National Seminar

On

CHALLENGES TOWARDS IMPLEMENTING CPCSEA GUIDELINES IN PHARMACY INSTITUTIONS

Sponsored by

Madhya Pradesh Council of Science & Technology (MPCST)

Organized by

School of Pharmacy & Research

People's University, Bhopal, (M.P.)

सरसुति के भंडार की, बडी अपूरब बात।
ज्यौं खरचै त्यौं-त्यौं बढै, बिन खरचे घटि जात॥

SCHOOL OF PHARMACY & RESEARCH

(Formerly People's Institute of Pharmacy & Research Centre)

VISION

- *To establish a center for imparting knowledge,enhancing skills and cultivating attitudes among the students, in order to achieve academic and human excellence.*
- *To develop human sensibilities and dedication to the cause of humanity and ambition to make lasting contribution to the society.*
- *To provide a Centre for research and innovation to meet horizons of knowledge in all its streams.*

Mission

- *To produce competent and employable pharmacy professionals who can significantly contribute for nation building.*
- *To promote pharmaceutical research and innovation towards development of horizons of research knowledge in students and faculty members.*
- *To develop People's Institute of Pharmacy & Research Center as a center of excellence and preferred destination for students towards development of skills and high degree of pharmaceutical knowledge.*

PEOPLE'S UNIVERSITY

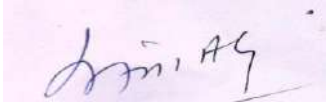
Chancellor
People's University

Message

I am happy to know that School of Pharmacy and Research, People's University, Bhopal is organizing a MPCST sponsored National Seminar on "Challenges towards implementing CPCSEA guidelines in pharmacy institutions" on 1st October 2016.

I appreciate School of Pharmacy and Research from core of my heart for organizing such event that will provide a common platform for sharing ideas and knowledge in the current prospective of technological developments and innovations in the pharmacy field.

I heartily welcome and extend my best wishes to all the participants and wish the seminar a grand success.



Suresh N. Vijaywargia

PEOPLE'S UNIVERSITY

Director Administration
People's University

Message

I am delighted to know that School of Pharmacy and Research , People's University, Bhopal is organising a MPCST sponsored National Seminar on "Challenges towards implementing CPCSEA guidelines in pharmacy institutions" on 1st Oct. 2016 at People's campus.

This seminar /workshop will improve the condition of animals in laboratories for research work. This will also enlighten the recent guidelines on animal experimentation provided by CPCSEA, New Delhi. I welcome all the participants and the sponsorers for their active participation in the national seminar.

Capt. Ambrish Sharma

PEOPLE'S UNIVERSITY

Vice- Chancellor
People's University

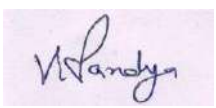
Message

It's a matter of great honour that as a constituent unit of People's University, School of Pharmacy and Research is organising a MPCST sponsored National Seminar on "Challenges towards implementing CPCSEA guidelines in pharmacy institutions" on 1st October 2016.

The theme of the seminar enlightens the challenging issues faced by the pharmaceutical as well as health sector and recent advances in the field of drug delivery techniques across the world.

I am sure that the seminar will create research aptitude in delegates, research scholars and students for designing novel drug delivery systems and also widen the understanding of innovative work in pharmaceutical field.

I wish whole programme a great success.



Dr. V. K. Pandya

Registrar
People's University

Message

I am delighted to learn and feel proud that a National Seminar on "Challenges Towards Implementing CPCSEA Guidelines in Pharmacy Institutions" is being organized by School of Pharmacy & Research, a constituent unit of People's University, Bhopal. In a very short period, People's University has carved a niche for itself among the leading universities of Central India.

I am sure that participation from esteemed experts, faculties, students and delegates from all over the country will provide a vital connect between alumni, academia and talented student community of this as well as other universities.

I extend my warm greetings and felicitations to the organizers and participants and wish the Convention a great success.

Dr. Neerja Mallick

PEOPLE'S UNIVERSITY

Principal
SOP&R,
People's University

Message

I am delighted that School of Pharmacy and Research , People's University, Bhopal is organising MPCST sponsored National Seminar on "Challenges towards implementing CPCSEA Guidelines in pharmacy institutions" on 1st October 2016. This seminar aims to share knowledge and advancement in the field of animal experimentation in research as well as routine academic curriculum. This seminar will help to provide all prospective concern with this and will be a boon in developing new trends in the field of pharmaceutical arena.

