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Abstracts Collection

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Preface

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*CDMX.
Diciembre 13, 2022.*

Serrudo-Gonzales, Javier BsC.

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1 Physical and Mathematical Sciences and Earth Sciences

Thermal coating with rigid recycled polyurethane foam as a partial substitute of limestone aggregate

Recubrimiento térmico con espuma rígida de poliuretano reciclado como sustituto parcial de agregado calizo

CERVANTES-RAMÍREZ, Elmer Marcial, TREJO-ARROYO, Danna Lizeth, CRUZ-ARGÜELLO, Julio César and GURROLA, Mayra Polett

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Abstract

This research presents the results of an experimental study about the effect of the rigid recycled polyurethane foam used as a partial substitute of limestone aggregates in the elaboration of cement-based coating, with the objective of reducing the consumption of natural aggregate by replacing it with a recycled material and reducing the thermal conductivity of the coating. The rigid recycled polyurethane foam was crushed to be used as a partial substitute of the fine limestone aggregate in proportions of 15, 20 and 25% in volume, maintaining a cement:sand ratio of 1:3., and its mechanical, physical and thermal properties were evaluated. The mortar of coating with 20% of substitution of recycled polyurethane foam by limestone aggregate, presented a better physical-mechanical and thermal behavior to a laboratory level; therefore, so it was used in real conditions as an exterior coating in a construction prototype elaborated with a wall of blocks and exposed to environmental conditions for a year. The results demonstrated that the modified coating improved its thermal performance by decreasing the interior temperature of the prototype by around 15% compared to the traditional coating, with a difference of 0 to 1.5 °C low, thus maintaining it for most of the year and with relative humidity without significant changes.

Mortar coating, Thermal properties, Limestone aggregate, Rigid polyurethane foam

Oregano oil extraction process using the "Coreganoil" coil steam drag method

Proceso de extracción de aceite de orégano usando el método arrastre de vapor serpentín "Coreganoil"

AGUIRRE-OROZCO, Mario Abelardo, DELGADO-MARTÍNEZ, Martha Lilia, MÁRQUEZ-MONÁRREZ, Olivia and CONTRERAS-MARTÍNEZ, Jesús José

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Abstract

It is an unprecedented process of extracting oil from the oregano plant (*Lippia graveolens*), from the distillation dry by the coil method. With innovation, a purer oil will be obtained by increasing the essences in thymol and carvacrol counteracting all possible moisture generated by the process. In addition to saving inputs for the extraction of volatile essences, which give it quality and purity, directly impacting the sale price. The objective that coreganoil offers to the market is the high purity of the oil extracted from the oregano plant, thanks to the new unprecedented dry distillation process using the coil method, resulting in an oregano oil with higher percentages of thymol and carvacrol, obtaining a purer oil. The methodological extraction procedure of this innovation is dry distillation by the coil method, which will allow the extraction process to be effective with a higher concentration of its physicochemical properties, giving it more added value. Coreganoil's contribution in obtaining it is a project that has the presence of a potential market in the south central region of the state of Chihuahua where there are 14,805 potential clients according to INEGI (2020). Potential clients for this project are mostly people of either sex dedicated to the pharmaceutical industry, culinary arts, farmers and fragrance industry and the general public.

Distillation, Oregano, Thymol, Carvacrol

E-commerce for sale of ornamental flowers

Comercio electrónico para la venta de flores ornamentales

ESCORZA-SÁNCHEZ, Yolanda Marysol, ALAMILLA-CINTORA, Cuitláhuac, CAMARGO-RUZ, Adriana and GÁLVEZ-GONZÁLEZ, Fabián

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Abstract

The objective was to develop an e-commerce system for a flower shop located in Ixmiquilpan, Hidalgo, Mexico; which allows the diffusion of cut flowers in arrangements and their online sale, through different payment methods. An agile methodology for its development called Scrum was used and the software tools used were MySQL, XAMPP, Laravel, Visual Code Studio and Paypal SDK. As a contribution, this tool allows the florist to have an additional option for their business that allows them to sell and deliver their floral arrangements, despite the occurrence of an event that forces them to suspend their business face to face, as in this case was the worldwide impact of the COVID-19 pandemic and that on the recommendation of the health and government authorities, non-essential activities, such as the sale of ornamental flowers, were suspended.

E-Commerce, Ornamental Flowers, Pandemic

Biotechnological potential of microalgae from Lake Chapala, Mexico

Potencial biotecnológico de microalgas del Lago De Chapala, México

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Abstract

During the months of January, May and September 2012, samples of microalgae and cyanobacteria were obtained at 10 stations located in Lake Chapala, to isolate and maintain axenic monoalgal cultures and achieve sufficient biomass to perform an approximate chemical analysis of total lipids and proteins. Various nutrient media were used for the cultures, based on inexpensive formulations and others of reagent grade. To obtain the algal biomass, a Millipore equipment and GF/C filters with a 45 µm pore and 25 mm diameter were used. Lipids were extracted using the Folch technique (1957) and proteins using the Bradford method (1976). Of 10 isolated species, five were cyanobacteria and five chlorophytes; lipid production was higher in this last group, with *Monoraphidium tortile* having the highest percentage of this metabolite (22.9%), while Cyanobacteria *Phormidium* sp. outperformed all cultivated species with 17% protein. Likewise, the modified culture medium of RM6 was efficient in the production of biomass for cyanobacteria and the CHU10 medium for chlorophytes; Both media were prepared with commercial salts to reduce production costs.

Algal Biomass, Proteins, Lipids

Supramolecular self-assembly studies and spectroscopic analysis of oligomers used for the removal of pollutants from wastewaters

Estudios de autoensamblaje supramolecular y análisis espectroscópico de oligómeros empleados para la remoción de contaminantes en aguas residuales

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Abstract

The oil spills in the oceans have caused severe damage, many of these are irreversible generating the loss of marine ecosystems, such is the case of the British Petroleum company in 2010. Therefore, there is a need to produce materials that contain or prevent the spread of the hydrocarbon in the ocean, in addition to being able to recover the crude oil quickly and effectively. Various materials have been designed focused on environmental remediation, specifically in the treatment of contaminated water. In this work, organogelling materials were synthesized from alkoxides such as Methyl 4-hydroxybenzoate, Propyl 4-hydroxybenzoate, Ethyl 4-hydroxybenzoate and the alkyl halides 1-bromohexadecane and 1-bromotetradecane, all of them analyzed by FTIR spectroscopy. In addition, gelation tests were performed in protic, aprotic and fatty acid solvents. Organogels, have a solid appearance at the nanoscale and extends into a liquid phase. Consequently, if there is a close contact between the solvent and the nanogel structure, a highly effective surface is obtained, providing a kind of solid phase in contact with highly polluting liquids. The importance of this work lies in the feasibility of using oligomers as removers or sequestrants of unwanted contaminants in effluents.

Oligomers, Contaminants, Remediation

Preliminary assessment of the risk of river overflow in the presence of a bridge using HEC-RAS and LiDAR topography

Evaluación preliminar del riesgo de desbordamiento de ríos en presencia de un puente mediante HEC-RAS y topografía LiDAR

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Abstract

The objective of this study is to evaluate the risk of flooding due to the overflowing of the Laja River around the bridge located on the Santa Catarina de Peña-Perico de Cornejo road section in the municipality of Salamanca, Guanajuato, Mexico. The evaluation is carried out through modeling and computational simulation under normal and extreme flow conditions. The software used is HEC-RAS under steady flow and establishing uniform flow as the boundary condition for the inflow and outflow in the domain. The modeling is performed entirely with open-access information available in databases of governmental agencies on the Internet. The methodology used is proposed as an important support in the monitoring and/or forecasting of river hydrodynamics in areas of interest such as the location of bridges, allowing the identification of risk areas and scenarios quickly and economically, so that efforts and resources can be focused on these critical scenarios with more extensive studies, including sediment transport, updated and more accurate topographic data, as well as extending the projection of hydrological variables. In the case study presented, the flooding problem was identified, and it is recommended to gather information in the field to complement the study and establish adequate solutions.

Flood, Hydrodynamics, Computational simulation

Mechanical characterization of tin coatings with biomedical application in elbow prostheses

Caracterización mecánica de recubrimientos tin con aplicación biomédica en prótesis de codo

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Abstract

The present work aims to study TiN films deposited on AISI 316L stainless steel substrates by physical vapor deposition through the Magnetron Sputtering technique with CD, heating it at a temperature of 200° and a constant time of 30 min. Identifying the mechanical properties to be used in biomedical applications, the microstructural characterization was performed by Optical Microscopy (OM) and Scanning Electron Microscopy (SEM). Adhesion tests were performed under the VDI 3198 standard. Tribological wear tests were performed using a 6 mm chromium plated steel pin (AISI 52100) on coated and uncoated substrates to study and compare the sliding effect continuing the same circumferential geometry, with a stroke length of 200 m and a load of 5N in wet and dry way using milli-Q water to simulate biological fluids in order to test the performance and durability of the implant.

Biomedical application, Properties, Sputter deposition

Use Khan Academy in the mathematics teaching-learning process

Uso de Khan Academy en el proceso de enseñanza-aprendizaje en matemáticas

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Abstract

The technology platforms implementation in the educative field such as Khan Academy (KA), has increased in a significative way due to the pandemic for learning management, which implies a significant change in content approach for both students and teachers. This paper's objective was to analyze students' experience using KA within three dimensions: motivation, learning, and innovation. From a methodological perspective, it was designed a descriptive investigation based on the quantitative analysis that describes perceptions (attitudes) about the use of the mathematics teaching-learning platform in two educative programs from Centro Universitario del Norte (CUNorte). The results obtained show that the majority of interviewees felt motivated to learn, considering that the platform's use advantages of their learning, it allows them to develop math skills, improved their grades, and learned in an innovative way. In addition, it will allow assessing the benefits and limitations in order to improve the application of the platform in the teaching practice.

Implementation, Platforms, Innovation, Significant

Taxkat, emblem for the conservation of Totonacapan

***Taxkat*, emblema para la conservación biocultural del Totonacapan**

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Abstract

This research is based on a theoretical and methodological effort to design conservation strategies for the Mexican *Scaptotrigona* (Guérin-Meneville, 1845) in Totonac communities in the State of Veracruz, Mexico. From the recovery of the ritual ceremonies related to the conservation of the stingless bee known as Taxkat (*S. mexicana*) and which refer to life, fertility, fidelity and well-being, the recovery of ancestral knowledge and the dissemination of management practices through the consolidation of a Network of meliponiculturists of Totonacapan that includes four indigenous communities belonging to the municipality of Papantla de Olarte Veracruz, which in the region are developing strategies for the recovery of ancestral knowledge and its preservation for future generations .

Conservation, Ancestral, Strategies, Bees

Generate electric current from the natural photosynthesis of a plant

Generacion de corriente eléctrica a partir de la fotosíntesis natural de las plantas

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Abstract

Plants are capable of producing their own food through photosynthesis, an extremely complex chemical process that groups of scientists around the world are trying to replicate in their laboratories. It is what is known as "artificial photosynthesis" and, although it is still in the research phase, it will be useful to generate less polluting energy. Solar energy intervenes in photosynthesis -which the plant converts into chemical energy and, later, into nutrients-, CO₂ or chlorophyll, but what interest's scientists above all is water and the two elements that form it, hydrogen and oxygen. And it is that, one of the objectives of artificial photosynthesis is to imitate the process by which this liquid is broken down into hydrogen and oxygen molecules, as occurs in natural photosynthesis: the hydrogen formed could be used in the future as fuel in motor vehicles to replace oil. Plants carry out their photosynthesis in two stages, a so-called bright one that depends on sunlight, and another called dark, in which reactions that do not need sunlight take place.

Photosynthesis, Energy, Fuel, Sunlight

Evaluation of dehydration parameters of habanero chili (*Capsicum chinense* jacq.) by tray method, for the conservation of seasonal fruits

Evaluación de parámetros de deshidratación de chile habanero (*Capsicum chinense* jacq.) por método de charolas, para la conservación de frutos de temporada

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Abstract

Dehydration is a food preservation procedure that, by eliminating all free water from it, prevents microbial activity and reduces enzymatic activity, which allows us to give the dehydrated product a long shelf life. This project aims to find the optimal parameters of dehydration in which the data is easy to use for the control of the shelf life of habanero chili, this being a simplified method that allows the producer to adapt techniques to guarantee the commercialization of their product. Due to its high degree of pungency or itching, it has a variety of uses in the food industry, its national average yield of habanero pepper is around 12 (Ton / ha) (Inforural, 2020)

Dehydration, Conservation, Useful Life, Optimization

Determination of physical parameters that contribute to the erosion of rotor blades in a steam turbine

Determinación de parámetros físicos que contribuyen en la erosión de álabes rotores en una turbina de vapor

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Abstract

The last rotor blades of the steam turbines in their low pressure section, work the steam with humidity. The combination of its high velocities with the existence of liquid microparticles presents a repeated impact on its surface, which will cause losses in the aerodynamic characteristics in the passage section, affecting its performance. This study evaluates the influence exerted by different physical parameters, such as the frequency of impacts, size of the drops that cause damage, impulse pressure, etc., on the erosion shown by the blades in the last stage of the low pressure section in a steam turbine under operating conditions equal to design.

Steam Turbine, Erosion, Droplets

Environmental quality study of the San Rafael Park in Guadalajara, Jalisco, Mexico

Estudio de calidad ambiental del parque San Rafael en Guadalajara, Jalisco, México

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Abstract

An evaluation of environmental conditions in terms of air and noise pollution was performed in San Rafael Park and completed by a perception survey of how visitors value the park's environmental state suitable for sport and recreational activities. The park is in the Municipality of Guadalajara, Jalisco, Mexico. CO pollution levels were assessed by data from Tlaquepaque monitoring station from the Atmospheric Monitoring System of Jalisco's State (AMSJ). CO mean concentration was 1.99 ppm which it is referred as a low health risk (NOM-172-SEMARNAT-2019). Noise levels were evaluated using a CESVA SC 160 noise integrating equipment. At recreational facilities, noise levels were recorded in the range of 49.3-93.2 dB A which were far from specified level of 55 dB A at such facilities (NOM-081-SEMARNAT-1994). Survey results highlighted poor environmental conditions to perform sports and recreational activities (90%) and 77% of responders showed a good intention to continue visiting the park even its environmental state. Reported health effects were: Eye irritation (72%), dry eye (46%), sneezing (33%), allergies (15%) and offending odor (9%). Findings of the study put forward the relationship between the state of the environment and health of a community and the decision users must make to visit parks to get health, social and recreational benefits even the poor environmental conditions within the park's facilities.

Environmental Pollution, Environmental Health, Recreational Parks, Cities, Guadalajara

Analysis of correlations in the growth of biogranules from synthetic wastewater of industrial origin

Análisis de correlaciones en el crecimiento de biogránulos a partir de aguas residuales sintéticas de origen industrial

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Abstract

Pearson correlation is a statistical method used to identify dependence of variables in a system. This paper proposed this correlation method to analyze the relations between variables in a biogranulation process using a synthetic wastewater. These later was prepared assuming an industrial textile origin. The analysis was divided in aerobic, anaerobic and combinate cycles. Results obtained indicated Pearson correlation identified a relation in pH variable between dissolved oxygen and conductivity in aerobic cycle. Conversely, relations with conductivity between density are found in anaerobic cycles. Evaluating total data (in both cycles) relation pH variable between conductivity and mixing were found as a strong correlation in the system. Finally, the importance of identify relationship between variables it is important to monitoring those variables that might affect the system in each formation cycle of biogranulation. For example, in the aerobic cycle the desnitrification is crucial to decomposed until nitrates (N-NO₂) and nitrites (N-NO₃), or in the anaerobic cycle the reduction to nitrogen gas (N₂).

Correlation, Statistical, Dependence, Synthetic, Wastewater

Online store: Integrative Activity in Computer Engineering in times of pandemic

Tienda en línea: Actividad Integradora en Ingeniería en Computación en tiempos de pandemia

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Abstract

This paper presents the Integrative Activity of an online store that has been worked with students over three semesters: fifth, sixth and seventh, the idea of making an online store arises because this project began at the time of confinement due to the COVID 19 pandemic. The Activity was divided into three phases, the first phase covering the subjects of: Requirements Engineering and Estimation, Database Consultations and Optimization and Human-Computer Interaction. The second phase covers the subjects of Design and Modeling of Software, Design of Virtual Environments and Computing for mobile devices. The project ends with the third phase with the subject of Software Testing and Implementation. The main contribution is the joint realization of different subjects in three semesters for the construction of a quality online store under quality practices.

