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Research Article **Published Date:- 2024-09-05**

Nanoencapsulated Extracts from Leaves of Bauhinia forficata Link: In vitro Antioxidant, Toxicogenetic, and Hypoglycemic Activity Effects in Streptozotocin-induced Diabetic Mice

In this study, we evaluated the assessed the hypoglycemiant, toxicogenetic and genotoxic effects of nanoencapsulate extracts of Bauhinia forficata Link. Phytochemical evaluations of extracts were carried out, as well as the evaluation using HPLC-MS and of antioxidant capacity in vitro. DM2 was induced in mice with streptozotocin and extracts were given orally for 28 days. That dried extract from infusion (ESIN) had a higher rate of bioactive compounds compared to the dried extract from decoction (ESDC), and higher antioxidant capacity. Glucose levels decreased from 77.26% to 57.79% and 45.15% after supplementation with ESIN (200 and 600 mg/kg/day) and ESDC (600 mg/kg/day), respectively, when compared to the diabetic group treated with metformin (600 mg/kg/day) (21.53%), with an improvement in the glycemic response e recovery of pancreatic ? cells. Thus, our study has shown that these extracts exhibit hypoglycemiant activity, with a beneficial effect superior to metformin, as a result they could be considered as potential therapeutic agents for application in pharmaceutical formulations in the treatment of DM2.

Research Article **Published Date:- 2024-09-03**

Oral Suspension as Versatile Galenic Formulation in Pediatry

In the last years, there has been an increase in the prescription of drugs in pediatry as a pharmaceutical form of oral suspension. The same is true in commerce there are various producers that provide specific ready-for-use excipients to make more easier to prepare OS in the galenic laboratory. The aim of this work is to verify the advantages of this pharmaceutical form to cover pediatric dosages vs. other forms and also to overcome shortcomings of some crucial registered drugs. In this work scientific literature is reported that also relates to some ready-for-use products as bases-vehicle for suspension and some formulations of interest.

Editorial **Published Date:- 2024-07-25**

Modulation of Microbiota and its Impact on Depression

Gut microbial flora is the largest micro-ecosystem in the human body, it is symbiotically associated with the host; and maintains normal physiological processes in a dynamic equilibrium state. A plethora of evidence supports that gut microbial flora influences the neurotransmitters of the central nervous system. This gut flora influences cognitive function, anxiety, depression; and mood disorders as they are capable of synthesizing neurotransmitters in the nervous system. Therefore intake of probiotics influences gut microbiome; and depression. The versatility and number of gut microbial flora varies individually, so the content of common gut microbes may affect the neurotransmitters, manipulating the gut microbiota with probiotics offers a novel approach to treat brain disorders such as depression via GUT-BRAIN AXIS. The present review outlines the aspect of such alterations and how modulation of gut microbiota influences depression.

Review Article **Published Date:- 2024-07-10**

Beta-1 Receptor (?1) in the Heart Specific Indicate to Stereoselectivity

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The ?1 receptor is one of the three beta receptors present in the human body, namely ?1, ?2, and ?3. The ?1 receptor is predominantly located in the heart, where it plays a crucial role in regulating the heart rate and the force of contraction, thereby increasing the cardiac output and the efficiency of blood pumping throughout the body. This receptor is targeted by a variety of pharmaceutical agents known as beta-blockers, which are commonly used in the treatment of cardiovascular conditions such as hypertension, angina, and arrhythmias.
The ?1 receptor exhibits stereoselectivity, meaning that different enantiomers (chiral molecules) of beta blockers can have varying levels of effectiveness and side effects. This study focuses on the stereoselectivity of the ?1 receptor and the clinical implications of this property. It includes an examination of various ?1 blockers, such as propranolol (a non-selective beta blocker), and selective ?1 blockers like atenolol, bisoprolol, nebivolol, metoprolol, esmolol, acebutolol, and betaxolol. Each of these drugs has a unique chemical structure, with specific functional groups that contribute to their selective action on the ?1 receptor.
Furthermore, the ?2 receptor, which is mainly present in the bronchi and bronchioles, is responsible for bronchodilation, and the ?3 receptor, found in the bladder, helps reduce urinary urgency. Understanding the distinct locations and functions of these receptors allows for the development of targeted therapies with minimal off-target effects.
This review highlights the importance of stereoselectivity in the development and use of ?1 blockers, discussing their chemical structures, pharmacological activities, and therapeutic uses. It also explores the potential for future research and development of more selective and effective ?1 receptor agonists and antagonists, which could offer improved therapeutic outcomes for patients with cardiovascular diseases.
This study underscores the significant role of the ?1 receptor in cardiovascular health and provides insights into the ongoing advancements in beta-blocker therapy. By delving into the stereoselectivity and specific actions of these drugs, the research aims to enhance the understanding and optimization of ?1 receptor-targeted treatments in clinical practice.

