REVIEW ARTICLE

A REVIEW ON BIOCHIPS

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ABSTRACT: Biochips are essentially miniaturized laboratories that can perform hundreds of simultaneous biochemical reactions. They enable researchers to quickly screen large number of biological analytes for a variety of purposes, from disease diagnosis to detection of bioterrorism agents. Today, a large variety of biochip technologies are either in development or being commercialized. Numerous advancements continue to be made in sensing research that enables new platforms to be developed for new applications. A variety of industries currently desires the ability to simultaneously screen for a wide range of chemical and biological agents, with purposes ranging from testing public water systems for disease agents to screening airline cargo for explosives. Pharmaceutical companies wish to combinatorially screen drugs against target enzymes. To achieve these ends, DNA, RNA, protein and even living cells are being employed as sensing mediators on biochips. This article gives an overall idea of biochips, their construction, different types and applications.

RESEARCH ARTICLE

EVALUATION OF TOXICITY ASSESSMENT OF TEPHROSIA PURPUREA

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ABSTRACT: Tephrosia purpurea is an important and highly valued medicinal plant ethanobotanically used in the treatment of various diseases. The present study investigates the toxicity effect of Tephrosia purpurea in experimental rats. The rats were administered orally with the ethanolic extract of doses ranging as 100, 300, 1500 & 2000mg/kg bw for 14 days. Hematological profiles, biochemical parameters, activities of liver maker enzymes, enzymic antioxidant potential and histopathological examinations were compared between control and experimental rats. The ethanolic extract had a significant decrease in protein level, superocide dismutase and catalase activity and a significant increase in bilirubin, cholesterol, urea, alanine aminotransferase (ALT) and alkaline phosephate (ALP) were observed in the highest dose of the ethanolic extract (2000 mg/kg bw). These observations were supported by histopathological examination of liver sections. The present findings suggest that the medical plant Tephrosia purpurea can be administered at a dose range of 1000mg/kg bw without any side effects.

Keywords: Tephrosia purpurea, Hematological profiles, biochemical parameters, histopathological examinations.

RESEARCH ARTICLE

Development and In Vitro Evaluation of Sodium Alginate Microbeads of Carvedilol

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ABSTRACT: Oral slow and sustained release drug delivery system can release their drug content with a controlled manner, producing a desirable blood serum level, reduction in drug toxicity and improving the patient compliance by prolonging dosing intervals. The major drawback of orally administered drug like carvedilol for the treatment of hypertension has shorter elimination half-life. To overcome these drawbacks associated with carvedilol, an attempt has been made to develop a sustained release dosage form of carvedilol embedded alginate microbeads by ionotropic gelation technique employing various concentration of polymer and keeping the drug concentration as a constant. The beads were characterized for its particle size, drug content and in vitro release studies. The results revealed that the surface adhering drug was found to release immediately and a steady state of release was obtained up to 12 h from all the batches. The result indicates there was inverse relationship between the concentration of alginate and drug release. The drug release was found to follow non-fickian diffusion obeying first order kinetics.

Key words: Sodium alginate, carvedilol, microbeads, ionotropic gelation techniques and Peppa's model.

RESEARCH ARTICLE

Study of patients satisfaction on hospital pharmacy services in a tertiary care hospital in south india

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ABSTRACT: This study was planned to assess the patient satisfaction levels on the services of hospital pharmacy in a tertiary care hospital. A questionnaire was designed with 8 items on the various aspects of services like availability of medicines, waiting time at the counter, location and layout of the pharmacy, professionalism of pharmacists, efficiency of refusing system and any inconvenience at the pharmacy. Totally 131filled questionnaires were collected back. Patients expressed satisfaction on the professionalism of pharmacists, location and layout of pharmacy counters and refunding system of pharmacy, Patients expressed dissatisfaction with the waiting time at the pharmacy counter. This study highlighted the lacunae in the services hospital pharmacy and suitable measures are to needed to be taken by pharmacy department to improve the satisfaction level of patients on all the aspects of their service.

Keywords: Sodium alginate, carvedilol, microbeads, ionotropic gelation technique and Peppa's model.

RESEARCH ARTICLE

Prediction of Cytotoxicity of Thioureas used as Anti-HCV Agents

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ABSTRACT: In pursuit of less cytotoxic thioureas as anti-HCV agent, QSAR students were performed on a series of thioureas to explore the physico-chemical parametersresponsible for their cytotoxicityagainst Ava 5 cellPhysico-chemical parameters were calculated using WIN CAChe 6.1. Stepwise multiple linear regression analysis was performed to derive QSAR models which were furtherevaluated for statistical significance and predictive power by internal and external validation. The selection best QSAR model was having correlation coefficient (r) = 0.892 and cross-validated squared correlation coefficient (q^2) = 0.672. The developed significant QSAR moedel indicates thatmolecular weight and the connectivity index order-1 of whole molecule play an important rolein the cytotoxicity of thioureas.