Integrative Activity, Online Store, CMMi

Control through artificial neural networks of direct current motor

Control mediante redes neuronales artificiales aplicado a un motor de corriente continua

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Abstract

The main objective of this work is to present the methodology to control the speed of a DC motor experimentally through artificial neural networks of the NARX type (Nonlinear Autoregressive Neural Network with exogenous inputs). To achieve this, the artificial neural network was trained (ANN) on the Matlab platform, the speed of the motor was controlled in real-time with the LabVIEW software and a CompactRio data acquisition system, and it was possible for the speed of the motor to follow a constant reference, obtaining a steady state error less than 3 %.

Artificial neuronal networks, DC motors, Control

Development of a Peristaltic Pumping System for the Micro Fuel Cells Evaluation (μ FC)

Desarrollo de un Sistema de Bombeo Peristáltico para Evaluación de Microceldas de Combustible (μ CC)

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Abstract

Urea ($\text{CO}(\text{NH}_2)_2$) waste substance, which some living beings expel through urine and sweat, being produced as a final result of protein metabolism and as a means of eliminating ammonia, is contained in wastewater and is considered a promising source of renewable energy with the potential to be exploited through electrochemical processes such as those used in microfluidic fuel cell (μ FC) technology, however, the progress of these technologies is hampered due to the high cost of devices for evaluating their performance, a clear example is syringe infusion pumps, in addition to their impractical manual operation for constant power generation. In the present work, the development of a low-cost microfluidic delivery device is shown, capable of replacing syringe infusion pumps in terms of precision, in addition to having a completely autonomous operation, profiling it for a possible incorporation in a waste-based energy generation system such as urea, having the ability to contribute to the development of renewable energies without the need for excessive capital investment.

Microfuel Cell, Urea, Energy Conversion, Electrochemical

Surveillance of active tectonic and volcanic zones with population case studies, jocotepec and Ciudad Guzmán Jalisco

Vigilancia de zonas tectónica y volcánica activas con poblacion estudios de caso, jocotepec y Ciudad Guzmán Jalisco

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Abstract

Jalisco is located in the contact of tectonic plates that have generated earthquakes along the coast and within the continent, its limits include several geological provinces: Central Table, Jalisco Block, Sierra Madre del Sur, Sierra Madre Occidental and Mexican Volcanic Belt, the latter, characterized by its recent volcanic and tectonic activity, within it there are various towns such as Jocotepec and Ciudad Guzmán that, recently, have been affected in their infrastructure by landslides and differential settlements of the land, of which it is unknown for sure. its origin and even when the movement has been reported, it has not been measured as a whole to define if it is a sunken block (which can be associated with tectonism) or it is only a subsidence (extraction of water or decomposition of organic matter). Due to the deformation of the soil in several towns in Jalisco, as is the case of Jocotepec and Cd. Guzmán, it is proposed to implement a methodology that includes the measurement of the deformations that have occurred considering milestones outside the graben, monitoring possible gas emissions (methane and radon) in the cracks, install geophysical equipment to determine if the Curie point is affected and detect punctual seismicity.

Tectonic Trenches, Gases, Active Volcanism, Ground Deformation

2 Biology, Chemistry and Life Sciences

Hybrid nanocomposite of vanadium dioxide and carbon nanotubes embedded in a gypsum binder for thermal energy storage

Incorporación de un nanocompuesto híbrido de dióxido de vanadio con nanotubos de carbono en pastas de yeso para almacenamiento térmico

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Abstract

This investigation studied the heat storage capacity of a gypsum binder with a hybrid nanocomposite (NH) of vanadium dioxide and multiwall carbon nanotubes (VO₂/MWCNT). The influence of the NH in the hydration kinetics and hydrated products was determined. The effect of the incorporated amount of NH in the wettability, mass loss by humectation-drying cycles, thermal conductivity, specific heat (C_p) and gypsum thermal performance at 40 °C was determined. Characterization techniques exhibited that the presence of VO₂/MWCNT did not modify hydration kinetics and phases development, water drop angle or compressive strength. Nevertheless, gypsum binders mass loss increased with the presence of the nanocomposite after 6 humectation-drying cycles. According to the thermal properties, it was found that the NH addition increased gypsum binders thermal conductivity and C_p values. Finally, it was concluded that gypsum with VO₂/MWCNT promotes self-thermal regulation properties without affecting its performance. The usage of VO₂/MWCNT embedded in a gypsum as a construction material would provide thermal comfort conditions in buildings.

Heat, Comfort, Energy

3 Medicine and Health Sciences

Hepatic steatosis and acanthosis nigricans in obese adolescents aged 15 to 19 years with high risk of diabetes mellitus according to the findrisk test

Esteatosis hepática y acantosis nigricans en adolescentes obesos de 15 a 19 años con alto riesgo de diabetes mellitus según el test de findrisk

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Abstract

Objective: To determine hepatic steatosis and acanthosis nigricans in obese adolescents from 15 to 19 years of age with a high risk of suffering from Diabetes Mellitus. **Methodology:** Observational, cross-sectional and analytical study. **Results:** The ultrasound revealed that the most frequent hepatic steatosis in this study group was mild with 29.5%. Acanthosis Nigricans in more than two areas was the most frequent in 65.57%, only 6.55% did not have this presence; the highest body mass index (31.5) was found in a 15-year-old adolescent, the largest abdominal perimeter (95.5cm) was identified in the group of adolescents with acanthosis of the neck; The presence of acanthosis and data on hepatic steatosis stands out in the case of moderate steatosis, which occurs in an adolescent with acanthosis in more than two areas, with the highest score on the Findrisk test, body mass index and Abdominal perimeter.

Acanthosis Nigricans, Hepatic Steatosis, Findrisk Test

Isolation and identification of microorganism present on the external and internal surfaces of face masks

Aislamiento e identificación de microorganismos presentes en superficies externa e interna de cubrebocas

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Abstract

Continuous use of the face mask without replacement provides humidity and temperature conditions conducive to the development of multiple disease-causing microorganisms. The objective of the study is to identify, through phenotypic tests, the presence of bacteria in face masks in order to know if there are potentially pathogenic microorganisms. Likewise, differentiate the amount of CFU / mL depending on the sampled section. For this, a sample was taken with sterile swabs moistened with isotonic saline solution to 20 masks (internal and external part separately). The CFU / mL count of 15 face masks was made by sowing them on nutrient agar. In addition, all the samples were seeded on blood agar and the bacteria were subsequently identified using conventional biochemical tests. Among the isolated microorganisms are pathobionts such as *Staphylococcus epidermidis* and *Staphylococcus aureus*, as well as opportunistic microorganisms such as *Escherichia coli*, *Pseudomonas spp.* and *Hafnia alvei*. A significant difference was found in the amount of CFU / mL recovered from the internal and external part. This suggests that the continuous use of a mask can create adequate conditions for the proliferation and storage of pathobiont or opportunistic bacterial species.

Face mask, Opportunistic, Pathogen

Adolescent motherhood, reminiscence of an archaic inheritance; the case of a suburban neighborhood in Mérida, Yucatán, Mexico

Maternidad adolescente, reminiscencia de una herencia arcaica; el caso de una colonia suburbana de Mérida, Yucatán, México

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Abstract

Objective. Explore and show the similarities and differences between the discourses of adolescent women and their respective parents about pregnancy and motherhood as a social imaginary. Methodology. Qualitative research. In-depth interviews were conducted with adolescent women and their respective parents; In some cases, the adolescents preferred to conduct the interview outside their homes. Informed consent was requested for both the interview and its recording. Discourse analysis was used. This work contributes to understand the phenomenon of motherhood, through the observation of two generations to explain the phenomenon from the perspective of the same social actors, the meaning that they give it and not in the interpretation from outside of those who are dedicated to research in this field. This position from within will generate new veins for research projects that consider the cultural history of the Maya in the organization of their natural environment and the conduct of their spiritual and family life.

Maternity, Mayan culture, Adolescence

Metabolic control with diet vs insulin in patients with gestational diabetes and obesity

Control metabólico con dieta vs insulina en pacientes con diabetes gestacional y obesidad

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Abstract

Objective: To identify the degree of metabolic control achieved in pregnant patients diagnosed with Gestational Diabetes and Obesity treated with diet, compared to those treated with insulin. Methodology: Observational, retrospective, longitudinal and descriptive study, carried out from January to December 2021. Metabolic control was evaluated monthly during pregnancy based on the treatment received (diet vs insulin with 23 patients in each group). Results: Of the 23 patients who started on the diet, only 30.4% finished in a controlled manner under the same diet-only regimen. In contrast, of the 23 who started with insulin, 86.9% ended up controlled.

Metabolic Control, Gestational Diabetes, Obesity

Plasma Glucose, Triglycerides, Cholesterol and Dietary Levels in inhabitants of a Mayan Community of Campeche

Niveles Plasmáticos de Glucosa, Triglicéridos, Colesterol y Dietéticos en habitantes de una Comunidad de Maya de Campeche

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Abstract

Objective of this work was to study the blood levels of glucose, cholesterol and triglycerides, and their association with eating habits in inhabitants of the community of Tinún, Campeche, Mexico. Methodology Anthropometric measurements were made to the inhabitants who ranged in age from 10 to 80 years old. Mean glucose levels were 132.86 mg/dL, cholesterol 139.640 mg/dL, and triglycerides 189.2 mg/dL. According to the applied survey, the diet of this population consists of the consumption of meat from wild animals in the region, as well as foods with a high fat content such as pork, in addition, a low consumption of vegetables and fruits is reported among the inhabitants. Results: In this population, glucose and triglyceride levels are elevated compared to the reference values; however, it is necessary to investigate other biochemical parameters that help the timely diagnosis of this type of disease.

Glucose, Triglycerides, Cholesterol

Determination of Cholesterol and Triglycerides and eating habits in foreign and local students

Determinación de Colesterol y Triglicéridos y hábitos alimentarios en estudiantes foráneos y locales

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Abstract

Objective: To determine the difference in eating habits in foreign and local students of the Faculty of Chemical Biological Sciences (UAC), through the analysis of serum levels of cholesterol and triglycerides. **Methodology:** A descriptive study was carried out with 30 students between 18 and 23 years of age from the Autonomous University of Campeche of the Q.F.B educational program in the state of Campeche. **Results:** The cholesterol levels of foreign men are 163.5 and in the locals it is 136.8; having a difference of 26.7. In the female gender, foreigners have an average of 137.13 and locals one of 135.78; having a difference of 1.35, a smaller difference compared to men. In triglyceride levels, local women have the highest triglyceride levels compared to foreign women, obtaining a difference of 14.2. In men, foreigners are the ones that contain the highest serum levels, having a difference of 17.7 with the triglyceride levels of local men. With respect to this parameter, men are the ones most associated with hypertriglyceridemia disorders.

Cholesterol, Triglycerides, Eating habits, Students

Main sources of exposure to environmental risks in pregnant women from Kinil, Yucatan, Mexico

Principales fuentes de exposición a riesgos ambientales en embarazadas de Kinil, Yucatán, México

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Abstract

Objective. To identify main environmental hazards to which pregnant women in Kinil, Yucatan are exposed. **Methodology.** Cross-sectional study consisting of two parts: 1) review of clinical archives of women who received prenatal care from 2015 to 2017, registered in the Pregnancy Census of the Kinil Health Center, to obtain prenatal medical records, data on babies and perinatal conditions of their births; 2) the patients were visited in their homes to explain the objective of the study and request the pertinent permits with informed consent, as well as the caregivers in the case of minors. The frequency of major diseases during pregnancy was determined, as well as the prevalence of adverse perinatal outcomes. **Contribution.** Approach to environmental diagnosis, identify potential sources of risks of disease, characterize positive or negative situations to detect groups in vulnerable situations

Potential Source, Risks, Pregnant Women

Evaluation of the level of risk due to alcohol consumption and associated factors, in first-entry students at a university campus in Jalisco, Mexico

Evaluación del nivel de riesgo por consumo de alcohol y factores asociados, en estudiantes de primer ingreso a un centro universitario en Jalisco, México

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Abstract

Alcohol consumption in university students is considered a public health problem that can affect academic performance. The objective was to evaluate the level of risk for alcohol consumption in first-entry students at the University Campus of Biological and Agricultural Sciences of the University of Guadalajara. A questionnaire was applied that included: sociodemographic characteristics and alcohol consumption through the “Alcohol Use Disorders Identification Test” (AUDIT). The information was collected anonymously, obtaining their informed consent and guaranteeing their confidentiality. 589 students were surveyed, with an average age of 19.1 years, 53.2% women and 46.8% men, 86.4% reported having consumed alcohol, with tequila and beer being the preferred alcoholic beverages; it was observed that alcohol consumption did not influence the family relationship with their parents or the average high school grade; Regarding the AUDIT, 83% of the respondents did not present problems with alcohol consumption, 12.9% need a simple advice to reduce consumption, 3.1% evidenced risky consumption, and 1.0% showed risk of dependence; so it is necessary to implement strategies for comprehensive education in university life.

Alcohol Consumption, AUDIT, University Students

Importance of breakfast in schoolchildren

Importancia del desayuno en escolares

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Abstract

Feeding during childhood is essential for the quality of life that is achieved in adulthood, which is why it is essential to start the day with a nutritious breakfast that provides the necessary macro and micronutrients according to the age of the children. There are several authors who mention that breakfast is the most important intake of the day. When the boy or girl begins their attendance at educational institutions, they require an adequate nutritional accompaniment, in order to be able to perform adequately in the academic-personal activities of their age. Objective: To increase the habit of having breakfast at home and to identify the characteristics of a healthy breakfast in schoolchildren. Methodology: In a descriptive, analytical and longitudinal study, through a population nutrition intervention project, food guidance activities were carried out weekly for 4 months to 437 schoolchildren in the municipality of Zacatecas. Contribution: At the end of the intervention activities, the number of schoolchildren who ate breakfast from home increased and identified that breakfast should not exclude healthy food groups, thus contributing to the modification of eating habits.

Schoolchildren Breakfast, Healthy

Antimicrobial effect of *Eysenhardtia polystachya* homemade extracts on bacteria causing urinary tract infections

Efecto antimicrobiano de extractos caseros de *Eysenhardtia polystachya* sobre bacterias causantes de infecciones del tracto urinario

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Abstract

Objective: To evaluate the *in vitro* antimicrobial effect of homemade preparations of *Eysenhardtia polystachya*, obtained by maceration or by infusion, on bacteria that cause urinary tract infections. **Methodology:** Microdilution assays were performed in 96-well plates where bacterial suspensions were co-incubated with different dilutions of homemade extracts, as well as a control for comparison using a commercial extract of the plant. Subsequently, the absorbance at 600 nm was measured to be considered as a direct measure of bacterial growth. For each culture, the values were normalized to growth percentage from the absorbance value obtained in the wells without extract. **Contribution:** The results show that the homemade extracts have a partial antimicrobial effect on the growth of the bacteria used in this work. The effect was the same between the extract by infusion and the extract by maceration against Gram negative bacteria. On the other hand, the extract by infusion showed a better effect than the extract by maceration on Gram positive bacteria. None of the homemade extracts achieved the antimicrobial effect of the commercial extract. This work corroborates the empirical knowledge of the use of homemade preparations of *Eysenhardtia polystachya* to treat urinary tract infections.

***Eysenhardtia Polystachya* Extract, Antimicrobial Effect, Urinary Tract, Bacterial Infection**

In vitro study of the film thickness of six Resin Cements

Estudio In Vitro del espesor de película de seis Cementos Resinosos

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Abstract

Objectives. Study the differences of the film thickness of six cements to determine that they comply with the standards. **Methodology.** Experimental, cross-sectional, in vitro study. Film thickness test of resinous cements using the standards of ISO 9917-1. 30 samples were made dividing them into 6 groups of 5 samples each. Group 1: Prime Dent, Group 2, iCem, Group 3: Relyx Ultimate, Group 4: MaxCem, Group 5: TheraCem, Group 6: BisCem. The thickness of two glass slab placed one on top of the other was measured, the resin cement was prepared by placing it (0.05 ± 0.005 ml) at the center of the glass slab with a 3 ml syringe, it was measured again. The weight was removed after 10 minutes, the thickness of both glass slab was measured. Film thickness was calculated by taking the difference between the thickness of the glass slab with and without the sample between them. **Results:** An ANOVA test was performed to obtain the statistical value; it was obtained that $p=0.000$, therefore there are statistically significant differences between the cements. **Contribution.** The application of dental cements for indirect restorations is used daily, so knowing the film thickness provides security when choosing the ideal material.