Research Article **Published Date:- 2024-07-04**

Experiences of Consumers on the Health Effects of Fake and Adulterated Medicines in Nigeria

Medicines are used to cure and treat ailments, relieve or eliminate disease symptoms, and slow down the disease process. Any attempt to disrupt this natural medicine process, using falsified medications, spells doom to a consumer of such medication. The challenge of fake medicines is a global one and affects developing and developed nations and currently assumes great significance as a result of globalization challenges, which have flattened the entire world, hence removing barriers to the movement of products and services. The cross-sectional survey was conducted, using six local government areas of Anambra State in South-East Nigeria, namely Awka, Nnewi, Onitsha, Aguata, Ogbaru, and Anaocha, among adults aged 18 years and above. A minimum sample size of 500 was calculated and stratified sampling was employed to select respondents in order to ensure that various population groups, the upper class, middle class, and lower class were represented.
This research has shown that falsified medicine is an evil wind that blows nobody any good. It negatively affects every aspect of the citizen’s livelihood, ranging from their health, which manifests as treatment failures, deformities, loss of life to death, to loss of confidence in the healthcare providers, revenue losses to individuals, healthcare providers, manufacturers, and finally corruption of the genuine medicines supply chain with fake and adulterated medicines.
The study has clearly shown the experiences of residents of Anambra State, South-East Nigeria with fake and adulterated medicines and also services as a wake-up call to medicines regulators like NAFDAC, PCN, the PSN, and Federal Ministry of Health to declare a state of emergency on the fight against fake and adulterated medicines and make enabling laws that are punitive enough towards the fight against this scourge, so that the healthcare and well-being of Nigerians would be assured at all times.

Research Article **Published Date:- 2024-05-30**

Tussilago farfara Extracts Decrease Lung Injury in Fine Dust-Induced Mice by Inhibiting of Inflammatory Cytokine Levels, Neutrophil Accumulation, and Endothelial Dysfunction

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Fine Dust (FD) in the respiratory air generates a variety of human disease issues throughout the earth. This study aimed to investigate whether (1) Tussilago farfara extracts (TF) decrease neutrophils accumulation, typical pathological features, and goblet cell hyperplasia in mice following exposure to fine dust (FD); (2) inflammatory cytokines result from FD exposure; and (3) asymmetric dimethyl-arginine (ADMA) and symmetric dimethyl-arginine (SDMA) levels in the mice following exposure to FD. Seven-week-old male Balb/c mice (n = 5/group) were instilled two times by intra-nasal-trachea (INT) injection for 3 days and 6 days to the mice four groups; normal, control, FD + dexamethasone (Dexa, positive control), and FD + TF groups. TF suspended in 0.5% carboxymethyl cellulose (CMC) was administered orally to the mice daily for 10 days (100 mg/kg). Neutrophil accumulation, typical pathological features, goblet cell hyperplasia, ADMA, and SDMA levels were assessed on day 10 in FD-induced mice. Results indicated FD significantly reduced neutrophil accumulation in BALF, typical pathological features containing goblet cell hyperplasia in lung tissues, and inflammatory cytokines [interleukin (IL)-17 and tumor necrosis factor-? (TNF-?), macrophage inflammatory protein-2 (MIP-2) and C-X-C motif chemokine 1 (CXCL-1)]. Furthermore, TF significantly decreased levels of elevated ADMA and SDMA by FD exposure. Collectively, TF decreased the counts of neutrophils in BALF, histological changes in lung tissues due to downstream secretion of inflammatory cytokines, and levels of ADMA and SDMA. Therefore, TF may be a potential therapeutics for treating FD-associated diseases.

