Km 67,5 Carr Fed Toluca Tequilco, Temascaltepec 51300, México</p>
Resumen	The objective of the present study was to evaluate the effect of the hormone equine chorionic gonadotropin (eCG) on testosterone concentrations, sexual behavior and seminal quality in young Holstein bulls. Twenty-one bulls of 12 +/- 3 months of age and 350 +/- 17 kg of live weight were selected. They were assigned to the following three treatments: T1 = 500 IU of eCG (n = 7); T2 = 1000 IU of eCG (n = 7) and T3 = Control (saline; n = 7). The administration of eCG was performed weekly during the period that the experiment lasted. There was an effect of the treatment ($p < 0.05$) on the concentration of testosterone, being higher for the bulls that received 500 IU of eCG, followed by those that received 1000 IU of eCG. There was only a trend ($p = 0.09$) of the effect of eCG on the number of mounts, being higher for bulls that received 500 IU (2.78 +/- 0.35) and 1000 IU (3.29 +/- 0.35) compared to the control group (2.23 +/- 0.32). For the effect of the week of application of the eCG, an effect ($p < 0.05$) was observed on each of the variables of sexual behavior, except for the reaction time to the first, second, and third mating. In conclusion, the application of eCG increased the concentration of testosterone, but without affecting sexual activity and seminal quality in young bulls during the winter season.
Palabras claves	Scrotal Circumference, Sexual Behavior, Seminal Quality

Revista	REVISTA MVZ CÓRDOBA
Volumen	27
Número	2
ISSN	ISSN: 0122-0268 eISSN: 1909-0544
DOI	10.21897/rmvz.2227
Título del Artículo	<i>Strongyloides</i> sp. resistant to albendazole and levamisole in buffaloes from México
Autores e instituciones de adscripción	Ojeda-Robertos, NF ^[1] ; Aguirre-Serrano, AM ^[1] ; de la Cruz, RC ^[1] ; Hernández-Martínez, LN ^[1] ; Peralta-Torres, JA ^[1] ; Chay-Canul, AJ ^[1] ; Priego-García, JA ^[2] ; Rodríguez-Vivas, RI ^[3] <p>[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México [2] Rancho La Carolina, Villahermosa, Tabasco, México [3] Univ Autónoma Yucatán, Fac Med Vet & Zootecnia, Mérida, Yucatán, México</p>
Resumen	Objective: The anthelmintic efficacy of albendazole and levamisole in <i>Strongyloides</i> sp. populations was assessed in buffalo calves (<i>Bubalus bubalis</i>) with natural infections in the Mexican tropic. Materials and methods. 45 buffalo calves were included in the study and distributed into three experimental groups (15 specimens each), according to the excretion of eggs of <i>Strongyloides</i> sp. per gram of faeces (EPG), namely: (a) Control group: without deworming; (b) BZ group (benzimidazoles), which received oral albendazole (10 mg/kg); and (c) IMIDA group (imidazothiazoles) that received levamisole (8 mg/kg) subcutaneously. Faeces were obtained directly from the rectum on days zero (pre-treatment) and 10 (post-treatment) to determine the EPG of each animal. The samples were processed using the McMaster technique. The EPG results were analysed using the RESO software to determine the percentages of egg reduction and their 95% confidence intervals (95% CI). Results. The BZ group exhibited 94% reduction in EPG (95% CI = 87-97), and the IMIDA group exhibited 95% reduction in EPG (95% CI = 84-99). Conclusions. This is the first report in México on the occurrence of <i>Strongyloides</i> sp. populations resistant to benzimidazoles and imidazothiazoles in naturally infected buffaloes from the Mexican tropic.
Palabras claves	Anthelmintic Resistance, Gastrointestinal Nematodes, <i>Haemonchus-Contortus</i>

Revista	AGRONOMY-BASEL
Volumen	12
Número	8
ISSN	2073-4395
DOI	10.3390/agronomy12081794
Título del Artículo	Soil Biological Activity, Carbon and Nitrogen Dynamics in Modified Coffee Agroforestry Systems in México
Autores e instituciones de adscripción	Ayala-Montejo, D ^[1,2] ; Valdés-Velarde, E ^[3] ; Benedicto-Valdés, GS ^[4] ; Escamilla-Prado, E ^[5] ; Sánchez-Hernández, R ^[6] ; Gallardo, JF ^[7] ; Martínez-Zurimendi, P ^[2,8] <p>[1] CONACYT El Colegio Frontera Sur, Av Insurgentes Sur 1582, México City 03940, DF, México [2] El Colegio Frontera Sur, Dept Agr Soc & Ambiente, Unidad Villahermosa, Carretera Villahermosa Reforma Km 15-5, Villahermosa 86280, Tabasco, México [3] Univ Autónoma Chapingo, Ctr Agroforestería Desarrollo Sostenible, Carretera México Texcoco Km 38-5, Chapingo 56230, Texcoco, México [4] Univ Autónoma Chapingo, Ctr Agroforestería Desarrollo Sostenible, Carretera México Texcoco Km 38-5, Chapingo 56230, Texcoco, México [5] Colegio Postgrad, Postgrad Edafol, Campus Montecillo, México City 56230, DF, México [6] Univ Autónoma Chapingo, Ctr Reg Univ Oriente, Carretera Huatusco Jalapa Km 6, Huatusco 94100, Veracruz, México [7] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa Km 25-2 Ranchería Hu, Villahermosa 86298, Tabasco, México [8] Higher Council Sci Res CSIC, IRNASa, Salamanca 37008, Spain [9] Univ Valladolid INIA, Inst Gest Forestal Sostenible IUFOR, Av Madrid 44, Palencia 34004, Spain</p>

Resumen	(1) Background: Coffee agroforestry systems (CAFS) in Veracruz, México, are being displaced by avocado monocultures due to their high economic value. This change can generate alterations in the type of organic residues produced and soil biological activity (SBA) which is sensitive to climatic variations, changes in floristic composition, and agronomic management. It can be evaluated through soil respiration and macrofauna, both related to soil carbon (C) and nitrogen (N) dynamics. The objective was to: (1) Analyze the variation of SBA as well as the C and N dynamics in modified coffee agroforestry systems; (2) Methods: Three CAFS (renewed, intensive pruning, and with the introduction of avocados) and an avocado plantation were compared. The evaluations were conducted during the period 2017-2019. Soil parameters (respiration, macrofauna, C and N contents) and C content of plant biomass were measured in plots of 25 x 25 m(2) from three soil depths in triplicate. Spearman's test and a principal component analysis were performed to determine the structural dependence on C and N dynamics; (3) Results: The introduction of avocado showed the lowest soil respiration values (with 193 g CO ₂ ha(-1) h(-1) at 0-10 cm depth), this system did not display soil macrofauna and increased soil organic carbon content. The soil C/N ratio was sensitive to the introduction of avocado. Correlation between soil respiration and litter-related parameters was positive, but it was negatively correlated with soil organic matter and total soil nitrogen, explaining 67.7% of the variation; (4) Conclusions: Modification of CAFS generated variations in the SBA and soil C and N contents.
Palabras claves	Agroforestry System Renewed, Avocado, C Storage

Revista	INTERNATIONAL JOURNAL OF ENVIRONMENTAL SCIENCE AND TECHNOLOGY
Volumen	20
Número	8
ISSN	ISSN: 1735-1472 eISSN: 1735-2630
DOI	10.1007/s13762-022-04515-y
Título del Artículo	Remediation and re-use of weathered hydrocarbon residue for the preparation of dense asphaltic mixtures
Autores e instituciones de adscripción	Hernández-Acosta, L ^[1] ; Domínguez-Rodríguez, VI ^[1] ; Adams, RH ^[1] ; Jiménez-Zapata, KC ^[1] <small>[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Carretera Villahermosa Cardenas Km 0-5 S-N, Villahermosa 86150, Tabasco, México</small>
Resumen	Legacy sites used for petroleum storage and refining exist in various parts of the world, and many contain soils with very viscous petroleum hydrocarbons produced by poor historical practices and many decades of weathering, especially in tropical and subtropical climates. This contamination causes land-use restrictions and may threaten natural resources and living organisms. The possibility of re-valorization of such a weathered hydrocarbon residue (WHR) was investigated for road-base (dense asphaltic mixture), considering site restrictions (re-use only on-site, construction possibilities, volume of residue, sandy soil). Fifty different mixtures were prepared in an iterative process to (1) use the maximum amount of WHR possible, (2) use the minimum amount of gravel possible, (3) meet the main national construction criteria for medium-traffic roadways, and (4) avoid leachate contamination of subsoil and groundwater. The ideal asphaltic mixture achieved was composed of 16.7% hydrocarbon residue, 60.17% sand (from the site), 20.00% commercial gravel and 3.13% Portland cement (filler). It

Resumen	met construction criteria (≥ 700 Kgf, 2-4 mm flux, according to the Marshall protocol) and had 3.39 mg/L of total petroleum hydrocarbons in TCLP-leachates, which were also non-toxic (filter-paper earthworm bioassay). Thus, the exploitation of a very WHR was shown to be an alternative to replace conventional asphaltic mixtures (thus providing another option for revalorization instead of landfill disposal or alternative treatment). Also demonstrated was the value of very WHRs, which may be present in old refineries, for asphalt production without using additives to strengthen the binding characteristics.
Palabras claves	Weathered hydrocarbons, Alternative binders, Re-valorization

Revista	BRAZILIAN JOURNAL OF POULTRY SCIENCE
Volumen	24
Número	4
ISSN	ISSN: 1516-635X eISSN: 1806-9061
DOI	10.1590/1806-9061-2022-1633
Título del Artículo	Predictive Equations of Carcass Characteristics and Primal Cut Weights of Native Mexican Guajolotes Using Body Measurements
Autores e instituciones de adscripción	Portillo-Salgado, R ^[1] ; Herrera-Haro, JG ^[1] ; Bautista-Ortega, J ^[2] ; Chay-Canul, AJ ^[3] ; Ramírez-Bribiesca, JE ^[1] ; Ortega-Cerrilla, ME ^[1] <small>[1] Colegio Postgrad, Programa Ganadería, Campus Montecillo, Carretera México Texcoco, Texcoco 56230, Estado De Mexic, México [2] Colegio Postgrad, Dept Ciencias Agr, Campus Campeche, Champoton 24450, Campeche, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México</small>
Resumen	This study was conducted to develop predictive equations for carcass characteristics and primal cut weights of native Mexican guajolotes using body measurements (BM). For this study, a total of 36 male guajolotes (<i>Meleagris gallopavogallopavo</i>), aged 6 to 10 months, and mean slaughter body weight (SBW) of 4543.14 +/- 656.60 g, were used. The birds were kept under traditional extensive conditions. The following BMs were recorded 24 h before slaughter: thoracic perimeter (TP), body circumference (BC), body length (BL), wing length (WL), keel length (KL), shank length (SL) and shank diameter (SD). After slaughter, hot carcass weight (HCW), cold carcass weight (CCW), hot dressing percentage (HDP), cold dressing percentage (CDP), organs and viscera weight (VIS) and abdominal fat weight (AFW) were recorded. The carcasses were dissected in to five primal cut (breast, thigh, drumstick, back and wing). The SBW and BMs showed moderate to high positive correlations ($p < 0.01$; $0.34 \leq r < 0.97$) with carcass characteristics and primal cut weights. In the equations generated to predict HCW, CCW, HDP, CDP, VIS and AFW, the R ² ranged from 0.40 to 0.96, and the predictor variables were SBW, KL, BC, WL and SL. Regarding the equations developed to predict the primal cut weights, R ² ranged from 0.58 to 0.91. In these models, SBW, BC, SD, WL and KL explained most of the observed variation. The prediction equations obtained in the study had moderate to high accuracy; therefore, they can be used by researchers, technicians and poultry producers to obtain information on the carcass composition of native Mexican guajolotes.
Palabras claves	<i>In-vivo</i> Estimation, Regression Equations, <i>Meleagris-Gallopavo</i>

Revista	RSC ADVANCES
Volumen	12
Número	39
ISSN	eISSN: 2046-2069
DOI	10.1039/d2ra03552a
Título del Artículo	Photodegradation of 2,4-D (dichlorophenoxyacetic acid) with Rh/TiO₂; comparative study with other noble metals (Ru, Pt, and Au)
Autores e instituciones de adscripción	Reguero-Márquez, GA ^[1] ; LunaGómez-Rocha, MA ^[1] ; Cervantes-Urbe, A ^[2] ; del Ángel, G ^[2] ; Rángel, I ^[2] ; Torres-Torres, JG ^[1] ; González, F ^[2] ; Godavarthi, S ^[3] ; Arévalo-Pérez, JC ^[1] ; de los Monteros, AEE ^[1] ; Silahua-Pavón, AA ^[1] [1] Univ Juárez Autónoma Tabasco, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, DACB, Km 1 Carretera Cunduacán Jalpa Méndez AP 24, Cunduacán 86690, Tabasco, México [2] Univ Autónoma Metropolitana Iztapalapa, Dept Quím, Área Catalisis, CBI, Av San Rafael Atlixco 186, México City 09340, DF, México [3] Univ Juárez Autónoma Tabasco, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, DACB, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, Km 1 Carretera Cunduacán Jalpa Méndez, Cunduacán 86690, Tabasco, México
Resumen	In this work the effect of noble metal on the photodegradation of 2,4-dichlorophenoxyacetic acid herbicide using TiO ₂ as support was studied. The metals and concentration were: Rh, Ru, Pt and Au and 1, 0.98, 1.89, and 1.91 wt% respectively. Rhodium was taken as reference for this experiment. The samples were characterized by X-Ray Diffraction (XRD), UV-vis absorption spectra, N-2 physisorption (BET Specific Surface Area), High Annular Angle Analysis Darkfield (HAADF) and Transmission Electron Microscopy Scanning (STEM), H-2 chemisorption, optical emission spectroscopy with inductive coupling plasma analysis (ICP-OES), solid fluorescence, X-ray Photoelectron Spectroscopy (XPS) and OH quantification. The presence of the anatase crystalline phase was mostly confirmed in all samples. The band gap decreased with the presence of metal (from 3.24 to 2.92 eV). The specific area was a function of the metal particle size. The metal particle diameter showed the following sequence Pt > Ru > Au > Rh. By XPS, TiO ₂ does not manifest changes in oxidation states, but when impregnated with metals, only Pt shows the highest abundance of any oxidized state (Pt ²⁺). The presence of metal reveals less electron-hole recombination compared with titanium oxide. The results of photocatalytic activity showed that Pt and Rh are the two metals with the highest mineralization (99.0 and 98.3%, respectively).
Palabras claves	Photocatalytic Activity, TiO ₂ Photocatalysts, Nanoparticles

Revista	TROPICAL ANIMAL HEALTH AND PRODUCTION
Volumen	54
Número	5
ISSN	ISSN: 0049-4747 eISSN: 1573-7438
DOI	10.1007/s11250-022-03276-7
Título del Artículo	Models to predict live weight from heart girth in crossbred beef heifers
Autores e instituciones de adscripción	Chico-Alcudia, DR ^[1] ; Portillo-Salgado, R ^[2] ; Camacho-Pérez, E ^[3] ; Peralta-Torres, JA ^[1] ; Ángeles-Hernández, JC ^[4] ; Muñoz-Benítez, AL ^[4] ; Lendecky, VHS ^[5] ; Gurgel, ALC ^[6] ; Difante, GD ^[6] ; Itavo, LCV ^[6] ; Chay-Canul, AJ ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México [2] Colegio Postgrad, Programa Ganadería, Texcoco, Edo De México, México [3] Inst Tecnol Super Progreso, Tecnol Nacl México, Progreso, Yucatán, México [4] Univ Autónoma Estado Hidalgo, Inst Ciencias Agr, Tulancingo De Bravo, Hidalgo, México [5] Univ Autónoma Chiapas, Ctr Estudios Etnoagr, San Cristóbal de las Casa, Chiapas, México [6] Univ Fed Mato Grosso Do Sul, Fac Med Vet & Zootecnia, Campo Grande, MS, Brazil

Resumen	The objective of this study was to develop and evaluate linear, quadratic, and exponential mathematical models to predict live weight (LW) from heart girth (HG) in crossbred heifers raised in tropical humid conditions in México. Live weight (363.32 +/- 150.88 kg) and HG (166.83 +/- 24.88 cm) were measured in 400 heifers aged between 3 and 24 months. Linear and non-linear regression was used to construct the prediction models. The goodness of fit of the models was evaluated using the Akaike information criterion (AIC), the Bayesian information criterion (BIC), coefficient of determination (R ²), mean squared error (MSE), and root MSE (RMSE). In addition, the developed models were evaluated through internal and external cross-validation (k-folds) using independent data. The ability of the fitted models to predict the observed values was evaluated based on the root mean square error of prediction (RMSEP), R ² , and mean absolute error (MAE). The correlation coefficient between LW and HG was r = 0.98 (P < 0.001). The quadratic model showed the lowest values of MAE (736.57), RMSEP (27.13), AIC (3783.95), and BIC (3799.91). Additionally, this model exhibited better goodness-of-fit values regarding external and internal validation criteria (higher R ² and lower RMSEP and MAE), thus having better predictive performance. The RMSE represented about 8% of the observed LW. Heart girth is highly correlated (r = 0.98) with LW. The quadratic model showed a high predictive capacity for crossbred heifers kept in tropical conditions.
Palabras claves	Body Weight, Crossbred cattle, Thoracic Perimeter

Revista	REVISTA MVZ CORDOBA
Volumen	27
Número	1
ISSN	ISSN: 0122-0268 eISSN: 1909-0544
DOI	10.21897/rmvz.2359
Título del Artículo	Milk production of Holstein x Gyr cows in a dual-purpose system in the tropics
Autores e instituciones de adscripción	Peralta-Torres, JA ^[1] ; Izquierdo-Camacho, Y ^[1] ; Severino-Lendecky, VH ^[2] ; Segura-Correa, JC ^[3] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México [2] Univ Autónoma Chiapas, Ctr Estudios Etnoagr, San Cristóbal de las Casa, Chiapas, México [3] Univ Autónoma Yucatán, Fac Med Vet & Zootecnia, Mérida, Yucatán, México
Resumen	Objective. To determine the effect of breed group (BG), parity number (PN) and season of calving on lactation length (LL), milk production per lactation (MPL) and per day (MPD) of dual-purpose (DP) cows. Material and methods. Data from 160 Holstein x Gyr cows (0 to 75% Holstein) managed in a DP production system in the humid tropics of Chiapas, México were used. Information for LL was analyzed using survival analysis, and that for MPL and MPD by general linear models. The model included the effects of BG (0-25%, 50% and 62.5-75% Holstein), PN and season of calving. Results. The means for LL, MPL, MPD were 219.3 +/- 39.6 days; 2125.1 +/- 568.7 kg; 9.66 +/- 1.96 kg, respectively. BG and PN affected all variables. The hazard ratio (HR) of 1.815 indicates that 0-25% Holstein cows had higher risk of being dry-off earlier than F1 cows, which had similar LL than 62.5 to 75% Holstein group. The HR was higher for cows calving in the windy-rainy season (HR=1) than those calving in the dry and rainy seasons (HR=0.448 and 0.446, respectively). The risk that a primiparous cow was dry-off was higher (HR=2.198). The LL of cows with 2 and >= 3 parities was similar. Conclusions. BG, PN and season of calving affected LL and milk yield of dual-purpose cows.
Palabras claves	Calving Number, Daily Milk Production, Humid Tropic

Revista	MOLECULES
Volumen	27
Número	16
ISSN	eISSN: 1420-3049
DOI	10.3390/molecules27165166
Título del Artículo	Maize Flavonoid Biosynthesis, Regulation, and Human Health Relevance: A Review
Autores e instituciones de adscripción	Peniche-Pavia, HA ^[1] ; Guzmán, TJ ^[2] ; Magaña-Cerino, JM ^[3] ; Gurrola-Díaz, CM ^[4] ; Tiessen, A ^[4] [1] Ctr Invest Estudios Avanzados Inst Politecn Nacl, Dept Bioquim & Biotecnol, Libramiento Norte Km 9-6, Guanajuato 36824, México [2] Univ Munster, Inst Pharmaceut & Med Chem, Dept Pharmacol, Corrensstr 48, D-48149 Munster, Germany [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Salud, Ctr Invest Posgrad, Gregorio Méndez Magaña 2838 A Col Tamulte Barranc, Villahermosa 86150, Tabasco, México [4] Univ Guadalajara, Inst Invest Enfermedades Cron Degenerativa, Inst Transdisciplinar Invest Innovac Salud, Dept Biol Mol & Genom, Ctr Univ Ciencias Salud, C Sierra Mojada 950 Col Independencia, Guadalajara 44340, Jalisco, México
Resumen	Maize is one of the most important crops for human and animal consumption and contains a chemical arsenal essential for survival: flavonoids. Moreover, flavonoids are well known for their beneficial effects on human health. In this review, we decided to organize the information about maize flavonoids into three sections. In the first section, we include updated information about the enzymatic pathway of maize flavonoids. We describe a total of twenty-one genes for the flavonoid pathway of maize. The first three genes participate in the general phenylpropanoid pathway. Four genes are common biosynthetic early genes for flavonoids, and fourteen are specific genes for the flavonoid subgroups, the anthocyanins, and flavone C-glycosides. The second section explains the tissue accumulation and regulation of flavonoids by environmental factors affecting the expression of the MYB-bHLH-WD40 (MBW) transcriptional complex. The study of transcription factors of the MBW complex is fundamental for understanding how the flavonoid profiles generate a palette of colors in the plant tissues. Finally, we also include an update of the biological activities of C3G, the major maize anthocyanin, including anticancer, antidiabetic, and antioxidant effects, among others. This review intends to disclose and integrate the existing knowledge regarding maize flavonoid pigmentation and its relevance in the human health sector.
Palabras claves	Zea mays L, Anthocyanins, Biosynthesis

Revista	BIOMEDICINES
Volumen	10
Número	8
ISSN	2227-9059
DOI	10.3390/biomedicines10081919
Título del Artículo	Increased Levels of HbA1c in Individuals with Type 2 Diabetes and Depression: A Meta-Analysis of 34 Studies with 68,398 Participants
Autores e instituciones de adscripción	Genis-Mendoza, AD ^[1] ; González-Castro, TB ^[2] ; Tovilla-Vidal, G ^[3] ; Juárez-Rojop, IE ^[4] ; Castillo-Avila, RG ^[3] ; López-Narváez, ML ^[4] ; Tovilla-Zárate, CA ^[5] ; Sánchez-De la Cruz, JP ^[5] ; Fresan, A ^[6] ; Nicolini, H ^[1] [1] Inst Nacl Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, Ciudad De México 14610, México [2] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa de Méndez, Jalpa De Méndez 86040, Tabasco, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Salud, Villahermosa 86100, Tabasco, México [4] Hosp Chiapas Nos Une Dr Gilberto Gómez Maza, Secretaría Salud Chiapas, Tuxtla Gutiérrez 29045, Chiapas, México [5] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Comalcalco, Comalcalco 86040, Tabasco, México [6] Inst Nacl Psiquiatria Ramon de la Fuente Muniz, Subdirecc Invest Clin, Ciudad De México 14370, México