Thickness, Cement, Resin

Evaluation of weight loss and sweat rate, in soccer players who followed a different hydration plan, from the 2003 and 2004 categories of the Santos Tepic Soccer Academy

Evaluación de pérdida peso y tasa de sudoración, en futbolistas que llevaron un plan diferente de hidratación, de las categorías 2003 y 2004 de la Academia Fútbol Santos Tepic

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Abstract

Sweat losses during training cause weight loss greater than 1% and sweating rates above 1.45 L/h, with a decrease in energy and water reserves in soccer players, compromising his health and performance. Objective: to compare and evaluate the changes made in two different hydration plans, ingesting a commercial isotonic drink versus water. Methodology: 30 football players from Santos Tepic Football Academy, 2003 and 2004 category of the league of Football Association of the state of Jalisco, with weight data before and after training, fluid ingested during training and duration of the physical activity, the percentage of weight change and sweating rate were calculated. It was determined that there is no association between variables, because the degree of freedom (GL) obtained (3,841) for X² and the results were lower, so it is interpreted that our value of p ($p < 0.05$) is not significant. Contribution: it was obtained that a marketed moisturizing drink does not have better benefits than simple water, with the right amounts in a periodized time, good hydration can be achieved, maintaining the weight change percentage and sweating rates within the permissible ranges.

Football, Hydration, Sweat Rate

Law for the prevention of overweight, obesity and eating disorder from a multidisciplinary perspective

Ley de prevención de Sobrepeso, obesidad y Trastornos de conducta alimentaria desde una mirada multidisciplinar

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Abstract

Consider the potential of education with a multidisciplinary management as a promoter of healthy citizens Objective: To show that the approach and management that has been given in the case of Obesity, overweight and eating disorders (TCA), where the physical aspect has been taken into account mainly, has marked a diminished and impoverished management of the illness. Methodology: For this research, a review of the laws based on the prevention of overweight, obesity and eating disorders in Mexico was carried out. According to statistical data from the 2018 National Health and Nutrition Survey (ENSANUT). Contribution: The result of the analysis of the review shows that there are legal gaps in the law, which do not meet criteria that generally address the issue of overweight, obesity and eating disorders. In a timely manner, the law of the state of Nayarit was reviewed and compared, and a prevention proposal was made that includes comprehensive care for these diseases.

Laws, Obesity and Eating Disorders

BDNF expression in blood. Study in iron deficient females

Expresión de BDNF en sangre. Estudio en hembras deficientes de hierro

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Abstract

Iron deficiency is a public health problem that greatly impacts women and children, especially at the neurological level, being BDNF a relevant factor involved in such pathogeny. Objectives: To determine in females suffering from chronic iron deficiency, from the perinatal stage to adulthood, the levels of peripheral BDNF in blood. In addition, the effect of iron supplementation after weaning. Methodology: female Wistar rats with chronic iron deficiency and rats supplemented from weaning to adulthood (70 postnatal days) were euthanized to analyze BDNF levels in blood samples. Contribution: we demonstrate that in the presence of chronic iron deficiency, BDNF levels decrease peripherally and supplementation normalizes them. In addition, hemoglobin-bound iron (Fe-Hb) levels correlate positively with BDNF levels in blood. This could indirectly indicate a possible restoration or contribution to the improvement of the patient's cognitive or behavioral processes.

BDNF, Iron, Sex, Deficiency, Neurological, Perinatal

Oxidative stress in the central nervous system of iron-deficient females

Estrés oxidativo en sistema nervioso central de hembras deficientes de hierro

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Abstract

Iron deficiency is a worldwide public health problem associated with behavioral and cognitive disturbances. These disturbances are irreversible if not treated during the perinatal period. Iron is a structural part of several proteins, such as the antioxidant enzyme catalase. It has been shown that females are less susceptible to oxidative stress. However, the levels of oxidative stress at the central system in the presence of chronic iron deficiency or post-weaning supplementation are unknown. Objective: to determine the levels of oxidative stress and antioxidant defense in females with chronic iron deficiency, untreated or treated with iron supplementation. Methodology: female Wistar rats with chronic iron deficiency and rats supplemented from weaning to adulthood (70 postnatal days) were euthanized to analyze brain tissue and determine oxidative stress through lipid peroxidation; and antioxidant effect by superoxide dismutase, catalase and total proteins. Contribution: in the presence of chronic iron deficiency, lipid peroxidation levels at the central system are so high that they cannot be counteracted by superoxide dismutase or catalase. However, postnatal supplementation prevents lipid peroxidation from being altered due to the high production of iron-induced antioxidant defense.

Iron, Iron Deficiency, Sex

Therapeutic exercise and postural education program in students of the polytechnic university of amozoc with painful musculoskeletal syndromes through the use of digital platforms

Programa de ejercicio terapéutico y educación postural en estudiantes de la universidad politécnica de amozoc con síndromes dolorosos musculoesqueléticos mediante el uso de plataformas digitales

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Abstract

As a result of the health contingency caused by COVID-19; The following events occurred on March 30, a national health emergency was declared in Mexico. Leading to the establishment of measures for its prevention and control of the disease Suarez (2020). Likewise, the different levels of the educational system presented a change of dynamics with respect to the face-to-face classes replaced by the distance modality. Therefore, the students of the Polytechnic University of Amozoc of the Degree in Physical Therapy see the need to adopt the distance education model and thereby increase the hours sitting in inappropriate seats in front of a device; laptop, mobile phone and tablet. This results in the emergence of painful syndromes, especially when inappropriate postures are adopted, according to the data obtained through a questionnaire applied to the UPAM community. In response to this problem, a program of therapeutic exercise and postural education was implemented through the use of a videoconference application that influences the promotion and prevention of health within the school context (virtual modality) in improving their school performance and activities. of daily life.

Contingency, Painful Syndromes, Therapy, Postural Education, Videoconference

4 Humanities and Behavioral Sciences

Perception of the conflict in the students of the Technological University of León

Percepción del conflicto en el estudiantado de la Universidad Tecnológica de León

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Abstract

The objective of the work was to identify at the Technological University of León (UTL) the perception that students of the Higher Technical University level (TSU) have of conflict as a basis for promoting actions for a culture of non-violence and peace. To this end, a diagnostic instrument was developed and applied to the student population of the first semester of all careers, in the period September-December 2020. Subsequently, the analysis was carried out and the results were organized into four categories of the conflict: a. Purpose of the conflict; b. Perspective of the conflict; c. Cultural beliefs; d. Conditions of Conflict. The results show that the students of the UTL perceive conflict only in its dysfunctional modality that affects interpersonal relationships; it also considers that conflict depends on each person's interpretation of the external stimulus; the degree of ignorance that culture itself influences the perception of conflict is highlighted; finally, there is consensus that most conflicts are the result of a poor organizational structure. Based on these results, the aspects that must be considered to elaborate strategies to build an environment of culture of peace are highlighted.

Conflict, Culture, Tolerance

Good practices in the self-transformation of the engineering student in continuous improvement projects

Buenas prácticas en la autotransformación del estudiante de ingeniería en proyectos de mejora continua

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Abstract

Due to the confinement caused by the COVID-19 pandemic in 2020, new academic work practices were established with the support of digital platforms in education, in this context, students who perform the compulsory social service of a Higher Education Unit (DES) of a Public University received advice with the support of tutors for improvement projects applied to the industry. The objective of this work is to publicize the processes that were addressed during the confinement decreed by government authorities, developing an advisory model that allows monitoring the indicators established for each specific case. For the preparation of this article, a qualitative and documentary methodology was implemented, in which a positive impact on its results is highlighted, in addition to disseminating and publishing success stories, enabling the insertion of students in the productive sector.

Social Service, Good Practices, Training

The management of academic practices through the design of a digital dental clinical record

La gestión de prácticas académicas a través del diseño de un expediente clínico odontológico digital

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Abstract

This article shows the creation of a dental clinical record through a tailor-made information system with the use of emerging technologies. The objective of the study is to glimpse a successful case of the implementation of an information system as an instrument in the follow-up of academic practices during the development of generic and specific competences of higher-level studies in the area of dentistry through the services provided to society. In the same way, that allows favoring the efficiency and effectiveness of the clinical history of patients for the benefit of health. The methodology used is the so-called Rapid Application Development (DRA) composed of four phases: requirements, design, production and testing and implementation. The result achieved was an information system that directly favors the management of a dental clinical record, mainly due to its interactive interface and its ease of use. Likewise, it is stated that software management can act as a strategic tool to optimize patient care, contributing directly to maintaining their health.

Record, Odontology, DRA, Software, Practices

Education in pandemic times: a student vision of the contrast between presential and online education

La educación en los tiempos de pandemia: una visión estudiantil del contraste entre la educación presencial y en línea

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Abstract

With the goal of know and evaluate the face-to-face education previous to the pandemic and contrasting it with the education accomplished during the COVID 19 pandemic, this research was carried out on undergraduate students. A survey was applied, previously validated (Ortiz-Sánchez et al., 2021), the results allow to know aspects related to ideas that students have expressed during the exercise of online classes and in pre-pandemic. The research was carried out with students of different levels and areas of academic preparation. The results show that in higher education there is a great sense of adaptation to both forms of learning, with a slight tendency to be more interested in face-to-face education, with no significant differences between the opinions shown by the results between online education and face-to-face education. The known of these data can provide the establishment of actions and direction to appropriate methodologies for the future development of the emerging mixed education.

Exploration, Attitudes, Education

The benefits of educational intervention in the school context

Los beneficios de la intervención educativa en el contexto escolar

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Abstract

Objective: to describe the benefits of educational intervention in order to enhance the psychologist's practice in the school context. **Methodology:** by means of hermeneutic analysis involving the reading, explanation and interpretation of texts, the parts and the whole of the benefits of educational intervention in the school context were identified for the elaboration of this article. A series of indicators were obtained on the advantages for the educational community as a consequence of the psychologist's work in educational intervention in the different spaces and actors that make up the school community (students, teachers, families), as well as the importance of the participation of the different professionals who, from their discipline, contribute to the improvement of education. **Contribution:** a vision of the functions and contributions of the psychologist specialized in educational intervention to the community supported by this specialist is provided.

Educational Intervention, School Context, Benefits

Parental competences in parents of children with disabilities of the association “Autism Community los Cabos, A.C.”

Competencias parentales en padres de hijos con discapacidad de la asociación “Comunidad Autismo los Cabos, A.C.”

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Abstract

Parenting skills are the set of skills that allow parents to face the vital task of being parents in a flexible and adaptive way, according to the developmental and educational needs of their children. Objective: to determine the level of parental competence in parents of children with disabilities from the Los Cabos A.C. Autism Community Association. during 2021. Methodology: This research was descriptive with a quantitative approach, with an observational, cross-sectional and retrospective design. Procedure: 14 parents participated. For data collection, the Positive Parenting Scale (E2P) instrument was used, made up of 58 items with a Cronbach's alpha reliability of 0.95 for the total scale; For its application, the instrument was adjusted virtually due to the pandemic caused by SARS-CoV-2. The results obtained show that 43% of the parental skills of the parents of the Los Cabos Autism Community Association A.C. they are in the risk zone, 36% in the monitoring zone and 21% in the optimal zone, also showing greater difficulty in the skills of the bonding area; being the mothers the ones who are more involved in the education of the children.

Disability, Parenting Skills, Autism

Intervention strategy for children victims of bullying and school violence

Estrategia de intervención en niños víctimas de acoso y violencia escolar

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Abstract

The present work "Intervention strategy in children victims of bullying and school violence", was designed to evaluate and intervene, based on the scales of psychological damage found, with cognitive behavioral therapy techniques, exposure therapy, cognitive processing, physical care, self-knowledge, self-acceptance and learning to see memories as a tool. Objective: To develop and apply an intervention strategy in children victims of violence and bullying. Methodology: This research was experimental and mixed, combining qualitative and quantitative approaches. Both approaches were used in this work because when evaluating the children with the AVE test it was done by means of percentiles, when describing the concepts of the scales it was done in a qualitative way, as well as when registering the progress of the patients in the Anecdotal Record. The program provides a series of techniques for dealing with bullying and school violence.

School Violence, Victims, Negative Self-Image and Flashbacks

Education as a means to transform the current reality in Mexico the role of the psychologist in educational intervention

La educación como medio para transformar la realidad actual en México el papel del psicólogo en intervención educativa

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Abstract

Objective: to identify the conditions of the New Mexican School (NEM) from the approach of educational intervention in order to sensitize its agents on the demands that it requires. Methodology: for this inquiry, the hermeneutic approach was identified for the research, for which the reading of several texts was carried out, among them the "Plan de estudios de educación básica 2022", "La Nueva Escuela Mexicana: los principios y orientaciones pedagógicas" and the "Aportes de la psicología a la educación. On its Denomination, History and Development", a personal interpretation was made to understand the current needs of education and in turn, from the perspective of educational intervention, to translate the importance of education for the elaboration of proposals in this field. Contribution: a series of reflections on the multiplicity of functions that the psychologist specialized in educational intervention can perform to improve the current reality of education in Mexico.

New Mexican School, Educational Intervention, Psychologist

Teacher evaluation is myth or reality for teaching innovation

La evaluación docente es mito o realidad para la innovación de la enseñanza

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Abstract

Many teachers have a culturally learned negative perception of teacher evaluation. The objective of this research is to measure teachers' perceptions regarding the evaluation of pedagogical performance, as a basis for educational innovation. Teachers are influenced by negative cultural learning and/or internal fears of evaluation. Research methodology: the design is quantitative, non-experimental, the data collection is transactional with a piloted instrument that contains 136 variables in three axes: evaluation of the professional teaching service, commitment and labor innovation, and quality of teaching. Randomly 392 teachers are measured. The analysis is descriptive; Correlational and Principal Components. The conclusions reflect the current educational paradigm, unfavorable learned attitudes towards evaluation and fear of being exposed with evaluations, arguing that they focus on theory and omit professional praxis. Contribution of results. The relevance of evaluating teaching work is underlined, as support for teaching-learning innovations towards new hybrid pedagogical models. Teacher training focuses on changing positive attitudes towards job evaluation, as a factor "a priori" for educational innovation. The importance of motivating teaching commitment and research to innovate learning models by transforming post-pandemic paradigms.

Teacher Evaluation, Didactic Perception, Educational Impacts

The role of feedback in decision making learning in Psychology: Critical thinking and flexibility

El papel de la retroalimentación en la formación para la toma de decisiones en Psicología: Pensamiento crítico y flexibilidad

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Abstract

Higher education aim is to give students skills for flexible and critical decision making in the face of changing situations and contexts. To foster them, we use the Strategic Analysis for Scientific Texts Model, (SAStxt), an instructional tool that provides them with problem solving skills and guides them to identify and comprehend conventional components of texts. Specific feedback to SAStxt performance has proven effective in helping students improve their skills, but it implies high costs in time and effort. As an alternative, generic feedback was designed, based on the structure of the expected responses. Its effectiveness over the performance of 11 advanced students of Psychology major was assessed. To that aim, a curricular course incorporated a baseline assessment and 5 exercises with SAStxt. Students either received specific feedback first and then the generic one, or in reverse order. The mean scores on each exercise and the proportion of correct responses as a function of type of feedback were analyzed. Data suggest that generic and specific feedback have equivalent effectiveness at least with advanced students. This contribution may diminish obstacles university teachers find in giving feedback to massive classes on their critical skills.

Feedback, Strategic Text Analysis, Methodological and Conceptual Skills

Critical analysis and arguments management: context and teaching and learning processes

Análisis crítico y manejo de argumentos: contexto y procesos de enseñanza y aprendizaje

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Abstract

Managing student arguments is a skill that should be taught in schools at every available opportunity. However, there is a lack of critical analysis skills and construction of valid and coherent arguments in higher education. The Strategic Analysis for Scientific Texts Model (SAStxt) has served as a teaching tool for constant practice in the teaching and learning process of methodological and conceptual skills (HMC, for its acronym in Spanish). In this work, three teaching strategies were compared based on the level of execution achieved in the exercises of the model to show the evolution and adjustment of the activities to the pedagogical demands of students. Three natural groups participated, which during a semester made 6, 7 and 4 text analysis exercises. The level of support changed in each: Group A had personalized feedback about the definition of categories. Group B and C had a specific error feedback and recommendations. Group C had additional support: initial correction and review of material. The level of teaching support is key to success in the teaching and learning processes of the HMC, especially to ensure understanding of the task.