I welcome all participants & hope that will provide a lead for implementing CPCSEA guidelines on animal experimentation.

Dr. Neeraj Upmanyu

Organizing Secretary
Assistant Professor
SOP&R
People's University

Message

I am extremely delighted to invite all the eminent speakers, invitees, delegates and our dear Students to the sprawling campus of People's University for attending the MPCST sponsored National Seminar on "Challenges towards Implementing CPCSEA Guidelines in Pharmacy Institutions".

This National seminar is aimed to provide a common platform to scientists, academicians and technologists engaged in various field of sciences for discussion on the recent advances of CPCSEA Guidelines and its implementation. Let us join our hands together to share our knowledge and experience that will go a very long way to build up a healthy, prosperous and developed nation.

We hope that all of you will enjoy the academic feast, warm hospitality, rich heritage and culture of Madhya Pradesh.

Mr.Anup Chakraborty

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CHALLENGES TOWARDS IMPLEMENTATION OF CPCSEA GUIDELINES IN PHARMACY INSTITUTIONS

Dr.Papiya Bigoniya

Principal Radharaman College of Pharmacy Ratibad Bhopal M.P. India

Research involving animals contribute significantly to present and future knowledge, which eventually lead to the protection and improvement of the health and welfare of both humans and animals. World over, the quality and efficacy of pharmaceutical products/vaccines/biological are tested are based on experiments involving animals. No New drug can be introduced in clinical practice or even in to clinical research unless it passes the battery of toxicity test in animals. Given the ethical imperatives the person who uses animals for research should treat them with respect an d very reasonable effort should be made to minimize pain or discomfort. Every country which uses animals for research has come out with set guidelines for the care and use of laboratory animals, which include housing, feeding and humane caring.

India enacted animal law in 1960's called the prevention of cruelty to animals act amended in 1982 to prevent cruelty to animals and committee for the control and supervision of experiments on animals (**CPCSEA**) was constituted under this act. This committee is empowered to take care of the legal and ethical aspects' of experimental animals being used in research in enact preventive measures. The CPCSEA has made mandatory every animal facility in the country be registered and the facilities have a local institutional ethical committee to monitor the experimental work going on in their respective institutes. CPCSEA crime interest is to implement the 3 'R' principles introduced by rustle and birch in 1953 to combine animal welfare along with good science and best practices. The CPCSEA is facing major challenges in implementing uniform standards all over the country on conduct of animal experimentation and housing many of the animals facilities have improper infrastructures in terms of building , housing and trained manpower. Proper recorded keeping and quality control measures are totally lacking in many of the facilities . many of the facilities do not have well defend inbred strains and a separate animal budget. The existing inferior situation is mostly due to lack of enough funds rather than lack of awareness of good laboratory animal husbandry practices.

In vitro alternate methods cannot totally replace animal experimentation but only work as adjuncts to reduce the number of animals. the use of animals continue to be mandatory to made the statutory requirements, how ever efforts to develop alternate methods should continuously be made.

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ANIMAL EXPERIMENTATIONS AND ETHICS IN INDIA

Prof. Manoj K Aswar

Asso. Professor at Sinhgad Institute of Pharmacy, Narhe, Pune-41(MS)

There has been a controversy between animal rights supporters and scientists about whether it is right to use animals in experimental research. Also, it is very debatable whether using animals for such research results in finding a cure for diseases. From my point of view, if there are no other alternatives, and if it is possible that this will contribute to science, animals may be used for experimental research.

In the present talk, I will be highlighting the guidelines puthforth by CPCSEA with the main objective to ensure that animals are not subjected to unnecessary pains or suffering before, during or after performance of experiments on them. For this purpose, under the delegated powers, the Committee formulated the 'Breeding of and Experiments on Animals (Control and Supervision) Rules, 1998' which were amended in 2001 and then in 2006, to regulate the experimentation on animals.