Resumen	Glycosylated hemoglobin is used to diagnose type 2 diabetes mellitus and assess metabolic control. Depression itself has been associated with high levels of HbA1c in individuals with T2DM. The association between diabetes and depression suggests the usefulness of determining HbA1c as a biological marker of depressive symptoms. The aim of this study was to determine HbA1c levels in individuals with T2DM with vs. without depression. Additionally, we analyzed the influence of pharmacological treatments, time of evolution, and complications of disease. We performed a literature search in different databases published up to January 2020. A total of 34 articles were included. Our results showed that individuals with T2DM with depression showed increased levels of HbA1c in comparison to individuals with T2DM without depression (d = 0.18, 95% CI: 0.12-0.29, p(Z) < 0.001; I-2 = 85.00). We also found that HbA1c levels remained elevated in individuals with T2DM with depression who were taking hypoglycemic drugs (d = 0.20 95% CI: 0.11-0.30, p(Z) < 0.001; I-2 = 86.80), in individuals with less than 10 years of evolution (d = 0.17 95% CI: 0.09-0.26, p(Z) = 0.001; I-2 = 66.03) and in individuals with complications of the disease (d = 0.17, 95% CI: 0.07-0.26, p(Z) < 0.001; I-2 = 58.41). Our results show that HbA1c levels in individuals with T2DM with depression are significantly increased compared to controls with T2DM without depression. Additionally, these levels remained elevated in individuals who were taking hypoglycemic drugs, those with less than 10 years of disease evolution, and those with complications related to diabetes. It is necessary to examine the existence of a diabetes-HbA1c-depression connection.
Palabras claves	Diabetes, HbA1c, Depression

Revista	HELMINTHOLOGIA
Volumen	59
Número	2
ISSN	ISSN: 0440-6605 eISSN: 1336-9083
DOI	10.2478/helm-2022-0017
Título del Artículo	Identification of somatic proteins in <i>Haemonchus contortus</i> infective larvae (L-3) and adults
Autores e instituciones de adscripción	Zaragoza-Vera, M ^[1] ; González-Garduno, R ^[2] ; Brito-Argáez, L ^[4] ; Aguilar-Caballero, AJ ^[1] ; Zaragoza-Vera, CV ^[1] ; Arjona-Jiménez, G ^[3] ; Loyola-Vargas, VM ^[4] ; Aguilar-Hernández, V ^[5] ; Torres-Chable, OM ^[3] [1] Univ Autónoma Yucatán, Fac Med Vet & Zootecnia, Campus Ciencias Biol & Agr, Km 15-5, Mérida 97100, Yucatán, México [2] Univ Autónoma Chapingo, Unidad Reg Univ Sursureste, Km 7-5 Carretera Teapa Vicente Guerrero, Teapa, Tabasco, México [3] Univ Juárez Autónoma Tabasco, Lab Enfermedades Trop & Transmitidas Vectores, Div Acad Ciencias Agr, Villahermosa 86040, Tabasco, México [4] Ctr Invest Cient Yucatán, Unidad Bioquim & Biol Mol Plantas, Mérida, Yucatán, México [5] Ctr Invest Cient Yucatán, Catedrat CONACYT, Unidad Bioquim & Biol Mol Plantas, Mérida, Yucatán, México
Resumen	<i>Haemonchus contortus</i> is considered the most pathogenic nematode in sheep production systems based on grazing. Comparing infective larvae (L ₃) with adult parasites can lead to the identification of proteins that play an important role in parasite-host interactions. In this study, we report a list of <i>H. contortus</i> somatic proteins and made a comparative analysis of somatic proteins of L ₃ and adult worms. L ₃ and adult parasites were subjected to protein extraction and subsequently to peptide fractionation. Peptides were analysed by mass spectrometry and LC-MS/MS data analysis. Data analysis and search on SEQUEST and MASCOT against <i>H. contortus</i> from the WormBase ParaSite database resulted in the identification of 775 unique peptide sequences corresponding to 227 proteins at 1 % FDR. From these, 18 proteins were specific

Resumen	to L ₃ and 63 to adult parasites. The gene ontology (GO) enrichment analysis of the proteins specific to L ₃ and adult worms to gain insight into cellular components, molecular functions and biological processes that affect the parasite-host interaction showed some differences between the two parasite stages. The list of proteins found provides a database to identify target proteins that could be useful as biomarkers of the infection or in the generation of anthelmintic drugs that inhibit proteins essential for the establishment of the infection and the survival of adult parasites. They can also serve as new candidates for vaccine research.
Palabras claves	Gastrointestinal Parasites, Biomarkers, Ewes

Revista	LIFE-BASEL
Volumen	12
Número	8
ISSN	2075-1729
DOI	10.3390/life12081243
Título del Artículo	Herbal Vitamin C Prevents DNA Oxidation and Modifies the Metabolomic Water Profile of Tilapia (<i>Oreochromis spp.</i>)
Autores e instituciones de adscripción	Villanueva, M ^[1] ; Espinosa-Reyes, G ^[2] ; Flores-Ramírez, R ^[2] ; Rojas-Velázquez, AN ^[1] ; López, JCG ^[1] ; Vázquez-Valladolid, A ^[2] ; Roque-Jiménez, JA ^[3] ; Mendoza-Martínez, GD ^[3] ; Hernández-García, PA ^[4] ; Palacios-Martínez, M ^[3] ; Chay-Canul, AJ ^[5] ; Lee-Rángel, HA ^[1] [1] Univ Autónoma San Luis Potosí, Fac Agron & Vet, Ctr Biociencias, Inst Invest Zonas Des, Soledad Graciano Sánchez 78000, SLP, México [2] Univ Autónoma San Luis Potosí, Ctr Invest Aplicada Ambiente & Salud, Fac Med CIACYT, Lomas Segunda Secc, San Luis Potosí 78210, San Luis Potosí, México [3] Univ Autónoma Metropolitana Xochimilco, Dept Prod Anim, México City 04960, DF, México [4] Univ Autónoma Estado México, Centro Univ UAEM Amecameca, Carretera Fed Amecameca Ayapango km 2-5, Amecameca De Juárez 56900, México [5] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, km 25, RA Huasteca, Villahermosa 86280, Tabasco, México
Resumen	This experiment aimed to evaluate the effects of herbal vitamin C at different levels on tilapia (<i>Oreochromis spp.</i>) growth, potential DNA damage, and the metabolomic profile of water effluent. Forty-five tilapias were housed in separate plastic tanks (80 L), and these were randomly assigned to three treatments: (a) a commercial diet (CD) only; (Nutripec Purina®); (b) the commercial diet plus 250 mg of herbal vitamin C (HVC)/kg (CD250); and (c) the commercial diet plus 500 mg of HVC/kg (CD500). Biometric measurements were taken each week, blood samples were collected from the caudal vein on the final day, and water effluent was taken each week and immediately frozen (-80 °C) until further analysis (gas chromatography/mass spectrometry (GC/MS) systems). Data were completely randomized with a 2 × 2 factorial arrangement of treatments. Upon including herbal vitamin C, the final BW (p = 0.05) and BWG (p = 0.06) increased linearly. Herbal vitamin C decreases DNA damage (p ≥ 0.05). PLS-DA showed a 41.6% variation between treatments in the water samples. Fifteen metabolites had the best association between treatments, with a stronger correlation with CD500. Herbal vitamin C could improve fish performance, prevent DNA damage, and influence changes in the metabolomic profile of the water.
Palabras claves	Herbal Vitamin C, DNA, Damage

Revista	ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH
Volumen	30
Número	5
ISSN	ISSN: 0944-1344 eISSN: 1614-7499
DOI	10.1007/s11356-022-22962-5
Título del Artículo	Ferulic acid supplementation for 40 days in hair ewe lambs experiencing seasonal heat stress: short-term effects on physiological responses, growth, metabolism, and hematological profile
Autores e instituciones de adscripción	Nicolás-López, P ^[1] ; Macías-Cruz, U ^[1] ; Avendano-Reyes, L ^[1] ; Valadez-García, KM ^[1] ; Mellado, M ^[2] ; Meza-Herrera, CA ^[3] ; Díaz-Molina, R ^[4] ; Castañeda, VJ ^[1] ; Vicente-Pérez, R ^[5] ; Luna-Palomera, C ^[6] [1] Univ Autónoma Baja California, Inst Ciencias Agr, Mexicali 21705, Baja California, México [2] Univ Autónoma Agr Antonio Narro, Dept Nutr Anim, Saltillo 25315, Coahuila, México [3] Univ Autónoma Chapingo, Unidad Reg Univ Zonas Aridas, Durango 35230, México [4] Univ Autónoma Baja California, Fac Med, Mexicali 21100, Baja California, México [5] Univ Guadalajara, Dept Prod Agr, CUCSUR, Autlan De Navarro 48900, Jalisco, México [6] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México
Resumen	Free ferulic acid (FA) is a natural compound with antioxidant properties which mitigates the negative effects of cold stress in sheep; however, its impact on thermoregulatory responses in heat-stressed sheep has not been defined. The objective was to evaluate the effects of FA supplementation on physiological responses, serum analyte concentrations, and the hematological profile of heat-stressed hair ewe lambs. Twenty-two Dorper x Katandin ewe lambs (initial body weight = 23.5 +/- 2.8 kg and age=4 months) were housed in individual pens for 40 days and assigned under a randomized complete block design to the following treatments (n=11): basal diet with 0 (control) or 250 mg of FA/kg of feed. The FA x sampling day interaction only affected serum concentration of some metabolic hormones; particularly on day 20 of the trial, FA increased (P < 0.01) insulins and the insulin to glucose ratio while decreased (P=0.05) thyroxine. Overall, supplemental FA did not affect rectal temperature, respiratory rate, most body surface temperatures, feedlot performance, and serum concentrations of metabolites, electrolytes, triiodothyronine, and cortisol. In addition, FA only tended to decrease (P >= 0.09) erythrocyte count and plaquetocrit and to increase (P =0.08) mean corpuscular volume. In conclusion, FA supplementation did not improve the growth nor thermoregulatory capacity of heat-stressed hair ewe lambs. Still, it partially modulated the metabolism to reinforce some energetic adaptive mechanisms when the ambient temperature was >= 35 degrees C.
Palabras claves	Energy metabolism, Hair breed sheep, Heat stress

Revista	THIN SOLID FILMS
Volumen	758
Número	n/a
ISSN	ISSN: 0040-6090 eISSN: 1879-2731
DOI	10.1016/j.tsf.2022.139427
Título del Artículo	Effect of thermal treatment and deposition conditions of ZnO by radio frequency sputtering on the photovoltaic response of CdTe solar cells
Autores e instituciones de adscripción	Mendoza-Pérez, R ^[1] ; Ruiz-Rodríguez, LM ^[3] ; Del Oso, JA ^[1] ; Sastré-Hernández, J ^[2] ; Hernández-Santos, M ^[1] ; Aguilera-Trujillo, H ^[2] ; Pérez-Hernández, G ^[3] ; Contreras-Puente, G ^[2] [1] Univ Autónoma Ciudad México, Plantel San Lorenzo Tezonco, México City 09790, DF, México [2] Inst Politecn Nacl, Escuela Super Fis & Matemat, México City 07738, DF, México [3] Univ Juárez Autónoma Tabasco, Villahermosa 86040, Tabasco, México

Resumen	ZnO thin films grown by radio frequency sputtering were studied as a function of the experimental parameters: source power, chamber deposition pressure, substrate temperature and oxygen partial pressure; in addition to post-deposition thermal treatment. The ZnO thin films were characterized by stylus profilometry, optical measurements, electrical resistivity, X-ray diffraction, energy dispersive spectroscopy and scanning electron microscopy. Current-voltage and external quantum efficiency measurements were performed on the CdS/CdTe-based solar cell. In the case of ZnO/CdS thin films with a high-temperature thermal treatment, an increment in transmittance was observed in the ZnO wavelength region. With the incorporation of the ZnO thin film in the front contact of the solar cell, we obtained a photovoltaic efficiency of 7.4%, with the following optimal deposition conditions: 230 W source power, 2.67 Pa of deposition pressure and 300 degrees C for the substrate temperature with a thermal treated of 450 degrees C for ZnO/CdS thin films. While a photovoltaic efficiency of 6.0% was obtained, when the ZnO/CdS was thermal treated at 500 degrees C with the ZnO deposited at 140 W source power, 1.33 Pa deposition pressure and 250 degrees C for the substrate temperature. Finally, a photovoltaic efficiency of 10% was achieved for CdTe solar cells with ZnO thin film by combining the experimental conditions and the thermal treatment described above.
Palabras claves	Zinc Oxide, Thin Film, Thermal Treatment

Revista	ANIMALS
Volumen	12
Número	17
ISSN	2076-2615
DOI	10.3390/ani12172269
Título del Artículo	Effect of the Inclusion of Bacillus spp. in Growing-Finishing Pigs' Diets: A Meta-Analysis
Autores e instituciones de adscripción	González-Ronquillo, M ^[1] ; Villegas-Estrada, D ^[1] ; Robles-Jiménez, LE ^[2] ; Herrera, RAG ^[2] ; Villegas-Vázquez, VL ^[1] ; Vargas-Bello-Pérez, E ^[3] ^[1] Univ Autónoma Estado México, Fac Med Vet & Zootecnia, Dept Nutr Anim, Inst Literario 100, Toluca 50000, Estado De México, México ^[2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Km 25, R-A Huasteca 2a Secc, Villahermosa 86280, Tabasco, México ^[3] Univ Reading, Sch Agr Policy & Dev, Dept Anim Sci, POB 237, Reading RG6 6EU, Berks, England
Resumen	Simple Summary Dietary probiotics are an alternative to antibiotic inclusion in pigs, the modulation of the intestinal environment, the inhibition of pathogen's colonization by an increase in microbial competition in the gastrointestinal tract, and the regulation of mucosal immunity. These factors can lead to improvements in animal's health and, therefore, productivity. The objective of this study was to use a meta-analysis approach to ascertain the effect of Bacillus spp. on growth performance of growing-finishing pigs and then to assess causes for the heterogeneity of responses detected using meta-regression. Overall, the inclusion of Bacillus spp. (median 486 mg/d) in growing-finishing pigs can increase the average daily gain (ADG) and decrease the feed: gain ratio (F:G). This meta-analysis determined the effect of Bacillus spp. on growth performance of growing-finishing pigs and then assessed causes for the heterogeneity of responses detected using meta-regression. A database of 22 articles published from 2000 to 2020 was identified, and 9 articles fitted the selection criteria and were integrated in the final database. Statistical analysis was performed to analyze the effect size for ADG, average daily feed intake (ADFI), and F:G ratio using a standardized means difference (SMD) at a 95% confidence interval. A meta-regression analysis was used to investigate the cause of heterogeneity, using the individual SMD for each study assessment as the outcome and the associated SE as the measure of variance. Dietary Bacillus spp. supplementation had no effect on ADFI (SMD: -0.052, p = 0.138) and numerically increased ADG

Resumen	(SMD: 0.113, p = 0.081) and reduced the F:G ratio SMD: -0.127, p < 0.001). Meta-regression outcomes suggested that the number of animals per group was an essential component promoting heterogeneity in ADG. Overall, the inclusion of Bacillus spp. (median 486 mg/d) in growing-finishing pigs can increase ADG and can decrease the F:G ratio.
Palabras claves	In-feed, Antibioticsgrowth-Performance, Nutrient Digestibility

Revista	JOURNAL OF ANIMAL AND FEED SCIENCES
Volumen	31
Número	3
ISSN	1230-1388
DOI	10.22358/jafs/149978/2022
Título del Artículo	Development of prediction equations to estimate carcass tissue composition in growing New Zealand White rabbits by shoulder and neck dissection
Autores e instituciones de adscripción	Arbez-Abnal, TA ^[1] ; Sangines-García, JR ^[1] ; Pineiro-Vázquez, AT ^[1] ; Aguilar-Urquiza, E ^[1] ; Ángeles-Hernández, JC ^[2] ; Vargas-Bello-Pérez, E ^[3] ; Chay-Canul, AJ ^[4] ^[1] Tecnol Nacl México, Div Estudios Posgrad & Invest, Inst Tecnol Conkal, Conkal 97345, Yucatán, México ^[2] Univ Autónoma Estado Hidalgo, Inst Ciencias Agr, Tulancingo De Bravo 43600, Hidalgo, México ^[3] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Gronnegardsvej 3, DK-1870 Frederiksberg C, Denmark ^[4] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86280, Tabasco, México
Resumen	The objective of this study was to determine the tissue composition of the carcass of growing New Zealand White rabbits based on the shoulder and neck traits (weight, meat and bone weights). Live weight and characteristics of dissected meat and bone tissues (neck, breast, rib, loin, shoulder, and leg) of 80 rabbits were recorded. Total carcass tissue weights (carcass fat weight, carcass meat weight - CMW, and carcass bone weight - CBW) were calculated and correlation and regression analyses were implemented. Shoulder, neck, shoulder meat, bone and neck meat were correlated (P < 0.0001 and < 0.001) with CMW and CBW. In conclusion, cut weights and tissue content of the shoulder and neck provided good predictions for total meat and bone weights of growing New Zealand White rabbits.
Palabras claves	Carcass Performance, Commercial Cuts, Dissection

Revista	JOURNAL OF BIOLOGICAL SYSTEMS
Volumen	30
Número	3
ISSN	ISSN: 0218-3390 eISSN: 1793-6470
DOI	10.1142/S0218339022500206
Título del Artículo	Dynamics of a mathematical model for interaction plant-parasite-trichoderma
Autores e instituciones de adscripción	Jiménez, MF ^[1] ; Blé, G ^[1] ; Falconi, M ^[2] ^[1] UJAT, Div Acad Ciencias Básicas, Km 1 Carretera Cunduacán Jalpa Mandez, Cunduacán 86690, Tabasco, México ^[2] Univ Nacl Autónoma México, Fac Ciencias, Dept Matem, México City 04510, DF, México
Resumen	In this work, the impact of a biological agent (Trichoderma spp.) on the dynamic of a plant-parasite model is analyzed. It is assumed that the plant-Trichoderma spp. relationship is mutualistic, the Trichoderma spp.-parasite relationship is that of predator-prey, and the parasite is specialist. Conditions for pest eradication and for species coexistence are shown.
Palabras claves	Global Dynamics, Prey-Predator, Mutualistic Relationship

Revista	INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS
Volumen	32
Número	2230024
ISSN	ISSN: 0218-1274 eISSN: 1793-6551
DOI	10.1142/S0218127422300245
Título del Artículo	Complex Dynamics on a Discrete Tritrophic Model of Leslie Type with General Functional Responses
Autores e instituciones de adscripción	Blé, G ^[1] ; De la-Rosa, MA ^[2] [1] UJAT, Div Acad Ciencias Básicas, Km 1, Carretera CunduCONACyT UJAT, Div Acad Ciencias Básicas, Km 1, Carretera Cunduacán Jalpa de Méndez, Cunduacán 86690, Tabasco, Méxicoocan Jalpa de Méndez, Cunduacán 86690, Tabasco, México [2] CONACyT UJAT, Div Acad Ciencias Básicas, Km 1, Carretera Cunduacán Jalpa de Méndez, Cunduacán 86690, Tabasco, México
Resumen	In this paper, by averaging the growth rate on each state, we analyze the dynamics of a discrete dynamical system coming from a system of ODEs. This differential system corresponds to a tritrophic Leslie type model which is formed by three populations (prey (P), mesopredator (MP) and superpredator (SP)), where the last two populations are generalist predators. We give sufficient conditions where the discrete model undergoes a Neimark-Sacker bifurcation at a coexistence point. This analysis is independent of the functional responses that govern the interactions. To illustrate our results, several applications are given, under the assumptions that the population P has logistic growth and that the relations MP-P and SP-MP are carried out through Holling type functional responses. From these applications, we conclude that there are sufficient conditions to guarantee that the three species coexist by means of a supercritical Neimark-Sacker bifurcation. Moreover, numerically we can detect that the discrete system exhibits a chaotic behavior.
Palabras claves	Predator-prey System, Chaos Control, Bifurcations

Revista	FRONTIERS IN IMMUNOLOGY
Volumen	13
Número	n/a
ISSN	1664-3224
DOI	10.3389/fimmu.2022.943563
Título del Artículo	Clinical and immunological features associated to the development of a sustained immune humoral response in COVID-19 patients: Results from a cohort study
Autores e instituciones de adscripción	Torres-Ruiz, J ^[1] ; Lomelin-Gascon, J ^[2] ; Vargas-Castro, AS ^[1] ; Lira-Luna, J ^[1,3] ; Pérez-Fragoso, A ^[1,4] ; Tapia-Conyer, R ^[2,5] ; Núñez-Aguirre, M ^[1,4] ; Alcalá-Carmona, B ^[1,4] ; Absalon-Aguilar, A ^[1,6] ; Maravillas-Montero, JL ^[7, 8] [1] Inst Nacl Ciencias Med & Nutr Salvador Zubiran, Dept Immunol & Rheumatol, México City, DF, México [2] Carlos Slim Fdn, Operat Solut, México City, DF, México [3] Inst Politecn Nacl IPN, Escuela Super Med, Secc Estudios Posgrad & Invest, México City, DF, México [4] Inst Politecn Nacl, Escuela Nacl Ciencias Biol, Ciencias Quimicobiol, Lab Inmunoquim 1, México City, DF, México [5] Univ Nacl Autónoma México, Fac Med, México City, DF, México [6] Inst Nacl Ciencias Med & Nutr Salvador Zubiran, Internal Med Dept, México City, DF, México [7] Univ Nacl Autónoma México, Red Apoyo Invest, México City, DF, México [8] Inst Nacl Ciencias Med & Nutr Salvador Zubiran, México City, DF, México [9] London Sch Hyg & Trop Med, Clin Res, London, England [10] Hipodromo Amer, Temporary COVID 19 Hosp, México City, DF, México [11] Juárez Autonomous Univ Tabasco, Div Hlth Sci, Villahermosa, Tabasco, México [12] Univ Guadalajara, Ctr Univ Ciencias Salud CUCS, Guadalajara, Jalisco, México
Resumen	BackgroundUntil now, most of the research addressing long-term humoral responses in coronavirus disease 2019 (COVID-19) had only evaluated the serum titers of anti-severe acute respiratory syndrome coronavirus 2 (SARS-

Resumen	CoV-2) IgGs, without the assessment of the baseline antiviral clinical and immune profile, which is the aim of this study and may be the key factor leading to a broad and sustained antibody response. MethodsWe included 103 patients with COVID-19. When the patients sought medical attention (baseline), a blood sample was drawn to perform immunophenotype of lymphocytes by flow cytometry. The patients were assessed 15 days after baseline and then every month until the third month, followed by a last visit 6 months after recruitment. We evaluated the anti-SARS-COV-2 IgG at all time points, and the serum levels of cytokines, chemokines, anti-cellular (AC) antibodies and neutrophil extracellular traps were also assessed during the follow-up. The primary outcome of the study was the presence of a sustained immune humoral response, defined as an anti-SARS-CoV-2 IgG titer >4.99 arbitrary units/mL in at least two consecutive measures. We used generalized lineal models to assess the features associated with this outcome and to assess the effect of the changes in the cytokines and chemokines throughout time on the development of a sustained humoral immune response. ResultsAt baseline the features associated to a sustained immune humoral response were the diagnosis of critical disease, absolute number of lymphocytes, serum IP-10, IL-4, IL-2, regulatory T cells, CD8(+) T cells, and positive AC antibodies. Critical illness and the positivity of AC antibodies were associated with a sustained humoral immune response after 3 months, whilst critical illness and serum IL-13 were the explanatory variables after 6 months. ConclusionA sustained immune humoral response is strongly related to critical COVID-19, which is characterized by the presence of AC antibodies, quantitative abnormalities in the T cell compartment, and the serum cytokines and chemokines during acute infection and throughout time.
Palabras claves	SARS-CoV-2, Humoral Response, COVID-19