Conceptual and Methodological Skills, Text Critical Analysis, Pedagogical Processes, Scientific Skills

Parental competencies: descriptive study based on the actions of university social responsibility

Competencias parentales: estudio descriptivo a partir de las acciones de la responsabilidad social universitaria

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Abstract

Family is the main transmitter of knowledge, values and attitudes. In this sense, working with them from educational institutions is necessary for the development of learning communities. Therefore, training in parenting competencies is a relevant educational action, considering research shows the importance of developing them in their four dimensions: relational, protective, formative and reflective. This is a quantitative, descriptive, non-experimental cross-sectional research, which aims to identify the profile of parenting competencies from the application of the Positive Parenting Scale instrument E2P V.2, to a convenience sample of 14 participants. The main results indicate that the sample studied is in a risk zone, due to the fact that they exercise their competencies at low frequency levels, highlighting among them the relational competencies. This is relevant because they are fundamental in the affective relationship of parents with their children. The research found and the competency profile obtained show the importance of developing parental training programs focused on strengthening parental competencies; thus favoring children's exploration and learning processes, enhancing their autonomy and the regulation of their behavior.

Parental Competencies, Parenting Scale, Social Responsibility

Curriculum evaluation of an undergraduate program: a student perspective

Evaluación curricular de un programa educativo de licenciatura: una perspectiva estudiantil

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Abstract

Results of a quantitative research based on students' perspective of a Mexican public higher education institution regarding their educational program are presented, in the context of a curricular evaluation process; responses of 171 students to a survey that addressed five areas of the curriculum: Level of satisfaction with the graduate profile, learning content, method, evaluation, and remote emergency teaching due Covid-19. As a result, the five variables were valued as "satisfied" by the students, with the graduate profile being the best evaluated with an average of 4.32 points. A Student's t test for independent samples using the variables of sex and the 4 main variables of the study, showed that the means do not differ significantly at the $p < .05$ level in any of the cases. A one-way ANOVA analysis of variance was calculated to find out if there was a significant influence of the year over the same 4 variables, concluding that there was no statistically significant difference in the means of assessment of any of the variables studied between at least two groups.

Curriculum Assessment, Syllabus Assessment, Curriculum Design Assessment

MTSK and TSD: didactic planning as a proposal for the learning of rational numbers in fifth grade elementary school students

El MTSK y la TSD: planificación didáctica como propuesta para el aprendizaje de los números racionales en alumnos de quinto grado de educación primaria

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Abstract

This research shows how, based on an analysis proposal based on the MTSK (Mathematics Teacher Specialized Knowledge) (Carrillo, Montes, Contreras, & Climent, 2017), related to the use of the TSD didactic device (Theory of the didactic situations), it was possible to favor the learning of the content of rational numbers, specifically from the part-whole relationship sub construct and the understanding of the same in students of the 5th grade of a primary school. The results show a greater mastery of the content in question and with it, the students' learning advanced towards different levels of complexity through the established representations and relationships.

Mathematics, Didactics, Specialized

Teacher training and conceptions in teaching and throughout history in Mexico

Formación y concepciones del docente en la enseñanza y a través de la historia en México

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Abstract

The work presented by the authors offers a journey of the role of the teacher in different historical periods of Mexico. To say: Liberalism and lights in education, The Mexican Revolution and the Ministry of Public Education, Socialist education in Mexico, National Unity, Neoliberalism and globalization, The "community" as the central axis of/for citizen formation. In each of them, the aforementioned role is argued and analyzed, as well as its representations. To do this, the analogy of photography is proposed, where the possibility of observing important details over the years is sought. Concrete and upcoming situations, which were the channels for axiological, theoretical and ethical frameworks to show an active teacher, as a critical and reflective subject in their context and that, historically, has been built and institutionalized.

Conceptions, Historical, Community

Perception of university students of a public HEI, regarding the academic achievement of online classes, after a year and a half of confinement due to COVID-19

Percepción de estudiantes universitarios de una IES pública, respecto del aprovechamiento académico de las clases en línea, tras año y medio de confinamiento por COVID-19

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Abstract

The purpose of this article was to know the feelings of university students after a year and a half of confinement due to COVID-19, regarding the experience and use of online classes. It is a quantitative study, an online survey of 187 students was used as a data collection instrument and descriptive statistics were used for the analysis of the information. The results show the perceived advantages and disadvantages, as well as their level of academic achievement, where 41 percent state that it decreased. Regarding the preference between online or face-to-face classes, 86 percent prefer face-to-face classes, 77 percent had their first contact with their teachers through WhatsApp and 63 percent by mail. 91 percent started their virtual classes with the cell phone. 74.7 percent of students did not have the skills required for online education; 89.9 percent of students had to learn self-taught.

Student Perception, Online Classes, COVID-19, Academic Performance

Teaching Competencies in Virtual Learning Environments

Competencias Docentes en Ambientes Virtuales de Aprendizaje

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Abstract

The COVID-19 pandemic accelerated the digital transformation of different areas and education was one of them. Face-to-face education was abruptly replaced by a virtual environment, however, teaching skills must be adapted and even perfected in this modality. In order to ensure a correct teaching-learning process in a virtual environment, the Autonomous University of Campeche (UAC) offered a training course for all teachers of its various schools and faculties. In this paper we will analyze the pedagogical and technological competencies possessed by 137 UAC teachers who participated in the 2020, 2021 and 2022 editions of the course called Virtual Learning Environments. The instrument used was a questionnaire consisting of 23 action questions with closed answers. The answers were multiple choice, which were estimated according to the Likert scale. The questionnaire was divided into 2 categories: Pedagogical and Technological, with 8 and 15 questions respectively. This analysis allows us to know the strengths and weaknesses of teachers in their pedagogical and technological competencies and thus generate the necessary strategies to ensure the success of the teaching-learning process in a virtual environment.

Technological, Pedagogical, Competencias, Strategies, Faculties

Formative Assessment for Virtual Education in Professional Studies

Evaluación Formativa para Educación Virtual en Estudios Profesionales

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Abstract

The Bachelor of Graphic Design (BGD) of a University in the State of Mexico, presented difficulties in the system of evaluation, notwithstanding applying evaluation only through qualifications, without considering the formative evaluation system. Therefore, this study is focused on incorporate formative assessment into the subjects of the BGD curriculum through the model of Dick y Carey (2015); the objective generated instructional alternatives to strengthen the teaching-learning process of the subjects in virtual modality. For that reason, each of the elements of the model is presented, which is made up of phases, evaluators, dates, objectives, and instruments, as well as the conclusions of the research.

Formative Assessment, Virtual Education, Instructional, Strategic Planning, Higher Education

Precariousness, inequalities and emotional health care practices in university students

Precariedad, desigualdades y prácticas de atención de la salud emocional en estudiantes universitarios

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Abstract

Objectives. The objective of this research was to identify emotional affectations in university students and the relationship they have with their learning in times of pandemic as well as their sociocultural context. For this purpose, the sociological perspective of Pierre Bourdieu was recovered with the intention of articulating the production of subjectivities from their objective conditions. **Methodology** Methodologically, two moments were established: 1) construction of social classes based on their volume and capital structure and 2) establish the relationship of their perceptions about emotions and learning by constructed social classes. **Contribution** The findings suggest that given the difference between the precariousness and the inequalities that deprive them, their perceptions and dispositions in this educational transition affect an inadequate attention to emotional problems. Therefore, it can be concluded that socialization in the virtual educational field demands the consideration that the social experience must face all the vital structures, including cognition, emotions and the will of social agents.

Subjectivities, Affectations, Inequalities, Sociocultural

Foundations of the Teen's Second Home

Cimientos del segundo hogar del adolescente

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Abstract

Man throughout history has sought to define what makes him reach his maximum splendor; For this reason, the present investigation developed the research question: ¿How are values related to the school climate in high schools No. 8 "Adolfo López Mateos" and No. 11 "Ricardo Flores Magón" in Saltillo, Coahuila? The present work is a comparative investigation for which 126 Secondary Level students were surveyed, enrolled in the third year, morning shift (Secundaria No.8 "Adolfo López Mateos" and No.11 "Ricardo Flores Magón"). The instrument that was applied was integrated by 8 signal variables and 50 simple variables, which were processed with the STATISTICA program. Among the main results, it was found that those school environments that satisfy the basic needs of furniture encourage the student to have the desire to continue with studies after secondary education. Likewise, the comfort of the students within the educational institution will be given thanks to a good performance of the teachers in terms of tutorials. Regarding the conclusions, it was found, among other things, that the networks of work among equals within the school community benefit the harmony and balance that must integrate an adequate school climate for learning; and that the successful academic projection in adolescents depends on the teaching promotion of an organized lifestyle.

Values, School Climate, Secondary Education

5 Social Sciences

Impact of gasoline prices on the economy of the academic staff of civil engineering, of the Coatzacoalcos Region Engineering Faculty, of the Veracruzana University

Impacto de los precios de la gasolina en la economía del personal académico de ingeniería civil, de la Facultad de Ingeniería región Coatzacoalcos, de la Universidad Veracruzana

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Abstract

The savings that civil engineering academics have had to implement due to gasoline prices were determined, and the price policies of gasoline and diesel in Mexico were shown, with the history of prices, history of taxes, the regulatory framework on prices, and the composition of the price of gasoline and diesel in Mexico, in the methodological aspect for the confirmatory empirical research, the survey was elaborated in which it was also questioned if they consider the prices of Magna and Premium gasoline and high diesel, and if they have perceived any benefit with the implementation of the energy reform with respect to fuel prices in Mexico. The survey was applied to 15 academics of the 35 that make up the civil engineering staff, with results that corroborate the hypothesis that derived from gasoline prices, teachers have taken actions that lead to savings, such as that 33.33 % will buy compact vehicles, 83.33% consume magna gasoline instead of Premium, and others.

Prices, Gasoline, Save money

Knowledge and importance of sex education in young university students of the Academic Unit of the North of the State of Nayarit of the Autonomous University of Nayarit

Conocimiento e importancia de la educación sexual en los jóvenes universitarios de la Unidad Académica del Norte del Estado de Nayarit de la Universidad Autónoma de Nayarit

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Abstract

Sex education is a topic formally included in the plans and programs of studies at the different educational levels, however, and despite the efforts that continue to be made to form and generate a culture related to it, in many places it continues to be a taboo or content that generates controversy within the family or community. In that sense, knowing the importance that this has for university education is something of great relevance, for which the present text reports the results obtained in relation to the object of study of Sexual Education in the students of the Academic Unit of the North of the Nayarit State of the Autonomous University of Nayarit, as a significant aspect in their personal and professional training. For the development of this study, a validated and adapted survey on sexual education by Dzib and Hernández (2016) was used, applied through a google form that was sent to all students. The total number of responses was 247; The results showed that most of the respondents are informed, but they express their desire to be provided with advice and relevant information about sexual education in the Academic Unit. Once the information was collected, the results were graphed and based on them a series of strategies and recommendations are proposed for the benefit of the Academic Unit, students and society in general.

Sex Education, University Training and Dissemination Strategies

Categorization of personal financial education practices

Categorización de las prácticas personales de educación financiera

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Abstract

Financial education provides people with knowledge and skills to manage money. The omission of the practice in individuals can generate economic problems in the personal, family and even their social environment. The study is qualitative with a descriptive scope and was based on the theory of social representations. The investigation was carried out with students of the Public Accountant career. The purpose was to recover the representations and social practices to propose a classification of the application of these. The results obtained from these applied instruments show that students excluded from their economic practices the resources of personal financial education, spend more than they receive and sometimes do not know the total amount of their income, savings are not part of their economy. The proposal contains 5 levels of classification of personal social practices about the knowledge and administration of economic resources that they have or intend to have in the future.

Economy, Social Representation, Social Practices

Commitment of the Companies with the International Sustainability Agreements and their Compliance in Mexico

Compromiso de las Empresas con los Acuerdos Internacionales de Sustentabilidad y su Cumplimiento en México

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Abstract

Companies are the engine that drive the economy of Mexico, so it is important that they contemplate the financial panorama that comes as a result of the sustainability agreements signed worldwide, such as the 2030 Agenda for Sustainable Development, The Agenda Addis Ababa and the Paris Agreement signed in 2015; all in a sense of respect for the environment, in aid for humanity, the fight against hunger and malnutrition, among others with an equality agreement between countries with common but differentiated responsibility, the member countries of the United Nations, in collaborative work over a period with the participation of civil society, the private sector and academia, managed to reach consensus on these agreements, which are intended to be fulfilled by 2030. Plus, the emergence of the SAR-Cov-2/ pandemic COVID-19, which is why the entire context of the planned sustainable actions was moved; economies were damaged, health systems collapsed, countries almost frozen in economic operations, which has generated a critical state in the private economy. It is the companies that today begin to work and review the scope, so in this work we sought to determine three actions through the *netnographic* method, which help both public and private companies, in the development of their activities, attending to the demands for sustainability, inclusion and social responsibility that are mandatory today. These being the circular economy, environmental accounting and Standard 035.

Sustainable Development, SAR-Cov-2, COVID-19

Contingency features of manufacturing smes due to covid effects. Southern region of the state of Hidalgo, Mexico

Rasgos de contingencia de las pymes manufactureras por efectos del covid. Región sur del estado de Hidalgo, México

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Abstract

Small and medium-sized companies represent a dynamic sector in the economy of the countries, due to the generation of jobs and what this impacts on the various sectors. The crisis caused by the COVID-19 pandemic generated company closures and therefore the loss of employment of thousands of people, among other social and economic aspects. Mexico presents a complicated scenario, both at the health, economic and social levels. Faced with this uncertain and complex context, there is the argument of the so-called new normal where companies must change their structures, ways of relating, buying and selling, managing human talent and investments, in order to adapt to the new market, particularly digital, remote, fast-paced and changing to stay in the market. Thus, the objective of this work is to analyze the impact that the COVID-19 pandemic produced on SMEs in the state of Hidalgo. The findings show that the interruption of productive activities, the provision of inputs, the drop in demand, access to financing affected.

Smes, COVID-19, Economic Impact

Knowledge and acceptance of the Crowdfunding Platform

Conocimiento y aceptación de la Plataforma de Financiamiento Colectivo Fintech

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Abstract

Bringing together the efforts of large amounts of individuals to collect funds and transfer them to their claimants is an activation key of the Fintech Crowdfunding Platforms (FCP). Consequently, the business model presence inside the potential investment mind is essential for its growth and consolidation. In this way, the concern to investigate the level of knowledge on the subject in Potential Retail Investors (PRI), is born. In addition to detecting whether this knowledge is related to the perception of the model as an investment option, as well as, intending to invest in the future. Thus, a quantitative investigation is carried out through the application of a self-perception response instrument, this in a sample of 384 PRI. The results showed that the participants recognized themselves with a low level of knowledge about: the existence of the model, the difference between authorized and unauthorized platforms, and its operation, among others. These results are accentuated in Biological and Health Sciences professionals, women, and people with no investment background. A positive but weak correlation is also detected between knowledge about PFCF and perception, as well as, the intention to invest. In contrast, a medium correlation was obtained between perception and the investment intent in the modality.

Potential Retail Investor, Crowdfunding Fintech Platforms, Knowledge, Perception

The flipped classroom as a tool for learning at High School

El aula invertida como herramienta para el aprendizaje en el NMS

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Abstract

One of the main problems faced by virtual or face-to-face education is the indifference, lack of motivation, and lack of interest that students show during their classes, which affects their academic performance. In this scenario, the teacher plays a determining role since he must seek and implement contextualized methodologies that capture students' attention to involve them in the learning process. Concerning the above, this research aims to identify the attributes of the flipped classroom for learning biology at the High School level. Besides, a quantitative descriptive and cross-sectional methodology took place to analyze this phenomenon. The results showed that the greater the use of tools with flipped classroom attributes, the students develop a comprehensive learning process with increased completion of activities and higher grade point averages, highlighting four main characteristics embedded in the flipped classroom: self-regulated learning, access to the content permanently, personalized teaching and active participation. Therefore, the contribution of the research lies in the innovative methodology for the biology teaching process based on independent learning with critical and reflective thinking.