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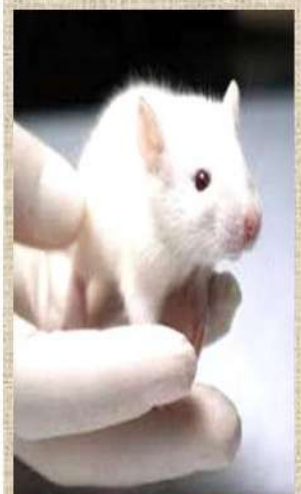

DESIGNING AND WRITING A GOOD PROTOCOL AS PER CPCSEA

Prof (Dr) Vijay Thawani

Professor Pharmacology, People's College of Medical Sciences & Research Centre,

& Director, Centre for Scientific Research & Development, People's University, Bhopal.

A good protocol is a document that describes the objective(s), design, methodology, statistical considerations and organization of a study. It gives background and rationale for the study. It is a reference document that describes why the study is being conducted, how it will be executed, and what is to be done in any eventuality. It includes adequate detail necessary for the reader to be able to understand exactly what is needed to conduct the study. Good protocol lays the path for the researcher to be followed.

It is compulsory to follow the law of the land for doing the research in the country. The motto of Prevention of Cruelty to Animals (PCA) Act 1960 as amended in 1982 is to prevent infliction of unnecessary pain or suffering on animals. The Central Government constituted a Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) to take all such measures as may be necessary to ensure that animals are not subjected to unnecessary pain or suffering before, during or after the performance of experiments on them. For this purpose, the Government made "Breeding of and Experiments on Animals (Control and Supervision) Rules, 1998" as amended in 2001 and 2006, to regulate the experimentation on animals. The CPCSEA guidelines are specific, comprehensive and cover the ethical aspects also.

The goal of these guidelines is to promote the humane care of animals used in biomedical and behavioral research and testing with the basic objective of providing specifications that will enhance animal well-being, quality in the pursuit of advancement of biological knowledge, similar to humans.

A researcher will do well to get acquainted with these guidelines right earnestly before preparing a protocol and submitting the same to Institutional Animal Ethics Committee (IAEC) for approval. Diligent following of the recommendations will ensure better success rate of the IAEC approval of the protocol and subsequent planned research.

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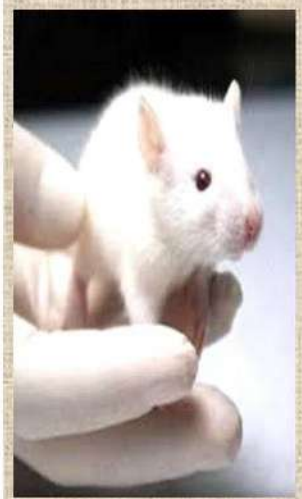

PROTOCOL VIOLATION VIZ-A-VIZ SYSTEMATIC ACCEPTANCE OF CPCSEA GUIDELINES

Dr.N.Ganesh, Head & Senior Scientist

Dept. of Research Jawaharlal Nehru Cancer Hospital & research Centre Bhopal.

Research on animals is the craving and approachable demand in Life science, Pharma science and Medical science since era. In demand the Animals are killed or kept in captivity. In animal testing, countless animals are experimented on and then killed after their use. Others are injured and will still live the remainder of their lives in captivity. Some substances tested, may never be used for anything useful: The unfortunate aspect is that many of these animals received tests for substances that will never actually see approval or public consumption and use. It is this aspect of animal testing that many view as a major negative against the practice, as it seems that the animal died in vain because no direct benefit to humans occurred. It is very expensive indeed, animal testing generally costs an enormous amount of money, as the animals must be fed, housed, cared for and treated with drugs or a similar experimental substance. In addition, animal testing may occur more than once and over the course of months, which means that additional costs are incurred. The price of animals themselves must also be factored into the equation.

"Animals and humans are never exactly the same",there is also an argument that the reaction of a drug in an animal's body is quite different from the reaction in a human. The beliefs that since animals are in an unnatural environment, they will be under stress. Therefore, they won't react to the drugs in the same way compared to their potential reaction in a natural environment. This argument further weakens the validity of animal experimentation.

If at all the environmental condition maintained at par to their natural fauna condition, the violations has been made by the investigators. Therefore, investigators must submit an animal care and use protocol that contains a clear and comprehensive description of the proposed studies, a detailed accounting of experimental procedures, and a justification for use of animals. Any modifications at the discretion of the investigator, an animal use protocol is considered a contractual agreement between the investigator and the IAEC. Modification of any element of an IAEC-approved protocol without IAEC review and approval of the specific change constitutes a protocol violation.