Revista	JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY
Volumen	104
Número	1
ISSN	ISSN: 0928-0707 eISSN: 1573-4846
DOI	10.1007/s10971-022-05922-w
Título del Artículo	Antiproliferative effect of 1,10-Phenanthroline coupled to sulfated ZnO nanoparticles in SiHa cervix cancer cell line
Autores e instituciones de adscripción	Ramón, LA ^[1] ; Hernández, END ^[2] ; González, RL ^[1] ; Landero, MFH ^[2] ; Owen, PQ ^[3] ; Mendoza, CG ^[1] ; Mendoza, GM ^[1,4] ; Lemus, MAA ^[1] [1] Univ Juárez Autónoma Tabasco, Lab Nanotecnol, Div Academ Ingn & Arquitectura, Km 1 Carr Cunduacán Jalpa Méndez Col Esmeralda, Cunduacán 86690, México [2] Univ Juárez Autónoma Tabasco, Lab Epigenet & Biol Mol Canc, Div Academ Multidisciplinaria Comalcalco, Rancheria Sur 4a Secc, Comalcalco 86630, México [3] Ctr Invest & Estudios Avanzados IPN Unidad Mérida, Dept Fis Aplicada, AP 73 Cordemex, Mérida 97310, México [4] Univ Autónoma Metropolitana Iztapalapa, ECOCATAL, Dept Quim, Av Ferrocarril San Rafael Atlixco,186, Col Leyes R, Ciudad De México 09310, México
Resumen	During the last decade, nanosized zinc oxide (ZnO) particles have been explored as antiproliferative agents in some cancer cell lines. In this research we propose the surface modification of ZnO with sulfate groups and 1,10-Phenanthroline as antiproliferative agent against SiHa cervical cancer cell line. The ZnO nanoparticles were prepared by two different methods: sol-gel (SG) and precipitation (P). By using sulfate as surface modifier, the anchoring of 1,10-Phenanthroline (Phen) was achieved by wet impregnation. The sol-gel samples showed hexagonal tube-shaped particles of around 100 nm in width, whereas the precipitation method promoted the formation of sphere-like particles with

Resumen	diameters ranging from 20 to 80 nm. The assessment of zeta potential and hydrodynamic size showed the variations due to the surface modifications exhibiting values ranging from -9.9 to -12.4 mV when dispersed in DMEM medium. The in vitro assays revealed the synergistic effect of the modified nanoparticles, which promoted apoptosis and inhibited 65% of cell proliferation in SiHa cell line.
Palabras claves	Zinc-Oxide Nanoparticles, Silica Nanoparticles, Cytotoxicity

Revista	BUILDINGS
Volumen	12
Número	8
ISSN	2075-5309
DOI	10.3390/buildings12081155
Título del Artículo	Analysis of Energy and Environmental Indicators for Sustainable Operation of Mexican Hotels in Tropical Climate Aided by Artificial Intelligence
Autores e instituciones de adscripción	Torres, SGM ^[1] ; Tzuc, OM ^[1] ; Aguilar-Castro, KM ^[2] ; Tellez, MC ^[1] ; Sierra, JO ^[1] ; Cruz, ADCY ^[1] ; Barrera-Lao, FJ ^[1] <small>[1] Univ Autónoma Campeche, Fac Ingn, Campus 5, Av Humberto Lanz, San Francisco Campeche 24085, Campeche, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ingn & Arquitectura, Unidad Chontalpa, Cunduacán Jalpa Méndez Km 1, Cunduacán 86690, Tabasco, México</small>
Resumen	This study assessed the energy-use index and carbon-footprint performance of nine medium-category Mexican hotels (two-four stars) located in tropical-climate regions. The consumption of electrical and thermal energies of each hotel was collected during audits. Based on this, various scenarios of the partial replacement of the most energy-consuming devices were evaluated and synthesized in an expert model based on artificial neural networks. The artificial-intelligence model was designed to simultaneously associate the energy-consumption indicators, environmental impact, and economic savings of hotels based on their category, location, room number, number of existing electrical or thermal devices, and their percentage of substitution with more energy-efficient technologies. The model was used to compare the various partial-technology-substitution alternatives in each hotel that could reduce energy consumption and CO ₂ emissions based on the current values reported by the energy-use and environmental-impact indicators. The results of the proposed approach showed that even without making total replacements of equipment such as interior and exterior lighting or air conditioners, it was possible to identify configurations that could reduce the hotels' energy use per room-year by 9-12%. In the environmental case, using more efficient technologies could reduce environmental mitigation. The proposed methodology represents an attractive option to facilitate the analyses and the decision making of administrators according to the needs of the type of hotel to improve its performance, which also affects the reduction in operating costs.
Palabras claves	Performance, Consumption, Efficiency

Revista	BRAZILIAN JOURNAL OF PSYCHIATRY
Volumen	44
Número	2
ISSN	ISSN: 1516-4446 eISSN: 1809-452X
DOI	10.1590/1516-4446-2020-1546
Título del Artículo	Association of FAAH p. Pro129Thr and COMT p. Ala72Ser with schizophrenia and comorbid substance use through next-generation sequencing: an exploratory analysis

Autores e instituciones de adscripción	Martínez-Magaña, JJ ^[1,2] ; Genis-Mendoza, AD ^[2,3] ; González-Covarrubias, V ^[4] ; Juárez-Rojop, IE ^[1] ; Tovilla-Zárate, CA ^[5] ; Soberon, X ^[4] ; Lanzagorta, N ^[6] ; Nicolini, H ^[1,6] <small>[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Salud, Villahermosa, Tabasco, México [2] Inst Nacl Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, Perifer Sur 4809, Ciudad De México 14610, México [3] Hosp Psiquiatr Infantil Juan N Navarro, Serv Atenc Psiquiatr, Ciudad De México, México [4] Inst Nacl Med Genom, Lab Farmacogenom, Ciudad De México, México [5] Univ Juárez Autónoma Tabasco, Div Multidisciplinaria Comalcalco, Comalcalco, México [6] Grp Estudios Med & Familiares Carracci, Ciudad De México, México</small>
Resumen	Objective: Individuals with schizophrenia and substance use disorders have a poor prognosis and increased psychiatric symptoms. The present study aimed to explore the association of 106 genes in individuals with schizophrenia and comorbid substance use through a next-generation sequencing (NGS) analysis and different in silico algorithms. Methods: We included 105 individuals diagnosed with schizophrenia and a family history of schizophrenia, of whom 49 (46.67%) presented comorbid substance use. Using NGS, we sequenced 106 genes previously associated with schizophrenia. Logistic regression models were used to assess differences in allele frequencies, and a generalized gene-set analysis was performed at the gene level. Functional annotations were performed using different algorithms and databases. Results: We identified a total of 3,109 variants, of which 25 were associated with schizophrenia and comorbid substance use and were located in regulatory and coding regions. We found low-frequency variants in COMT p.Ala72Ser, independently of p.Val158Met, that were associated with substance use. The endocannabinoid functional variant FAAH p.Pro129Thr was also associated with substance use. Conclusions: Genetic variants of genes related to dopaminergic and cannabinoid neurotransmitter systems were associated with comorbid substance use in schizophrenia. Nevertheless, more studies with larger sample sizes are needed to confirm our findings.
Palabras claves	Psychiatric-Disorders, Missing Heritability, Alcohol Dependence

Revista	ITALIAN JOURNAL OF ANIMAL SCIENCE
Volumen	21
Número	1
ISSN	ISSN: 1594-4077 eISSN: 1828-051X
DOI	10.1080/1828051X.2021.2002731
Título del Artículo	Using the 9th-11th rib section to predict carcass tissue composition in Blackbelly sheep
Autores e instituciones de adscripción	Escalante-Clemente, S ^[1] ; Vázquez-Jiménez, S ^[1] ; López-Duran, SK ^[1] ; Arcos-Álvarez, DN ^[2] ; Arbez-Abnal, TA ^[2] ; Pineiro-Vázquez, AT ^[2] ; Muñoz-Benítez, AL ^[3] ; Vargas-Bello-Pérez, E ^[4] ; Chay-Canul, AJ ^[1] <small>[1] Univ Juárez Autónoma Tabasco, Colonia Ctr Tabasco, Div Academ Ciencias Agr, Km 25 Carretera Villahermosa Teapa, Villahermosa 86040, Tabasco, México [2] Tecnol Nacl México IT Conkal, Km 16-3 Antigua Carretera Mérida Motul, Conkal, México [3] Univ Autónoma Estado Hidalgo, Inst Ciencias Agr, Av Univ Km 1, Tulancingo De Bravo, Hidalgo, México [4] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, DK-1870 Frederiksberg C, Denmark</small>
Resumen	The study aimed at developing predictive equations to estimate carcass tissue composition in Blackbelly sheep using the 9th–11th rib section and to evaluate its accuracy and precision. Twenty male growing Blackbelly sheep with a bodyweight (BW) of 29 ± 3 kg were slaughtered. Data from carcass and non-carcass components were recorded. Thereafter, the left half carcass was weighed and dissected to record weights of fat (CF), muscle (CM), and bone (CB). Also, the

Resumen	9th–11th section was dissected for muscle, fat and bone (MRib, FRib, BRib, respectively). The MRib and FRib were moderate to highly correlated ($p < .001$) with CM and the r values ranged from 0.47 to 0.82, while the FRib and the CF were positive correlated ($r = 0.68, p < .001$). Also the left half carcass weight (LHCW) was positively correlated ($p < .001$) with carcass tissues and the r values ranged from 0.57 for CF to 0.93 CM. Regression equations developed for predicting CM, CF and CB in Blackbelly sheep using the 9th–11th rib section had an r^2 that ranged from 0.61 to 0.90. Predictions had moderate to high precision ($r^2 > 0.59 \leq$ and ≤ 0.92). All equations had high accuracy (> 0.96), moderate to high reproducibility index and concordance ($CCC > 0.74$ and ≤ 0.96) and moderate to high efficiency of prediction (from 0.58 to 0.91). Overall, results showed that the 9th–11th rib section could accurately be used as an option for predicting carcass tissue composition in Blackbelly sheep.
Palabras claves	Carcass Characteristics, Ovine Carcasses, Wholesale Cuts

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Volumen	21
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ISSN	ISSN:1594-4077 eISSN:1828-051X
DOI	10.1080/1828051X.2021.2018363
Título del Artículo	Prediction of carcass characteristics using neck traits from hair-sheep ewes
Autores e instituciones de adscripción	Rivera-Alegria, FD ^[1] ; Rios-Rincon, FG ^[2] ; Macías-Cruz, U ^[3] ; García-Herrera, RA ^[1] ; Herrera-Camacho, J ^[4] ; Benaouda, M ^[5] ; Ángeles-Hernández, JC ^[6] ; Munoz-Benítez, AL ^[6] ; Vargas-Bello-Pérez, E ^[7] ; Chay-Canul, AJ ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa, Tabasco, México [2] Univ Autónoma Sinaloa, Fac Med Vet & Zootecnia, Culiacan, Sinaloa, México [3] Univ Autónoma Baja California, Inst Ciencias Agr, Mexicali, Baja California, México [4] Univ Michoacána, Inst Invest Agr & Forestales, Tarimbaro, Michoacán, México [5] AgroSup Dijon, Dijon, France [6] Univ Autónoma Estado Hidalgo, Inst Ciencias Agr, Av Univ Km 1, Tulancingo De Bravo, México [7] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Frederiksberg, Denmark
Resumen	The objective of this study was to develop predictive equations for carcass composition using neck tissue composition as predictors in multiparous Pelibuey ewes ($n=50$, body weight = 39 ± 7 kg and body condition score = 2.56 ± 0.98 points) were used to develop predictive equations for carcass tissue composition and weight from neck composition traits applying multiple linear regression. The accuracy of the model was evaluated considering the values of determination coefficient (r^2) and root mean square error (RMSE). Carcass and neck traits showed a positive relationship ($p < .01$) and the correlation coefficient (r) ranged from 0.44 to 0.78, being stronger for hot (HCW) and cold (CCW) carcass weights with neck traits. Except for neck bone weight, all neck traits resulted to be suitable predictor variables ($p < .0001$) for carcass muscle (MW) and fat (FW) weight as r^2 values ranged from 0.63 to 0.74. In the equation for carcass bone weight, only neck muscle weight was a predictor. However, r^2 value was low ($r^2 = 0.29; p < .0001$). Overall, results suggest that carcass and neck traits showed a positive relationship. The weight of the neck and its content of muscle and fat could be used to predict the composition of the carcass tissue in non-pregnant and non-lactating multiparous Pelibuey ewes.
Palabras claves	Carcass Characteristics, Ovine Carcasses, Tissue Composition

Revista	FISHES
Volumen	7
Número	1
ISSN	2410-3888
DOI	10.3390/fishes7010016
Título del Artículo	Larval Development in Tropical Gar (<i>Atractosteus tropicus</i>) is dependent on the Embryonic Thermal Regime: Ecological implications under a Climate Change Context
Autores e instituciones de adscripción	De la Cruz, SCE ^[1] ; Riesco, MF ^[2] ; Martínez-Bautista, G ^[3] ; Calzada-Ruiz, D ^[1] ; Martínez-Burguete, T ^[1] ; Peña-Marín, ES ^[1,5] ; Álvarez-González, CA ^[1] ; Fernández, I ^[4] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa 86040, Tabasco, México [2] Univ Leon, Mol Biol Dept, Cell Biol Area, Campus Vegazana S-N, Leon 24071, Spain [3] Univ North Texas, Dept Biol Sci, Dev Integrat Biol Res Grp, Dev Physiol Lab, Denton, TX 76203 USA [4] Ctr Oceanog Vigo, Inst Espanol Oceanog IEO CSIC, Vigo 36390, Spain [5] Catedra CONACYT UJAT, Villahermosa 86040, Tabasco, México
Resumen	In ectotherm species, environmental temperature plays a key role in development, growth, and survival. Thus, determining how temperature affects fish populations is of utmost importance to accurately predict the risk of climate change over fisheries and aquaculture, critical to warrant nutrition and food security in the coming years. Here, the potential effects of abnormal thermal regimes (24, 28 and 32°C; TR24, TR28, and TR32, respectively) exclusively applied during embryogenesis in tropical gar (<i>Atractosteus tropicus</i>) has been explored to decipher the potential consequences on hatching and growth from fertilization to 16 days post-fertilization (dpf), while effects on skeletal development and body morphology were explored at fertilization and 16 dpf. Egg incubation at higher temperatures induced an early hatching and mouth opening. A higher hatching rate was obtained in eggs incubated at 28°C when compared to those at 24°C. No differences were found in fish survival at 16 dpf, with values ranging from 84.89 to 88.86%, but increased wet body weight and standard length were found in larvae from TR24 and TR32 groups. Thermal regime during embryogenesis also altered the rate at which the skeletal development occurs. Larvae from the TR32 group showed an advanced skeletal development, with a higher development of cartilaginous structures at hatching but reduced at 16 dpf when compared with the TR24 and TR28 groups. Furthermore, this advanced skeletal development seemed to determine the fish body morphology. Based on biometric measures, a principal component analysis showed how along development, larvae from each thermal regime were clustered together, but with each population remaining clearly separated from each other. The current study shows how changes in temperature may induce craniofacial and morphological alterations in fish during early stages and contribute to understanding the possible effects of global warming in early development of fish and its ecological implications
Palabras claves	Temperature Skeletal Development, Ossification

Revista	SWARM AND EVOLUTIONARY COMPUTATION
Volumen	69
Número	n/a
ISSN	ISSN: 2210-6502 eISSN: 2210-6510
DOI	10.1016/j.swevo.2021.101006
Título del Artículo	Induction of decision trees as classification models through metaheuristics

Autores e instituciones de adscripción	<p>Rivera-López, R ^[1]; Canul-Reich, J ^[2]; Mezura-Montes, E ^[3]; Cruz-Chávez, MA ^[4]</p> <p>[1] Inst Tecnol Veracruz, Dept Sistemas & Computac, Tecnol Nacl México, MA Quevedo 2779, Col, Formando Hogar 91800, Veracruz, México</p> <p>[2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias & Tecnol Informac, Km 1 Carretera Cunduacán Jalpa Méndez, Cunduacán 86690, TAB, México</p> <p>[3] Univ Veracruzana, Ctr Invest Inteligencia Artificial, Sebastian Camacho 5, Ctr, Xalapa 91000, Veracruz, México</p> <p>[4] Univ Autónoma, Ctr Invest Ingn & Ciencias Aplicadas, Col Chamilpa, Estado Morelos Av Univ 1001, Cuernavaca 62209, Morelos, México</p>
Resumen	<p>The induction of decision trees is a widely-used approach to build classification models that guarantee high performance and expressiveness. Since a recursive-partitioning strategy guided for some splitting criterion is commonly used to induce these classifiers, overfitting, attribute selection bias, and instability to small training set changes are well-known problems in them. Other approaches, such as incremental induction, classifier ensembles, and the global search in the decision-tree-space, have been implemented to overcome these problems. In particular, metaheuristics such as simulated annealing, genetic algorithms, genetic programming, and ant colony optimization have been used to induce compact and accurate decision trees. This paper presents a state-of-the-art review of the use of single-solution-based metaheuristics and swarm and evolutionary computation algorithms to build decision trees as classification models. We outline the decision-tree-induction process components and detail the existing literature studies on metaheuristic-based approaches to building these classifiers. Several timelines showing the chronological order in which these approaches were introduced in the literature are included. A summary analysis of these studies is also conducted, focusing on their internal components and experimental studies. This work provides a useful reference point for future research in this field.</p>
Palabras claves	Machine learning, Single-solution-based metaheuristics, Evolutionary algorithms

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Volumen	78
Número	2
ISSN	ISSN: 0043-9339 eISSN: 1743-4777
DOI	10.1080/00439339.2022.2028217
Título del Artículo	Guajolote - A poultry genetic resource native to México
Autores e instituciones de adscripción	<p>Portillo-Salgado, R ^[1]; Haro, JGH ^[1]; Bautista-Ortega, J ^[2]; Chay-Canul, AJ ^[3]; Vázquez, FAC ^[4]</p> <p>[1] Colegio Postgrad, Programa Ganadería, Campus Montecillo, Texcoco 56230, Edo De México, México</p> <p>[2] Colegio Postgrad, Dept Ciencias Agr, Campus Campeche, Champoton, México</p> <p>[3] Univ Juárez Autónoma Tabasco, Div Acad, Villahermosa, Tabasco, México</p> <p>[4] Univ Autónoma Chiapas, Escuela Estudios Agr Mezcalapa, Carretera Chicoasen, Malpaso Km 24,3, San Miguel El Coca Copai 29625, Chiapas, México</p>
Resumen	<p>The Guajolote is a native North American poultry, originally domesticated in México, from where it was exported to Europe, and from there to the rest of the world, becoming the genetic base of the breeds and varieties of turkeys that are known in the present. However, the phenotypic and productive characteristics of Guajolotes have been poorly studied, which has limited its racial recognition. This review describes the current knowledge on the historical distribution, morphological, morphometric and phaneroptical characteristics of Guajolotes, as well as the productive performance and quality attributes of Guajolote meat and eggs. Due to the long process of evolution, Guajolotes have a good capacity for</p>

Resumen	<p>adaptation and high rusticity that allows it to reproduce under different environmental and management conditions. It has unique morphological peculiarities and great variability in terms of its morphometric and phaneroptical descriptors. This bird has a marked sexual dimorphism in favor of males. Females are excellent natural incubators, they start laying from between 6 and 8 months of age, laying an average of 16.7 +/- 3.6 eggs per laying season. Males have a good capacity to convert food into meat and can reach a live weight of between 5499 +/- 148 to 5835 +/- 173 g at week 30 of age, having a carcass yield of 79%. The nutritional quality of meat and eggs of Guajolote is even higher than that of chicken. In conclusion, Guajolotes are poultry with characteristics of high biological and productive value; however, better management strategies are required to maximize its genetic potential for the benefit of the food security of small and mid-size producers that depend on this poultry genetic resource.</p>
Palabras claves	Backyard Poultry Farming, Native Guajolote, Poultry Genetic Resource

Revista	SENSORS
Volumen	22
Número	10
ISSN	1424-8220
DOI	10.3390/s22103655
Título del Artículo	Fuzzy System to Assess Dangerous Driving: A Multidisciplinary Approach
Autores e instituciones de adscripción	<p>Ronquillo-Cana, CJ ^[1]; Pancardo, P ^[1]; Silva, M ^[1]; Hernández-Nolasco, JA ^[1]; García-Constantino, M ^[2]</p> <p>[1] Juárez Autonomous Univ Tabasco, Acad Div Informat Sci & Technol, Cunduacán 86690, Tabasco, México</p> <p>[2] Ulster Univ, Sch Comp, Jordanstown BT37 0QB, North Ireland</p>
Resumen	<p>Dangerous driving can cause accidents, injuries and loss of life. An efficient assessment helps to identify the absence or degree of dangerous driving to take the appropriate decisions while driving. Previous studies assess dangerous driving through two approaches: (i) using electronic devices or sensors that provide objective variables (acceleration, turns and speed), and (ii) analyzing responses to questionnaires from behavioral science that provide subjective variables (driving thoughts, opinions and perceptions from the driver). However, we believe that a holistic and more realistic assessment requires a combination of both types of variables. Therefore, we propose a three-phase fuzzy system with a multidisciplinary (computer science and behavioral sciences) approach that draws on the strengths of sensors embedded in smartphones and questionnaires to evaluate driver behavior and social desirability. Our proposal combines objective and subjective variables while mitigating the weaknesses of the disciplines used (sensor reading errors and lack of honesty from respondents, respectively). The methods used are of proven reliability in each discipline, and their outputs feed a combined fuzzy system used to handle the vagueness of the input variables, obtaining a personalized result for each driver. The results obtained using the proposed system in a real scenario were efficient at 84.21%, and were validated with mobility experts' opinions. The presented fuzzy system can support intelligent transportation systems, driving safety, or personnel selection.</p>
Palabras claves	AHP, Dangerous Driving, Driver Behavior

Revista	JOURNAL OF FUNGI
Volumen	8
Número	1
ISSN	2309-608X
DOI	10.3390/jof8010022
Título del Artículo	Enzymatic Bioprospecting of Fungi Isolated from a Tropical Rainforest in México
Autores e instituciones de adscripción	Peraza-Jiménez, K ^[1] ; de la Rosa-García, S ^[1] ; Huijara-Vasconcelos, JJ ^[2] ; Reyes-Estebanez, M ^[3] ; Gómez-Cornelio, S ^[4] <small>[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Lab Microbiol Aplicada, Villahermosa 86150, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86298, Tabasco, México [3] Univ Autónoma Campeche, Lab Microbiol Ambiental & Biotecnol, Campeche 24039, México [4] Univ Politéc Ctr, Ingn Biotecnol, Villahermosa 86290, Tabasco, México</small>
Resumen	The humid tropical environment provides an ideal place for developing a high diversity of plants; this is why it is an interesting site for the enzymatic bioprospecting of fungi that are responsible for the recycling of organic matter in an efficient and accelerated way and whose enzymes could have multiple biotechnological applications. For this study, 1250 isolates of macroscopic and microscopic fungal morphotypes were collected from soil, leaf litter, and wood. One hundred and fifty strains (50 from each source) were selected for the enzymatic screening. From the first phase, 51 strains with positive activity for laccase, protease, amylase, xylanase, and lipase enzymes were evaluated, of which 20 were isolated from leaf litter, 18 from the soil, and 13 from wood. The 10 best strains were selected for the enzymatic quantification, considering the potency index and the production of at least two enzymes. High laccase activity was detected for <i>Trametes villosa</i> FE35 and <i>Marasmius</i> sp. CE25 (1179 and 710.66 U/mg, respectively), while <i>Daedalea flavida</i> PE47 showed laccase (521.85 U/mg) and protease activities (80.66 U/mg). <i>Fusarium</i> spp. PH79 and FS400 strains had amylase (14.0 U/mg, 49.23 U/mg) and xylanase activities (40.05 U/mg, 36.03 U/mg) respectively. These results confirm the enzymatic potential of fungi that inhabit little-explored tropical rainforests with applications in industry.
Palabras claves	Hydrolases, Oxidoreductases, Enzyme Extracellular