Methodologies, Attributes Innovative

Development and resistance. Public investment projects in the Istmo de Tehuantepec, Oaxaca

Desarrollo y resistencia. Proyectos de inversión pública en el Istmo de Tehuantepec, Oaxaca

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Abstract

Public investment projects are "proposals for change that, based on specific investments, policies and action strategies, seek to expand people's opportunities and options for development" (Bobadilla et al. 2012). Among the most common are nuclear power plants, hydroelectric and petrochemical facilities, industrial zones, large economic and public transportation corridors. This research will refer to the main public investment projects implemented in the Isthmus of Tehuantepec region, with emphasis on the Interoceanic Corridor. The purpose of this is to analyse the impact of public investment projects that have been carried out in the Isthmus of Tehuantepec region on the promotion of local development. Thus, the historical results of the public investment projects were analysed according to the dimensions of local development, comparing them with each other, in order to later analyse the historical results and in future research project the impacts of the interoceanic corridor through its design, to confirm the social relevance of said project, whether it will be different or not and that it satisfies the axes of local development.

Development, Isthmus, Impacts

Analysis of Scientific Production on Social Empowerment and Sustainable Development in the Social Sciences

Análisis de la producción científica sobre Empoderamiento Social y Desarrollo Sostenible en Ciencias Sociales

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Abstract

Sustainable Development is a process where the active participation of its members is essential to promote the proper management of their resources through the recognition of their territory, generating a balanced economic exchange. The emergence of social enterprises for the achievement of these objectives in the different territories, responds to social needs, mainly to reduce the gaps of social and economic inequality, therefore, generating development strategies in the processes of Social Empowerment in these communities is necessary for their development. The objective of this article is to analyze the scientific production of Social Empowerment and Sustainable Development, therefore, the proposed methodology responds to the statistical and mathematical analysis of production of the study variables.

Analysis, Empowerment, Sustainable

A didactic tool for updating the teaching-learning process of English as a foreign language

Una herramienta didáctica para actualizar el proceso de enseñanza-aprendizaje del Inglés como lengua extranjera

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Abstract

The teaching-learning process is a binomial in constant change due to its actors and contexts. Therefore, this process requires an update to respond to students' needs according to their learning styles. Given this situation, the objective of this study is to know if TikTok, as a didactic tool, can contribute to said educational update and develop oral skills since it centers on communicative competence. Regarding the methodology, the descriptive quantitative approach took place on a 50-student sample enrolled in an extracurricular course. The findings provide contributions of a theoretical nature since they characterize TikTok as a didactic tool to update the English teaching-learning process with an innovative, participatory, and collaborative methodology with motivational features and ubiquitous learning. Besides, it contributes to oral skills development through the construction of knowledge, interpersonal relationships, discursive and sociocultural skills development, and the promotion of positive attitudes towards work (commitment).

Competence, Didactic, Ubiquitous

Developing the writing competence in virtuality through eXe Learning

Desarrollo de la competencia escrita en la virtualidad a través de eXe Learning

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Abstract

As a consequence of the changes and challenges of the educational system, information and communication technologies, learning and knowledge, and empowerment and participation are essential in the teaching process. In this sense, digital learning objects (LOs) represented a way of knowledge construction during emerging remote teaching. Based on this experience, the study aims to know the students' perceptions when promoting their writing competence in a virtual environment through LOs in eXe Learning. A quantitative methodology and a Likert scale instrument were applied to analyze the phenomenon in the English Teaching Bachelor. In the findings, the students affirm that these digital designs promote a coherent and cohesive discourse with critical and reflective thinking, interpersonal skills, social relationships with their peers, and a sense of belonging to a virtual community as well as collaborative work roles during the interaction to know: pedagogical, social, administrative and technical. They also encourage motivation and confidence to communicate in writing and increase the percentage of tasks to develop productive and receptive skills and investigative activities. In conclusion, the LOs from eXe Learning are an appropriate means to promote written production.

Competence, Pedagogical, Ubiquitous

Analysis of competitiveness in Mipymes during the covid-19 pandemic, case of Tlaxcoapan, Hidalgo

Análisis de la competitividad en las MIPYMES durante la pandemia Covid-19, caso Tlaxcoapan, Hidalgo

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Abstract

The objective of this research is to carry out an analysis of the competitiveness of MSMEs, in the municipality of Tlaxcoapan, Hidalgo; in order to know what are the factors that prevent them from staying within the local market during the Covid-19 pandemic. The methodology used was with a mixed approach and descriptive-exploratory research design, where the characteristics that the MSMEs of the Municipality of Tlaxcoapan live today were identified; The instrument that was applied to collect the data was a questionnaire divided into 5 sections: marketing, clients, competitiveness, contingency protocols and the use of information and communication technologies; 323 questionnaires were applied, a result that the statistical sampling yields, according to 2043 economic units. As a result, it was identified that 78% of the owners of MSMEs consider that in order to be competitive it is important to generate strategic plans in the areas of marketing, clients, contingency protocols, and the use of information and communication technologies, due to that are of great relevance to survive in the markets, in addition to the uncertainty that could occur at some other time of pandemic or some other contingency that could affect their economic operations. During the Covid-19 Pandemic, many micro, small and medium-sized companies did not know how to face such a crisis, despite the technological tools they were able to implement in their businesses. Alliances can be made with higher education institutions to be able to work hand in hand and provide solutions to the needs presented by the MSMEs of Tlaxcoapan, Hidalgo

Competitiveness, Contingency, Hidalgo, Marketing, Mipymes

Measurement municipal social development in the district of Etna, Oaxaca

Medición del desarrollo social municipal en el distrito de Etna, Oaxaca

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Abstract

It is highly relevant to know the impact of social development programs, specifically the funds that arise from branch 33 (FAIS and FORTAMUN) whose objectives are to provide infrastructure and strengthen the municipality, to identify possible incidences on territorial disparities. These funds are administered by the municipal authorities and to know their effect on social development, it is proposed to use the basic Municipal Development Index (IDM), since it is considered a reliable, simple and adaptable option. The purpose of this article is to propose a series of complementary indicators based on the IDM, which are adapted to the characteristics of the State and especially to the region that makes up the district of Etna, Oaxaca; in order to generate structured and real information for analysis and interpretation by all those interested in public action. This proposal is expected to be a useful management tool for municipal change towards higher levels of effectiveness and efficiency

Territorial, Municipality, Development, Indexes

Process of staff activities National Electoral Institute in electoral jorganda

Proceso de actividades personal instituto nacional electoral en jornada electoral

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Abstract

With this project, the objective was to know the process of activities carried out by the staff on the National Electoral Institute on an electoral day so that Mexicans at the national level know what and how these activities are carried out on an electoral day that could even work at a national and international

Activities, Staff, Process, Information Technologies

Analysis of the Income Elasticity of Demand for Recreational and Environmental of Three Ecosystems in Mexico

Análisis de la Elasticidad Ingreso de la demanda de Servicios Recreativos y Ambientales de Tres Ecosistemas en México

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Abstract

The objective of this research is to estimate the income elasticity of demand for environmental services of three ecosystems in Mexico. In the three studies of stated preferences about the willingness to pay for an environmental quality improvement project, we used a sample size of 289 observations for the Primas Basálticos ecosystems and 150 for the La Michilía Biosphere Reserve and the Molino de Las Flores National Park. The selection of interviewees was random among visitors. To carry out the estimation, a cluster analysis was carried out to determine the income strata, where the indicator was formulated and calculated in each ecosystem for three income strata (high, medium and low) based on a segmentation of the consumers of recreational services through the two-stage clustering method. In this way, the recreational services of the three ecosystems in both cases behave as a normal good; that is, if the income of the high and middle income consumer increases, the demand for recreational services will increase less than proportionally.

Normal Good, Inferior Good, Willingness To Pay, Two Step Cluster Analysis

Modelling the international demand of US receptive tourism in Mexico

Modelando la demanda internacional del turismo receptivo estadounidense en México

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Abstract

To obtain a suitable econometric model in order to explain the international tourism demand in Mexico by the American inbound tourism in the span of time of 1980 to 2016, the general-to-specific approach was used with annual data where a general autoregressive distributed lag model was set then it was reduced to various specific models by imposing parameter restrictions and the selection of the final model was made according to the restriction tests. The results suggest that the best model to explain the demand is the model of partial adjustment from which it can be deduced that in this international tourism demand exists a positive relationship with the real economic growth of the United States by getting an income elasticity of 0.54 percent, there is also a positive relationship between this demand and the real trade volume of the two nations which elasticity accounts for 0.094 percent. As for the real price paid by the American tourists is inelastic (-0.3). Finally, there is a promotional effect made by the tourist who was in Mexico in the previous period that accounts for 0.52 percent.

Econometric model, Elasticities, Lag dependent variable

Characterization of SARS-CoV-2 cases and COVID-19 deaths in the State of Baja California through five waves using machine learning

Caracterización de casos SARS-CoV-2 y muertes por COVID-19 en el Estado de Baja California a lo largo de cinco olas utilizando aprendizaje automático

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Abstract

The Mexican State of Baja California, located in the north of Mexico, is a region of great importance due to its proximity to the United States, reason why it is of interest an analysis of the historical behavior of the pandemic caused by the SARS-CoV-2 virus in this region. Thus, based on the official data provided by the Mexican federal government during the years of the pandemic, particularly on Baja California, we undertook the task of preprocessing such data in order to generate classification models and identify rules of the behavior between virus infections and COVID-19 deaths. To carry out our study, as in previous works, we used the KDD methodology and specialized machine learning tools, beginning the study with the preprocessing of data and continuing with its exploitation for generating models with a high rate of correct classification, which were validated with the help of the cross-validation technique. In this way, the five waves that have occurred between March 2020 and October 2022 were characterized according to the relationships occurred between cases infected with the SARS-CoV-2 virus and COVID-19 deaths.

Baja California, SARS-Cov-2, COVID-19, Machine Learning

Employment and covid-19 in rural communities

Empleo y covid-19 en comunidades rurales

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Abstract

The objective of this research was to descriptively analyze employment, income and work performance in times of COVID-19 pandemic. The research was quantitative and descriptive, an analysis was conducted with a sample size of 300 employees residing in rural communities. In addition, a semi-structured survey with general and employment data sections was applied to collect the information. The fieldwork was conducted in the period from June to July 2022 in rural communities. The contribution is that it was an analysis of employment with emphasis on the loss of employment to people in rural communities. In the results it was found that the COVID-19 pandemic in Mexico in rural communities presented a 24% unemployment rate; likewise the monthly income of employees was affected by the pandemic, also the existence of support from the government was minimal in terms of employment.

Pandemic, Analysis, Rural

Rurality, tourism and strategic management for sustainability in the El Zapotal Restaurant-Spa, Tierra Colorada, Mexico

Ruralidad, turismo y gestión estratégica para la sustentabilidad en el Restaurante-Balneario El Zapotal, Tierra Colorada, México

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Abstract

The global population faces the challenge of optimizing the positive actions they undertake in the elements of nature with the purpose of achieving sustainability in rural areas of the emerging countries of the world. Hence, the objective is to expose the tourist potential and management of the area under study a geographical approach. Methodology considered cabinet work for the selection of publications that address the topics: management, territory, tourism and sustainability, complemented with field work such as the three exploratory tours in the area of influence during the Easter holidays and summers of 2020-2022 at the El Zapotal Restaurant-Spa. The results were: *a)* optimal climate-water-soil-vegetation for the practice of national and international tourism; *b)* rational use of existing natural resources and *c)* the tourist experience is complemented by the existence of the Tehuacalco archeological zone, El Zoo Carry and Poza Pinta. Therefore, the conclusions were: 1) the elements of the environment are conserved; 2) regional tourist potential of the Restaurant-Spa El Zapotal and 3) it is important to formulate and apply a program for public use that allows greater dissemination of the site under study to increase the number of tourists who visit it.

Rurality, Sustainability, Tourism

The investment of MSMEs as a competitiveness triggering factor

La inversión de las mipymes como factor detonante de competitividad

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Abstract

The objective of this research is to present the results of the study carried out in the San Martín Texmelucan region, analyzing 150 MSMEs to determine the degree of investment that these have and can trigger their competitiveness. Regarding the methodology, the type of research was the applied qualitative type. The contribution was the template in which the strategies appear, which was validated with a pilot test. With this project, an evaluation model of the investments of the MSMEs of the San Martín Texmelucan region is proposed. The project was initially developed by establishing contact with the business sector, preparing a questionnaire to collect and analyze information, the factors that hinder the innovation of MSMEs were analyzed. Afterwards, a pilot test was carried out applying the proposed model to the 150 selected MSMEs and finally, the final report was written and the results were published. It is also considered that this model was applied to the projects that are attended through the business incubator as part of the services it offers.

Evaluación, Inversión, Mipymes, Comercio, Emprendimiento

Public policy proposal, inclusive tourism for people with disabilities in San Juan Del Río, Qro.

Propuesta de política pública, turismo incluyente para personas con discapacidad en San Juan Del Río, Qro.

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Abstract

In this work, the needs of disabled people in the locality under study to enjoy tourist activities, specifically the food of the restaurant of their choice, are presented as meetings and contributions, establishing that there is a lack of awareness and interest in improving the conditions and resources to provide service to this vulnerable group, Therefore, a proposal for people with disabilities was designed and proposed, which was called "public policy aimed at raising awareness and/or training restaurateurs in the provision of services to people with disabilities for inclusive tourism in the city of San Juan del Río, Querétaro". The above was obtained through a mixed type of research, including literature review and field observation, using the qualitative approach for the analysis of information and proposal of the necessary public policy proposal to contribute to the minimization of the detected problem, from which arose the objective of finding and minimizing the areas of opportunity in terms of inclusive tourism for people with disabilities in the restaurant industry of San Juan del Río, Querétaro.

Inclusive Tourism, Public Policy, Disability, San Juan Del Rio Qro

Support to MSME in a municipality of Puebla, Mexico

Apoyo a la MiPyME en un municipio de Puebla, México

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Abstract

This article arises from a research project that seeks to respond to the needs of micro and small entrepreneurs in the region where the educational institution is located, in which various activities are carried out in favor of the region where it is located. The objective of the first stage is to know the real situation of the Micro and small companies in the region in order to offer actions that help improve their areas of opportunity. The Methodology used is based on the scientific method, and with a mixed cut, using the questionnaire applied with micro and small entrepreneurs as a research instrument. As a contribution from the institution, it has been working to rescue those economic sectors that have been affected as a result of the pandemic caused by the virus that came from China and that we are still suffering its consequences. Various activities aligned to help those who invest in favor of their family and the region.

Diagnosis, Entrepreneurs, MSMEs

Financial Education for mipymes, a strategy of Education and Regional Development

Educación Financiera para las mipymes, una estrategia de Educación y Desarrollo Regional

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Abstract

This paper presents the important role that Higher Education Institutions (HEIs) have for mipymes, which according to their resources and knowledge develop their main financial activities in most cases in an empirical way, which makes it difficult to develop effective actions that can support them in their profitability, growth and permanence in an increasingly changing market, which is why the need for external advice to support them to acquire financial education is highlighted. The work is based on the results of the study in which they participated as a member of the Network of Latin American Studies in Administration and Business, which was applied through an online form and in person, the level of reliability of the entire study was an adequate Cronbach's alpha ($\alpha = 0.934$). Therefore, in this investigation the benefits that justify the collaboration of HEIs with this type of economic entities.

Financial Education, MSMEs, Permanenc

Contributive culture as a participation mechanism for socially responsible companies in Mexico

La cultura contributiva como mecanismo de participación de las empresas socialmente responsables en México

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Abstract

Contributive culture is a slope of democratic culture in the sense of citizen participation, which is aware of the role that taxes have in a state system. Corporate social responsibility can have tax edges in a dynamic of commitment to collective well-being, for example in Mexico taxes represent 55.65% of total federal income for the year 2022. In turn, Income Tax participates with 52.57% of the total taxes, while the Value Added Tax with 30.77% and the Special Tax on Special Production with 12.81%. The purpose of this article is to contribute to the promotion of a contributive culture based on the statistical analysis of the Federal Income Law and its relationship with the distribution of public spending, as well as knowledge of the rights and obligations of taxpayers. taxpayers. For this, a theoretical journey of corporate responsibility is made from a paradigm of competitiveness that integrates a collective well-being through the timely conscious participation of the payment of taxes, taking into account principles of legality and justice of taxes.

Contributive Culture, Participatory Democracy, Taxation

Business competitiveness in woodcarving handcraft business from San Martín Tilcajete, Oaxaca

La competitividad empresarial en los negocios de artesanía “tallas de madera” de San Martín Tilcajete, Oaxaca

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Abstract

The objective of this article is to identify how is the business competitiveness of craft businesses in Oaxaca (Mexico), specifically those of "wood carving" in San Martín Tilcajete. The methodology is quantitative in nature with a descriptive scope using a Likert-type survey as an instrument that identifies the company-level capacity of each business to compete, change and connect. This survey is based on the SME Competitiveness Table of the United Nations International Trade Center and was applied to a sample of 84 business leaders, out of a total of 127 that are established in the locality. The results allow us to analyze the craft businesses from an organizational and administrative perspective, different from the traditional social-anthropological approach from which they are generally studied. The results identified opportunities in the documentation of artisanal processes, the management of social networks and the incorporation of technology, among others.