Keywords: QSAR, Cytotoxicity, Multiple liniear regressions, Thioureas.

RESEARCH ARTICLE

Phytochemical Investigation and Hepatoprotective Activity of Acorus Calamus Extract against Carbon Tetrachloride Induced liver Damage inRats

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ABSTRACT: Acorus calamus is a tradiionally used as an indigenous medicine in dinan villages for treatment of various diseases and disorders. The present study is aimed for investigation of the phytoconstituents and evaluation of hepatoprotective activity of the ethanol extract protects the liver from toxic effect of CCl_4-induced liver damaged of rats. The invivo model showedthat the ethanol extracts protects the liver from toxic effect of CCl_4 by reducing the elevated levels of serum glutamate oxaloacetate transminase (SGOT), serum glutamate pyruvate transaminase (SGPT) and Alkaline phosphate (ALP). Results revealed that the ethanol extract showed significant hepatoprotective activity by reducing the elevatedbiochemical parameters at a dose level of 400mg/kg. Also the invitro models (Nitric Scavenging Activity and Superoxide Free Radical savenging activity) support the reduction of the formed free radicals and produces the scavenging effect which is an essential part of hepatoprotection. Apart from that the histopathological studies of liver samples showed regeneration of hepatocytes by the ethanol extract.

Keywords: A.calamus, phytoconstituents, invivo model, Histopathology parameters.

RESEARCH ARTICLE

Cardio- protective effort of polyherbal formulation in isoproterenol induced cardio toxicity

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ABSTRACT: This study was designed to examine the effects of a poly herbal formulation (PHF) on tissue and plasma cardiac markers, free radical and antioxidant status along with lipid profile level in isoproterenol-induced cardiotoxity in male albino rats. Levels of diagnositic marker enzymes alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and creatine phosphokinase (CPK) in plasma and heart homogenate, lipid peroxides in plasma and heart homogenate and catalase (CAT) in the heart tissue, total cholesterol, high density lipoprotine (HDL) and triacyl glycerol (TGL) in plasma of experimental groups of rats were detemined. The prior administration of poly herbal formulation at the doses of 250 and 350 mg/ kg, b.wt for 30 days significantly (p, 0.05, $p<0.01$ respectively) prevented the isoproterenol- induced elevation in the levels of diagonostic marker enzymes in plasma of experimental rats. Poly herbal formulation also exerted an antioxidant effect against isoproterenol-induced myocardial infarction by blocking the induction of lipid peroxidation and increase the level ofcatalase at the doses of 250 and 350 mg/kg, b.wt by $p<0.05$. Poly herbal formulation also decresed the level of totalcholesterol and, TGL level and increases the level of HDL in plasma of isoproterenol induced cardioxic rats by $p<0.05$ and $p<0.01$ at the doses of 250 and 350 mg/kg, b.wt., respectively. The cardioprotective effect of poly herbal formulation might be ascribable to its antioxidant property and membrane stabilizing action at a doses of 250 and 350 mg/kg, b.wt.

Keywords: cardio-protective, cardiac marker enzyme, Anti oxidant enzyme, poly herbal formulation, Isoproterenol.

RESEARCH ARTICLE

EPIDEMIOLOGY OF POISONING IN SOUTH INDIAN HOSPITAL

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Abstract: A retrospective and prospective analysis of poisoning data's has been carried out to find the number of poisoning cases reported in the private hospital of south India over a period of two years (January 2003 - January 2005). The data were analysed with respect to age, sex, mode and type of poisoning agents involved and their status after poisoning were recorded in the proforma. The agents belonged to various groups: household products, agricultural pesticides, drugs, plants, animal bites and stings, miscellaneous and unknown groups respectively. The age ranged from 14-40 years with the highest incidence of poison in which males (52.1%) outnumbered females (47.9%). The most common mode of poisoning was suicidal (61.1%, followed by accidental (38.9%). The highest incidence of poisoning was due to snakebite (24.31%), organophosphorus poison and drugs (17.31%), cow dung powder poisoning and sting bite (10.42%), pyrethroids (6.25%), rodenticides (3.47%), acids (2.78%), food poisoning & plants of (2.08%) and aluminium phosphide (1.38%), low reporting of poison constituted carbamates, drugs combined with cow dung powder and others (0.69%). Household products mainly comprised of pyrethroids, rodenticides, carbamates, phenyl, detergents, corrosives etc. Among the agricultural pesticides, aluminium phosphide was the most commonly consumed followed by organochlorines, organophosphates, ethylene dibromide, herbicides and fungicides. The bites and stings group comprised of snake bites, scorpion, wasp and bee stings and Poisoning due to plants was low. The present data may not give an exact picture of the incidence of poisoning in India, but represents a trend in our country.