Revista	NOTULAE BOTANICAE HORTI AGROBOTANICI CLUJ-NAPOCA
Volumen	50
Número	1
ISSN	ISSN: 0255-965X eISSN: 1842-4309
DOI	10.15835/nbha50112657
Título del Artículo	Copper oxide nanoparticles biosynthesized improve germination and bioactive compounds in wheat sprouts
Autores e instituciones de adscripción	Ortega-Ortiz, H ^[1] ; Gaucin-Delgado, JM ^[2] ; Preciado-Rángel, P ^[2] ; Fortis-Hernández, M ^[2] ; Hernández-Montiel, LG ^[3] ; De la Cruz-Lázaro, E ^[4] ; Lara-Capistran, L ^[5] <small>[1] Appl Chem Res Ctr, Dept Adv Mat, Enrique Reyna H 140, Saltillo 25294, Coahuila, México [2] Natl Technol Inst México, Torreon Technol Inst, Carretera Torreon San Pedro Km 7-5, Torreon 27170, Coahuila, México [3] Biol Res Ctr Northwest, Av Politecn Nacl 195, La Paz 23090, Baja California, México [4] Juárez Autonomous Univ Tabasco, Acad Div Agr Sci, Km 25, Villahermosa Teapa Highway, Villahermosa 86280, Tabasco, México [5] Veracruzana Univ, Gonzalo Aguirre Beltran Univ Circuit S-N, Xalapa, Veracruz, México</small>
Resumen	Metal nanoparticles have many positive effects in improving crop production and productivity and allow for increased germination and rapid crop establishment under field conditions. The metallic nanoparticles applied in this study were

Resumen	copper oxide nanoparticles (CuONPs) biosynthesized using orange peel (<i>Citrus X sinensis</i>) as a reducing agent to avoid or reduce toxicity in wheat seeds and sprouts. This study determined the effect of CuONPs on germination, radicle and plumule length, as well as the production of phytochemical compounds in wheat sprouts. The seeds were treated with suspensions of CuONPs at the following concentrations: 0, 0.5, 1, 2, 4 and 6 mg mL ⁻¹ . The results indicate that the use of low doses of CuONPs (0.5 mg mL ⁻¹), improved germination, vigor, plumule and radicle length, in addition to increasing the biosynthesis of phytochemical compounds in wheat shoots. A high concentration of CuONPs (6 mg mL ⁻¹) causes inhibitory effects due to Cu accumulation and phytotoxicity in plant tissue. The use of CuONPs for green synthesis is a viable alternative to obtain beneficial effects in germination and seedling development, as well as greater secondary metabolite production.
Palabras claves	Antioxidants, Biosynthesized, Cuonps

Revista	JOURNAL OF BIOENERGETICS AND BIOMEMBRANES
Volumen	54
Número	3
ISSN	ISSN: 0145-479X eISSN: 1573-6881
DOI	10.1007/s10863-022-09937-4
Título del Artículo	Chronic exposition to ozone induces cardiac antioxidant response and overexpression of either mitochondrial fission protein DRP1 and hipertrophyc-related proteins
Autores e instituciones de adscripción	Gómez-Crisostomo, NP ^[1] ; Rivas-Arancibia, S ^[2] ; Rodríguez-Martínez, E ^[2] ; De la Cruz-Hernández, EN ^[1] ; Álvarez, CDM ^[1] ; Caraveo, PAE ^[1] ; Herrera, NG ^[3] ; Valdés-Fuentes, M ^[2] ; Martínez-Abundis, E ^[1] <small>[1] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Comalcalco, Lab Invest Enfermedades Metab & Infecciosas, Cuarta Secc, Comalcalco 86650, Tabasco, México [2] Univ Nacl Autónoma México, Fac Med, Dept Fisiol, Circuito Externo S-N, Cd Univ, Ciudad De México 04510, Cdmx, México [3] Inst Neurol & Neurocirugia, Dept Patol, Ciudad De México, México</small>
Resumen	Pollution is considered a risk factor for cardiovascular disease; however, the mechanisms to explain this relationship are not well understood; ozone is one of the most abundant and studied air contaminants. Our study aimed to evaluate the effect of chronic exposition of rats to controlled low doses of ozone on oxidative stress, apoptosis, mitochondrial dynamics, and cardiac hypertrophy. Male Wistar rats were daily exposed to low ozone doses during 7, 15, 30, and 60 days, 4 h/day. Hearts were dissected, and homogenates were prepared. Oxidative stress was evaluated by TBARS and protein nitrosylation in addition to Superoxide dismutase 1 (SOD1) and Catalase levels; the apoptosis related-proteins caspase 3, caspase 9, Bax, Bcl-2, and the mitochondrial dynamic-associated proteins Fis1, Drp1, OPA1, and Mfn1 were quantified by western blot among the cardiac hypertrophy indicator alpha-actin (cardiac actin). There were no changes in the oxidative stress markers, however SOD1 expression increases. Caspase 3 expression decreased, whereas caspase 9 increased without changes in Bax or Bcl-2. Mitochondrial fission may be favored according to the increased expression of Drp1 but not changes in fusion-related proteins OPA1 and Mfn1. Finally, the molecular marker for cardiac hypertrophy was overexpressed after 30 and 60 days of ozone exposition. The chronic exposition to ozone induces a deleterious effect on cardiac mitochondria. Antioxidant defenses also show changes in relation to exposure time, as well as an apparent pro-hypertrophic effect associated with altered mitochondrial dynamics.
Palabras claves	Oxidative Stress, Pollution, Cardiac Hypertrophy

Revista	ENERGY
Volumen	246
Número	n/a
ISSN	ISSN: 0360-5442 eISSN: 1873-6785
DOI	10.1016/j.energy.2022.123412
Título del Artículo	Annual thermal evaluation of a ventilated roof under warm weather conditions of México
Autores e instituciones de adscripción	Lima-Tellez, T ^[1] ; Chavez, Y ^[2] ; Hernández-López, I ^[1] ; Xaman, J ^[2] ; Hernández-Pérez, I ^[3] [1] Univ Sonora, Col Ctr, UNISON, Blvd Luis Encinas & Rosales S-N, Hermosillo 83000, Sonora, México [2] Tecnol Nacl México CENIDET, Prol Av Palmira S-n, Cuernavaca 62490, Morelos, México [3] Univ Juárez Autónoma Tabasco, Div Academ Ingn & Arquitectura DAIA UJAT, Carretera Cunduacán Jalpa Méndez Km 1, Cunduacán 86690, Tabasco, México
Resumen	An annual thermal evaluation of a ventilated roof (VR) for energy-saving purposes in two Mexican cities with warm weather is presented. It was developed a numerical code based on the global energy balance method to predict the thermal behavior of the VR. The code was verified, and it showed a good agreement with data reported in the literature. Weather data of the coldest and warmest days of each month for the two cities were provided to the numerical code as boundary conditions to perform the simulations. Thus, to quantify the benefits of using the VR, it was compared with a conventional roof (CR). The results showed that the implementation of VR significantly reduces the annual total heat gain by up to 50 and 60% for the climates BWh and Aw, respectively. In addition, it was found that for both climates the payback period of VR is smaller than a year and a half. In this way, VR is a passive technology with high potential to reduce the energy consumption for thermal comfort in buildings at a relatively low cost.
Palabras claves	Double Skin Roof, Ventilated Roof, Energy Saving

Revista	NANOMATERIALS
Volumen	12
Número	12
ISSN	2079-4991
DOI	10.3390/nano12122017
Título del Artículo	γ-Valerolactone Production from Levulinic Acid Hydrogenation Using Ni Supported Nanoparticles: Influence of Tungsten Loading and pH of Synthesis
Autores e instituciones de adscripción	Córdova-Pérez, GE ^[1] ; Cortéz-Elizalde, J ^[1] ; Silahua-Pavón, AA ^[1] ; Cervantes-Uribe, A ^[1] ; Arévalo-Pérez, JC ^[1] ; Cordero-García, A ^[1] ; de los Monteros, AEE ^[1] ; Espinosa-González, CG ^[2] ; Godavarthi, S ^[2] ; Ortiz-Chi, F ^[2] ; Guerra-Qué, Z ^[3] ; Torres-Torres, JG ^[1] [1] Univ Juárez Autónoma Tabasco, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, DACB, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, Km 1 Carretera Cunduacán Jalpa Méndez, Cunduacán 86690, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, Div Acad Ciencias Básicas, Km 1 Carretera Cunduacán Jalpa Méndez, Cunduacán 86690, Tabasco, México [3] Tecnol Nacl México Campus Villahermosa, Lab Invest Area Nanotecnol 1, Km 3-5 Carretera Villahermosa Frontera, Villahermosa 86010, Tabasco, México
Resumen	Gamma-Valerolactone (GVL) has been considered an alternative as biofuel in the production of carbon-based chemicals; however, the use of noble metals and corrosive solvents has been a problem. In this work, Ni supported nanocatalysts were prepared to produce gamma-Valerolactone from levulinic acid using

Resumen	methanol as solvent at a temperature of 170 degrees C utilizing 4 MPa of H-2. Supports were modified at pH 3 using acetic acid (CH ₃ COOH) and pH 9 using ammonium hydroxide (NH ₄ OH) with different tungsten (W) loadings (1%, 3%, and 5%) by the Sol-gel method. Ni was deposited by the suspension impregnation method. The catalysts were characterized by various techniques including XRD, N-2 physisorption, UV-Vis, SEM, TEM, XPS, H-2-TPR, and Pyridine FTIR. Based on the study of acidity and activity relation, Ni dispersion due to the Lewis acid sites contributed by W at pH 9, producing nanoparticles smaller than 10 nm of Ni, and could be responsible for the high esterification activity of levulinic acid (LA) to Methyl levulinate being more selective to catalytic hydrogenation. Products and by-products were analyzed by H-1 NMR. Optimum catalytic activity was obtained with 5% W at pH 9, with 80% yield after 24 h of reaction. The higher catalytic activity was attributed to the particle size and the amount of Lewis acid sites generated by modifying the pH of synthesis and the amount of W in the support due to the spillover effect.
Palabras claves	Hydrogenation, Levulinic Acid, γ -Valerolactone

Revista	BRAIN SCIENCES
Volumen	12
Número	5
ISSN	2076-3425
DOI	10.3390/brainsci12050576
Título del Artículo	Weak Hand Grip Strength Is Associated with Alexithymia in Outpatients in a Mexican Population
Autores e instituciones de adscripción	Genis-Mendoza, AD ^[1] ; Fresan, A ^[2] ; González-Castro, TB ^[3] ; Pool-García, S ^[4] ; Tovilla-Zárate, CA ^[5] ; Castillo-Ávila, RG ^[6] ; Arias-Vázquez, PI ^[5] ; López-Narváez, ML ^[7] ; Nicolini, H ^[1] [1] Inst Nacl Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, Ciudad De México 14610, México [2] Inst Nacl Psiquiatria Ramon Fuente Muniz, Subdirecc Invest Clin, Ciudad De México 14370, México [3] Univ Juárez Autónoma Tabasco, Div Academ Multidisciplinaria Jalpa de Méndez, Jalpa De Méndez 86205, México [4] Hosp Gen Comalcalco Dr Desiderio G Rosado Carbaja, Secretaría Salud, Comalcalco 86300, México [5] Univ Juárez Autónoma Tabasco, Div Academ Multidisciplinaria Comalcalco, Comalcalco 86300, México [6] Univ Juárez Autónoma Tabasco, Div Academ Ciencias Salud, Villahermosa 86100, Tabasco, México [7] Hosp Chiapas Nos Dr Gilberto Gómez Maza, Secretaría Salud Chiapas, Tuxtla Gutiérrez 29045, México
Resumen	Hand grip strength has been considered as a possible marker for metabolic and psychiatric disease. To date, however, no research has focused on the association between alexithymia and hand grip strength. The objective of the present study was to investigate the correct association between hand grip strength and alexithymia. A cross-sectional study was carried out in Comalcalco, Tabasco, México. A total of 246 individuals were included. Hand grip strength was evaluated in the dominant hand using a Takei® portable digital dynamometer. Alexithymia was measured using the Toronto Alexithymia Scale (TAS-20). Two linear regression models adjusted by confounders were used to determine the association between alexithymia and hand grip strength. The rate for positive alexithymia was 39.0% (n = 94). Individuals with alexithymia showed a weaker hand grip strength than the comparison group (t = 2.4, 244 df, p = 0.01). Individuals with alexithymia had significantly reduced levels of hand grip strength ($\beta = -0.39 \pm 0.14$; p = 0.006); after additional adjustment for clinical variables, decreased hand grip strength remained ($\beta = 8.00 \pm 1.86$; p \leq 0.001). Our results suggest that a decrease in hand grip strength could be associated with alexithymia. This measurement could be useful as a predictive marker for the identification of alexithymia in Mexican individuals who attend outpatient clinics.
Palabras claves	Alexithymia, Hand Grip Strength, Weak Hand Grip Strength

Revista	ANIMALS
Volumen	12
Número	5
ISSN	2076-2615
DOI	10.3390/ani12050605
Título del Artículo	Using Post-Mortem Measurements to Predict Carcass Tissue Composition in Growing Rabbits
Autores e instituciones de adscripción	Croda-Andrade, AY ^[1] ; Valencia-García, CG ^[1] ; Arbez-Abnal, TA ^[2] ; Portillo-Salgado, R ^[1] ; Estrada-León, RJ (Estrada-Leon, Raciol J.) ^[3] ; Vázquez-Martínez, I ^[4] ; Camacho-Pérez, E ^[5] ; Vargas-Bello-Pérez, E ^[6] ; Chay-Canul, AJ ^[1] ^[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86280, Tabasco, México ^[2] Inst Tecnol Conkal, Tecnol Nacl México, Conkal 97345, México ^[3] Inst Tecnol Super Calkini, CA Bioproc, Tecnol Nacl México, Calkini 24900, México ^[4] Benemerita Univ Autónoma Puebla, Programa Ingn Agroforestal, Complejo Reg Norte, Tetela De Ocampo 73640, México ^[5] Inst Tecnol Super Progreso, Inst Tecnol Nacl México, Progreso 97320, México ^[6] Univ Copenhagen, Dept Vet & Anim Sci, Fac Hlth & Med Sci, DK-1870 Frederiksberg C, Denmark
Resumen	The objective of this study was to determine post-mortem measurements for predicting carcass traits in growing rabbits. A total of 50 clinically healthy New Zealand White × Californian male rabbits with a body weight (BW) of 1351 ± 347 g between 60 to 80 days of age were used. Body weight was recorded 12 h before slaughtering. Data recorded at slaughtering included carcass weights (HCW). After cooling at 4 °C for 24 h, carcasses were weighed (CCW) and then were carefully split longitudinally with a band saw to obtain left and right halves. In the right half carcass, the following measurements were recorded using a tape measure: dorsal length (DL), thoracic depth (TD), thigh length (TL), carcass length (CL), lumbar circumference (LC). The compactness index (CCI) was calculated as the CCW divided by the CL. Thereafter, the right half carcass was weighed and manually deboned to record weights of muscle (TCM), and bone (TCB). The CCI explained of 93% of variation for TCM ($R^2 = 0.93$ and a CV = 9.30%). In addition, the DL was the best predictor ($p < 0.001$) for TCB ($R^2 = 0.60$ and a CV = 18.9%). Our results indicated that the use of carcass measurements could accurately and precisely ($R^2 = \geq 0.60$ and ≤ 0.95) be used as alternatives to predict the carcass tissues composition in growing rabbits.
Palabras claves	Carcass, Growing Rabbits, Body Muscle

Revista	FOREST SYSTEMS
Volumen	31
Número	1
ISSN	ISSN: 2171-5068 eISSN: 2171-9845
DOI	10.5424/fs/2022311-18291
Título del Artículo	Tree species with potential for reforestation in coastal zones of the humid tropics
Autores e instituciones de adscripción	Vargas-Simón, G ^[1] ; Domínguez-Domínguez, M ^[2] ; Pando-Fernández, V ^[3] ; Martínez-Zurimendi, P ^[3, 4] ^[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Km 0-5 Ctra Villahermosa Cardenas, Villahermosa 86090, Tabasco, México ^[2] Colegio Postgrad, Inst Gest Forestal Sostenible IUFOR, Campus Tabasco, Km 3-5, Carr Cardenas Huimanguillo, Cardenas, Tabasco, México ^[3] Univ Valladolid, INIA, Inst Gest Forestal Sostenible IUFOR, Av Madrid 44, Palencia 34004, Spain ^[4] Colegio Frontera Sur, Ctra Villahermosa Reforma Km 15-5, Secc 2, Villahermosa 86280, Tabasco, México
Resumen	<i>Aim of study:</i> The native species of warm humid climates <i>Ceiba pentandra</i> , <i>Tabebuia rosea</i> , <i>Gliricidia sepium</i> , <i>Enterolobium cyclocarpum</i> and <i>Brosimum alicastrum</i> are often included in Mexican reforestation programs. We evaluated

Resumen	the growth response in sandy soils of these species that could serve as pioneers in the restoration of coastal areas. <i>Area of study:</i> Alluvial plain in Frontera, Tabasco, México. <i>Material and methods:</i> A total of 1080 plants were planted in 2014 and evaluated for 23 months in 30 plots under a randomized block design with six replications. The sample plots each occupied 36 m ² (each with 16 plants). Survival percentage, stem height (SH), basal diameter (BD) and basal area (BA) were quantified. Survival and growth variables were analyzed using logistic regression and ANOVA for repeated measures, respectively. <i>Main results:</i> At the end of the experiment (2016), high survival was demonstrated in <i>G. sepium</i> (88 %) and in <i>C. pentandra</i> (86 %), while <i>B. alicastrum</i> presented total mortality at six months. The highest values of SH and BD were presented in <i>C. pentandra</i> (2.9 m and 7.8 cm, respectively) and in <i>G. sepium</i> (2.6 m and 4.2 cm, respectively). <i>Gliricidia sepium</i> differed significantly from <i>C. pentandra</i> in terms of BA (5.9 vs. 23 m ² ha ⁻¹ , respectively). <i>Research highlights:</i> The native species <i>C. pentandra</i> and <i>G. sepium</i> presented high survival and growth in the sandy soils; <i>G. sepium</i> showed strong adaptation to the environment and <i>C. pentandra</i> offered suitable coverage, characteristics that are necessary for the success of reforestation and restoration programs.
Palabras claves	Basal area, <i>Ceiba pentandra</i> , <i>Gliricidia sepium</i>

Revista	REPRODUCTION IN DOMESTIC ANIMALS
Volumen	57
Número	8
ISSN	ISSN: 0936-6768 eISSN: 1439-0531
DOI	10.1111/rda.14135
Título del Artículo	The use of oxytocin to cause cervical dilation for transcervical insemination in nulliparous goats: Improving pregnancy and kidding rates
Autores e instituciones de adscripción	Gutiérrez, VA ^[1] ; Sánchez-Dávila, F ^[1,2] ; Ledezma-Torres, RA ^[1] ; Peterson, S ^[3] ; Brenner, EG ^[1] ; Luna-Palomera, C ^[4] ; Vázquez-Armijo, JF ^[5] ; López-Villalobos, N ^[3] ; Grizelj, J ^[6] ^[1] Univ Autónoma Nuevo Leon, Fac Med Vet & Zootecnia, Posgrad Conjunto FA FMVZ, Gen Escobedo, México ^[2] Unidad Acad Marin, Lab Reprod Anim, Marin, NL, México ^[3] Massey Univ, Sch Agr & Environm, Palmerston North, New Zealand ^[4] Univ Autónoma Juárez Tabasco, Div Ciencias Agr 86280, Villahermosa, Tabasco, México ^[5] Univ Autónoma Estado México, Ctr Univ Temascaltepec, Temascaltepec, México ^[6] Univ Zagreb, Fac Med Vet, Zagreb, Croatia
Resumen	To evaluate the effect of oxytocin as a cervical dilator, a study was carried out on nulliparous goats inseminated transcervically at the beginning of the breeding season. One hundred sixteen nulliparous goats with a mean live weight of 33.4 ± 0.68 kg and an age of 13.7 ± 0.37 months were used. The goats were exposed to active bucks of proven fertility for a period of 14 d in order to induce oestrus. One week later, the Ovsynch protocol was applied, which consisted of the application of 20 mg of gonadorelin (Day Zero), 0.075 mg of cloprostenol (Day 7) and of a second dose of 20 mg of gonadorelin applied on Day 9. Artificial insemination (AI) was performed 16 hr later. Three treatments were evaluated: T1 = 50 IU saline, T2 = 25 IU oxytocin; T3 = 50 IU of oxytocin, intravenously applied 10–15 min before AI. The time required to inseminate each treated goat from groups T2 and T3 was 49.56 and 56.25 s, respectively, versus 85.78 s needed for the goats from group T1 ($p < .0001$). In the T1 group of goats, the insemination catheter was inserted 2.1 cm into the cervical canal and in goats from groups T2 and T3 it reached 3.41 and 3.77 cm into the cervical canal, respectively ($p = .02$).