Crafts, Competitiveness, Msmes, Oaxaca

Proposal of a logistics model for a furniture manufacturing company in the municipality of Nacajuca, Tabasco, Mexico

Propuesta de un modelo logístico de una empresa manufacturera de mobiliario, en el municipio de Nacajuca, Tabasco, México

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Abstract

It is a fact that strategic logistics helps an organization to understand, evaluate, control, optimize and develop operations with an integral approach, taking into account all the factors that influence both internally and externally the system, in order to increase competitive advantages, attracting and retaining customers and generating an increase in the economic benefits obtained from the marketing and production of goods and services, through the interaction of the activities of physical distribution, supply of raw materials, information management, response times, inventory level control, study of demand, customer service, etc. Therefore, in this work we intend to carry out a study in the business context with the objective of measuring the level of efficiency and effectiveness of its current logistics, by means of an instrument that allows visualizing the organization in an integral way, to later analyze and interpret the results and propose solutions, improvement projects or systems that improve the results obtained in the diagnosis.

Strategic Logistics, Factors, Integral Approach

The Impact of Social Responsibility on Organizational Legitimacy

El impacto de la Responsabilidad Social en la Legitimidad organizacional

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Abstract

As part of the strategies that companies implement to stay current and comply with international guidelines is social responsibility. The objective of this research is to analyze the factors of social responsibility that lead to the construction of the organizational legitimacy of companies in Ciudad Obregón. The importance of this research focuses on verifying to what extent the social responsibility activities carried out by companies lead to legitimization. As part of the intellectual merit and the contribution that this research intends to make to knowledge is the quantitative measurement of the organizational legitimacy variable, this variable has been measured in studies that come from European countries, so it is intended to analyze the variable in this country. The research is non-experimental quantitative, cross-sectional correlational, the hypotheses of this study will be verified through the structural equation model (SEM). Among the findings identified, it is found that legitimacy is explained by 45% by the dimensions of social responsibility of socially responsible companies in Ciudad Obregón, identifying that the social activities they promote are the key factor for the perception of the legitimacy of said companies.

Dimension, Social Responsibility, Legitimacy, Structural Equations

Elaboration of a Manual of Procedures for the Department of Financial Resources of a Higher Education Institution in the State of Veracruz, Mexico

Elaboración de un Manual de Procedimientos para el Departamento de Recursos Financieros de una Institución de Educación Superior en el Estado de Veracruz, México

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Abstract

Within organizations, one way to systematize work instructions is through procedure manuals, since they allow normalizing the processes of specific activities and carrying them out effectively and efficiently. Allowing to create a guide of good practices that provide administrative and business management. For this, the appropriate tools must be available, so a proposal for a procedures manual is presented, which, as its name indicates, this tool seeks to carry out an implementation of said manual with the objective of carrying out an internal control, a continuous efficiency and reduce the margin of error in daily activities and functions. In addition, it is planned to support the Financial Resources Department by granting an improvement proposal that helps to have greater efficiency and organization, as well as optimize its functions under the continuous improvement approach.

Implementation, Procedures, Optimize

Appellation of Origin in México

Las Denominaciones de Origen en México

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Abstract

Mexico has an ancient culture, admired by the world and rich in traditions, from which innumerable agricultural and man-made products emerge, which due to their characteristics are not compared with other equivalents. When an agricultural or man-made good is also linked to a particular territory and is made by expert hands using artisanal techniques, that product is a candidate to be recognized with a Denomination of Origin. The purpose of this research is to analyze the areas of opportunity presented by appellations of origin in Mexico, highlighting common challenges and risks identified in their operation, which are holding back their efficient performance, as a driver of the social and economic development of regions in Mexico. The study consisted of a theoretical analysis of the current situation of denominations of origin in Mexico, to contribute to the dissemination of their knowledge as a trigger for development in the country.

Regions, Appellation Of Origen, Trade

Process in the evaluation and selection of advertising media for new products through the business model: barriers and challenges of digital marketing

Proceso en la evaluación y selección de medios publicitarios para nuevos productos a través del modelo de negocio: barreras y desafíos del marketing digital

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Abstract

MSMEs have been forced to innovate their sales processes, venturing ever more vehemently into the digital world, especially in social networks. The global lockdown due to a pandemic accelerated what had seemed uncontrollable before, digital marketing grew rapidly in the face of the large number of companies that had to close their physical businesses. Those that already had websites or managed social networks had a certain competitive advantage if they had a certain virtual positioning, it helped them to continue operating by implementing home deliveries. This article aims to identify the process of a digital business plan that allows selecting the sales and communication channel through technological dissemination tools to position and, consequently, sell products/services. The methodology used was mixed cross-sectional and descriptive. Results were obtained that allowed the identification of various effective steps for MSMEs in the sales channel, according to the accumulation of recent experiences with those who have practiced digital marketing. The foregoing allowed the construction of a process with intentions of favorable impact on market competitiveness, as well as scientific recovery for the insertion of social networks as an effective means for positioning companies and brands, specifically for MSMEs.

Advertising Media, Social Networks, Business Model, Digital Marketing

Socioepistemology and mathematical culture in the training and performance of high school math teachers

La socioepistemología y la cultura matemática en la formación y desempeño de los profesores de matemáticas en nivel superior

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Abstract

Identified antecedents and contributions made by several researchers are described to understand two undervalued foundations in relation to the training and academic performance of mathematics teachers at the higher level of studies. It starts from the concepts of the socio-epistemological approach and that of mathematical culture. Through the valued contributions, it is broken down little by little how the experiences of people who later become teachers, in this case at the professional level, form that mathematical culture and how social practices intervene in the entire training process. It is analyzed how knowledge in didactics moves between the scientific, technological and technical aspects through a characteristic factor: time, which also marks the changes in society. The ways of knowing social realities and how they are communicated by those who live them are described, a situation in which the narrative method that facilitates this process stands out. Finally, the information obtained is considered to support a project that considers knowing the mathematical culture of active teachers within an institution.

Socioepistemology, Mathematical culture, Practices

Virtual education, an engine to increase learning in the pandemic

La educación virtual, un motor para aumentar el aprendizaje en la pandemia

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Abstract

The objective of this article is to know how virtual education intervenes in the learning process of students in Technical Secondary School No. 4 vs. General Secondary School No. 11 during the pandemic. The research that was carried out is of a comparative and differential type since two populations will be analyzed to know the learning process in virtual education; it is also preliminary since it will only have one moment in the validation of the external data. The instrument had 83 variables on a decimal ratio scale and 6 general data items. The statistical treatment was through Statistica 7, with the purpose obtained confidence in the information. The main results of the research highlight that carrying out a practice of the topics seen enhances the learning process in the subjects. The research concludes that the most suitable education for men is the virtual one since they generate a greater type of interrelationships, abilities, skills, communication, and social situations that favor a quality education. It is proposed to carry out a course focused on virtual education to learn about technological tools.

Virtual Education, Learning, Pandemic

6 Agricultural Sciences and Biotechnology

Lipopeptide produced by the bacteria *Bacillus mojavensis* with activity against the phytopathogenic fungus *Colletotrichum gloeosporioides* Penz & Sacc var. Minor Simmonds

Lipopeptido producido por la Bacteria *Bacillus mojavensis* con actividad contra el hongo fitopatógeno *Colletotrichum gloeosporioides* Penz & Sacc var. Minor Simmonds

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Abstract

The objective of this work was to determine the antifungal activity against *Colletotrichum gloeosporioides* Penz & Sacc var. minor Simmonds of the lipopeptide(s) isolated and purified from the culture of the marine bacterium *Bacillus mojavensis* (MC3B-22). The results will show that the extraction method with ammonium sulfate was the one that extracted the largest amount of biosurfactants with a yield of 3.1243 g/L compared to the acid precipitation method (0.3173 g/L). The crude extract in the presence of 103 conidia/mL of the fungus *Colletotrichum gloeosporioides* did not present inhibition, but the semi-purified extract obtained with ammonium sulfate reached a minimum inhibitory concentration of 12.5 µg/mL. In conclusion, the optimal method for extracting the biosurfactant was 40% ammonium sulfate, with methanol being a suitable solvent to semi-purify and obtain a minimum inhibitory concentration of 25 µg/mL against *C. gloeosporioides*.

Biosurfactant, Lipopeptide, *Bacillus Mojavensis*

Water retention and physical-chemical changes in a calcareous soil with application of a Mexican natural zeolite

Retención de agua y cambios físico-químicos en un suelo calcáreo con aplicación de una zeolita natural Mexicana

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Abstract

The objective in the investigation was to evaluate the water retention in a calcareous soil added with a Mexican natural zeolite. A natural zeolite can absorb and retain large amounts of water. Four treatments were tested; without zeolite application (T1-control), with application of 5 ton ha⁻¹ (T2), 10 ton ha⁻¹ (T3) and 15 ton ha⁻¹ (T4) of zeolite. The experimental design was a complete block with four replicates. The percentage (%) of water retention in the soil was quantified on February 11, February 25, March 31 and April 12, 2021. Prior to the establishment of the experiment the soil (0-30 cm) was characterized by quantifying pH, electrical conductivity (EC), organic matter (OM), N, P, carbonates, bicarbonates and chlorides.

Zeolite, Soil, Humidity, Irrigation

Achievements in the formation of competences of the postgraduate in agroforestry for sustainable development

Logros en la formación de competencias del posgrado en agroforestería para el desarrollo sostenible

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Abstract

The present study focused on the assessment of the skills of the students of the Master's Program in Agroforestry for Sustainable Development (MCADS) of the Autonomous University of Chapingo. The objective of this research was to determine, from the perception of the students, the development of competencies acquired during their postgraduate studies in the field of discipline, interpersonal and comprehensive training as a base element for updating the current Study Plan. Surveys were applied to the 2016-2017, 2017-2018, 2018-2019 and 2019-2020 generations once their master's studies were completed in accordance with the current curriculum by competencies. These also included the degree of satisfaction and possible postgraduate recommendation. The questionnaires contained Likert-type items. The results showed that from the students' perception, the MCADS Curriculum is contributing significantly (81.6%, sd=18.4) to the development of skills in the field of the Agroforestry discipline, of interpersonal relationships (85.5%, sd=5.0) and comprehensive training (79%, sd=7.5). The degree of satisfaction (89.5% satisfied) and their possible recommendation of the postgraduate course (84.2% would recommend it) were other key elements in fulfilling the MCADS mission. The formal self-assessment, among other studies, is decisive for updating the current Curriculum and specifying the teaching-learning activities required for the development of committed talents.

Agroforestry, Postgraduate, Competencies Assessment, Self- Appraisal

Genotype environment interaction for maize (*Zea mays* L.) hybrids for the humid tropic of México

Interacción genotipo ambiente en híbridos de maíz (*Zea mays* L.) para el trópico húmedo de México

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Abstract

Three way hybrids present the advantage of the heterosis in the maize production, besides, they represent agronomic and economic advantages in certificated seed production; Thus, with the objective of knowing the yield and agronomic characteristics of maize hybrids, during the spring summer season in 2021, were evaluated 12 maize hybrids, on which, there are participating inbred lines of the maize breeding program of Cotaxtla, Ver., and Iguala, Gro., from INIFAP and inbred lines from CIMMYT. These hybrids were arranged under complete blocks at random, with 12 treatments and four replications in plots of two rows 5m long, and 62,500 plants ha⁻¹. The agronomic traits were: Grain yield, days to tassel and silking, plant and ear height, plant and ear aspect and sanity, lodging, bad husk cover and ear rot. From the combined analysis for grain yield there was found significant differences for genotypes (G) and for the Genotype environment interaction (GE). The best hybrids were above 7.0 t ha⁻¹ in grain yield, 9 to 13% more than the check H-520; These hybrids were: (T35xT10)xLT154, (T35xT10)xLT156, (CML500xCML498)xLT155, (CML264xCML311)xLT-156, (LT-164xLT-165)xLT-156, (LT-169xLT-170)xLT-156. The inbred line LT156, participated in the best hybrids as a male parent; This line present good General Combining Ability.

Heterosis, Genotype, Combining Ability, Zea Mays L., Adaptability

Isolation and identification of Enterobacterales present in dog feces in the city of Merida, Yucatan

Aislamiento e identificación de Enterobacterales presentes en heces de perros en la ciudad de Mérida, Yucatán

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Abstract

The close coexistence between humans and pets such as dogs has increased the risk of transmission of infectious diseases (zoonoses) caused by Enterobacterales. The ingestion of food and water sources contaminated with animal feces matter constitutes the main mechanism of dissemination of these diseases. The objective of the study was to determine the prevalence of Enterobacterales in stool samples from domestic and street dogs collected in the city of Mérida, Yucatán. For this, 30 stool samples from canines (15 domestic dogs and 15 street dogs) were collected. The bacterial samples were seed on McConkey agar and salmonella-shigella agar (after enrichment in tetrathionate broth). Likewise, microorganisms were identified by biochemical tests: citrate, MIO, LIA, urea, TSI, catalase and oxidase. The most outstanding findings was a high percentage of dogs infected with *Salmonella* spp., the animals were of both domestic and street origin. This is alarming given the potential risk of zoonosis for the population.

Fecal, Zoonosis, *Salmonella*

Pathogenic characterization of epiphytic fungi of apple cv. 'Golden Delicious'

Caracterización patogénica de hongos epífitos de manzana cv. 'Golden Delicious'

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Abstract

Associations between plants and microorganisms may be beneficial, neutral or detrimental. Fungi are well known to be the main biotic agents causing plant diseases. Apple is a crop that may be affected by plant pathogenic fungi, causing important economic losses. Apple variety 'Golden Delicious' is susceptible to phytopathogenic fungi and is one of the most consumed in the world. In this study, fungal populations obtained from the surface of 'Golden Delicious' apple cultivated in Queretaro were identified using taxonomic keys, and their possible pathogenic activity was evaluated inoculating them into apple fruit. Eleven fungi morphotypes were obtained, from which 90% was possible to identify at genus level. Main genera identified were *Alternaria*, *Aspergillus*, *Cladosporium* and *Penicillium*. Assays in fruit showed that all fungal morphotypes had some phytopathogenic activity. Morphotypes identified as *Penicillium* were the most harmful (>59% decay). Results show there exist associated fungi during pre-harvest apple grow that may damage fruit in post-harvest phase.

Pathogenic, Susceptible, Fungal

Characterization of *Paenibacillus* sp. CBRM17 as antagonist of phytopathogenic fungi and growth promoter of *Capsicum chinense* Jacq.

Caracterización de *Paenibacillus* sp. CBRM17 como antagonista de hongos fitopatógenos y promotor de crecimiento de *Capsicum chinense* Jacq.

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Abstract

Studies of the plant-microorganism relationship have made it possible to explore the potential of rhizospheric bacteria to improve the health and quality of plants. In the present study, *Paenibacillus* sp. CBRM17 was characterized in vitro for its ability to inhibit the growth of phytopathogenic fungi that cause diseases in horticultural crops in the tropics, finding a reduction in the mycelial growth of *Alternaria*, *Fusarium* and *Helminthosporium* strains in the range of 50 to 70 %, additionally its biochemical properties related to the promotion of plant growth were characterized, registering the production of 0.36 µg/mL of indole acetic acid (IAA), the solubilization of tricalcium phosphate with solubilization index (SI) of 2.41 mm and solubilization efficiency (SE) of 140.6 %, producing in the supernatant 63.5 mg/L of soluble phosphorus, in addition to being positive for ACC deaminase activity. Inoculations trials of habanero chili (*Capsicum chinense* Jacq.) seeds with *Paenibacillus* sp. CBRM17 showed its potential to be used as an inoculant in the growth promotion of this crop, since it increased all growth variables; increasing the total fresh and dry biomass by 93.3 and 96.4 %, respectively.