Abstracts

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CTICG-2016

CS-1001

SUBSTITUTE OF ANIMAL'S IN DRUG RESEARCH: AN APPROACH TOWARDS FULFILMENT OF 5 R's

Dr. Papiya Bigoniya[1], Vivek Kumar*[1], Aastha rai[1], Aman sharma[1], Prinsi sahpuriya[1], Uday kumar[1]

[1]Radharaman College of Pharmacy, Ratibad, Bhopal (M.P.), India

ABSTRACT

From time immemorial, man has depended on animals for his survival, either as food or for competition and companionship. Dating back to the days (129-200 AD) of the great physician Galen, who used animals to demonstrate that the arteries contained blood and not air. We have come a long way since then and especially in breeding laboratory animals, are now integral part of biomedical research. The preclinical studies involve the use of animals which is very time-consuming and expensive process and at times leads to the suffering of the used organism. Animal right activists around the world are increasingly opposing the use of animals. This has forced the researchers to find ways to not only decrease the time involved in drug screening procedures, but also decrease the number of animals used and also increase the humane care of animals. To fulfil this goal a number of new *in-vitro* techniques have been devised which are called 'Alternatives' or 'Substitutes' for use of animals in research. These alternatives help to decrease the use as well as the number of animals in biomedical research. Russell and Burch have defined these alternatives by three R's - Reduction, Refinement and Replacement. With them two more R's are also advocated which stands for the rehabilitation and reuse. These alternative strategies include physicochemical methods and techniques utilizing tissue culture, microbiological system, stem cells, DNA chips, micro fluidics, computer analysis models, epidemiological surveys and plant-tissue based materials. The advantages of these alternatives include the decrease in the number of animals used, ability to obtain the results quickly, reduction in the costs and flexibility to control the variables of the experiment. These alternative methods to certain extent help to reduce the number of animals required for research. But such alternatives cannot eliminate the need for animals in research completely. Even though no animal model is a complete set of replica for a process within a human body, the intact animal does provide a better model of the complex interaction of the physiological processes.

Keywords: Alternatives; DNA chips; in silico analysis; micro dosing; micro fluidics.

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CTICG-2016

CS-1002

SKIN IRRITATION AND HEALING ACTIVITY OF TRICHOSANTHES DIOICA ROXB ON BURN WOUNDS

*Yogesh Shivhare, Pratysuh Jain, Rakesh Gawaly, Prashant Soni, Alok Pal Jain

RKDF College of Pharmacy, Bhopal (M.P.) 462047

ABSTRACT

Literature examination exposed that plant having flavonoids and tannins showed wound healing activity. Preliminary phytochemical screening of *Trichosanthes dioica* stated the presence of these chemical constituents so it was hypothesized to screen the plant for this activity. This study was intended at investigating the healing efficiency of petroleum ether extract of Trichosanthes dioica Roxb fruits formulated as 5% ointment.Burns were induced in albino rats divided into three groups as following; Group-I (control) received ointment base. Group-II was treated with standard drug 0.01% silver sulphadiazine. Groups-III was treated with 5% petroleum ether extract ointment. The efficacy of treatment was evaluated based on the wound contraction, epithelialization period, hydroxyproline content and histopathological studies.The effect produced by the extract ointment showed significant ($P < 0.01$) healing when compared with control group. All parameters such as wound contraction, epithelialization period, hydroxyproline content and histopathological studies showed significant changes when compared to control.The present documented findings may suggest the use of petroleum ether extract of *Trichosanthes dioica* to treat and management of burn wounds.

Keywords: Burn wound, Hydroxyproline, Wound contraction, Dried extract

CTICG-2016

CS-1003

TOWARD THE SYNTHESIS OF A PROLINE-RICH CYCLOOLIGOPEPTIDE

Sunil Singh[1,3], Rajiv Dahiya[2]*, Jay Ram Patel[3]

[1]Department of Pharmacy, Mewar University, Gangrar, Chittorgarh, Rajasthan, India.
[2]School of Pharmacy, Faculty of Medical Sciences, The University of West Indies, Trinidad & Tobago, West Indies.
[3]Oriental College of Pharmacy, Oriental Campus, Raisen Road, Bhopal, M.P., India

ABSTRACT

Synthesis of a natural cyclic hexapeptide - diandrine A [**VI**] was accomplished by coupling of tetrapeptide unit Boc-Gly-Pro-Trp-Pro-OH with dipeptide unit Tyr-Phe-OMe followed by cyclization of linear peptide unit [**V**] under alkaline condition. Structure of newly synthesized cyclopolypeptide was elucidated by means of spectral techniques including FTIR, ^{1}H NMR, ^{13}C NMR, MS analyses. **VI** was subjected to pharmacological screening and found to exhibit good antifungal activity against dermatophytes. Further, **VI** possessed potent antihelmintic activity against earthworms *M. konkanensis*, *P. corethruses* and *Eudrilus sp*.