Resumen	Pregnancy rates and prolificacy (kids/doe) were higher ($p = .02$) for groups T2 (82.93%; 1.16) and T3 (76.92%; 1.21) respectively than for control goats (61.11%; 0.69). In conclusion, the intravenous administration of oxytocin led to greater dilation and depth of cervical penetration, obtaining higher pregnancy rates and prolificacy.
Palabras claves	Cervix Dilation, Depth of Cervical Penetration, Prolificacy

Revista	JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS
Volumen	169
Número	n/a
ISSN	ISSN: 0022-3697 eISSN: 1879-2553
DOI	10.1016/j.jpccs.2022.110837
Título del Artículo	Tailoring structural and photocatalytic features of nitrogen-doped Bi_2MoO_6 structures under different nitrogen sources
Autores e instituciones de adscripción	Rángel, R ^[1] ; Rodríguez-López, J ^[1] ; Lara, J ^[1] ; Ramos-Carrasco, A ^[2] ; Berman-Mendoza, D ^[2] ; Cervantes-López, JL ^[3] ; Cedeno-Garciduenas, VJ ^[4] [1] Univ Michoacána, Fac Ingn Quim, Div Estudios Posgrad, Morelia 58030, Michoacán, México [2] Univ Sonora, Dept Invest Fis, Hermosillo 83000, Sonora, México [3] Univ Autónoma Tabasco, Div Academ Ingn & Arquitectura, Ave Univ S-N, Villahermosa 86040, Tabasco, México [4] Inst Tecnol Valle Morelia, Carretera Morelia Salamanca Km 6-5, Morelia 58100, Michoacán, México
Resumen	The present research aimed to obtain Bi_2MoO_6 and nitrogen-doped Bi_2MoO_6 compounds capable of extending their light absorption capability toward the visible regime through nitrogen doping of those structures. It were obtained employing a high pressure-hydrothermal method assisted by microwave heating by using different nitrogen precursors including urea, thiourea, hydrazine, and ethylenediamine. The effect of nitrogen precursors on the physicochemical and structural properties was investigated in detail through scanning electron microscopy (SEM), X-ray photoelectron spectroscopy (XPS), X-ray diffraction (XRD), Raman spectroscopy, and specific surface area determination using the BET method. The energy bandgap was calculated by UV-Vis spectroscopy, which exhibits high absorption from the UV region up to the visible regime. Nitrogen-doped Bi_2MoO_6 compounds show high specific surface area values as well as a reduction in their bandgap energy values compared to pristine Bi_2MoO_6 . Regarding the influence of the different nitrogen sources, it was observed that thiourea provided the highest percentage of nitrogen content in the Bi_2MoO_6 structure (15.76 at. %), while hydrazine showed the highest specific surface area (11.01 m ² /g). The compounds showed a positive effect, reaching a degradation of 66% under UV and 68%, under Vis irradiation of the lignin molecule. Also, the results indicate that the N-doped Bi_2MoO_6 compounds are more active than the pristine Bi_2MoO_6 . The methodology presented here provides an easy and low-cost way for the synthesis of Bi_2MoO_6 structures with potential use in the field of photocatalysis.
Palabras claves	Bismuth molybdate, Nitrogen doping, Semiconductor

Revista	CATALYSIS TODAY
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Número	N/A
ISSN	ISSN: 0920-5861 eISSN: 1873-4308
DOI	10.1016/j.cattod.2022.02.005

Título del Artículo	Synthesis and characterization of Fe_2O_3 - TiO_2 magnetic materials: Effect of heat-treatment on catalytic activity of naphthalene hydrogenation
Autores e instituciones de adscripción	Cuauhtemoc, I ^[1] ; Estudillo-Wong, LA ^[2] ; Jiménez-Vázquez, A ^[1] [1] Univ Juárez Autónoma Tabasco, Lab Catálisis Heterogenea, Área Quím, DACB, Km 1 Carretera Cunduacán Jalpa de Méndez AP 24, Cunduacán 86690, Tabasco, México [2] Inst Politecn Nacl, CIEMAD, Dept Biociencias & Ingn, Calle 30 junio 1520s-n, México City 07340, DF, México
Resumen	We report physicochemical characterization and catalytic evaluation of Fe_2O_3 - TiO_2 magnetic materials synthesized at mild conditions, using co-precipitation method with heat-treatment at 673 K, 773 K and 873 K. Results indicate different crystallographic phases including anatase, hematite, rutile and maghemite with a granular morphology, with no uniform grain-size distribution, as confirmed Rietveld Refinement and SEM techniques. High-Resolution Transmission Electron Microscopy (HR-TEM) confirmed presence of stick, spherical and hexagonal nanoparticles. The N_2 -physisorption and Vibrating Sample Magnetometry (VSM) indicated that Specific Area (S_{BET}) and magnetic remanence response is attributed to calcination temperatures. Diffuse reflectance ultra-violet visible (DR-UV-Vis) and Temperature Programmed Reduction of hydrogen (H_2 -TPR) showed photoactive species are related to Fe-based content near its surface, with a superficial metallic iron, during hydrogenation process. A different interaction between iron-oxide and titanium oxide materials is linked to lower magnetic remanence, and this could promote catalytic activation with conversion rates near 80% for 1 h of chemical reaction related to 2 ⁺ and 3 ⁺ oxidation states for Fe and Ti species.
Palabras claves	Hematite, Anatase, Fe_2O_3 - TiO_2

Revista	TROPICAL ANIMAL HEALTH AND PRODUCTION
Volumen	54
Número	2
ISSN	ISSN: 0049-4747 eISSN: 1573-7438
DOI	10.1007/s11250-022-03101-1
Título del Artículo	Study of racial profile of the native Guajolote (<i>Meleagris gallopavo gallopavo</i>) in two regions of México: morphometric characterization
Autores e instituciones de adscripción	Portillo-Salgado, R ^[1] ; Herrera-Haro, JG ^[1] ; Bautista-Ortega, J ^[2] ; Sánchez-Villarreal, A ^[2] ; Cigarroa-Vázquez, FA ^[3] ; Chay-Canul, AJ ^[4] ; Yakubu, A ^[5] [1] Colegio Postgrad, Programa Ganadería, Campus Montecillo, Montecillo 56230, Texcoco, México [2] Colegio Postgrad, Dept Ciencias Agr, Campus Campeche, Champoton 24450, Campeche, México [3] Univ Autónoma Chiapas, Escuela Estudios Agropecuarios Mezcalapa, Carretera Chicoasen, Malpaso, Km 24.3, Copainala 29625, Chiapas, México [4] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carr Villahermosa Teapa, Km 25, Villahermosa 86280, Tabasco, México [5] Nasarawa State Univ, Dept Anim Sci, Shabu Lafia Campus, PMB 135, Lafia, Nigeria
Resumen	The present study aimed at the morphometric characterization of the native Guajolote reared in two regions of México using multivariate analysis techniques. Data from a total of 362 unrelated native Guajolotes (257 males and 105 females) were used: of these, 160 were from the Central region and 202 were from the Southeast region. The birds were also grouped according to age, as young (<= 8 months; n = 150) and adults (>= 9 months; n = 212). The body weight (BW) and nine morphometric measurements-chest circumference (CC), body length (BL), body height (BH), neck length (NL), peak length (PL), shank length (SL), shank diameter (SD), wing length (WL) and wing width (WW)-were measured. There

Resumen	were significant differences ($p < 0.05$) due to the effect of region, sex and age for most of the morphometric measurements evaluated. There was a high percentage of positive and significant correlations ($p < 0.001$; $p < 0.01$) between the variables. In each region, three principal components were extracted that represented more than 75% of the accumulated variation among the variables. The most discriminating morphometric measurements between populations were WW, PL and NL. The Mahalanobis distance between the males and females of the two populations was 37.457 and 29.310 ($p < 0.001$), respectively. This differentiation can contribute to the definition of the phenotypic standard of this poultry genetic resource for its official recognition as a breed, as well as in the orientation of its genetic improvement programs in the future.
Palabras claves	Animal Genetic Resource, Native Guajolote, Factor Analysis

Revista	JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY
Volumen	97
Número	11
ISSN	ISSN: 0268-2575 eISSN: 1097-4660
DOI	10.1002/jctb.7084
Título del Artículo	Structural, optical and photocatalytic properties of Sr-doped and Ca-doped BiFeO₃ compounds prepared by Pechini method
Autores e instituciones de adscripción	Salaya-Gerónimo, E [2]; García-Zaleta, DS [1]; Jácome-Acatilla, G [1]; Huerta-García, E [1]; López-González, R [3]; Reyes-Montero, A [4]; Abdel-Mageed, AM [5] [1] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa de Méndez, Jalpa De Méndez 86205, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Bas, Alumno MQA, Cunduacán, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ingn & Arquitectura, Cunduacán, México [4] Univ Nacl Autónoma México, Inst Invest Mat, México City, DF, México [5] Leibniz Inst Katalyse LIKAT, Rostock, Germany
Resumen	BACKGROUND BiFeO ₃ is an important new visible-light photocatalyst for the removal of organic pollutants, the efficacy of which is related to its narrow band gap energy (2.2 eV) and excellent chemical stability. In this work, the effects of Sr and Ca doping on the structural and photocatalytic properties of BiFeO ₃ were investigated. RESULTS X-ray diffraction results revealed the formation of a rhombohedral structure (R3c), as well as the successful incorporation of Sr ²⁺ and Ca ²⁺ ions into the BFO structure. The nanometric size of the specimens was in the range 23-55 nm. The percentage of structural phases in the obtained compounds was calculated by Rietveld analysis. Scanning electron microscopy results showed changes in the morphology and grain sizes. The band gap values of the ceramics display a gradual reduction when the dopant concentration is increased. The surface analysis by X-ray photoelectron spectroscopy revealed, for all compounds, the characteristic peaks of Fe and Bi, as well as Sr and Ca in the doped samples. CONCLUSION The photocatalytic activity of the prepared photocatalyst was evaluated by the removal of methylene blue and 4-chlorophenol. The doped samples showed higher photocatalytic activity compared to the undoped BiFeO ₃ sample, attributed to the enhanced visible light absorption, the synergistic effects of the BiFeO ₃ and Bi ₂ Fe ₄ O ₉ phases, as well as the successful separation of photogenerated electrons and holes induced by Sr and Ca doping. (c) 2022 Society of Chemical Industry (SCI).
Palabras claves	BiFeO ₃ , Sr-doped BiFeO ₃ , Ca-doped BiFeO ₃

Revista	ANIMAL BIODIVERSITY AND CONSERVATION
Volumen	45
Número	2
ISSN	ISSN: 1578-665X eISSN: 2014-928X
DOI	10.32800/abc.2022.45.0131
Título del Artículo	Spatial ecology of jaguar (<i>Panthera onca</i>) outside protected areas in the Yucatán Peninsula, México
Autores e instituciones de adscripción	González-Gallina, A [1]; Equihua, M [1]; Pérez-Garduza, F [2]; Iglesias-Hernández, JA [2]; de Ita, AO [3]; Chaon-Hernández, A [3]; Zúñiga, OV [3]; Hidalgo-Mihart, MG [2] [1] Inst Ecol AC, Red Ambiente & Sustentabilidad, Xalapa 91070, Veracruz, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa 86040, Tabasco, México [3] Sistemas Estrateg Gest Ambiental SEGA SA CV Benit, Ciudad De México 03230, México
Resumen	Jaguars (<i>Panthera onca</i>) are endangered in several countries and a priority species for conservation action. Despite extensive research efforts in México most studies have been associated with natural protected areas far from human habitation. Because protected areas are too few to conserve the jaguar population over the long-term, a landscape approach that includes both protected and unprotected lands is needed. This is the case in Quintana Roo State where an ecological corridor linking two protected areas (Yum Balam and Sian Ka'an) is at risk of disappearing due to tourism-driven activities. Between 2013 and 2015, four male jaguars were captured and monitored using satellite telemetry inside the corridor. The mean home range size (\pm SD) was 101.5 km ² (\pm 75.9 km ²) for the dry season and 172 km ² (\pm 107.29 km ²) for the rainy season. The mean core area size (\pm SD) was 17.54 km ² (\pm 16.21 km ²) for the dry season and 29.07 km ² (\pm 16.19 km ²) for the rainy season. No significant seasonal differences were found for home ranges or for core areas. As expected, we observed that jaguars preferred forest or young secondary growth over profusely disturbed areas, using whatever vegetation was available in their home ranges. Although it is not protected, a biological corridor linking Yum Balam and Sian Ka'an still holds its own jaguar population, a population that has learned to coexist with human presence. Conservation actions are recommended at landscape level to maintain what remains of tropical mature forest and to promote the development of long-term secondary growth into close tree canopy
Palabras claves	Conservation, Corridor, Home range

Revista	LATIN AMERICAN JOURNAL OF AQUATIC RESEARCH
Volumen	50
Número	2
ISSN	ISSN: 0718-560X eISSN: 0717-7178
DOI	10.3856/vol50-issue2-fulltext-2786
Título del Artículo	Short-tailed pipefish (<i>Micropis brachyurus</i>) juvenile culture: effect of stocking density on growth, survival and condition factor
Autores e instituciones de adscripción	Martínez-Cárdenas, L [1]; Hernández-Cortéz, MI [2]; Castañeda-Chávez, MR [4]; Lango-Reynoso, F [4]; Hernández, EFV [5]; Ponce-Palafox, JT [6]; Espinosa-Chaurand, D [7]; Álvarez-González, CA [3] [1] Univ Autónoma Nayarit, Secretaría Invest & Posgrad, Tepic, Nayarit, México [2] Univ Autónoma Nayarit, Licenciatura Biol, Xalisco, Nayarit, México [3] Univ Juárez Autónoma Tabasco, Lab Fisiol Recursos Acuát, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [4] Inst Tecnol Boca del Rio, Boca Del Rio, Veracruz, México [5] Ctr Multidisciplinario Capaz It Arte, Tepic, Nayarit, México [6] Univ Autónoma Nayarit, Escuela Nacl Ingn Pesquera, Lab Bioingn Costera, Nayarit, México [7] Ctr Invest Biol Noroeste SC, Unidad Nayarit, CONACYT, Tepic, Nayarit, México

Resumen	The present study aimed to test the effect of three stocking densities: 100, 200, and 300 ind m ⁻³ (D100, D200, and D300, respectively) on survival, growth (weight and total length), and condition factor of <i>Microphis brachyurus</i> . At the end of the six-week trial, there were no significant differences in the fish's survival, growth, and condition. The results suggest that this species presents high adaptability under culture conditions. A suboptimal stocking density generates a suboptimal use of infrastructure and decreases the production system's profitability. Based on the present study, a stocking density of 300 ind m ⁻³ is recommended to increase the aquaculture infrastructure's profitability for ornamental or conservation purposes.
Palabras claves	<i>Microphis brachyurus</i> , Syngnathids, Aquaria

Revista	ARCHIVES ANIMAL BREEDING
Volumen	65
Número	3
ISSN	ISSN: 0003-9438 eISSN: 2363-982
DOI	10.5194/aab-65-259-2022
Título del Artículo	Sexual performance and semen quality of pubertal lambs treated with different weaning methods
Autores e instituciones de adscripción	Ledezma-Torres, RA ^[1] ; Sánchez-Davila, F ^[2] ; Rodríguez-Miranda, DA ^[3] ; Luna-Palamera, C ^[4] ; Grizelj, J ^[5] ; Vázquez-Armijo, JF ^[6] ; López-Villalobos, N ^[6,7] [1] Univ Autónoma Nuevo Leon, Fac Med Vet & Zootecnia, Posgrad Conjunto FA FMVZ, Gen Escobedo 66050, México [2] Univ Autónoma Nuevo Leon, Fac Agron, Posgrad Conjunto FA FMVZ, Lab Reprod Anim, Unidad Acad Marin, Marin 66700, México [3] Univ Autónoma Nuevo Leon, Posgrad Conjunto FA FMVZ, Gen Escobedo 66050, México [4] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86280, Tabasco, México [5] Univ Zagreb, Fac Med Vet, Zagreb, Croatia [6] Univ Autónoma Estado México, Ctr Univ Temascaltepec, Temascaltepec 51300, México [7] Massey Univ, Sch Agr & Environm, Palmerston North 4442, New Zealand
Resumen	The objective of this study was to determine the effect of the weaning method on lamb stress, body weight, sexual behavior, and semen quality of Saint Croix male lambs. The present study was carried out during the late spring and summer of 2018 in the northeast of México. Sixty male lambs born as twins or triplets (3.2 ± 0.6 kg birth weight) and weaned at 60 d of age (19.21 ± 1.8 kg weaning weight) were divided into two weaning methods: complete separation from the dams (CS; the lambs were moved to a pen that was at 500 m of distance from the dams) and separation with contact from the dams (SCD); the lambs were physically separated by a steel mesh that prevented the lambs from having the possibility of sucking milk from their mothers, but they maintained permanent visual and auditory contact. Cortisol levels were determined 3 d before and 7 d after weaning. Lambs were evaluated as 3-month-old lambs for sexual behavior and semen quality for 9 weeks. The effects of the weaning method (M), week (W), and the interaction M × W were significant on body weight and cortisol levels (P < 0.001). The SCD lambs had higher cortisol levels at 3, 5, and 7 d after weaning than CS lambs (P < 0.001). The CS lambs had higher body weight during the first 4 weeks after weaning than SCD lambs (P < 0.001). The weaning method had no effect on scrotal circumference, sexual behavior, and semen quality traits, except for progressive sperm motility, being better for the lambs that were completely separated (P < 0.05). The results from this study show that complete separation of lambs and ewes at weaning is an effective method to reduce lamb stress and improve lamb growth after weaning, but it did not have long-term effects on sexual behavior and semen quality of Saint Croix male lambs.
Palabras claves	Stress-Response, Growth, Ewes

Revista	LATIN AMERICAN JOURNAL OF SOLIDS AND STRUCTURES
Volumen	19
Número	2
ISSN	1679-7825
DOI	10.1590/1679-78256583
Título del Artículo	Seismic performance assessment based on the interstory drift of steel buildings
Autores e instituciones de adscripción	Díaz, DA ^[1] ; Díaz, SA ^[1] ; Pinzon, LA (Pinzon, Luis A.) ^[2] ; Jesús, H ^[3] ; Mora-Ortiz, RS ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ingn & Arquitectura, Villahermosa, Tabasco, México [2] Univ Católica Santa María La Antigua, Direcc Invest, Ciudad De Panama, Panama [3] Univ Autónoma Carmen, Ciudad del Carmen, Campeche, México
Resumen	The seismic regulations for the seismic performance assessment of buildings use the maximum interstory drift, theta(max), as a measure to control damage. This article presents a study of the seismic performance based on the theta(max) for steel buildings using México's regulations and the RISK-UE and HAZUS guidelines. The capacity spectrum method is used to evaluate the performance of buildings with 3 different heights located in 4 cities in México with different seismicity, as well as for soft and rock soil types. The HAZUS criterion is conservative in its assessment of damage, while the RISK-UE criterion is more in line with the expected damage. The service state, S-state, and the collapse prevention state, CPstate, in México's regulations are suitable for damage control, and are consistent with the damage proposed by the RISK-UE guidelines. In very high seismicity zones, the CPstate for seismic actions equal to or greater than the expected, prevent building collapse; however, significant damage to buildings can still occur. The theta(max) of the CPstate must be established for different seismic intensities and not only for building types.
Palabras claves	Interstory drift, steel buildings, nonlinear static analysis

Revista	SCIENCE OF THE TOTAL ENVIRONMENT
Volumen	831
Número	n/a
ISSN	ISSN: 0048-9697 eISSN: 1879-1026
DOI	10.1016/j.scitotenv.2022.154883
Título del Artículo	Reutilization of waste biomass from sugarcane bagasse and orange peel to obtain carbon foams: Applications in the metal ions removal
Autores e instituciones de adscripción	Licona-Aguilar, AI ^[1] ; Torres-Huerta, AM ^[2] ; Domínguez-Crespo, MA ^[2] ; Palma-Ramírez, D ^[3] ; Conde-Barajas, E ^[4] ; Negrete-Rodríguez, MXL ^[4] ; Rodríguez-Salazar, AE ^[5] ; García-Zaleta, DS ^[6] [1] Inst Politecn Nacl, CICATA Altamira, CIAMS Km 14-5 Carretera Tamp Puerto Ind Altamira, México City, DF, México [2] Inst Politecn Nacl, Ciudad Conocimiento & Cultura, UPIIH, Carretera Pachuca Actopan Km 1 500 San Agustin TI, Pachuca 42162, Hidalgo, México [3] Inst Politecn Nacl, Ctr Mexicano Prod Mas Limpia CMPL, Av Acueducto S-N, México City 07340, DF, México [4] TNM IT Celaya, Lab Environm Biotechnol, Dept Environm Engr, Av Tecnol & A García Cubas 600, Guanajuato 3801, México [5] Inst Politecn Nacl, CICATA Querétaro, Cerro Blanco 141, Santiago De Querétaro 76090, Querétaro, México [6] Univ Juárez Autónoma Tabasco, Carretera Estatal Libre Villahermosa Comalcalco, K, Villahermosa 86205, Tabasco, México
Resumen	The high levels of heavy metals contained in residual water and the pollution generated by a large amount of unexploited agro-industrial waste are a serious problem for the environment and mankind. Therefore, in the present work, with the aim of treating and reducing the pollution caused by heavy metal ions (Pb, Cd, Zn and Cu), activated carbons (ACs) were synthesized from sugarcane

Resumen	bagasse (SCB) and orange peel (OP) by means of physical - chemical activation method in an acid medium (H ₃ PO ₄ , 85 wt%) followed by an activation at high temperature (500 and 700 & DEG;C). Thereafter, these materials were used to produce carbon foams (CF) by the replica method and to evaluate their adsorbent capacity for the removal of heavy metals from synthetic water. XRD, FTIR, DLS, BET, Zeta Potential (zeta), SEM-EDS and AAS were used to investigate their structures, surface area, pore size, morphology, and adsorption capacity. The results show that as-prepared CF have a second level mesoporous structure and AC present a micro-mesoporous structure with a pore diameter between 3 and 4 nm. The experimental adsorption capacities of heavy metals showed that the CF from OP present a better elimination of heavy metals compared to the AC; exhibiting a removal capacity of 95.2 +/- 3.96% (Pb) and 94.7 +/- 4.88% (Cu) at pH = 5. The adsorption values showed that the optimal parameters to reach a high metal removal are pH values above 5. In the best of cases, the minimum remaining concentration of lead and copper were 2.4 and 2.6 mg L ⁻¹ , respectively. The experimental data for carbon adsorbents are in accordance with the Langmuir and BET isotherms, with R-2 = 0.99 and the maximum homogenous biosorption capacity for lead and copper was Q(max) = 968.72 and 754.14 mg g ⁻¹ , respectively. This study showed that agro-industrial wastes can be effectively retrieved to produce adsorbents materials for wastewater treatment applications.
Palabras claves	Activated carbon, Carbon foam, Metals adsorption

Revista	COMMUNICATIONS IN STATISTICS-THEORY AND METHODS
Volumen	N/A
Número	N/A
ISSN	ISSN: 0361-0926 eISSN: 1532-415X
DOI	10.1080/03610926.2022.2087091
Título del Artículo	Ruin probability for finite negative binomial mixture claims via recurrence sequences
Autores e instituciones de adscripción	Rincón, L ^[1] ; Santana, DJ ^[2] [1] Univ Nacl Autónoma México, Fac Ciencias, Dept Matemat, México City, DF, México [2] UJAT, Div Acad Ciencias Básicas, Villahermosa, Tabasco, México
Resumen	A new procedure to find the ultimate ruin probability in a discrete-time risk model is presented for claims with a mixture of <i>m</i> negative binomial distributions. The method involves the theory of linear recurrence sequences. It requires to find the zeroes of an <i>m</i> degree polynomial and the solution of a system of <i>m</i> linear equations. Numerical results and plots are provided as examples.
Palabras claves	Ruin probability, Discrete-time Risk Model, Negative Binomial Distribution

Revista	ANIMALS
Volumen	12
Número	5
ISSN	2076-2615
DOI	10.3390/ani12050572
Título del Artículo	Residual Feed Intake and Rumen Metabolism in Growing Pelibuey Sheep
Autores e instituciones de adscripción	Arce-Recinos, C ^[1,2] ; Ojeda-Robertos, NF ^[1] ; García-Herrera, RA ^[1] ; Ramos-Juárez, JA ^[2] ; Pineiro-Vázquez, AT ^[3] ; Canul-Solís, JR ^[4] ; Castillo-Sánchez, LE ^[4] ; Casanova-Lugo, F ^[5] ; Vargas-Bello-Pérez, E ^[6] ; Chay-Canul, AJ ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, Km 25,R-A, Villahermosa 86280, Tabasco, México [2] Col Postgrad, Campus Tabasco, Perifer Carlos Molina Km 3-5, Cardenas 86500, Tabasco, México

Autores e instituciones de adscripción	[3] Inst Tecnol Conkal, Tecnol Nacl México, Ave Tecnol S-N, Conkal 97345, Yucatán, México [4] Tecnol Nacl México, Inst Tecnol Tizimin, Tizimin 97702, Yucatán, México [5] Tecnol Nacl México, Inst Tecnol Zona Maya, Othon P Blanco 77965, Quintana Roo, México [6] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Gronnegardsvej 3, DK-1870 Frederiksberg, Denmark
Resumen	This study was carried out to evaluate the residual feed intake (RFI), volatile fatty acid (VFA) production and enteric methane (CH ₄) from growing Pelibuey sheep. In this case, 12 non-castrated Pelibuey with an initial average live weight (LW) of 21.17 ± 3.87 kg and an age of 3 months, were housed in individual pens and fed a basal diet with 16% of crude protein and 11 MJ ME for 45 days. Dry matter intake (DMI) was measured and the daily weight gain (DWG) was calculated using a linear regression between the LW and experimental period. Mean metabolic live weight (LW ^{0.75}) was calculated. RFI was determined by linear regression with DWG and LW ^{0.75} as independent variables. Lambs were classified as low, medium, and high RFI. Feed efficiency was determined as DWG/DMI. For determining rumen pH, ammonia nitrogen concentration (NH ₃ -N), and VFA, ruminal fluid was obtained using an esophageal probe on day 40. Feed intake of low RFI lambs was approximately 16% lower (<i>p</i> < 0.05) while growth rate was not significantly different. Their average energy loss, expressed as CH ₄ production per kilogram of metabolic weight, was 17% lower (<i>p</i> < 0.05).
Palabras claves	Residual Feed Intake, Volatile Fatty Acids, Methane