Microbial Antagonism, Índole Acetic Acid, Phosphate Solubilization

Characterization of the relationship soil density and simple compression resistance of silty soils

Caracterización de la relación entre la densidad y la resistencia a la compresión simple de limos

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Abstract

The unconfined compressive strength of soils is closely related to the shear strength that soil particles show in a material sample subjected to stress states where there are no lateral restrictions to stabilize the geotechnical structure. It is known that the resistance of a soil depends on its density and the type of soil. In engineering practice, it is highly desirable to have information in the form of empirical relationships that correlate readily and cheaply obtainable data for soil strength. This article presents an experimental study on materials subjected to compression without confinement and that leads to an empirical proposal that relates the density of a soil with the relationship it exhibits to simple compression.

Simple Compression, Empirical Relations, Density

Application of arbuscular mycorrhizal fungi and organic fertilizers in tomato (*Solanum lycopersicum* L.) plants

Aplicación de hongos micorrízicos arbusculares y fertilizantes orgánicos en plantas de tomate (*Solanum lycopersicum* L.)

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Abstract

Association with mycorrhizal fungi confers benefits to host plants. The successful establishment of the symbiosis improves the nutritional status of both organisms: while the fungus receives carbohydrates from its host, the plant benefits from the association by increasing the absorption of nutrients and minerals from the soil, as well as enhancing its resistance to biotic and abiotic stress. In the present work, the result of the use of arbuscular mycorrhizal fungi (AMF) and organic fertilizers in tomato plants as an ecologically sustainable strategy is shown, and the impact on the establishment of said colonization is analyzed. For this, staining and molecular methods were used to analyze the impact of organic fertilizers on mycorrhizal colonization. The findings indicate that the application of organic fertilizers in low proportion does not affect the establishment of mycorrhizal symbiosis.

Biofertilizers, Symbiosis, Sustainable

Identification of sources of resistance in tomato to *phytophthora infestans* at Mexico

Identificación de fuentes de resistencia a *Phytophthora infestans* en jitomate en México

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Abstract

Late blight caused by *Phytophthora infestans*, devastating disease in tomato (*Solanum lycopersicum* L.) worldwide. The present study was carried out to identify sources of resistance in wild genotypes of *Solanum lycopersicum* var. *cerasiforme* collected in Mexico, and experimental varieties. San Marzano and Rio Grande were susceptible controls, and the resistant control, accession LA2533 *pimpinellifolium*. Field and greenhouse trials were established for exposure to natural infections. Incidence and severity of the disease and the area under the curve of the disease (AUDPC) were estimated. In laboratory, leaf samples were inoculated with six pathogen strains isolated from potato plants, from Valle de México. It was calculated necrotic area percentage (NAP), sporulation degree (SD) and index disease (ID). Wild populations V115, 319 and 327 had similar behavior to resistant control, followed by experimental genotypes 1-1, 3-1, 1-12, 2-29, 3-31 and 2-14. In separated leaflets inoculated test with Toluca's strains, V115 highlighted, followed by 3-3, 1-12, 2-29, 3-6, 1-1, 2-14 and 319 and moderated resistance were showed by 3-1, 3-31, LA2533, 3-33 and 327. Susceptible control San Marzano obtained higher values for AUDPC, NA, SD and ID.

Late Blight, Solanum Lycopersicum Var, Cerasiforme, Genotypes, Disease Resistance, Audpc

Three way maize (*Zea mays* L.) hybrids, alternative for producing and using improvement seed

Híbridos trilineales de maíz (*Zea mays* L.), alternativa en la producción y uso de semilla mejorada

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Abstract

With the objective of knowing the yield and agronomic characteristics of maize hybrids for the tropical region in México, during the spring summer season in 2021, there were evaluated 27 three way hybrids, on which, there are participating inbred lines of the maize breeding program of Cotaxtla, Ver., and Iguala, Gro., experimental stations of INIFAP and inbred lines from CIMMYT; Besides, there were included the commercial checks H-562, H-565 and H-520. These genotypes were arranged under complete blocks at random, with 30 treatments and three replications in plots of two rows 5m long, and 62,500 plants ha⁻¹. The agronomic traits were: Grain yield, days to tassel and silking, plant and ear height, plant and ear aspect and sanity, lodging, bad husk cover and ear rot. The best 13 maize hybrids at 0.05 of probability were above 7.0 t ha⁻¹, in grain yield and from 5 to 12% more than the commercial check H-520; Among those: (LT155x T48)xCLWN247, (LT156xCML549)xT49, (CML311x T48)xCLWN247, CML549xT49)xCLWN247, (CML549 xLT154)xT48, LT156xLT154)xCLWN247 and (CLWN247xLT154)xT49. The inbred lines LT156, LT154, CLWN247, CML549 and T49 participated in the best hybrids; It suggest that these lines present good General Combining Ability.

Heterosis, Trópic, genotypes, Zea mays L.

Compositional determination of cereal flour of *Zea mays*, *Sorghum* and *Triticum spp* from the Timbinal community of Valle de Santiago Gto.

Determinación composicional de harina de cereales de *Zea mays*, *Sorghum* y *Triticum spp* de la comunidad del Timbinal de Valle de Santiago Gto.

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Abstract

Due to the increase in plastic waste derived from oil, and the pollution that they represent to the environment, new alternatives are being demanded to replace molecules with biomolecules that are the initial source for other future studies, for example, biopolymers in this case the biomolecule of interest is that of starch from cereals such as *Zea mays*, *Sorghum* and *Triticum spp*. In this study, the flour composition of the three cereals from the Timbinal community of Valle de Santiago Gto. Finding your compositional analysis of Corn; RH% 8.6 ± 0.2 , Ash 1.33 ± 0.2 , ATT (titratable acidity) 0.048 ± 0.009 , ETE(Ether extract) 3.33 ± 0.3 , Protein 13.3 ± 0.18 , fiber 48 ± 1.5 and pH 6.4 ± 0.25 . Sorghum; RH% 9.6 ± 0.2 , Ash 1.16 ± 0.2 , ATT 0.026 ± 0.01 , ETE 10.3 ± 0.8 , Protein 11.5 ± 0.18 , Fiber 52.5 ± 1 and pH 6.2 ± 0.15 . Wheat; RH% 7.46 ± 0.1 , Ash 2.33 ± 0.2 , ATT 0.39 ± 1 , ETE 11.6 ± 1 , Protein 22 ± 0.2 , Fiber 53 ± 0.9 , and pH 6.0 ± 0.15 . Concluding that we have young flours and free of chlorinated or bleached treatments, therefore we have optimal flours to produce the acid reaction of Bioplastics from cereal flours.

Wheat, Sorghum and Corn

Control of the risk of contamination by *Clavibacter michiganensis* in a tomato greenhouse crop

Control del riesgo de contaminación por *Clavibacter michiganensis* en un cultivo en invernadero de tomate

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Abstract

Tomato cultivation in greenhouse is sensitive to attack by the bacterium *Clavibacter michiganensis* subsp. *michiganensis*. *Michiganensis* (CMM) causing the so-called "Bacterial Cancer" that affects the quality of the fruit, decreases its production and can lead to the total loss of the plant, where the conditions of each protected crop and its management make necessary a specific study according to the needs of the agricultural company, so the present research was carried out for a Primary Production Unit of Tomato in Greenhouse of the Region of Tehuacán, in order to generate a proposal for the control of this bacterial contamination. Directed observation was applied in the Production Unit in order to know their conditions prior to the study and generate the instruments for the registration and analysis of incidents of contamination of plants by Bacterial Cancer, make the flow diagram of the process, detect the factors that affect production due to contamination and develop a control proposal according to their needs that allows them to have a production with quality and safety.

Bacterial Cancer, Greenhouse, Quality and Safety

7 Engineering

Medical gas monitoring design applying image processing

Diseño de monitoreo de gases médicos aplicando procesamiento de imagen

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Abstract

Design of a methodology, that uses image processing to monitor the pressure indicators of medical gas tanks (oxygen and nitrogen) used in hospitals to care for patients who require it. This system can notify the pressure level reported by the indicators and its contribution is the application of technology that prevents the displacement of medical or technical personnel to the gas installations, resulting in a remote monitoring system.

Monitoring, Processing, Application

Suitability of biochar as supplementary cementitious material (SCM) or filler: waste revalorization, a critical review

Viabilidad del biochar como material cementante de reemplazo (MCR) o filler: revalorización de residuos, review crítica

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Abstract

For decades, researchers on materials science have highlighted the potential of biochar as a CO₂ adsorption medium and the possibility of its incorporation into other materials to reduce the overall carbon footprint. This present study is a critical review of a selection of articles about biochar potential as a material on the construction industry. Biochar is a promising material in order to mitigate GHG emissions when added to cementitious materials, reducing its carbon footprint through a dual effect: CO₂ sorption and replacement of cement or aggregates. Literature evidenced that replacement ratios of around 2-8 of cement wt% improved or leveled with conventional cementitious composites. However, some recent studies have shown that the incorporation of biochar up to >10% replacement ratios have the potential to improve the composites. Based on this premise, the present review emphasizes on the durability and long-term properties of biochar cementitious composites by providing up-to-date discussions of the studies on the matter and the future perspectives of the research in order to develop more eco-efficient concretes or mortars.

Biochar, Eco-Efficient Cement, Cementitious Composites

Comparative Analysis of Disposable Diaper Degradation Using Two Biodegradable Agents

Análisis Comparativo de la Degradación de Pañales desechables empleando dos agentes bio-degradantes

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Abstract

This project allows knowing the degree of degradation of disposable diapers using two different biodegradable agents: Isoptera Termites and Activated Sludge. For this degradation process, used diapers were used that contained liquid waste and in their original complete form, for the degradation control the following physicochemical parameters were evaluated: pH, TDS, CE, Temperature, % of degradation, mass and volume reduction. Being part of a very useful product on the market, diapers become part of the large amount of urban solid waste that is generated by excessive use over the years, becoming one of the most notoriously present wastes along with plastic waste. The search for an alternative to accelerate degradation made it possible to compare the best result to contribute to the improvement of the environment

Degradation, Biodegradable, Sludge

Model design to look for patterns related to suicide in social networks

Diseño de un modelo para buscar patrones relacionados con el suicidio en redes sociales

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Abstract

Many people with suicidal ideation use social forum platforms to post or discuss information about this complex topic. The key objective of our study is to design and evaluate a model to find patterns linguistically related to suicide. We address the detection of suicidal ideation through machine learning by applying it to the social network Twitter. To do this, we use different linguistic processors to obtain characteristics of each tweet and then catalog them using unsupervised classifiers. Finally, this information is used by 7 types of supervised learning (Naive Bayes, KNN, MLP, SVM, Decision Tree, Adaboost y Random Forest) and perform a comparative analysis of the classifiers using evaluation parameters, mainly accuracy. Our experiment shows 42 classification results, as well as sequential and parallel processing time data from the best-supervised machine learning, Random Forest.

Sentiment Analysis, Machine Learning, Suicide, Linguistic

Ergonomics study applied to automotive systems and motor vehicles

Estudio en ergonomía aplicado a sistemas automotrices y vehículos automotores

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Abstract

Objectives Implement an ergonomics engineering proposal where an appropriate design is generated for the suitable well-being of an automobile driver, carrying out a detailed study of human anatomy. **Methodology** Apply knowledge of software design (CAD/CAM) by simulating ergonomics tests and computer impact tests. Catalog the benefits of improvement and study the existing models of the various technologies of three competitive companies as differentiating the car models under study. A good car is constructed in every detail so that it is possible to concentrate fully on traffic while driving. The driver's pose is comfortable and relaxed. His attention is not irritated or distracted by cumbersome searches of the controls or by environmental disturbances such as excessive heat or cold, noise, or exhaust fumes. In addition to this conditioning, the best possible visibility during the day and at night protects the sight and the nerves, allowing foresighted driving, thus assuring the temporary life of the people. **Contribution** To protect the car driver's life and prevent physical degenerative and anatomical diseases by applying engineering studies in ergonomics.

Ergonomics, Degenerative, Conditioning

Training dataset generacion for semantic segmentation utilized unmanned aerial vehicles

Generación de datos de entrenamiento para segmentación semántica usando vehículos aéreos no tripulados

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Abstract

The present work focuses on the generation of training data for semantic segmentation using unmanned aerial vehicles, data acquisition was carried out, which were later processed, cut and labeled, generating the following results: datasets of sugar cane crops sugar for data analysis and field decision making. Use of geographic information system tools to increase the resolution of orthomosaics through interpolation. Design of a multivariate linear regression model to create a representative orthomosaic of the blue band.

Remote sensing, DataSet, UAV, Segmentatio

Behavior analysis of a hydraulic circuit through a low-cost data acquisition system

Análisis del comportamiento de un circuito hidráulico a través de un sistema de adquisición de datos de bajo costo

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Abstract

In an industrial process exists several variables to be monitored, in particular, temperature is a main variable for many systems as a hydraulic circuit. Due to friction effects and recirculation of the fluid, a temperature increasing is noted causing some variations on physical properties of the oil. In this work, the design and implementation of a low-cost system is covered for data acquisition of the oil temperature and advance time of the final actuator. This system is composed by a minicomputer Raspberry Pi, a submersible digital sensor and programming code in Python; the hydraulic circuit is built with a hydraulic source equipment, a solenoid valve, a double-acting cylinder and two limit switches. The proposed approach is experimentally proved in a continuous process with 200 iterations for the cylinder to advance and retract, which results in a rising temperature. Furthermore, with available data from the advance time, the effect caused by the temperature on the advance velocity is observed by means of plots of temperature and velocity from the low-cost monitoring system.

Raspberry Pi, Temperature Digital Sensor, Velocity of a Cylinder, Hydraulic Circuit

Implementation of information technology in Colegio de Bachilleres de Chiapas

Implementación de la tecnología de la información en el Colegio de Bachilleres de Chiapas

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Abstract

The present investigation focuses on the vicissitudes of the implementation of information and communication technology (ICT) in the 338 schools of Colegio de Bachilleres de Chiapas (COBACH) distributed throughout the state of Chiapas. One of the precepts in higher secondary education is to incorporate the use of ICT in high school education in order to optimize and digitize the teaching-learning process. Pretension that implies to analyze in the first place the rural orography in which the school centers are located and in second moment the condition in which the teacher assumes such intention of the educational policy. In addition to the fact that today's youth in addition to receiving the knowledge of the adult generations incorporates the series of information and knowledge generated in social networks and the Internet to the point of building their personal learning environment (PLE) and virtual learning environments (VLE). In this regard, data are presented at the diagnostic level on the subject of ICT in COBACH obtained through the methodology of the logical framework. This being the base for the projection of proposals to include in the six-year academic program of secondary education.

Information Technology, Equipment, Internet Service

Methodology for mechanical design using augmented reality as a learning tool

Metodología para diseño mecánico utilizando realidad aumentada como herramienta de aprendizaje

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Abstract

Augmented Reality is a tool that is being gradually developed in university institutions based on the boom caused by the use of mobile devices and Internet access from almost anywhere.

Education, Tools, Augmented Reality

Epazote solar drying under different conditions: kinetics, modeling, and colorimetry

Secado solar de epazote bajo diferentes condiciones: Cinéticas, modelado y colorimetría

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Abstract

Epazote (*Chenopodium ambrosioides* L.) is a plant used as a condiment in food and has antioxidant properties promoting human health. Unfortunately, epazote is highly perishable due to its high moisture content. In this work, epazote solar drying is carried out using two different dryers: an indirect solar dryer with a titanium oxide cover (SIT) and a direct one with a polycarbonate cover (SDP) to increase its shelf life. Titanium oxide is a novel material with thermal properties helping solar drying by allowing the preservation of epazote's medicinal and organoleptic properties, which is very sensitive to solar radiation. The drying kinetics show that both dryings were carried out in 2.6 hours, obtaining a final humidity of 0.9 and 0.4 g water/g ss in SIT and SDP, respectively. The highest drying rate (27 g water/g ss· hr) was achieved with the SIT. The model that best fit the drying kinetics for both cases was the Weibull model, with a minimum r^2 of 0.9979. The colorimetric study found that the SIT allows a superior quality in the product with an ΔE of 9.56

Direct Solar Drying, Indirect Solar Drying, Titanium Oxide, Epazote, Colorimetric Study

Proposal for the design and manufacture of a dynamic orthoses prototype for hand rehabilitation

Propuesta para el diseño y manufactura de prototipo de órtesis dinámica para rehabilitación de mano

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Abstract

Objetivos The objective of this research is to propose a prototype design of the dynamic orthosis adaptation system for hand rehabilitation. For this, the following methodology was used: the biomechanical and architectural foundations and the functional patterns of the fingers of the hands were previously analyzed, later the test subject was chosen and the corresponding measurements were taken, to finalize the design and manufacture of the prototype. The dynamic orthosis prototype proposed in this research is controlled by servomotors coupled to rings with rigid links, which transmit movement at a certain speed, from the motor axis to the fingers, simulating the biomechanical movements of flexion and extension. The design of this device is focused on users who do not have movement in the phalanges, and thus prevent their muscles from atrophying. The contribution of this research is the development of an economic device that can partially or totally replace the physiological therapies of a patient with problems in the upper limb (hand).