Keywords: Diandrine A, Cyclic hexapeptide, Peptide synthesis, Antifungal activity, Antihelmintic activity.

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CTICG-2016

CS-1004

AN EPIGRAMMATIC ASSESSMENT ON USE OF ANIMALS FOR TOXICITY TESTING AS PER REGULATORY FRAMEWORK IN INDIA.

Nishi Prakash Jain[1], Sukhwant Singh[1], Jitendra Banweer[1].

1,Sagar Institute of Research , Technology and Science-Pharmacy Near ISRO, Ayodhya Bypass Road, Bhopal (India)

ABSTRACT

Toxicity testing or safety testing is defined as the study of the adverse effects of chemical and physical agents on biological systems. Modern regulatory systems include extensive requirements for safety testing of new chemical products before they marketed. Animals have been used extensively in the evaluation of new chemicals, pharmaceuticals and cosmetics. The animals range from rats, mice, guinea pigs to rabbits, dogs and monkeys. Toxicity testing conducted to assess the degree to which substances are toxic (poisonous) for humans, animals or the environment, to investigate the mechanism of toxic chemicals. In this paper we are explaining the scientific rationale behind important types of studies. these include: examination of adverse effects that may occur on first exposure to a single dose of a substance (acute toxicity studies), studies that seek to assess the potential of substances to interact with genetic material (genotoxicity), tests that aim to identify whether toxicity occurs after continuous exposure to a substance (repeated-dose toxicity studies), tests that are undertaken to find out whether cancers may develop as a result of exposure to certain chemicals, and studies to ensure the safety of medicines. A major influence on these developments has been the Test Guidelines Programme of the Organization for Economic Cooperation and Development (OECD), which has developed standardized methods of testing. This paper briefly describes the understanding of the regulatory framework in India and the role of international standards in toxicity testing in India. This also have a focus on The Role of Private Sector in Toxicity Testing in India.

Key words: Toxicity Testing, Guidelines, adverse effects, Genotoxicity, OECD

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CTICG-2016

CS-1005

DEVELOPMENT AND CHARACTERIZATION OF HERBAL CREAM FOR ANALGESIC ACTIVITY

*Yogesh Shivhare, Pratysuh Jain, Suraj Singh, Anjana Bhardwaj, Alok Pal Jain

RKDF College of Pharmacy, Bhopal (M.P.) 462047

ABSTRACT

The aim of this research was to formulate and evaluate the herbal cream containing petroleum ether extract of Ziziphus jujuba for analgeisc potential. The herbal cream was formulated by using petroleum ether extract of Ziziphus jujuba in various concentrations (5% and 10%) and evaluated by formulation properties, viscosity, pH of the cream and spreadibility. Further, formulated cream was assessed for analgesic activity on animal model. Obtained results stated the formulation of Ziziphus jujuba extract is safe and beneficial for treating to pain.

Keywords: Ziziphus jujuba, Formulation, Cream, Analgesic

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CTICG-2016

CS-1006

CELL LINES AS A POTENTIAL TOOL FOR SCREENING OF DRUG AND TOXICITY ASSAY.

Pallav Kaushik Deshpande [1], anshuman Patil[2], Prankita lowanshi [2],Rachana Akhand Giri [2], Anupam Kumar Pathak [2]