Research Article **Published Date:- 2024-05-15**

Cardioprotective Potentials of Anacardium occidentale Nuts Methanolic Extract in Diabetes-Induced Cardiac Dysfunction in Rats

Background: The unwanted adverse toxicity displayed by synthetic antidiabetic medicine leads to the search for effective natural medicine to combat diabetes complications. This study investigated the cardioprotective of Anacardium occidentale nuts methanolic in high-fat diet (HFD)/streptozotocin (STZ)-induced diabetic rats.
Materials and methods: Forty male adult Wistar were used and fed with HFD for 6 weeks before diabetes induction. The rats were grouped into 5 groups, 8 rats/group. Group I: normal control; Group II: diabetic control; Group III & IV: diabetic rats + 100 mg/kgb.wt & 200 mg/kgb.wt Anacardium occidentale nuts methanolic extract; Group V: diabetic rats + 200 mg/kgb.wt metformin. The rats were sacrificed on the experiment's last day, blood samples were collected and the hearts were isolated for biochemical parameters estimation.
Results: Food intake, water intake, plasmas insulin, Fasting Blood Glucose (FBG), glycosylated hemoglobin (HbA1c), cardiac enzymes, lipid profile, inflammatory cytokines, malondialdehyde, fibrotic marker, caspase-3 in cardiac of diabetic rats were elevated ($p < 0.05$) significantly. Body weight, cardiac antioxidant, and anti-apoptotic marker levels diminished ($p < 0.05$) significantly in diabetic rats. 100 mg/kgb.wt & 200 mg/kgb.wt of Anacardium occidentale nuts methanolic extract administration significantly suppressed the plasma insulin, FBG, HbA1c, cardiac lipid profile, cardiac enzymes biomarker, cardiac inflammatory cytokines, cardiac malondialdehyde, cardiac fibrotic marker, cardiac caspase-3, food intake & water intake and increased the body weight, cardiac antioxidant & cardiac anti-apoptotic marker in the diabetic rats.
Conclusion: Anacardium occidentale nuts attenuate cardiac injury in diabetes. It could be a natural medicine to manage diabetes-cardiovascular complications.

Research Article **Published Date:- 2024-05-14**

The Effect of Variable Doses of Imipramine and Amitriptyline on Learning and Memory

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This study compares the effect of imipramine and amitriptyline on learning and memory. Thirty-five (35) healthy Swiss white (CD1) mice of both sexes weighing 18 g - 30 g were randomly divided into 5 groups (n = 7). Mice in group 1 (control) were administered 0.9% normal saline orally, while mice in groups 2 and 3 were treated with low (1.8 mg/kg) and high (3.7 mg/kg) doses of imipramine, groups 4 and 5 were treated with low (1.8 mg/kg) and high (3.7 mg/kg) of amitriptyline respectively. Treatment was for 21 days before tests. All animals were tested using the Morris Water Maze (MWM) and Novel Object Recognition Task (NORT) to assess visuospatial learning and memory as well as cognitive learning and memory. The results obtained from the Morris Water Maze during the acquisition training showed that the swim latencies were significantly lower ($p < 0.05$) in the amitriptyline low-dose group compared to the control group. During the reversal training, the swim latencies were significantly lower ($p < 0.05$) in the test groups compared to the control group. The result for the retention quadrant in the probe trials showed a significant decrease ($p < 0.05$) in the northeast quadrant in the test groups compared to the control group, with no significant difference in the visible platform day of the Morris Water Maze in the test groups compared to the control group. In the novel object recognition task, the short-term index of habituation was significantly lower ($p < 0.05$) in the low-dose imipramine and low-dose amitriptyline compared to the control group, the results also showed a significant increase ($p < 0.05$) in amitriptyline high dose group compared to imipramine and amitriptyline low dose group and the control group. The index of discrimination showed no significant difference among all groups. The long-term index of habituation and discrimination in the memory test showed a significant decrease ($p < 0.05$) in all the test groups compared to the control group. The results suggest that imipramine and amitriptyline impaired cognitive memory and enhanced visuospatial learning and memory functions.

Research Article **Published Date:- 2024-05-02**

Benefits of using SLGT2 Inhibitors for Patients with CDK and DM2 to Reduce Mortality Risks

Type 2 diabetes mellitus (T2DM) is the most common cause of chronic kidney disease (CKD). CKD is characterized by progressive liver tissue damage and is an important risk factor for mortality due to renal and cardiovascular outcomes. Thus, randomized clinical trials have investigated the use of sodium-glucose cotransporter 2 (SLGT2) inhibitors as a promising therapy for patients with CKD and T2DM. This study aimed to analyze the benefits of using SGLT2 inhibitors in patients with CKD and T2DM to reduce mortality risks. To this end, a qualitative, descriptive methodological approach was adopted using a literature review in the PubMed, Embase, and VHL databases. The inclusion criteria were clinical trial articles, randomized or non-randomized, cohort studies, case-control studies, and open access, published in Portuguese and English, between 2018 and 2023 with topics associated with SGLT2 inhibitors, CDK, and T2DM patients. In this context, it was observed that the risk of death from CKD in patients treated with Canaglifozin was 30% lower than in those treated with a placebo and that Dapaglifozin prolonged survival. In this context, when assessing the progression of kidney disease or death from cardiovascular causes in patients taking Empagliflozin, only 13.1% achieved the outcome compared to 16.9% on placebo, so the drug safely reduces the risk of mortality. Consequently, SGLT2 inhibitors have shown excellent results in the treatment of CDK and T2DM, with a reduction in the risk of mortality, positive effects on reducing renal and cardiovascular outcomes, as well as prolonging survival.