Revista	FOOD BIOSCIENCE
Volumen	47
Número	n/a
ISSN	ISSN: 2212-4292 eISSN: 2212-4306
DOI	10.1016/j.fbio.2022.101695
Título del Artículo	Recent trends and technical advancements in biosensors and their emerging applications in food and bioscience
Autores e instituciones de adscripción	Bankole, OE ^[1] ; Verma, DK ^[2] ; González, MLC ^[3] ; Ceferino, JG ^[4] ; Sandoval-Cort, J ^[5] ; Aguilar, CN ^[3] [1] Anchor Univ, Fac Sci & Sci Educ, Dept Chem Sci, Lagos, Nigeria [2] Indian Inst Technol Kharagpur, Agr & Food Engr Dept, Kharagpur 721302, W Bengal, India [3] Univ Autónoma Coahuila, Sch Chem, Food Res Dept, Bioproc Res Grp, Unidad Saltillo 25280, Coahuila, México [4] Univ Juárez Autónoma Tabasco, Los Rios Multidisciplinary Acad Div, Villahermosa, Tabasco, México [5] Univ Autónoma Coahuila, Sch Chem, Dept Analyt Chem, Unidad Saltillo 25280, Coahuila, México
Resumen	Biosensor development has recently advanced as a result of their strong and indisputable uses as analytical methods in a variety of sectors, including medicine, food industry, environmental monitoring, metabolism, agriculture, military, and security. The popularity of biosensors as devices for a variety of applications may be ascribed to their distinct advantages of fast or rapid analysis, high sensitivity, minimal sample demand and preparation, and no need for the specific skill of operation that traditional analytical procedures require. We attempted to update earlier studies in this study by incorporating other materials that have been in use but have received less attention, such as carbon nano-onions (CNOs), metal-organic frameworks (MOFs), and biopolymers for biosensor manufacturing and design based on their unique properties. The assessment also took into account applicable applications in many sectors. Although considerable progress has been made in the application of biosensors, there is still a need for research development and enhancement, particularly in transforming most of the laboratory experiments that have already been published into portable on-site and implementable in the public domains.
Palabras claves	Biosensors, Nanotechnology, Nano-materials

Revista	CATALYSIS TODAY
Volumen	392
Número	N/A
ISSN	ISSN: 0920-5861 eISSN: 1873-4308
DOI	10.1016/j.cattod.2021.11.006
Título del Artículo	Production of 5-Hydroxymethylfurfural from glucose using Al₂O₃-TiO₂-ZrO₂ ternary catalysts
Autores e instituciones de adscripción	Cortéz-Elizalde, J ^[1] ; Silahua-Pavón, AA ^[1] ; Córdova-Pérez, GE ^[1] ; Arévalo-Pérez, JC ^[1] ; Guera-Qué, Z ^[3] ; Espinosa-González, CG ^[2] ; Ortiz-Chi, F ^[2] ; Godavarthi, S ^[2] ; Torres-Torres, JG ^[1] [1] Univ Juárez Autónoma Tabasco, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, DACB, Km 1 Carretera Cunduacán Jalpa Méndez AP 24, Cunduacán 86690, Tabasco, México [2] Cátedras CONACYT Univ Juárez Autónoma Tabasco, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, DACB, Km 1 Carretera Cunduacán Jalpa Méndez AP 24, Cunduacán 86690, Tabasco, México [3] Tecnol Nacl México Campus Villahermosa, Lab Invest Area Nanotecnol 1, Km 3-5 Carretera Villahermosa Frontera, Villahermosa 86010, Tabasco, México
Resumen	In this work, mixed oxides Al ₂ O ₃ -TiO ₂ -ZrO ₂ were evaluated varying their composition (% w/w) for the conversion of monosaccharides (fructose and glucose) to 5-hydroxymethylfural (HMF). Materials were characterized using Thermogravimetric Analysis and Differential Scanning Calorimetry (TGA-DSC), Nitrogen Physisorption (N ₂), X-ray Diffraction (XRD), RAMAN Spectroscopy, DRS UV-Vis Spectroscopy, Infrared Spectroscopy (FTIR), SEM, TEM, FTIR-Pyridine and Temperature Programmed Desorption of CO ₂ (TPD-CO ₂). The reactions were carried out at 175 °C and 30 bar of Ar pressure in a biphasic system (THF/H ₂ O) for 3 h, obtaining a 78% maximum yield of HMF from the glucose and 63% yield from fructose. The materials studied carried out a direct dehydration of the monosaccharides to HMF in 30 min of reaction and were obtained as intermediates to dehydrate levulinic acid (LA) and formic acid (FA), these intermediates were analyzed and eluted using ¹ H NMR technique.
Palabras claves	5-hydroxymethylfural, Glucose, Al ₂ O ₃ -TiO ₂ -ZrO ₂

Revista	PLANTS-BASEL
Volumen	11
Número	6
ISSN	2223-7747
DOI	10.3390/plants11060794
Título del Artículo	Preliminary Phytochemical Profile and Bioactivity of <i>Inga jinicuil</i> Schldl & Cham. ex G. Don
Autores e instituciones de adscripción	Gallegos-García, AJ ^[1,2] ; Lobato-García, CE ^[1] ; González-Cortazar, M ^[2] ; Herrera-Ruiz, M ^[2] ; Zamilpa, A ^[2] ; Álvarez-Fitz, P ^[3] ; Pérez-García, MD ^[2] ; López-Rodríguez, R ^[1] ; Blé-González, EA ^[1] ; Medrano-Sánchez, EJ ^[1] ; Feldman, MR ^[4] ; Bugarín, A ^[4] ; Gómez-Rivera, A ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Básicas, Carretera Cunduacán Jalpa Km 0-5, Cunduacán 86690, Tabasco, México [2] Inst Mexicano Seguro Social, Ctr Invest Biomed Sur, Argentina 1, Xochitepec 62790, Morelos, México [3] Univ Autónoma Guerrero, Catedra CONACYT, Lab Toxicol, Av Lázaro Cardenas S-N Col La Haciendita, Chilpancingo 39070, Guerrero, México [4] Florida Gulf Coast Univ, Dept Chem & Phys, Ft Myers, FL 33965 USA
Resumen	Several Mesoamerican cultures have used <i>Inga jinicuil</i> as traditional medicine for the treatment of gastrointestinal, inflammatory, and infectious issues. The aims of

Resumen	this contribution were to elucidate the phytochemical profile of the organic extracts from the bark and leaves of <i>I. jinicuil</i> and to assess the anti-inflammatory and antibacterial properties of these extracts. The preliminary chemical profile was determined by HPLC-PDA and GC-MS; the anti-inflammatory activity was evaluated with a mouse ear edema model, whereas the antibacterial activity was screened against several bacteria. The phytochemical profile of both organs (bark and leaves) of <i>I. jinicuil</i> led to the identification of 42 compounds, such as polyphenolic, flavonoids, triterpenes, prenol-type lipids, and aliphatic and non-aliphatic esters. This molecular diversity gave moderate anti-inflammatory activity (67.3 ± 2.0%, dichloromethane bark extract) and excellent antibacterial activity against <i>Pseudomona aeruginosa</i> and methicillin-resistant <i>Staphylococcus aureus</i> (MIC values of <3.12 and 50 µg/mL, respectively). These results contribute to the chemotaxonomic characterization and the rational use in traditional medicine of <i>Inga jinicuil</i> Schldl & Cham. ex G. Don.
Palabras claves	<i>Inga jinicuil</i> ; Phytochemical Profile; HPLC-PDA

Revista	REVISTA MEXICANA DE INGENIERÍA QUÍMICA
Volumen	21
Número	2
ISSN	665-2738
DOI	10.24275/rmiq/IA2753
Título del Artículo	Pre-evaluation of contaminated soil for oil field reactivation in Moloacan, Veracruz, México
Autores e instituciones de adscripción	Yzquierdo-Ruiz, MM ^[1] ; Torres-Sánchez, SA ^[2] ; De la Garza-Rodríguez, IM ^[3] ; Ojeda-Morales, ME ^[1] ; Hernández-Núñez, E ^[4] ; Lobato-García, CE ^[1] ; Hernández-Rivera, MA ^[1] ; Zurita-Macías-Valadez, M ^[1] ; Morales-Bautista, CM ^[1] [1] Univ Juárez Autónoma Tabasco, Carretera Cunduacán Jalpa Km 1, Cunduacán 86690, Tabasco, México [2] Univ Autónoma San Luis Potosí, Álvaro Obregon 64, San Luis Potosí 78300, Slp, México [3] Univ Autónoma Coahuila, Blvd Carranza S-N, Saltillo 25280, Coahuila, México [4] Inst Politecn Nacl, Unidad Mérida, Antigua Carretera Progreso Km 6, Mérida 97310, Yucatán, México
Resumen	This document presents studies to establish an Environmental Baseline for the oil sector in 13 wells in the Moloacan Field, in Veracruz, México regarding hydrocarbons in soils. Four factors were taken into account: visual soil assessment, methods for the hydrocarbon extraction (with two methods: the Soxhlet and the Petroflag), effects on fertility properties, and heavy metals content. The results show spills in every well with a high percentage of heavy fractions (mainly polar). However, these are not entirely visible because they are below or between the rhizosphere. Also, higher concentrations of hydrocarbons were found in specific sites such as old incinerators and waste pits. In the waste pits, pollutants had contact with the aquifer. In addition, in the determination of hydrocarbons, the Soxhlet method showed better results than the Petroflag one. Likewise, a relationship between these pollutants and the negative effects on soil properties, such as the increase in densities, electrical conductivity, and sands, as well as the decrease in field capacity and clays were found. Also, pH and salinity increased when the hydrocarbons exceeded the permissible limits (>4400 mg.kg(-1)). Finally, metals such as Cr, V, Ba, Hg, Ni, Pb, and Cd were also found, but only Ni was found at dangerous levels for agricultural use.
Palabras claves	Diagnostic, Heavy Metals, Hydrocarbons

Revista	ANIMALS
Volumen	12
Número	1
ISSN	2076-2615
DOI	10.3390/ani12010110
Título del Artículo	Physicochemical Characteristics of Yogurt from Sheep Fed with <i>Moringa oleifera</i> Leaf Extracts
Autores e instituciones de adscripción	Mendoza-Taco, MM ^[1] ; Cruz-Hernández, A ^[1] ; Ochoa-Flores, AA ^[1] ; Hernández-Becerra, JA ^[2] ; Gómez-Vázquez, A ^[1] ; Moo-Huchin, VM ^[3] ; Pineiro-Vázquez, A ^[4] ; Chay-Canul, AJ ^[1] ; Vargas-Bello-Pérez, E ^[5] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, Km 25, R A, Huasteca 2, Villahermosa 86280, Tabasco, México [2] Univ Tecnol Tabasco, Div Tecnol Alimentos, Villahermosa 86288, Tabasco, México [3] Inst Tecnol Mérida, Tecnol Nacl México, Km 5 Mérida Progreso, Mérida, Yucatán 97118, México [4] Inst Tecnol Conkal, Tecnol Nacl México, Avenida Tecnol S-N Conkal, Conkal, Yucatán 97345, México [5] Univ Copenhagen, Dept Vet & Anim Sci, Fac Hlth & Med Sci, Gronnegardsvej 3, DK-1870 Frederiksberg, Denmark
Resumen	This study determined the effect of feeding <i>Moringa oleifera</i> (MO) leaf extracts to lactating ewes on the physicochemical composition of their milk and yogurt during storage (4 °C for 14 days) and the sensory acceptance of the yogurt. Over 45 days, 24 multiparous lactating Pelibuey and Katahdin ewes (two days in lactation) were randomly assigned to four groups: MO-0, basal diet (BD) + 0 mL MO; MO-20, BD + 20 mL MO; MO-40, BD + 40 mL MO; and MO-60, BD + 60 mL MO. In the milk, an increase of 6% in protein, 26% in leucine, 14% in ash, and 1% in the pH (6.71) was observed with MO-60. The density values decreased by 0.3% at a higher dose of MO compared to MO-0, while the nonfat solids (NFS) in the milk were similar between the treatments. In the yogurt, an increase of 5% in protein, 113% in leucine (MO-20), 9% in NFS, and a reduction of 2% in moisture with MO-60 was observed. The acidity reflected an inverse relationship to the pH, as did the moisture and NFS with MO-60. In conclusion, dietary supplementation with MO in lactating ewes did not have negative effects on the chemical composition of their yogurt during storage (14 days). Overall, feeding sheep with 20 mL of MO positively influenced the physicochemical composition of their milk and yogurt during storage.
Palabras claves	<i>Moringa oleifera</i> extracts; Physicochemical Composition; Milk.

Revista	JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS
Volumen	33
Número	10
ISSN	ISSN: 0957-4522 eISSN: 1573-482X
DOI	10.1007/s10854-022-07916-4
Título del Artículo	Photoresponse enhancement in TiO₂ thin films by incorporation Ni and Cr nanoparticles using sol-gel method
Autores e instituciones de adscripción	Solis-Cortazar, JC ^[1] ; Zamudio-Torres, I ^[1] ; Rojas-Blanco, L ^[1] ; Pérez-Hernández, G ^[1] ; Arellano-Cortaza, M ^[1] ; Castillo-Palomera, R ^[1] ; De los Monteros, AE ^[1] ; Ramírez-Morales, E ^[1] [1] Univ Juárez Autónoma Tabasco, Ave Univ S-N, Villahermosa 86040, Tabasco, México
Resumen	The incorporation of nanoparticles in TiO ₂ generates narrow bands located in the energy gap and its reduction. In this work, TiO ₂ films and the incorporation of Ni and Cr nanoparticles by the sol-gel method and assisting dip-coating technique are reported. Characterization of the TiO ₂ films in their structure was carried out using XRD and Raman, finding the anatase TiO ₂ structure for all the samples. Using AFM and TEM, it was possible to study nanoparticles' influence on

Resumen	topography and transmittance, finding roughness values lower than 1 nm and decreasing the gap energy and resistivity due to the decrease in porosity, which improvement the current conduction.
Palabras claves	Zn-doped TiO ₂ , Optical-properties, Methylene-blue

Revista	JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY
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ISSN	ISSN: 0268-2575 eISSN: 1097-4660
DOI	10.1002/jctb.7168
Título del Artículo	Photodegradation of 4-chlorophenol using as photocatalyst ZnFe₂O₄ spinels: influence of the complexing agent in the photocatalytic activity
Autores e instituciones de adscripción	Hernández-Acosta, D ^[1] ; Jacome-Acatitla, G ^[1] ; García-Mendoza, C ^[2] ; Álvarez-Lemus, M ^[2] ; López-González, R ^[2] ; Tzompantzi, F ^[3] [1] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa Méndez, Carretera estatal libre Villahermosa Comalcalco K, Jalpa De Méndez 86205, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ingn & Arquitectura, Cunduacán, México [3] Univ Autónoma Metropolitana Iztapalapa, Dept Quim, México City, DF, México
Resumen	BACKGROUND 4-chlorophenol is one of the most commonly used products in industrial processes. This compound exhibits a high chemical stability that makes its removal from wastewater difficult by conventional methods. Although diverse methods have been applied for its elimination, photocatalysis is one of the only techniques with several advantages, such as nontoxic by-products and mild reaction conditions. One of the goals in improving this remedial technology is the development of materials with adequate physicochemical properties that enhance the catalytic activity and thus allow the complete degradation of the pollutant or its elimination in shorter periods of time. RESULTS Magnetic ZnFe ₂ O ₄ catalysts were prepared by the hydrothermal method using as complexing agents oxalic, citric, and tartaric acids. The specific surface areas of the samples were between 23.938 and 48.058 m ² /g and the band gap energies were in the range of 1.55-1.90 eV. These materials were evaluated under UV light irradiation (254 nm, 2 W) for the photodegradation of 4-chlorophenol. All samples showed photodegradation efficiencies around 60% after three hours of reaction at pH 3. CONCLUSION The results confirmed that the complexing agents have an influence on the physicochemical properties of the synthesized catalysts. The catalyst synthesized using citric acid was the only one to exhibit a significant activity at the three pH levels (3, 5, 6). The above can be attributed to the fact that this material presents the lowest bandgap and crystallite size values along with the largest specific surface area of all the synthesized samples. (c) 2022 Society of Chemical Industry (SCI).
Palabras claves	Zn-doped TiO ₂ , Optical-properties, Methylene-blue

Revista	BRAZILIAN JOURNAL OF POULTRY SCIENCE
Volumen	24
Número	2
ISSN	ISSN: 1516-635X eISSN: 1806-9061
DOI	10.1590/1806-9061-2021-1553
Título del Artículo	Performance of Turkeys in Enrichment Environment with Perches and Outdoor Access under Tropical Conditions

Autores e instituciones de adscripción	González-Zapata, FA ^[1] ; Sangines-García, JR ^[1] ; Pinero-Vázquez, AT ^[1] ; Velázquez-Madrado, PA ^[1] ; Itza-Ortiz, MF ^[3] ; Bello-Pérez, EV ^[4] ; Chay-Canul, AJ ^[2] ; Aguilar-Urquiza, E ^[1] [1] Tecnol Nacl México, Div Estudios Posgrad & Invest, Campus Conkal, Conkal 97345, Yucatán, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, Km 25, Villahermosa 86280, Tabasco, México [3] Univ Autónoma Ciudad Juárez, Dept Ciencias Vet, Ciudad Juárez, Chihuahua, México [4] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Gronnegardsvej 3, DK-1870 Frederiksberg C, Denmark
Resumen	Heat stress compromises turkey's productivity and increase mortality mainly in the final stages of growth. This study evaluated the effect of perches and its interaction with outdoor access on turkey performance in high environment temperature humidity index (THI). Turkeys were reared in 1.75 × 5 m indoor floor pens and were fed with a standard commercial diet, offered <i>ad libitum</i> according to the productive phase. All poults were housed indoors until 62 d of age. A free-range area for a replicate of 8.75 m ² , with natural shadow, was available from 07:00 to 19:00 h. Final density was 10.33 ± 0.22 kg/m ² . The treatments were a combination of a factorial arrangement (2 × 2) with or without perches and, with or without access to the outdoors. From 10:00 and 19:00 THI was above critical level of comfort (heat stress). In indoors turkeys, feed intake (FI) decreased, and water intake increased, panting was observed, and had a significantly lower final body weight (BW) and FI than turkeys allowed outdoors (<i>p</i> <0.05). Perch availability decreased final BW and FI (<i>p</i> <0.05). Differences in weight of breast meat, wings, or thighs between treatments were negligible. In conclusion turkeys with outdoor access from 62 d of age had better performance.
Palabras claves	Heat stress, Perches use, Free range

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Volumen	97
Número	11
ISSN	ISSN: 0268-2575 eISSN: 1097-4660
DOI	10.1002/jctb.7086
Título del Artículo	One-step synthesis of ZnS/ZnO using HMDA as precursor and active part for high photocatalytic hydrogen production
Autores e instituciones de adscripción	García-Mendoza, C ^[1] ; Rivera, WES ^[1] ; Álvarez-Lemus, MA ^[1] ; Jacome-Acatitla, G ^[2] ; Márquez, DMF ^[1] ; López-González, R ^[1] [1] Univ Juárez Autónoma Tabasco, Div Academ Ingn & Arquitectura, Cunduacán, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Div Academ Multidisciplinaria Jalpa Méndez, Jalpa De Méndez, México
Resumen	BACKGROUND The use of organic molecules to improve the performance of semiconductors (such as using ZnS in hydrogen production) has been widely studied. This work studies the formation of a photocatalyst formed by ZnS/ZnO anchored to an organic molecule (hexamethylenediamine) under different amounts of the organic material and its performance in hydrogen production is evaluated. RESULTS The materials were synthesized by the precipitation method, forming ZnS/ZnO composite, 3HMDA and 9HMDA materials showed flower-like structure. The 6HMDA material showed a nanotube like structure and high surface area. Likewise, the anchoring of the organic material forming stacked lamellae is confirmed. Regarding hydrogen production, the most active material was 6HMDA, which showed an excellent performance, producing 3281 mu moles after 5 h of reaction with a production rate of 12 916 mu moles h(-1) g(-1); 6HMDA

Resumen	increased the effectiveness with respect to ZnS by a factor of 4.3, while the 9HMDA material increased it 1.5 times. CONCLUSION The organic material and the ZnS/ZnO work together to improve the photocatalytic activity and stability of the material, increasing hydrogen production under UV light. These results show that it is possible to obtain an efficient material with excellent photocatalytic performance by a relatively simple synthesis method. (c) 2022 Society of Chemical Industry (SCI).
Palabras claves	Catalyst Characterization, Energy, Photocatalysis

Revista	CHINESE PHYSICS B
Volumen	31
Número	4
ISSN	ISSN: 1674-1056 eISSN: 2058-3834
DOI	10.1088/1674-1056/ac248e
Título del Artículo	Nonlinear optical properties in n-type quadruple delta-doped GaAs quantum wells
Autores e instituciones de adscripción	Noverola-Gamas, H ^[1] ; Gaggero-Sager, LM ^[2] ; Oubram, O ^[3] [1] Univ Juárez Autónoma Tabasco, Div Acad Ingn & Arquitectura, Carretera Cunduacán Jalpa de Méndez Km 1, Col La Esmeralda 8660, Cunduacán, México [2] Univ Autónoma Estado Morelos, Ctr Invest Ingn & Ciencias Aplicadas, Av Univ 1001, Cuernavaca 62209, Morelos, México [3] Univ Autónoma Estado Morelos, Fac Ciencias Quim & Ingn, Av Univ 1001, Cuernavaca 62209, Morelos, México
Resumen	The effects of the interlayer distance on the nonlinear optical properties of n-type quadruple delta-doped GaAs quantum well were theoretically investigated. Particularly, the absorption coefficient and the relative refraction index change were determined. In the effective mass approach and within the framework of the Thomas-Fermi theory, the Schrodinger equation was resolved. Thereby, the subband energy levels and their respective wave functions were calculated. The variations in the nonlinear optical properties were determined by using the density matrix solutions. The achieved results demonstrate that the interlayer distance causes optical red-shift on nonlinear optical properties. Therefore, it can be deduced that the suitably chosen interlayer distance can be used to tune optical properties within the infrared spectrum region in optoelectronic devices such as far-infrared photo-detectors, high-speed electronic-optical modulators, and infrared lasers.
Palabras claves	Delta-doping, N-type GaAs layers, Electronic structure

Revista	CALDASIA
Volumen	44
Número	2
ISSN	ISSN: 0366-5232 eISSN: 357-3759
DOI	10.15446/caldasia.v44n2.90873
Título del Artículo	Morphology of Fruit and Seed, and Pregerminative Treatments of <i>Annona reticulata</i>
Autores e instituciones de adscripción	Vargas-Simón, G ^[1] ; López-Méndez, D ^[1] ; Pire, R ^[2] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Km 0-5 Carretera Villahermosa Cardenas, Villahermosa 86039, Tabasco, México [2] Univ Centroccidental Lisandro Alvarado, Hort, Apartado 400, Barquisimeto, Venezuela

Resumen	of the strategies for germplasm con-servation, and, taking into account that certain pregerminative treatments may favor its germination capacity, two objectives were pursued: the morphological characterization of fruits and seeds, and the assessment of its response to pregerminative treatments. Samples were collected in two municipalities of Tabasco State, México. Dimensions of fruits and seeds were measured, and seeds were submitted to six pre-germinative treatments as follows, control (T1), mechanical scarification (T2), soaking in gibberellic acid (GA3 100 mg L-1 for 3 h) (T3), soaking in GA3 (100 mg L-1 for 6 h) (T4), soaking in GA3a 200 mg L-1 for 3 h (T5), and mechanical scarification + soaking in GA3 (100 mg L-1 for 24 h) (T6). The germination percentage (GP) and rate (GR) were evaluated in a completely randomized design with five replications. The fruit averaged 422.2 g, with 116.8 seeds. The pulp is 69.22 % of the total fruit weight. Epigeal cryptocotylar germination started on day 17 and reached its maximum (76.6 %) on day 31. The mechanical scarification (T2) produced the highest values of GP, and GR, while the use of GA3 tended to result in lower values as the concentrations and soaking times of the product increased
Palabras claves	Epigeal cryptocotylar, Germination rate, Gibberellic acid