Keywords: Poisoning, Epidemiology, Patterns of poisoning, Poison in India.

RESEARCH ARTICLE

DEVISE AND PROGRESS OF ZIDOVUDINE "ONCE A DAY" TRANSDERMAL DRUG DELIVERY SYSTEM

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Abstract : Zidovudine, an anti-retrovial drug is commonly used for the treatment of HIV infections. Upon oral administration it produces side effects include dry mouth, fatigue, head ache, indigestion, mood and sleep disturbance and anemia in rare cases. The present investigation highlights the fabrication and evaluation of transdermal patches of zidovudine using different concentrations of polymers such as Hydroxy Propyl Methyl Cellulose (HPMC) and Ethyl Cellulose (EC). Propylene glycol is used as a plasticizer and permeation enhancer. Solvent evaporation techniques is used for fabrication of transdermal patchesd. The prepared patches has underwent physicochemical evaluation of patches which include path thickness, folding endurance test, percentage moisture content, percentage moisture uptake, content uniformity, flatness, mass variation. In-vitro drug release studies were performed by using freshly treated semi permaeable membrane by donor receptor compartment model method. The concentration of zidovudine permeated was determined spectrophotometrically at 267 nm after suitable dilution against blank of phosphate buffer of pH7.4 by using UV Spectrophotometer. Among the formulations Z 1 has shown 98.94% release at 24^{th} hour when compared to Z 2, Z 3 and Z 4 which had shown 95.92%, 88.55%, 84.19% at 24^{th} hour respectively. The in vitro dug release plot has shown that the drug release followed zero order kinetics, which was evinced from the regression value. Based on the drug release and physicochemical values obtained the formulation Z 1 is considered as an optimized formulation which shows higher percentage of drug release with diffusion mediated mechanism.

Key words: Zidovudine, Transdermal patches, Hydroxy Propyl Methyl Cellulose (HPMC), Ethyl Cellulose (EC) and Solvent evaporation techniques.

RESEARCH ARTICLE

ANTIBACTERIAL ACTIVITY OF FLOWERS OF *TABERNAEMONTANA DIVARICATA* (LINN.)

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Abstract: The dried and powdered flowers of *Tabernaemontana divaricata* was extracted with various solvents and all the extracts were subjected for preliminary phytochemical evaluation. The methanolic extract possesses significant antibacterial activity. The result suggests that the antibacterial activity is possibly attributed to the presence of indole alkaloids.

Keywords: Antibacterial, *Tabernaemontana divaricata,* methanolic extract, Kirby bauer.

SHORT COMMUNICATION

FORMULATION, IN VITRO CHARACTERIZATION AND IMPROVED IMMUNOGENICITY OF PLA MICROSPHERES CONTAINING HBSAG

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ABSTRACT: The ultimate goal of this research work was to develop an alternative adjuvant for hepatitis B vaccine to induce robust immune response. Poly lactic acid (PLA) micro particulate delivery system of hepatitis B vaccine (HBsAg) has been developed by means of solvent evaporation techniques and their various characters were established. The micro particles were porous, smooth and spherical in shape with 60% of loading capacity. The pulsatile release of hepatitits B vaccine offers potential to mimic the priming and boosting immunization of conventional vaccine. The PLA micro particulate system was able to release HBsAg in an irregular fashion for about 42 days in vitro. Similarly, significant enhancement of specific antibodies to HBsAg was produced in vivo. Based on these findings in vitro and in vivo, it was estimated that the HBsAg was successfully entrapped in to PLA micro particulate system, which induced robust immune response./

Keywords : Adjuvants, Vaccine delivery, Microspheres, Hepatitis B vaccine

SHORT COMMUNICATION

TRADITIONAL HERBS FOR MENSTRUAL DISORDERS POPULAR AMONG TRIBALS OF WAYANAD DISTRICT, KERALA

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Abstract: India is repository of herbal medicine and there are herbs being used in the treatment of diseases and for revitalizing various body systems in almost all ancient civilization. Plants have traditionally served as mans most important weapon against pathogens. Herbal medicines are widely used by all section of the community either as folk remedies or as medicament in the indigenous as well as modern system of medicine. The present survey was conducted to record the medicinal herbs that tribe's used for menstrual disorders. Data were collected by using semi-structured questionnaire and by interviewing local traditional therapists, traditional birth attenders and experienced patients and parents. Total of 17 medicinal plants species belonging to 116 different families and 17 genera are found to useful in menstrual disorders in Wayanad district of Kerala are described under this study. Information on local names, plants parts used, mode of administration and purpose were recorded and reported in this paper. The present study aims to draw the attention of researchers towards the need of future critical study.

Keywords: Traditional Herbs, Wayanad, Menstrual disorder, Tribes