Research Article **Published Date:- 2024-04-25**

Toxicity and Phytochemical Analysis of Five Medicinal Plants

Recent studies have shown that long-term uses of herbs have been associated with a rise in morbidity and mortality rates. While most researches are focused on bioactivity investigations, the toxicity of many plants has not been reported. There is a paucity of data on the potential toxicity of the following plants: Harungana madagascariensis (HM), Pterocarpus osun (PO), Phoenix dactylifera (PD), Annona muricata (AM), and Rutidea parviflora (RP). To evaluate the toxicity of the above-mentioned plants; two tests were employed namely: The Brine shrimp lethality test (BSLT) and the Allium cepa test. A correlation between the oral acute toxicity assay in mice and the LC50 obtained from BSLT has been established. Allium cepa test measures the potential genotoxic effects of plant extracts exerted on the root meristem of A. cepa (onions). Plant extracts were administered in concentrations ranging from 100 to 2500 µg/ml to the A. cepa for 72 h to obtain their Mitotic Indices (MI) and EC50. Results of the MI at 2500 µg/ml for HM, PO, PD, AM, and RP were 3.75, 4.96, 5.96, 6.10, and 6.71 while 281.81, 398.11, 501.19, 630.96, and 707.9 µg/ml were obtained as the respective EC50 values. Furthermore, 10-1000 mcg/ml concentrations were administered in the BSLT and the obtained LC50 values were 116.3, 250, 581.5, 581.5, and 750 µg/ml. The toxicity result demonstrated that the five plants were moderately toxic, with RP exhibiting minimal toxicity values and thus potentially having a good safety profile. The phytochemical screening of these plants revealed the presence of some pharmacologically important classes of compounds that are abundant. Several bioactive and toxic compounds were identified in the GC-MS analysis for some of the plants.

Research Article **Published Date:- 2024-04-08**

Antibacterial Screening of Lippia origanoides Essential Oil on Gram-negative Bacteria

Essential oils (EO) are extracted from different plant species and can be present in different plant organs. Rosemary-pepper EO is composed of around 50% to 70% thymol, a phenolic compound proven to be active against fungi and bacteria. The active components present in these compounds can affect the vital functionality of bacterial cells, leading to protein denaturation and cell lysis. Therefore, the present study aims to evaluate in vitro the antibacterial potential of Lippia origanoides EO against gram-negative bacteria. This is an exploratory study, with a technical-experimental procedure, with a quantitative approach, carried out at the Federal University of Campina Grande. The strains used were Pseudomonas aeruginosa ATCC 27853, Proteus mirabilis ATCC 25933, and Escherichia coli ATCC 25922, using concentrations of 1024, 512, 256, and 128 ?g/ml using the disc diffusion method in triplicate. After the incubation period, the formation of halos of bacterial growth inhibition was not observed. There are possible causes for the lack of antibacterial activity of the EO concerning the strains of gram-negative bacteria used in the study, including the possibility of not containing components with antibacterial properties in concentrations sufficient for the expected activity at the concentrations tested. Based on the results obtained, the Rosemary-Pepper EO (Lippia organoids) did not demonstrate antimicrobial activity against the gram-negative bacteria used in the study. Therefore, the development of new research with Lippia origanoides essential oil with gram-positive bacteria is suggested.

Research Article **Published Date:- 2024-03-29**

Next Generation Tools in mRNA Purification: The Role of Continuous Raman Spectroscopy Testing with Pretreatment of the Sample

In the biopharmaceutical production field, the purification process is a crucial step in order to obtain Drugs with an impurity profile according to the regulatory agency requirement.
The aim of this work is to verify some relevant and recent literature and after analysis to submit to the researcher new Solutions in order to improve global safety and the toxicological profile: Submit a project related to the continuous testing of the purified materials using Raman spectroscopy – with pre-treatment of the sample: using solvents.
Nanolipis Payload of Biopharmaceutical is not efficiently detected by direct Raman spectroscopy allowed by the regulatory agency for PAT process analytical technology.