Revista	INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH
Volumen	19
Número	11
ISSN	1660-4601
DOI	10.3390/ijerph19116953
Título del Artículo	Mental Health Impact of the COVID-19 Pandemic on Mexican Population: A Systematic Review
Autores e instituciones de adscripción	Hernández-Díaz, Y ^[1] ; Genis-Mendoza, AD ^[2] ; Ramos-Méndez, MA ^[3] ; Juárez-Rojop, IE ^[4] ; Tovilla-Zárate, CA ^[5] ; González-Castro, TB ^[1] ; López-Narváez, ML ^[5] ; Nicolini, H ^[2] [1] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa De Méndez, Jalpa De Méndez 86205, México [2] Inst Nac Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, México City 14610, DF, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Salud, Beautiful Villa 86100, México [4] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Comalcalco, Comalcalco 86040, México [5] Hosp Chiapas Dr Jesús Gilberto Gómez Maza, Tuxtla Gutiérrez 29000, México
Resumen	The COVID-19 pandemic has had an impact on mental health in the general population, but no systematic synthesis of evidence of this effect has been undertaken for the Mexican population. Relevant studies were identified through the systematic search in five databases until December, 2021. The selection of studies and the evaluation of their methodological quality were performed in pairs. The Newcastle-Ottawa Scale (NOS) was used for study quality appraisal. The protocol of this systematic review was registered with PROSPERO (protocol ID: CRD42021278868). This review included 15 studies, which ranged from 252 to 9361 participants, with a total of 26,799 participants. The findings show that COVID-19 has an impact on the Mexican population's mental health and is particularly associated with anxiety, depression, stress and distress. Females and younger age are risk factors for development mental health symptoms. Mitigating the negative effects of COVID-19 on mental health should be a public health priority in México.
Palabras claves	Depression, Stress, Anxiety

Revista	MAMMALIA
Volumen	86
Número	5
ISSN	ISSN: 0025-1461 eISSN: 1864-1547
DOI	10.1515/mammalia-2021-0149
Título del Artículo	Landscape patterns in the occupancy of jaguars (<i>Panthera onca</i>) and their primary prey species in a disturbed region of the Selva Maya in México
Autores e instituciones de adscripción	Friedeberg-Gutiérrez, DB ^[2,3] ; López-González, CA ^[2] ; Lara-Díaz, NE ^[2] ; MacKenzie, D ^[4] ; de la Cruz, AJ ^[1] ; Juárez-López, R ^[1] ; Hidalgo-Mihart, M ^[1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa, Tabasco, México [2] Univ Autónoma Querétaro, Lab Zool, Fac Ciencias Nat, Ave Ciencias S-N, Juriquilla 76230, Querétaro, México [3] Panthera México, Stirling Dickinson 27, Guanajuato 37750, México [4] Proteus Wildlife Res Consultants, POB 5193, Dunedin, New Zealand
Resumen	In order to prioritize the conservation and management efforts to protect jaguars (<i>Panthera onca</i>), it is of utmost importance to determine their tolerance in face of human disturbances, habitat modifications and varying degrees of prey availability. We assessed the occupancy probability of jaguars and five of their most common prey species throughout a heterogeneous landscape in the Selva Maya in southern México: armadillo (<i>Dasytus novemcinctus</i>), coati (<i>Nasua narica</i>), paca (<i>Cuniculus paca</i>), white-tailed deer (<i>Odocoileus virginianus</i>), and collared peccary (<i>Dicotyles tajacu</i>). Additionally, we projected prey and Jaguar occupancies onto a 5993 km ² landscape based on the habitat type in the area. We averaged the best prey models ranked by QAICc and found that white-tailed deer had the highest average occupancy probability of 0.72 ± 0.06 and paca the lowest with 0.14 ± 0.04. The average occupancy probability for jaguars was 0.35 ± 0.07 and the strongest predictor of jaguar occupancy was a positive effect of collared peccary occupancy. These findings support previous studies that show that predator distribution is largely influenced by their prey availability, even in the midst of degraded habitats, and underlies the essential need to incorporate protection plans for prey species in jaguar conservation strategies.
Palabras claves	Carnivore ecology, Conservation, Jaguar

Revista	BEHAVIOURAL PHARMACOLOGY
Volumen	33
Número	1
ISSN	ISSN: 0955-8810 eISSN: 1473-5849
DOI	10.1097/FBP.0000000000000661
Título del Artículo	Isobolographic analysis of antinociceptive effect of ketorolac, indomethacin, and paracetamol after simultaneous peripheral local and systemic administration
Autores e instituciones de adscripción	Martínez-Martínez, MD ^[1] ; Parra-Flores, LI ^[1] ; Baeza-Flores, GD ^[1] ; Torres-López, JE ^[1] [1] Univ Juárez Autónoma Tabasco, Ctr Invest, Lab Mecanismos Dolor, Div Acad Ciencias Salud, Av Gregorio Méndez 2838-A, Villahermosa 86150, Tabasco, México
Resumen	This study was designed to characterize the type of interaction (subadditive, additive, or synergistic) after simultaneous administration by two different routes (intraperitoneal plus peripheral local) of the same nonsteroidal anti-inflammatory drugs (NSAID) ketorolac and indomethacin or paracetamol. The antinociceptive effects of locally or intraperitoneally delivery of NSAIDs or paracetamol, and the simultaneous administration by the two routes at fixed-dose ratio combination were evaluated using the formalin test. Pain-related behavior was quantified as the number of flinches of the injected paw. Isobolographic analysis was used to

Resumen	characterize the interaction between the two routes. ED30 values were estimated for individual drugs, and isobolograms were constructed. Ketorolac, indomethacin, or paracetamol and fixed-dose ratio combinations produced a dose-dependent antinociceptive effect in the second but not in the first phase of the formalin test. The analysis of interaction type after simultaneous administration by the two routes the same NSAID or paracetamol (on basis of their ED30), revealed that the simultaneous administration of ketorolac or paracetamol was additive and for indomethacin was synergistic. Since the mechanisms underlying the additive effect of ketorolac or paracetamol and the synergistic effect of indomethacin were not explored; it is possible that the peripheral and central mechanism is occurring at several anatomical sites. The significance of these findings for theory and pain pharmacotherapy practice indicates that the combination of one analgesic drug given simultaneously by two different administration routes could be an additive or it could lead to a synergistic interaction.
Palabras claves	Formalin test, Nonsteroidal anti-inflammatory drugs, Paracetamol

Revista	ITALIAN JOURNAL OF ANIMAL SCIENCE
Volumen	21
Número	1
ISSN	ISSN: 1594-4077 eISSN: 1828-051X
DOI	10.1080/1828051X.2021.2019621
Título del Artículo	Is visceral organ size related to feed efficiency in tropical hair sheep?
Autores e instituciones de adscripción	Arce-Recinos, C ^[1] ; Ramos-Juárez, JA [1]; Alarcón-Zúñiga, B ^[2] ; Vargas-Villamil, LM ^[1] ; Aranda-Ibañez, EM ^[1] ; da Costa, RLD ^[3] ; Chay-Canul, AJ ^[4] [1] Colegio Postgraduados, Programa Doctorado Ciencias Agrícolas Trop, Cardenas, México [2] Univ Autónoma Chapingo, Dept Zootecnia, Posgrad Prod Anim, Texcoco, Estado De Mexic, México [3] Inst Zootecnia, Sao Paulo, Brazil [4] Univ Juárez Autónoma Tabasco, Div Academ Ciencias Agr, Centro, México
Resumen	The residual feed intake (RFI) and residual intake and gain (RIG) are indices that measure ruminant feed efficiency. Their application has become alternatives to improve the profitability of intensive lamb production systems. This study aimed to evaluate the accuracy of RFI and RIG to measure the non-carcass organ size and cavity fat of lambs. Thirty non-castrated male lambs were fed for 92 days and slaughtered, and non-carcass organs were weighed. RFI and RIG were classified in low, medium and high efficiency groups, and correlated to carcass and non-carcass organ size. The average RFI values were 0.07, 0.00, and -0.07 kg DM/d and the RIG values were 1.86, -0.20, and -1.91, for high, medium and low, respectively. Low-RFI lambs had lower ($p < .05$) dry matter intake (DMI) and percentage of DMI standardised by metabolic weight. High-RIG lambs had a higher feed conversion ratio ($p \leq .05$) and tended ($p < .10$) towards higher average dairy gain. The efficient lambs (low-RFI and high-RIG) had a higher heart weight ($p \leq .05$). Trends ($p < .10$) towards higher blood volume and lower relative weight in omental and total cavity fat deposits were found in lambs with low RFI. Lambs classified as low-RFI and high-RIG had larger hearts, which could be related to improved cardiovascular performance and feed efficiency.
Palabras claves	Residual feed intake, residual intake and gain, visceral organ mass

Revista	FOOD BIOSCIENCE
Volumen	47
Número	n/a
ISSN	ISSN: 2212-4292 eISSN: 2212-4306
DOI	10.1016/j.fbio.2022.101669
Título del Artículo	Influence of the starter culture on the volatile profile of processed cocoa beans by gas chromatography-mass spectrometry in high resolution mode
Autores e instituciones de adscripción	Álvarez-VillaGómez, KG ^[1] ; Ledesma-Escobar, CA ^[3],4,5] ; Priego-Capote, F ^[3,4,5] ; Robles-Olvera, VJ ^[1] ; García-Alamilla, P ^[2] [1] TecNM Inst Tecnol Veracruz, Unidad Invest & Desarrollo Alimentos, Miguel Ángel de Quevedo 2779, Veracruz, Ver, México [2] Univ Juárez Autónoma Tabasco, Acad Div Agr & Livestock Sci, Villahermosa Teapa Km 25, La Huasteca 86280, Tabasco, México [3] Univ Cordoba, Dept Analyt Chem, Campus Rabanales, Cordoba, Spain [4] Reina Sofia Univ Hosp, Maimonides Inst Biomed Res IMIBIC, Madrid, Spain [5] Carlos III Inst Hlth, CIBERFES, Consortium Biomed Res Frailty & Hlth Ageing, Granada, Spain
Resumen	Cocoa is the main component of chocolate. It is widely accepted that cocoa quality largely depends on the processing, especially the fermentation step. Traditionally, fermentation takes place spontaneously by the endogenous microbiota; however, the process can lead to poor quality and heterogeneity of the final product. In this study, we evaluated the influence of the starter culture on the profile of volatiles during fermentation of commercial volumes of Mexican cocoa. Volatiles were also analyzed in post-fermented cocoa samples obtained after drying, roasting, and conching. Our results revealed a most desirable volatile profile in cocoa fermented with starter culture, mainly due to the higher relative content of alcohols (40%) and aldehydes (3.5%), but also due to a lower acidity (<1%) as compared to endogenous fermentation (acids, 65%; alcohols, 2%; and aldehydes <0.5%). Additionally, it is remarkable, the higher content of pyrazines in the inoculated samples after processing.
Palabras claves	Cocoa beans, Starter culture, Cocoa fermentation

Revista	FRONTIERS IN PSYCHIATRY
Volumen	13
Número	n/a
ISSN	1664-0640
DOI	10.3389/fpsy.2022.912021
Título del Artículo	Increased Levels of Cortisol in Individuals with Suicide Attempt and its relation with the number of Suicide Attempts and Depression
Autores e instituciones de adscripción	Genis-Mendoza, AD ^[1,2] ; Dionisio-García, DM ^[3] ; González-Castro, TB ^[4] ; Tovilla-Zárate, CA ^[5] ; Juárez-Rojop, IE ^[3] ; López-Narváez, ML ^[6] ; Castillo-Avila, RG ^[3] ; Nicolini, H ^[1] [1] Inst Nacl Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, México City, México [2] Hosp Psiquiatr Infantil Juan N Navarro, Serv Atenc Psiquiatr, México City, México [3] Univ Juárez Autónoma Tabasco, Div Academ Ciencias Salud, Villahermosa, México [4] Univ Juárez Autónoma Tabasco, Div Academ Multidisciplinaria Jalpa De Méndez, Jalpa De Méndez, México [5] Univ Juárez Autónoma Tabasco, Div Academ Multidisciplinaria Comalcalco, Comalcalco, México
Resumen	Background: Abnormalities in the hypothalamic-pituitary-adrenal axis (HPA) have been reported in individuals with suicide behavior. The aim of the study was to evaluate cortisol levels in peripheral plasma of individuals with more than one suicide attempt. Methods: Cortisol concentrations in peripheral plasma were measured using the ELISA technique. Suicide attempts were evaluated by the Columbia Suicide Severity Rating Scale, while depression was evaluated by the Hamilton Depression Rating Scale.

Resumen	<p>Results: We found elevated cortisol levels in the suicide attempt group when compared with healthy controls ($F = 7.26$, p-value = 0.008), but no statistical differences with the psychiatric diseases group ($F = 1.49$, p-value = 0.22). Cortisol levels were higher in individuals with depression ($F = 8.99$, $P = 0.004$) and in individuals with two or more suicide attempts ($F = 13.56$, $P < 0.001$).</p> <p>Conclusions: Cortisol levels are increased in individuals who attempt suicide and higher of cortisol concentrations in plasma regard to depression and more attempts of suicide.</p>
Palabras claves	Suicide attempt, cortisol, HPA axis

Revista	FISHES
Volumen	7
Número	3
ISSN	2410-3888
DOI	10.3390/fishes7030127
Título del Artículo	Inclusion of Mannan-Oligosaccharides in Diets for Tropical Gar <i>Atractosteus tropicus</i> Larvae: Effects on Growth, Digestive Enzymes, and Expression of Intestinal Barrier Genes
Autores e instituciones de adscripción	Maytorena-Verdugo, CI ^[1,2] ; Peña-Marín, ES ^[1,3] ; Álvarez-VillaGómez, CS ^[1] ; Pérez-Jiménez, GM ^[1] ; Sepulveda-Quiroz, CA ^[1] ; Álvarez-González, CA ^[1] <p>[1] Univ Juárez Autónoma Tabasco, Lab Fisiol Recursos Acuát DACBIOL, Carretera Villahermosa Cardenas Km 0-5, Villahermosa 86139, Tabasco, México [2] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa De Méndez, Carretera Estatal Libre Villahermosa Comalcalco K, Jalpa De Méndez 86205, Tabasco, México [3] Consejo Nacl Ciencia & Technol, Av Insurgentes Sur 1582, México City 03940, DF, México</p>
Resumen	Mannan-oligosaccharides (MOS) are non-digestible carbohydrates, and their use in aquaculture as prebiotics is well documented. The objective of this work was to test whether MOS supplemented in the diet of <i>A. tropicus</i> larvae (2, 4, and 6 g kg ⁻¹) influence growth parameters, the activity of digestive enzymes, and the expression of genes related to the intestinal barrier. The highest total length was observed in larvae fed 6 g kg ⁻¹ MOS compared to control larvae. Trypsin activity increased with the addition of MOS to the diets, but leucine aminopeptidase activity only increased with 6 g kg ⁻¹ MOS. Lipase and α -amylase activities increased in larvae fed with 2 and 4 g kg ⁻¹ MOS. The expression of <i>zo-2</i> was higher with the 6 g kg ⁻¹ MOS treatment. The <i>cl-3</i> transcripts were lower with 2 g kg ⁻¹ MOS but higher with 6 g kg ⁻¹ MOS. All tested concentrations of MOS increased the expression of <i>muc-2</i> . In this study, incorporating mannan-oligosaccharides into the diet of <i>A. tropicus</i> larvae had a positive effect, and the concentration of 6 g kg ⁻¹ produced the best results. Therefore, including this prebiotic in the diets for the culture of <i>A. tropicus</i> larvae is suitable.
Palabras claves	<i>cl-3</i> ; Leucine Aminopeptidase; <i>MUC-2</i> ;

Revista	JOURNAL OF FOOD AND NUTRITION RESEARCH
Volumen	61
Número	1
ISSN	ISSN: 1336-8672 eISSN: 1338-4260
DOI	N/A
Título del Artículo	In vitro antioxidant and alpha-amylase inhibitory activity of extracts from peel and pulp of <i>Chrysophyllum cainito</i> cultivated in the Mexican southeast

Autores e instituciones de adscripción	Ceferino, JG ^[1] ; Ovando, MAM ^[2] ; Ordoñez, YM ^[3] ; Ancona, DB ^[4] ; Lanestosa, AC ^[1] <p>[1] Juárez Autonomous Univ Tabasco, Food Biotechnol Lab, Rd Villahermosa Teapa S-N, Villahermosa 86280, Tabasco, México [2] Chiapas Univ Sci & Arts, Fac Nutr & Food Sci, Food Lab, North Cent St 4a & 5a, S-N, Chiapas 30580, México [3] Natl Inst Forestry Agr & Livestock Res, Mococho Expt Field, Km 25 Old Highway Mérida Motul S-N, Mococho 97454, Yucatán, México [4] Autonomous Univ Yucatán, Food Sci Lab, North Peripheral Km 33-5,13615, Mérida 97203, Yucatán, México</p>
Resumen	Four extracts of <i>Chrysophyllum cainito</i> L. were made, namely, ethanolic extract of pulp (EEPC), ethanolic extract of peel (EECC), aqueous extract of pulp (EAPC) and aqueous extract of peel (EACC). The content of phenols and flavonoids, as well as antioxidant activity and in vitro antidiabetic activity, were determined for these extracts. EECC showed a higher content of phenolic compounds and total flavonoids compared to the pulp extracts, specifically 5.16 +/- 0.13 g.kg (-1) (expressed as gallic acid equivalents) and 4.71 +/- 0.18 g.kg (-1) (expressed as catechin equivalents), respectively. Regarding the antioxidant activity, EECC free radical scavenging of 78.8 +/- 0.1 % was determined by the 2,2-diphenyl-1-picrilhidrazyl (DPPH) assay and 80.3 +/- 0.1 % by the 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) assay. EECC had the highest inhibition index on the digestive enzyme α -amylase (87.7 +/- 8.3 %). The <i>Chrysophyllum cainito</i> fruit was found to possess a free radical donor capacity and inhibitory activity of amylolytic enzyme, important in control of diabetes mellitus and its complications.
Palabras claves	Chlorogenic Acid, Fruit, Leaves

Revista	MOLECULES
Volumen	27
Número	12
ISSN	1420-3049
DOI	10.3390/molecules27123707
Título del Artículo	Impact of the Cooking Process on Metabolite Profiling of <i>Acanthocereus tetragonus</i>, a Plant Traditionally Consumed in México
Autores e instituciones de adscripción	Cornejo-Campos, J ^[1] ; Gómez-Aguirre, YA ^[1] ; Velázquez-Martínez, JR ^[2] ; Ramos-Herrera, OJ ^[3] ; Chávez-Murillo, CE ^[3] ; Cruz-Sosa, F ^[4] ; Areche, C ^[5] ; Cabañas-García, E ^[6] <p>[1] Univ Autónoma Aguascalientes, Dept Quim, Ctr Ciencias Básicas, Av Univ 940, Ciudad Univ, Aguascalientes 20100, Aguascalientes, México [2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, Km 25, Villahermosa 86280, Tabasco, México [3] Instituto Politecn Nacl UPIIZ IPN, Unidad Profes Interdisciplinaria Ingn, Campus Zacatecas, Calle Circuito Gato 202, Zacatecas 98160, Zacatecas, México [4] Univ Autónoma Metropolitana, Dept Biotechnol, Campus Iztapalapa, San Rafael Atlixco 186, México City 09340, DF, México [5] Univ Chile, Dept Quim, Fac Ciencias, Casilla 653, Santiago 7800024, Chile [6] Inst Politecn Nacl, Ctr Estudios Cientif & Tecnol 18, Calle Circuito Gato 202, Zacatecas 98160, Zacatecas, México</p>
Resumen	<i>Acanthocereus tetragonus</i> (L.) Hummelinck is used as an alternative food source in some Mexican communities. It has been shown that the young stems of <i>A. tetragonus</i> provide crude protein, fiber, and essential minerals for humans. In this work, we analyzed the phytochemical profile, the total phenolic content (TPC), and the antioxidant activity of cooked and crude samples of <i>A. tetragonus</i> to assess its functional metabolite contribution to humans. The phytochemical profile was analyzed using Ultra-High-Performance Liquid Chromatography coupled to High-Resolution Mass Spectrometry (UHPLC-PDA-HESI-Orbitrap-MS/MS). Under the proposed conditions, 35 metabolites were separated and

Resumen	tentatively identified. Of the separated metabolites, 16 occurred exclusively in cooked samples, 6 in crude samples, and 9 in both crude and cooked samples. Among the detected compounds, carboxylic acids, such as threonic, citric, and malic acids, phenolic acids, and glycosylated flavonoids (luteolin-O-rutinoside) were detected. The TPC and antioxidant activity were analyzed using the Folin-Ciocalteu method and the 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical inhibition method, respectively. The TPC and antioxidant activity were significantly reduced in the cooked samples. We found that some metabolites remained intact after the cooking process, suggesting that <i>A. tetragonus</i> represents a source of functional metabolites for people who consume this plant species.
Palabras claves	Marginalized Communities, Secondary Metabolites, Cacti

Revista	SUSTAINABILITY
Volumen	14
Número	10
ISSN	2071-1050
DOI	10.3390/su14105877
Título del Artículo	Harnessing Offshore Wind Energy along the Mexican Coastline in the Gulf of México-An Exploratory Study including Sustainability Criteria
Autores e instituciones de adscripción	Gálvez, GH [1]; Lievano, DC [1]; Martínez, OS [1]; Danguillecourt, OL [2]; Portela, JRD [3]; Narcia, AT [1]; Flores, RS [4]; González, LP [5]; Perea-Moreno, AJ [6]; Hernández-Escobedo, Q [7] [1] Univ Popular Chontalpa, Carretera Cárdenas Huimanguillo Km 2 Ranchería Pa, Cardenas 86556, Tabasco, México [2] Univ Ciencias & Artes Chiapas, Tuxtla Gutiérrez 29000, Chiapas, México [3] Univ Istmo, Campus Tehuantepec, Ciudad Univ S-N, Tehuantepec 70760, Oaxaca, México [4] Inst Nacl Elect & Energías Limpias, Calle Reforma 113, Cuernavaca 62490, Morelos, México [5] Univ Juárez Autónoma Tabasco, Div Ciencias Biol, Carretera Villahermosa Cardenas Km 0-5 S-N, Villahermosa 86150, Tabasco, México [6] Univ Cordoba, Dept Fis Aplicada Radiol & Med Fis, Edificio Albert Einstein, Campus Rabanales, Cordoba 14071, Spain [7] UNAM, Escuela Nacl Estudios Super, Unidad Juriquilla, Querétaro 76230, México
Resumen	México has more than 40 years of researching, investing, and obtaining electric power through wind energy. Within the country, there are highly windy areas, such as the Isthmus of Tehuantepec or the state of Tamaulipas, and there are about 2500 MW installed and 70,000 MW tested, all onshore. There are still no offshore wind farms in México, despite having two main coasts, the East and the West, with the Gulf of México and the Pacific Ocean, respectively. Although the Mexican coastal states of the Gulf of México are Tamaulipas, Veracruz, Tabasco, Campeche, and Yucatán, this work focuses on the study and feasibility of offshore wind energy use on the coasts of the states of Tabasco, Campeche, and Yucatán. This is because of the availability of data in that region; however, sustainability criteria that can be used in other regions are also presented. MERRA-2 and ERA5 data were used employing WAsP and Windographer software. It was found that the capacity factor in the area of Tabasco, Campeche, and Yucatán is 32%, 37%, and 46%. It can be noted that, in the WF100% scenario, each of the wind farms could contribute more than 35% of the region's electricity consumption; those of Campeche and Yucatán stand out with contributions of more than 70%.
Palabras claves	Wind Energy; Offshore; Sustainability