[1]Department of Biotechnology, Barkatullah Univesity, Bhopal.462026

[2]Department of Pharmacy, Barkatullah Univesity, Bhopal.462026

ABSTRACT

Cell culture provides systems for ready, direct access and evaluation of tissues. Ready access to the cells provides the possibility for easy studies of cellular mechanisms that may suggest new potential drug targets and, in the case of pathological-derived tissue; it has an interesting application in the evaluation of therapeutic agents that potentially may treat the dysfunction. The use of cell culture is a valuable tool to study problems of clinical relevance, especially those related to diseases, screening, and studies of cell toxicity mechanisms. However, special considerations must be addressed to establish stable *in vitro* function. In primary culture, these factors are primarily linked to greater demands of tissue to adequately survive and develop differentiated conditions *in vitro*. Additional requirements include the use of special substrates (collagen, laminin, extracellular matrix preparations, etc.), growth factors and soluble media supplements, some of which can be quite complex in their composition. These demands, along with difficulties in obtaining adequate tissue amounts, have prompted interest in developing immortalized cell lines which can provide unlimited tissue amounts. However, cell lines tend to exhibit problems in stability and/or viability, though they serve as a feasible alternative, especially regarding new potential applications in cell transplant therapy. In this regard, stem cells may also be a source for the generation of various cell types in vitro.

Keywords: Cell lines, Cell culture, Drug screening, Stem cells

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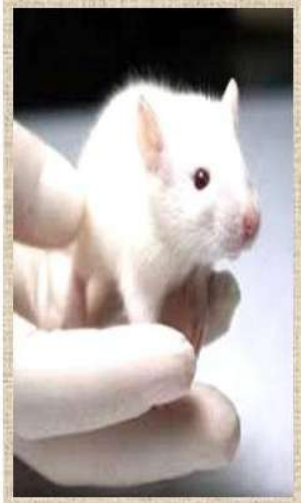

CTICG-2016

CS-1007

BENEFITS AND ETHICS OF ANIMAL RESEARCH

Aastha Soni*, Bhavesh Kumar, Tamanna Sahitya, Nitesh Shukla, Alka Singh, Anup k. Chakraborty

School of Pharmacy & Research, People's University

ABSTRACT

The ethics of animal testing can be viewed from many angles, and the perception to a casual human being is rather negative when introduced to the term animal testing. It very often has a negative comprehension. This can be said to be a misconception in many cases. E.g. animals used in cosmetic- and medical testing are not presented in objective ways by animal rights organizations. Biologists, and other people within the science where animal experiments is needed has for the most, formed a firm opinion of the needs and not at least the shades of The ethical justification of a research project starts from its initial designing phase until its completion and the review of the obtained results. Justification of the necessity of the project and the need to use animals in the interests of human or animal health, the importance of conducting a pilot study and a systematic review of previously published animal research on the topic, and the availability of the proper facilities, equipment and personnel are the main issues of concern in the ethical review of a research project In many countries the approval of animal research projects depends on the decisions of Animal Ethics Committees (AEC's), which review the projects. An animal ethics review is performed as part of the authorization process and therefore performed routinely, but comprehensive information about how well the review system works is not available.

Keyword: Animal testing, ethics, health, AEC's

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CS-1008

SNAKE VENOM BINDING ACTIVITY-A BRIEF REVIEW

Rishabh Khandelwal*, Anirudhh Verma, Jeevendra Jaywal, Akshay K. Sahu, Anup K. Chakraborty, Alka Singh

School of Pharmacy & Research, People's University

ABSTRACT

The unavailability of effective snake antivenom immunoglobulins (antivenoms) to treat the specific types of snakebite envenomings encountered in various regions of the world has become a critical health issue at global level. The crisis has reached its greatest intensity in sub-Saharan Africa, but other regions, such as south-east Asia, are also suffering from a lack of effective and affordable products. Though snake antivenom (SAV) is the mainstay of therapy for poisonous snake bites, there is no universally accepted standard regimen regarding the optimum dose (low vs. high). We therefore, undertook this systematic review to address this important research question. Randomized clinical trials (RCTs) were included. Eligible trials compared low versus high dose SAV in poisonous snake bite. Of 36 citations retrieved, a total of 5 RCTs (*n* = 473) were included in the final analyses. Three trials were open-label, 4 conducted in Indian sub-continent and 1 in Brazil. The doses of SAV varied in the high dose group from 40 ml to 550 ml, and in the low dose group from 20 ml to 220 ml. There was no significant difference between the two groups for any of the outcomes except duration of hospital stay, which was lower in the low dose group. The GRADE evidence generated was of "very low quality." Low-dose SAV is equivalent or may be superior to high-dose SAV in management of poisonous snake bite. Low dose is also highly cost-effective as compared to the high dose. But the GRADE evidence generated was of "very low quality" as most were open label trials. Further trials are needed to make definitive recommendations regarding the dose and these should also include children <9 years of age.