Orthosis, Rehabilitation, Biomechanical

Tools to enable communication between sensor devices

Herramientas para habilitar la comunicación entre dispositivos sensores

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Abstract

This paper describes an analysis of applications to enable communication between systems such as: telemetry and sensors that interact in the RICB (Rescue In Collapsed Building) system that searches for victims in buildings collapsed by earthquakes, in which a decentralized communication platform is required. This platform needs to work independently from Internet such that people can integrate themselves with their devices such as: smartphones, tablets, laptops, and other mobile devices. An independent Internet collaboration tool is required, without a license, for which several were investigated, and an analysis and comparison of characteristics is presented. Tests showing which best adapts to the RICB system, chooses the one that is most flexible and versatile, especially when communicating between several different elements such as: people, applications, and sensor devices. For this investigation exhaustive research of applications was carried out; later their characteristics were tested, eliminating those that did not match the needs of the RICB system, resulting in two tools that were installed and tested. The contribution of this article is the search and choice of applications that maintain the connection between devices despite the lack of Internet.

Comparison, Systems, Analysis, Sensors, Telemetry

Sorghum halepense (Zacate Johnson) as a potential natural corrosion inhibitor

Sorghum halepense (Zacate Johnson) como potencial inhibidor natural de la corrosión

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Abstract

Corrosion inhibitors can trigger health and/or environmental problems due to their toxicity. For this reason, it has been suggested to use plant extracts as natural corrosion inhibitors, because they represent a rich source of chemical compounds, they are non-toxic, biodegradable and abundant in nature. *Sorghum halepense* is a herbaceous weed, commonly known as johnson grass, belongs to the family gramíneae or poaceae, the choice of this plant is due to its zero cost and easy availability. In this systematic review, were used keywords such as *Sorghum halepense* johnson grass, phytochemistry, phytotherapy, phytoremediation, antidiabetic, antioxidant, cytotoxicity, antifungal, antimicrobial, anticancer, biological activity, medical activity, allelochemicals, among others. To do this, were used databases such as Scielo, Dialnet, Redalyc, Google Scholar, DOAJ, Wiley online library, BioOne, EBSCOHost, Knovel, ScienceDirect, SpringerLink y VirtualPro. Previous studies on this weed have reported its therapeutic potential against cancer, diabetes, prostatitis, hepatoprotective activity, antioxidant, antimicrobial, antifungal, as well as abortifacient and placental delivery in veterinary medicine. In view of the numerous organic molecules present in this plant, this study proposes *Sorghum halepense* as a potential natural corrosion inhibitor.

Sorghum Halepense, Anticorrosive, Natural Inhibitor, Herbaceous, Environmental

Study on the generation and composition of household solid waste in Ciudad Valles, S.L.P.

Estudio sobre la generación y composición de los residuos sólidos domiciliarios en Ciudad Valles, S.L.P.

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Abstract

The problem of the generation and composition of household Urban Solid Waste (RSU) in Ciudad Valles, San Luis Potosí was addressed. The information obtained could be used in making decisions about management and treatment for final disposal. To define the dwellings under study, the city was divided into socioeconomic strata with the support of the kmz tool, to visualize the Basic Geostatistical Areas (AGEB) according to the percentage of poverty. The generation of waste in the study area was determined through the NMX-AA61-1985 standard. For seven days, the selected dwellings were sampled, the quartering method was applied to the waste generated by means of the NMX-AA-15-1985 standard, and the samples were obtained for the physical-chemical analyses. The quantification of the by-products was carried out according to the NMX-AA-22-1985 standard. The organic fraction residues were the predominant in all the strata, being the medium marginalization stratum (EMM) the one that presented the highest percentage (49%). The physical-chemical characterization of the residues showed a moisture content of 52.48% and organic matter of 61.28%, results derived from the high composition of food residues that provide a higher percentage of water.

Quarting Method, Volumetric Weight, By-Products, Organic Fraction, Physicochemical Analysis

Basic Operation of Rotary Potentiometer A, B, C and W

Funcionamiento Básico de Potenciómetro Rotativo A, B, C y W

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Abstract

Presents study of analytical, experimental, and numerical method corresponding a A50K logarithmic, B10K linear, C10K antilogarithm and W20K logarithmic-antilogarithm rotative variable resistances. The basic operation of each potentiometer according to the variation on the input voltage and the spin on degrees of 30° between each measurement is studied using Arduino, MATLAB and Proteus. The functioning of each potentiometer model is complemented with the adjustment of the experimental curve and its characteristic equation. Signal conditioning in a variable resistance is of very important to control and stabilize a basic application, for example the variation of input voltage, or a specific variable such as movement, speed, lighting, etc.

Resistances, Measurement, Stabilize

Semantic segmentation of sugarcane crops with imagery from unmanned aerial vehicles

Segmentación semántica de cultivos de caña de azúcar con imágenes de vehículos aéreos no tripulados

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Abstract

The proposal presented here consists of the design of a U-Net type CNN for semantic segmentation of sugarcane crops. The objective of the project is that from an orthomosaic generated by photographs from unmanned aerial vehicles (UAV), it is possible to recognize only the pixels that belong to the crop of the rest of the orthophoto. This approach trains the classifier to label the pixels of the image in a binary way, being the value 1 those that identify the cane and 0 for everything else.

CNN, Semantic segmentation, VANT, U-Net

Design needs and creativity: Strategic transitions towards innovation

Necesidades de diseño y creatividad: Transiciones estratégicas hacia la innovación

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Abstract

Today identifying the user's need to design a product is somewhat confusing, on one hand, it is because some designers in Mexico do not carry out the design process based on the end user, on the other hand, terms with different meanings are generally used to refer to the needs, moreover, it is difficult to establish them and the result is perceived as conventional by those who will actually use the product. This article presents a proposal to design products that generate value for the end user based on the identification of their needs, through an organized process and with clear elements that facilitate the development of innovative proposals aimed at them. For this purpose, a documentary methodology was followed, the information collected was analyzed, the relationships between the concepts were established and the phases were identified, which we refer to as innovation transitions, in which the product can be innovated. We assume that, if a clear identification of the user's needs is made, the designer will be able to define the requirements to satisfy them in a disruptive way, as well as establish the design requirements and specify the attributes of the product, consequently, generate proposals mostly innovative.

Design needs, Needs identification, Innovation transitions

Evaluation of the usability and accessibility of applications for mobile devices of pictograms in students with autism spectrum disorder of cam tehuacan

Evaluación de la usabilidad y accesibilidad de las aplicaciones para dispositivos móviles de pictogramas en los alumnos con trastorno del espectro autista del cam tehuacan

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Abstract

The objective of this research was to analyze two applications that use pictograms installed on a mobile device with the Android operating system, through surveys applied to teachers, family members and students with autism spectrum disorder (ASD) to evaluate the criteria of usability, functionality, and accessibility. The Omega coefficient was used to evaluate the reliability of the applied instruments so as not to depend on the number of items, the acceptable value should range between 0.70 and 0.90. The evaluations obtained in each one of the surveys were: for teachers of the Multiple Attention Center (CAM) of Tehuacán 0.707 and for parents 0.705, demonstrating that the reliability of the instrument that was applied is adequate. With the results of this analysis, areas for improvement were detected focused on the development of a new mobile application adapted to the needs of students with ASD from the Tehuacán CAM, and as a contribution of a Mexican development in this segment.

Mobile, Usability, Autism

Photovoltaic system at UTNC

Sistema fotovoltaico aislado en la UTNC

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Abstract

This article represents the work and research carried out for the implementation of a photovoltaic system at the Universidad Tecnológica del Norte de Coahuila. Setting the objective of avoiding high consumption of electrical energy caused by metallic additive-type luminaires in exterior corridors. The change to LED technology luminaires is proposed and these in turn are energized by a solar panel. It begins with the execution of a theoretical and practical study in order to find out what refers to a photovoltaic solar energy system in isolated mode, to evaluate the conditions in which it will work when carrying out this project. The area to be illuminated, the necessary light intensity, the type of LED reflector to be used, the terrain was dimensioned and the distance between each LED reflector was decided. For the proposal, a plan was prepared in AutoCAD and with the use of the DIALux program, the simulation of the lighting system was carried out, obtaining measurements in lux, in order to have a more precise result prior to authorization. Finally, when carrying out the implementation, the objective was met, so it will be sought to replicate it in other areas.

Dialux, Implementation, Off-Grid PV System

Methodological proposal for monitoring basins that drain into the Pacific Ocean. Case study Tomatlán - Tecuán basin (RH15Ca)

Propuesta metodológica para la vigilancia de las cuencas que drenan al Océano Pacífico Estudio de caso cuenca Tomatlán - Tecuán (RH15Ca)

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Abstract

In this article it is proposed to assess the state of the RH15Ca basin and the use that its population gives to the water, to finally see what state it is in when it empties into the Pacific Ocean. Through the realization of maps of the location of rural and urban populations, climatology, vegetation and land use, geology and bathymetry, it is intended to understand the conditions of the water resource and whether or not it is suitable for its waters to flow into the Ocean. This methodology can be applied to the study of other basins in the state of Jalisco or the Mexican Republic.

Basin, Ocean, Flow

Design and manufacture of a splint prototype for the upper extremities of the human body

Diseño y fabricación de prototipo de férula para extremidad superior del cuerpo humano

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Abstract

The article presented below shows the process carried out for the elaboration of a splint prototype and the techniques used for its elaboration, the design is carried out with the solidworks software, the designs with the most optimal forms that confer a greater resistance are analyzed. to the prototype, the configuration of the laminating software and the correct orientation for its manufacture are shown. A review of the optimal materials for its manufacture is made, such as PLA, PETG and ABS. For the printing of the prototype, an Ender 3 pro model 3D printing machine will be used, while the Simplify 3D program will be used for the configuration of the printer, which will allow us to configure temperature parameters, such as the extruder temperature, temperature of bed, layer height, printing speed, filling percentage among others.

Splint, Design, ABS, 3D printing

Modelling of a Business Intelligence System for Indicator Management in the *Stirling* Tilapia Farming

Modelado de un sistema de inteligencia de negocios para la gestión de indicadores en el cultivo de tilapia *Stirling*

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Abstract

The article presents the modeling of a system for the management of indicators during the farming of *Stirling* tilapia (*Oreochromis niloticus* *Stirling*) based on business intelligence, supporting decision making to improve production efficiency. Typically, tilapia production is based on three stages: breeding, rearing, and farming, where a significant volume of data is recorded. A *Stirling* Tilapia farm in Manzanillo, Colima, Mexico is analyzed. This farm has C-TRA, a Web system that stores data based on the ISO 12877:2011 standard. However, there is a lack of tools to analyze the records. As a proposed solution, an extraction, transformation and loading (ETL) process is used on the original database, a data warehouse model is generated with a star-shaped schema, considering a table of facts and six dimensions, where physicochemical parameters, the amount of feed supplied, and medications are related. In addition, the use of statistical methods Data Envelopment Analysis (DEA) and bootstrap is expressed, in order to obtain the productive efficiency indicators. This design exposes an incremental product innovation in the technological area of the aquaculture sector, and its integration to a data management system, facilitating the study and decision making.

Aquaculture, Business Intelligence, Data Warehouse, Information systems

Application of simulation as an improvement proposal for the street sweeping process of a municipality in the high mountain región

Aplicación de la simulación como propuesta de mejora para el proceso de barrido de calles de un municipio de la región de las altas montañas

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Abstract

The following research is carried out in order to develop a sweeping model that allows efficiencies in the workforce of the Municipality of Orizaba, reducing the time of sweeping the routes and taking advantage of the resources available, facilitating decision-making for the relevant authorities through simulation. The project was carried out in three stages, contemplating the analysis of the initial information, which allowed us to study the scanning process, identifying the activities that are carried out and how they are carried out, the next stage consisted in the construction of the simulation model through SIMIO which allowed observing the behavior of the data collected, finally in the stage 3 that is currently being developed, an alternative is proposed to improve the scanning process, which will be implemented as a pilot test, as well as contributing to the design of a manual that allows standardizing this process.

Sweep process, Simulation, Sustainable Awareness

Proposal for a fiber cement panel with the addition of sugarcane bagasse

Propuesta de panel de fibrocemento con adición de bagazo de caña

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Abstract

The objective of the study is to propose a fiber cement panel based on sugarcane bagasse that complies with the basic requirements for non-compressed fiber cement, without using special equipment for its manufacture, reducing the processes by half without compromising the quality of the product. No crusher, kiln, hydraulic press or vacuum pump were used to produce the panels; water was used to clean the fibers and sodium silicate was used as a mineralizing agent; results were compared with NMX standards for structural mortars and fiber cement slabs together with manufacturing processes from previous research on natural fibers to obtain a methodology that optimizes the process. It is demonstrated that it is feasible to produce fiber cement panels that comply with the minimum regulatory requirements by reducing processes, without damaging the physical-mechanical values of the fiber cement. The best performance results show a MOR of 6.70 MPa and a density of 1560 kg/m³ for a panel with 6% cane bagasse added to the dry mass of cement, a water/cement ratio of 0.95 by volume and sand/cement of 2.5 by mass. Opportunities are generated to experiment with counterpart fibers based on the tools, processes and recommendations of the project.

Composite Material, Fiber Cement, Cane Bagasse Fiber, Sodium Silicate

Has enough been done in plastics recycling?

¿Se ha hecho suficiente en el reciclaje de plásticos?

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Abstract

The need to segregate urban solid waste is a fact, something that has been achieved in a certain way thanks to the dissemination and awareness that has been promoted through environmental education, taught in educational institutions at all levels and the transmission of information through social networks. The follow work addresses the problem of the deficiencies present in the environmental management of plastic waste, due to the lack of classification and separation of the same. It is no longer just a matter of separating the urban waste produced, with the aim of reducing, reusing or recycling it, since, even in the best case scenario of correctly separating plastics from all other solid waste, reuse or Recycling is practically not possible if these are mixed together. This research hypothesizes that a large majority of people do not know how to distinguish the different types of plastic with which the products and containers that are used on a daily basis are manufactured. The objective of this research is to propose strategies to solve the problem raised based on the results obtained.

Types Of Plastic, Recycling, Environmental Education

Economic evaluation of the transformation of a residential property into an Airbnb type property

Evaluación económica de la transformación de un inmueble con vocación habitacional al tipo Airbnb

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Abstract

The worldwide expansion of the Airbnb platform has allowed the growth of residential properties without a lodging vocation in recent years. The work developed evaluates the economic feasibility in terms of profitability, derived from the transformation of a residential property as an Airbnb type business, quantifying the cash flows (income and expenses) for the adaptation, management, and rental of the property. Three options were analyzed to determine the income per night: a) platform price, b) break-even point and c) average of both, with occupancies of 12, 15, 17, 19 and 20 nights per month, two useful life periods are proposed for the project (10 and 15 years). Similarly, the value of the property is simulated by applying a Minimum Acceptable Rate of Return (MARR) that reflects market conditions, representative of the business, as well as quantifying the risk, to calculate the Net Present Value (NPV) and the Internal Rate of Return (IRR); investment criteria that reflect the acceptability of undertaking the transformation. It was found that options b) and c) at 10 years and only b) at 15 years, show profitability at the lowest investment risk.

Profitability, Investment, Hosting

Capture and labeling image system for agriculture applications

Sistema de captura y etiquetado de imágenes para aplicaciones de agricultura

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Abstract

Artificial Intelligence methodologies and their learning has been used lately in the creation of image classification system. Such a system requires a training process that requires information, i.e. labeled images. This article presents a capturing and labeling image system for the creation and recognition base focus on agriculture. A case study of tomato jitomate (*Lycopersicon esculentum*) plants is analyzed to demonstrate the operation of the system and the methodology for capturing images. The system consists of a microcomputer raspberry pi 3, a video camera with pan-tilt-zoom control and a direction-adjustable lamp for capturing images. Besides, it also needs a graphical interface to select and label the regions of interest, this generates a file training that contains the knowledge base of interest. This contribution lies in the implementation of a system that accelerates the process of labeling and capturing images for agricultural applications.

Agriculture, Image Capture, Learning

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