Revista	ACTA BOTÁNICA MEXICANA
Volumen	129
Número	n/a
ISSN	2448-7589
DOI	https://doi.org/10.21829/abm129.2022.1857
Título del Artículo	Germination, initial growth and morphology of <i>Castilla elastica</i> (Moraceae) in Tabasco, México
Autores e instituciones de adscripción	Custodio-Rodríguez, JP [1]; Vargas-Simón, G [1]; Contreras-Sánchez, WM [1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Carretera Villahermosa Cardenas Km 0-5, Villahermosa 86039, Tabasco, México
Resumen	Background and Aims: <i>Castilla elastica</i> is a Mesoamerican native species associated with different Prehispanic cultures that used their latex for ceremonial purposes. It is considered an emblematic tree, useful in agroforestry systems. This work aimed to evaluate the germination, initial growth and morphology of <i>C. elastica</i> . Methods: Seeds from 30 trees were collected and planted in polyethylene trays. The start of the germination was determined by the sprouting of the epicotyls. The percentage of germination was quantified, and three periods of evaluation were established, every 45 days. Stem length (Lt) and basal stem diameter (Db) were evaluated. Absolute (RGA) and relative (RGR) growth rates were also obtained. Additionally, simple regression tests were made, and a regression was calculated associating RGA from Lt against some climatic variables. Growth evaluation of the plants lasted 205 days. Key results: Germination was obtained in 100%, the process initiated at 12 days. At 205 days, plants reached an average (± 1 SD) Lt and Db of 36.5 cm (± 5.27) and 8.2 mm (± 0.55), respectively. The three evaluation periods showed significant statistical differences. According to regression models, <i>C. elastica</i> grows 0.188 cm day ⁻¹ for each millimeter of increase in Db. Conclusions: The use of recently harvested seeds guarantees 100% germination. Different stages of development of the seedling depending on the time (205 days) were obtained. The RGR decreased after the first evaluation, being attributable to the solar radiation. This work demonstrated the feasibility of producing <i>C. elastica</i> plants, reaching the minimal required quality standards in terms of its average Lt and Db.
Palabras claves	Eophylls, Growth Rates, Phenology,

Revista	NUTRIENTS
Volumen	14
Número	2
ISSN	2072-6643
DOI	10.3390/nu14020394
Título del Artículo	Genome-Wide Analysis of Disordered Eating Behavior in the Mexican Population
Autores e instituciones de adscripción	Martínez-Magaña, JJ [1]; Hernández, S [2]; García, AR [3]; Cardoso-Barajas, V [3]; Sarmiento, E [3]; Camarena, B [2,3]; Caballero, A [4]; González, L [4]; Villatoro-Velázquez, JA [5]; Medina-Mora, ME [5]; Bustos-Gamino, M [5]; Fleiz-Bautista, C [5]; Tovilla-Zárate, CA [6]; Juárez-Rojop, IE [7]; Nicolini, H [1]; Genis-Mendoza, AD [1] [1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Carretera Villahermosa Cardenas Km 0-5, Villahermosa 86039, Tabasco, México [2] Inst Nacl Med Genom, Lab Genom Enfermedades Psiquiatr & Neurodegenerat, México City 14610, DF, México [3] Inst Nacl Psiquia Ramón Fuente Muñiz, Lab Farmacogenet, México City 14370, DF, México [4] Hosp Psiquiat Infantil Juan N Navarro, Unidad Invest, México City 14080, DF, México [5] Inst Nacl Psiquiatria Ramón Fuente Muñiz, Unidad Trastornos Alimenticios, México City 14370, DF, México [6] Univ Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Comalcalco, Comalcalco 86654, México [7] Univ Juárez Autónoma Tabasco, Div Ciencias Salud, Villahermosa 86100, Tabasco, México

Resumen	Alterations in eating behavior characterized eating disorders (ED). The genetic factors shared between ED diagnoses have been underexplored. The present study performed a genome-wide association study in individuals with disordered eating behaviors in the Mexican population, blood methylation quantitative trait loci (blood-meQTL), summary data-based Mendelian randomization (SMR) analysis, and in silico function prediction by different algorithms. The analysis included a total of 1803 individuals. We performed a genome-wide association study and blood-meQTL analysis by logistic and linear regression. In addition, we analyzed in silico functional variant prediction, phenome-wide, and multi-tissue expression quantitative trait loci. The genome-wide association study identified 44 single-nucleotide polymorphisms (SNP) associated at a nominal value and seven blood-meQTL at a genome-wide threshold. The SNPs show enrichment in genome-wide associations of the metabolic and immunologic domains. In the in silico analysis, the SNP rs10419198 (p -value = 4.85×10^{-5}) located on an enhancer mark could change the expression of <i>PRR12</i> in blood, adipocytes, and brain areas that regulate food intake. Additionally, we found an association of DNA methylation levels of <i>SETBP1</i> (p -value = 6.76×10^{-4}) and <i>SEMG1</i> (p -value = 5.73×10^{-4}) by SMR analysis. The present study supports the previous associations of genetic variation in the metabolic domain with ED.
Palabras claves	Feeding and eating disorder, Genome-wide association study, Methylation quantitative trait loci

Revista	NANOMATERIALS
Volumen	12
Número	12
ISSN	2079-4991
DOI	10.3390/nano12121969
Título del Artículo	Facile Synthesis of ZnO-CeO ₂ Heterojunction by Mixture Design and Its Application in Triclosan Degradation: Effect of Urea
Autores e instituciones de adscripción	Caceres-Hernández, A ^[1] ; Torres-Torres, JG ^[1] ; Silahua-Pavón, A ^[1] ; Godavarthi, S ^[2] ; García-Zaleta, D ^[3] ; Saavedra-Díaz, RO ^[1] ; Tavares-Figueiredo, R ^[4] ; Cervantes-Urbe, A ^[1] [1] Univ Juárez Autónoma Tabasco, Ctr Invest Ciencia & Tecnol Aplicada Tabasco CICT, Lab Nanomat Catalit Aplicados Desarrollo Fuentes, Km1 carretera Cunduacán Jalpa Méndez, Cunduacán 86690, TB, México [2] Univ Juárez Autónoma Tabasco, Investigadoras & Investigadores México, Div Acad Ciencias Bas, Villahermosa 86690, Tabasco, México [3] IUniv Juárez Autónoma Tabasco, Div Acad Multidisciplinaria Jalpa Méndez, Carretera Cunduacán Jalpa Méndez, Km 1, Col Esmeralda, Villahermosa 86690, Tabasco, México [4] CNPQ Conselho Nacl Desenvolvimento Cient & Techno, BR-86690 Brasilia, DF, Brazil
Resumen	In this study, simplex centroid mixture design was employed to determine the effect of urea on ZnO-CeO. The heterojunction materials were synthesized using a solid-state combustion method, and the physicochemical properties were evaluated using X-ray diffraction, nitrogen adsorption/desorption, and UV-Vis spectroscopy. Photocatalytic activity was determined by a triclosan degradation reaction under UV irradiation. According to the results, the crystal size of zinc oxide decreases in the presence of urea, whereas a reverse effect was observed for cerium oxide. A similar trend was observed for ternary samples, i.e., the higher the proportion of urea, the larger the crystallite cerium size. In brief, urea facilitated the co-existence of crystallites of CeO and ZnO. On the other hand, UV spectra indicate that urea shifts the absorption edge to a longer wavelength. Studies of the photocatalytic activity of TCS degradation show that the increase in the proportion of urea favorably influenced the percentage of mineralization.
Palabras claves	ZnO; CeO ₂ ; Heterojunction

Revista	PLANTS-BASEL
Volumen	11
Número	13
ISSN	2223-7747
DOI	10.3390/plants11131739
Título del Artículo	Eupatorin and Salviandulin-A, with Antimicrobial and Anti-Inflammatory Effects from <i>Salvia lavanduloides</i> Kunth Leaves
Autores e instituciones de adscripción	González-Cortazar, M ^[1] ; Salinas-Sánchez, DO ^[2,3] ; Herrera-Ruiz, M ^[1] ; Román-Ramos, DC ^[3] ; Zamilpa, A ^[1] ; Jiménez-Ferrer, E ^[1] ; Blé-González, EA ^[4] ; Álvarez-Fitz, P ^[5] ; Castrejon-Salgado, R ^[6] ; Pérez-García, MD ^[1] [1] Inst Mexicano Seguro Social, Ctr Invest Biomed Sur, Argentina 1, Xochitepec 62790, Morelos, México [2] Univ Autónoma Estado Morelos UAEM, Ctr Invest Biodiversidad & Conservac CIByC, Av Univ 1001, Cuernavaca 62209, Morelos, México [3] Univ Autónoma Estado Morelos, Escuela Estudios Super Jicarero EESJ, Carretera Galeana Tequesquitengo S-N, Jojutla 62909, Morelos, México [4] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Básicas, Carretera Cunduacán Jalpa Km 0-5, Cunduacán 86690, Tabasco, México [5] Univ Autónoma Guerrero, Cátedra CONACyT, Lab Toxicol, Av Lázaro Cárdenas S-N, Chilpancingo 39070, Guerrero, México [6] Inst Mexicano Seguro Social, Unidad Med Familiar Número 3, Ave Insurgentes Esquina Con Emiliano Zapata S-N, Juitepec 62550, Morelos, México
Resumen	This study describes the antimicrobial and anti-inflammatory effects from extracts obtained from the leaves of <i>Salvia lavanduloides</i> . The plant material was macerated with three solvents of ascending polarity (<i>n</i> -hexane (SI-Hex), ethyl acetate (SI-AcOEt), and dichloromethane (SI-D)). The extracts, fractions (SID-2 and SID-3), and isolated compounds (15,16-epoxy-10- β -hydroxy-neo-cleroda-3,7,13(16),14-tetraene-17,12R:18,19-diolide (1), salviandulin A (2), and eupatorin (3)) were evaluated as antimicrobials against Gram-negative, Gram-positive bacteria and the fungus <i>Candida albicans</i> (Ca) using the minimum inhibitory concentration (MIC) and the anti-inflammatory activity induced by 13-acetate of 12-O-tetradecanoylforbol (TPA). SI-D and SI-AcOEt extracts, SID-2 and SID-3 fractions showed the highest antimicrobial activity. The isolated compounds showed good activity against <i>Pseudomonas aeruginosa</i> with a MIC < 2 μ g/mL, while the anti-inflammatory activity, the SI-Hex, SI-D extracts, and SID-3 fraction presented an inhibition of 62, 45 and 61%, respectively, while (2) 70% and (3) 72%.
Palabras claves	<i>Salvia lavanduloides</i> ; minimum inhibitory concentration (MIC); 13-acetate of 12-O-tetradecanoylforbol (TPA)

Revista	SCIENTIFIC REPORTS
Volumen	12
Número	1
ISSN	2045-2322
DOI	10.1038/s41598-022-12868-0
Título del Artículo	Estimation of milk yield based on udder measures of Pelibuey sheep using artificial neural networks
Autores e instituciones de adscripción	Ángeles-Hernández, JC ^[1] ; Castro-Espinoza, FA ^[2] ; Pelaez-Acero, A ^[1] ; Salinas-Martínez, JA ^[1] ; Chay-Canul, AJ ^[3] ; Vargas-Bello-Pérez, E ^[4] [1] Univ Autónoma Estado de Hidalgo, Inst Ciencias Agr, Tulancingo 43600, Hidalgo, México [2] Univ Autónoma Estado de Hidalgo, Inst Ciencias Básicas & Ingn, Pachuca 42184, Hidalgo, México [3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Villahermosa 86290, Tabasco, México [4] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Gronnegardsvej 3, DK-1870 Frederiksberg C, Denmark
Resumen	Udder measures have been used to assess milk yield of sheep through classical methods of estimation. Artificial neural networks (ANN) can deal with complex non-linear relationships between input and output variables. In the current study,

Resumen	ANN were applied to udder measures from Pelibuey ewes to estimate their milk yield and this was compared with linear regression. A total of 357 milk yield records with its corresponding udder measures were used. A supervised learning was used to train and teach the network using a two-layer ANN with seven hidden structures. The globally convergent algorithm based on the resilient backpropagation was used to calculate ANN. Goodness of fit was evaluated using the mean square prediction error (MSPE), root MSPE (RMSPE), correlation coefficient (r), Bayesian's Information Criterion (BIC), Akaike's Information Criterion (AIC) and accuracy. The 15-15 ANN architecture showed that the best predictive milk yield performance achieved an accuracy of 97.9% and the highest values of r(2) (0.93), and the lowest values of MSPE (0.0023), RMSPE (0.04), AIC (- 2088.81) and BIC (- 2069.56). The study revealed that ANN is a powerful tool to estimate milk yield when udder measures are used as input variables and showed better goodness of fit in comparison with classical regression methods.
Palabras claves	Multiple Linear-Regression, Awassi Sheep, Prediction

Revista	FOODS
Volumen	11
Número	10
ISSN	2304-8158
DOI	10.3390/foods11101396
Título del Artículo	Estimation of Carcass Tissue Composition from the Neck and Shoulder Composition in Growing Blackbelly Male Lambs
Autores e instituciones de adscripción	Gastelum-Delgado, MA ^[1] ; Aguilar-Quiñonez, JA ^[1] ; Arce-Recinos, C ^[2] ; García-Herrera, RA ^[2] ; Macías-Cruz, U ^[3] ; Lee-Rángel, HA ^[4] ; Cruz-Tamayo, AA ^[5] ; Ángeles-Hernández, JC ^[6] ; Vargas-Bello-Pérez, E ^[7,8] ; Chay-Canul, AJ ^[2] ^[1] Univ Autónoma Sinaloa, Fac Agron, Km 17-5 Carretera Culiacan El Dorado, Culiacan 80000, Sinaloa, México ^[2] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Agr, Carretera Villahermosa Teapa, Km 25, Villahermosa 86280, Tabasco, México ^[3] Univ Autónoma Baja California, Inst Ciencias Agr, Ejido Nuevo Leon S-N, Mexicali 21705, Baja California, México ^[4] Univ Autónoma San Luis Potosí, Ctr Biociencias, Fac Agron & Vet, Tulancingo De Bravo 78000, San Luis Potosí, México ^[5] Univ Autónoma Campeche, Fac Ciencias Agr, Escarcega 24350, Campeche, México ^[6] Univ Autónoma Estado Hidalgo, Inst Ciencias Agr, Av Univ Km 1, Tulancingo De Bravo 43600, Hidalgo, México ^[7] Univ Copenhagen, Fac Hlth & Med Sci, Dept Vet & Anim Sci, Gronnegardsvej 3, DK-1870 Frederiksberg C, Denmark ^[8] Univ Reading, Sch Agr Policy & Dev, Dept Anim Sci, POB 237, Reading RG6 6EU, Berks, England
Resumen	This study was designed to develop predictive equations estimating carcass tissue composition in growing Blackbelly male lambs using as predictor variables for tissue composition of wholesale cuts of low economic value (i.e., neck and shoulder). For that, 40 lambs with 29.9 ± 3.18 kg of body weight were slaughtered and then the left half carcasses were weighed and divided in wholesale cuts, which were dissected to record weights of fat, muscle, and bone from leg, loin, neck, rib, and shoulder. Total weights of muscle (CM), bone (CB) and fat (CF) in carcass were recorded by adding the weights of each tissue from cuts. The CM, CF and CB positively correlated ($p < 0.05$; $0.36 \leq r \leq 0.86$), from moderate to high, with most of the shoulder tissue components, but it was less evident ($p \leq 0.05$; $0.32 \leq r \leq 0.63$) with the neck tissue composition. In fact, CM did not correlate with neck fat and bone weights. Final models explained ($p < 0.01$) 94, 92 and 88% of the variation observed for CM, CF and CB, respectively. Overall, results showed that prediction of carcass composition from shoulder (shoulder) tissue composition is a viable option over the more accurate method of analyzing the whole carcass.
Palabras claves	Carcass muscle; Carcass fat; Carcass bone;

Revista	PLANTS-BASEL
Volumen	11
Número	3
ISSN	2223-7747
DOI	10.3390/plants11030300
Título del Artículo	Ellagitannin, Phenols, and Flavonoids as Antibacterials from <i>Acalypha arvensis</i> (Euphorbiaceae)
Autores e instituciones de adscripción	Ble-González, EA ^[1] ; Gómez-Rivera, A ^[1] ; Zamilpa, A ^[2] ; López-Rodríguez, R ^[1] ; Lobato-García, CE ^[1] ; Álvarez-Fitz, P ^[3] ; Gutiérrez -Román, AS ^[2] ; Pérez-García, MD ^[2] ; Bugarin, A ^[4] ; González-Cortazar, M ^[2] ^[1] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Básicas, Carretera Cunduacán Jalpa Km 0-5, Cunduacán 86690, Tabasco, México ^[2] Inst Mexicano Seguro Social, Ctr Invest Biomed Sur, Argentina 1, Xochitepec 62790, Morelos, México ^[3] Univ Autónoma Guerrero, Catedra CONACyT, Lab Toxicol, Av Lazaro Cardenas S-N, Chilpancingo 39070, Guerrero, México ^[4] Florida Gulf Coast Univ, Dept Chem & Phys, Ft Myers, FL 33965 USA
Resumen	There is a significant need to gain access to new and better antibacterial agents. <i>Acalypha arvensis</i> , a plant from the Euphorbiaceae family, has been used in traditional medicine for centuries to treat infectious diseases. This manuscript reports the isolation, characterization, and antibacterial screening of 8 natural products extracted from maceration of aerial parts of <i>Acalypha arvensis</i> . Specifically, three extracts were assessed (<i>n</i> -hexane, ethyl acetate, and ethanol), in which antibacterial activity was evaluated against diverse bacterial strains. The ethanolic extract showed the best activity against methicillin-sensitive and methicillin-resistant <i>Staphylococcus aureus</i> , <i>Klebsiella pneumoniae</i> , and <i>Pseudomonas aeruginosa</i> strains, which supports the medicinal properties attributed to this plant. The chromatographic fractions AaR4 and AaR5 were the most bioactive, in which the ellagitannin natural product known as corilagin (1) was identified for the first time in this plant. Therefore, it can be said that this is the main chemical responsible for the observed antibacterial activity. However, we also identified chlorogenic acid (2), rutin (3), quercetin-3-O-glucoside (4), caffeic acid (5), among others (6–8). Hence, this plant can be considered to be a good alternative to treat health-related issues caused by various bacteria.
Palabras claves	<i>Acalypha arvensis</i> , Ellagitannin, Corilagin

Revista	CRYSTALS
Volumen	12
Número	4
ISSN	2073-4352
DOI	10.3390/cryst12040482
Título del Artículo	Electrochemical noise response of Cr ₂ Nb powders applying mechanical alloying
Autores e instituciones de adscripción	Nava-Dino, CG ^[1] ; Flores-De los Ríos, JP ^[1] ; Maldonado-Orozco, MC ^[1] ; Sánchez-Carrillo, M ^[2] ; Bautista-Margulis, RG ^[3] ; Delgado, AD ^[4] ; Almeraya-Calderón, F ^[5] ^[1] Univ Autónoma Chihuahua, Fac Ingn, Circuito 1, Campus Univ 3, Chihuahua 31125, México ^[2] Tecnol Nacl México, Inst Tecnol Chihuahua, Av Tecnol 2909, Chihuahua 31130, México ^[3] Univ Juárez Autónoma Tabasco, Div Acad Ciencias Biol, Villahermosa 86040, Tabasco, México ^[4] Ctr Invest Mat Avanzados SC CIMAV, Miguel de Cervantes 120, Complejo Ind Chihuahua, Chihuahua 31136, México ^[5] Univ Autónoma Nuevo Leon, Fac Ingn Mekan & Elect, Ctr Invest & Innovacionen Ingn Aeronaut, San Nicolás De Los Garza 66455, Nuevo Leon, México
Resumen	Cr ₂ Nb alloys are potential candidates for high-temperature structural materials. The influence of different mechanical alloying parameters (milling time) and sintering processes were studied. After mechanical alloying and observation by scanning electron microscope (SEM), nano powders were characterized and then

Resumen	sintered by spark plasma sintering (SPS). Electrochemical noise (EN) tests were also conducted in order to study the electrochemical behavior. From the current experimental results, it was revealed that ball milling times up to 20 h may explain the influence of Nb–Cr alloys and its association to the Laves phase and corrosion behavior. These insights aimed at improving the samples' predicted behavior before spending time and resources at high-temperature industrial processes.
Palabras claves	Mechanical alloying, SPS, Electrochemical noise

Revista	ARP RHEUMATOLOGY
Volumen	1
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Título del Artículo	Efficacy of prolotherapy in pain control and function improvement in individuals with lateral epicondylitis: a systematic review and meta-analysis
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Resumen	Aim: The objective of this study was to evaluate the efficacy of prolotherapy when treating individuals with lateral epicondylitis through a systematic review and meta-analysis. Methods: The search for articles was carried out in electronic databases including PUBMED, CENTRAL, WEB OF SCIENCE, SCIELO and Google Scholar, published up to July 2021. We used the following keywords: prolotherapy OR proliferation therapy OR hypertonic dextrose injections AND tennis elbow OR lateral epicondylitis. The effectiveness was expressed as mean difference or standardized mean difference (SMD and 95% CI). Major results: Nine clinical trials that used prolotherapy in the treatment of lateral epicondylitis were included. In the pooled analysis, prolotherapy was effective in pain control in the medium (SMD= -0.85, 95% CI -1.29 to -0.41) and long terms (SMD= -1.05, 95% CI -2.06 to -0.03). It was also effective in improving function in the medium term (SMD= -1.21, 95% CI -1.64 to -0.78). Conclusions: Prolotherapy was effective for reducing pain in the medium and long terms, as well as for improving function in the medium term, in individuals with lateral epicondylitis. However, the quality of evidence was only moderate. More studies with a low risk of bias are necessary to further clarify the efficacy of prolotherapy in patients with lateral epicondylitis.
Palabras claves	Prolotherapy, Proliferation therapy, Lateral epicondylitis

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Título del Artículo	Effectiveness of zilpaterol hydrochloride in lamb finishing: Patent vs. Generic

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Resumen	The objective of this study was to compare the effect of the patent vs. generic sources of zilpaterol hydrochloride (ZH) on the productive performance, carcass characteristics, primary cutyields, and meat quality of lambs finished in feedlot. Thirty (30) Dorper×Pelibuey male lambs were distributed into 10 blocks, each with three lambs of similar initial live weight which were randomly assigned to the following treatments: 1) without ZH (control), 2) with patent ZH (PZH), and 3) with generic ZH (GZH). Treatment means were compared through two orthogonal contrasts: control vs ZH (PZH+GZH) and PZH vs. GZH. ZH did not affect ($P \geq 0.15$) the productive performance, carcass weight, backfat thickness, or fat percentages (kidney-pelvic-heart, mesenteric or omental), but increased ($P \leq 0.05$) <i>Longissimus</i> dorsimuscle area and yields of carcass, shoulder, leg, and plain loin. As for the meat quality, ZH did not affect ($P \geq 0.24$) pH and shear force, but reduced ($P < 0.05$) redness, yellowness, and chroma color values at 24 h post mortem, as well as the redness value ($P < 0.01$) at 14 days of aging. With exception of carcass yield which tended ($P = 0.07$) to increase with PZH, all measured variables were similar ($P \geq 0.14$) between PZH and GZH. It has been concluded that both types of ZH at a dose of 0.10 mg per kg of live weight promote muscular hypertrophy in finishing lambs; however, this dosage is not sufficient to result in a better productive performance or carcass weight.
Palabras claves	Adrenergic agonists, Meat quality, Carcass characteristics



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