Keywords: Antivenins, immunoglobulins, clinical trials

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CS-1009

NEURONAL CELLS AS AN IDEAL MODEL FOR NEURODEGENERATIVE DISEASES.

Pallav Kaushik Deshpande [1], Ragini Gothalwal [1].

[1]Department of Biotechnology, Barkatullah Univesity, Bhopal. 462026

ABSTRACT

Neurodegenerative diseases are pathological conditions that have an insidious onset and chronic progression. Different models have been established to study these diseases in order to understand their underlying mechanisms and to investigate new therapeutic strategies. Although various *in vivo* models are currently in use, *in vitro* models might provide important insights about the pathogenesis of these disorders and represent an interesting approach for the screening of potential pharmacological agents.

In vitro models of these pathological conditions offer advantages over *in vivo* models in several aspects. First, it is possible to study the role of isolated cells of one particular type in an environment that simulates the disease and to investigate mechanisms of a possible deleterious or protective role of specific molecules and compounds. Second, screening for potential actions of drugs is also facilitated. Primary midbrain dopaminergic neurons are suitable to study dopaminergic cell survival and neurite retraction as well as regeneration. Usually, embryonic midbrain neurons from embryonic day 14to 18 (E14-18) are dissected(Lingor *et al*., 1999). A high yield of dopaminergic neurons can be obtained, which can be exposed to various neurodegenerative stimuli. Several neurotoxins are employed to study neurodegeneration. In particular, 6-hydroxydopamine (6-OHDA) and 1-methyl-4-phenylpyridinium (MPP+) are widely accepted to induce neurotoxicity. Both neurotoxins are thought to induce dopaminergic toxicity by intra- and extracellular oxidation, hydrogen peroxide formation, and direct inhibition of the mitochondrial respiratory chain(Blum *et al*., 2001).In this sense, *in vitro* models of neurodegenerative processes have been used to provide important clues about mechanisms of the diseases and potential pharmacological targets.

Keywords: Neurodegenerative disease, Neuronal cells, Dopaminergic, Pharmaceutical targets.

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CS-1010

REVIEW ON NEW MOLECULES AS ANTI-DEPRESSANTS

Shreya Khanna*, Varsha, Divya Gohil, Satyabhavna Sakre, Alka Singh, Anup k. Chakraborty

School of Pharmacy & Research, People's University

ABSTRACT

Depression is a state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and sense of well-being. Antidepressant medicines are not only used for treating depression but also for various anxiety-related symptoms. We deal with the use of the medicines for treating depression and anxiety but in this evaluation put the emphasis on the treatment of depression. There are both older and newer medicines in this therapeutic group. Usage is dominated by the SSRI medicines, which represent two-thirds of usage and comprise a number of well-known brands such as Cipramil and Zoloft. Depression shrinks the hippocampus - an area of the brain responsible for forming new memories - leading to a loss of emotional and behavioral function. In this review emphasis was put on newer synthetic molecules of high potency.

Keywords: Anti-Depressants, *in-vivo* tests, nor-epinephrine, serotonin.

CTICG-2016

CS-1011

PREDICTING DRUGS: HYPERSENSITIVITY BY *IN-VITRO* TEST

Sudhanshu Lekhrajani*, Ujjawal Singh , Ayush Khandelwal , Mradul Sharma

School of Pharmacy & Research, People's University

ABSTRACT

The *in-vitro* diagnosis of allergic reactions to drugs is of particular interest to clinicians, as neither the clinical history nor the *in-vivo* tests are fully conclusive. In addition, these tests may often be associated with risk, as occurs with the drug provocation test. Various different *in- vitro* tests are available for the evaluation of drug hypersensitivity depending on the immunological mechanism involved, either IgE mediated or T cell mediated. For IgE-mediated reactions, the determination of serum-specific IgE, antigen-specific histamine release and sulphidoleukotriene production after in vitro stimulation of effector cells, as well as analysis of the activation markers of these cells (the basophil activation test), provide greater diagnostic precision. The proposed *in- vitro* method benefits from a rationalistic approach with the idea that allergenic drugs share with chemical allergens common mechanisms of cell activation. This assay can be easily incorporated into drug development for hazard identification of drugs, which may have the potential to cause *in vivo* hypersensitivity reactions.

Keywords: Hypersensitivity, *in-vitro* tests, allergic reactions, DPT.