Research Article **Published Date:- 2024-03-29**

Correlation of Inappropriate use of Ceftriaxone and Bacterial Resistance in the Hospital Environment: Integrative Review

Introduction: Bacterial resistance is a threat to public health, as it is estimated that 37,000 people die due to hospital infections, most of them due to multidrug-resistant bacteria. In part, this resistance is due to the inappropriate use of antibiotics, with ceftriaxone being one of the most used. Therefore, this article aims to analyze the consequences of using ceftriaxone in the hospital environment.
Methodology: This is an integrative qualitative review, following the PICO strategy, using the Embase, BVS, and Pubmed databases, with the guiding question being: “In patients admitted to a hospital environment (P), is ceftriaxone used appropriately (I) for the treatment of infections (CO)?” and the time frame from 2013 to 2023.
Results: 272 articles were found in total, 46 obtained from the VHL, 62 from PubMed, and 164 from Embase. Of these, 66 were duplicates, leaving 206 works for title and summary reading. After reading, 79 were selected for full reading, with 7 articles ultimately being selected for the study. An average of 62.3% of inappropriate use was found, with the minimum value found being 19% and the maximum being 87.9%. The main reasons for this use were: indication, dose, frequency, and duration.
Conclusion: From reading the articles, it is concluded that the inappropriate use of ceftriaxone is mainly due to: indication, dose, frequency, and duration of treatment. These elements must be monitored, as their inappropriate use increases the length of hospital stay and may be associated with the emergence of bacterial resistance.

Review Article **Published Date:- 2024-03-28**

The Cortisol Connection: Weight Gain and Stress Hormones

Weight gain can be good or bad for health. Benefits include increased health for overweight people, disease or surgical recovery, and more. Health concerns, joint and musculoskeletal disorders, respiratory issues, metabolic abnormalities, cardiovascular health, psychological impact, reduced mobility, digestive troubles, hormonal changes, and cancer risk are negative impacts. Weight gain outcomes depend on heredity, weight distribution, and health. Maintaining a healthy weight needs a balanced diet, regular exercise, and stress management. A doctor or nutritionist can offer personalized weight management advice. Stress chemicals like cortisol trigger weight gain. ACTH stimulates adrenal glands to release cortisol, which increases hunger, fat storage, insulin resistance, and muscle loss. Understanding how stress hormones like cortisol affect weight gain is vital to reducing chronic stress's health risks. Stress reduction, a balanced diet, regular exercise, proper sleep, social support, and professional treatment can mitigate these outcomes. Ultimately, stress hormones like cortisol can cause weight gain, but a holistic strategy tackling physical and psychological stress can help people maintain a healthy weight.

Research Article **Published Date:- 2024-03-19**

Evaluation of the Anti-inflammatory Activity of Equisetum arvense and Baccharis trimera Fractions

Inflammation is a natural response of the body to defend itself against potential threats and can be reduced through physical activity, proper nutrition, and the use of herbal medicines, which are medicinal plants. In the study, we aim to examine the anti-inflammatory effects of the volatile and ethanolic fractions of two commonly used medicinal plants, Equisetum arvense, and Baccharis trimera. The essential oils were obtained by hydrodistillation of the fresh leaves of the plants, while the ethanolic extracts were obtained using classical methodologies. All fractions were tested for anti-inflammatory activity, evaluating their ability to stabilize the red blood cell membrane and inhibit the spreading, and phagocytosis by macrophages, at concentrations varying from 200 to 600 µg mL-1. The results of the experiments suggest that the ethanolic fraction of B. trimera shows promising results compared to the positive controls. Our investigations thus contribute to the specialized literature on the use of herbal medicines around nutrition, providing guidance for future studies on these fractions.

Case Report **Published Date:- 2024-02-13**

Acyclovir Induced Acute Kidney Injury: A Case Report

Herpes zoster ophthalmicus, commonly referred to as shingles, manifests as a painful skin rash affecting one or more dermatome distributions of the trigeminal nerve, which supplies sensory innervation to the eye and its surrounding structures. Acyclovir stands as the primary pharmacological intervention for the treatment of this condition. However, its administration is associated with a notable risk of adverse effects, with acute kidney injury being the most prevalent. Herein, we present a case report involving a 59-year-old female patient who developed acute kidney injury after the prescription of Acyclovir for the management of herpes zoster ophthalmicus. This case underscores the importance of vigilance regarding potential renal complications associated with Acyclovir therapy, particularly in susceptible patient populations.