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CS-1012

"A HOLISTIC SOLUTION FOR THE HOBSON'S CHOICE OF USING ANIMALS IN EXPERIMENTS AND RESEARCH IN THIS ERA"

Sameer Mohammad; AshwaniMishra; Anupam Pathak.

Department of Pharmacy, Barkatullah University ,Bhopal.

ABSTRACT

The number of animals used in research has increased with the advancement of research and development in medical technology. Every year, millions of experimental animals are used all over the world. It is estimated that more than 115 million animals including mice, rats, birds, fish, rabbits, guinea pigs, farm animals, dogs, cats, and non-human primates are used and/or killed in laboratory experiments each year around the world. The pain, distress and death experienced by themhave become a debating issue for a long time not only this but few more disadvantages of animal experimentation like requirement of skilled manpower, time consuming protocols and high cost. A strategy of 3 Rs is being applied for laboratory use of animals which is an integrated application of different approaches. This would give an insight to minimize use of animals in scientific experiments.If we consider alternative approaches there are number of approaches which could save the life of millions of Animals, like *In vitro* cell culture approach, computer models, and new imaging/analyzing techniques, uses of alternative organisms, Lower vertebrates like zebra fish and Microorganism like Saccharomyces cerevisiae .In this review I would like to reveal these techniques and how efficiently they can be the best alternative in future as animal free experiment and researches .

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CS-1013

SELECTIVE INHIBITION OF INTERLEUKIN 12 BY LEISHMANIAPROMASTIGOTES INDUCED IN BONE MARROW-DERIVED MACROPHAGES FROM SUSCEPTIBLE AND RESISTANT MICE.

Atul Tripathi[1], Preeti Dhruve[1], Bina Gidwani[2], Amber Vyas*[1]

[1]University Institute of Pharmacy, Pt. R. S. S.U, Raipur (C.G.)

[2]Shri Rawatpura Sarkar Institute of Pharmacy, Kumhari, Durg (C.G.)

ABSTRACT

Leishmania major promastigotes were found to avoid activation of mouse bone marrow-derived macrophages (BMM0) in vitro for production of cytokines that are typically induced during infection with other intracellular pathogens. Coexposure of BMM0 to the parasite and other microbial stimuli resulted in complete inhibition of interleukin (IL) 12 (p40) mRNA induction and IL-12 release. In contrast, mRNA and protein levels for IL-1(alpha), IL-1(beta), tumor necrosis factor (TNF) alpha, and inducible NO synthase (iNOS) were only partially reduced, and signals for IL-10 and monocyte chemoattractant protein (MCP-1/JE) were enhanced. The parasite could provide a detectable trigger for TNF-alpha and iNOS in BMM0 primed with interferon (IFN) gamma, but still failed to induce IL-12. Thus IL-12 induction is selectively impaired after infection, whereas activation pathways for other monokine responses remain relatively intact. Selective and complete inhibition of IL-12(p40) induction was observed using BMM0 from either genetically susceptible or resistant mouse strains, as well as IL-10 knockout mice, and was obtained using promastigotes from cutaneous, visceral, and lipophosphoglycan-deficient strains of Leishmania. The impaired production of the major physiological inducer of IFN-gamma is suggested to underlie the relatively prolonged interval of parasite intracellular survival and replication that is typically associate with leishmanial infections, including those producing self-limiting disease.

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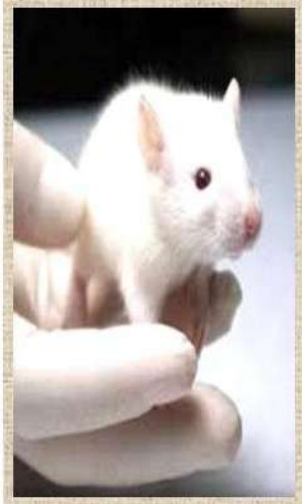

CTICG-2016

CS-1014

PREVENTION TO CRUELTY ON ANIMALS BY USING CELL LINES

Agrawal Anuja[1],Wasnik Pragya[1], Dr.Jain Nidhi[1], Dr.Pathak A. k.[1]

[1]Department of Pharmacy, Barkatullah University, Bhopal

ABSTRACT

This poster represents a more realistic approach like how we can use animal cell lines over animals for in vivo study or for clinical trial research. Here we have presented cancer cell lines which have been treated with the formulated drugs. When we are successful with the results in cell line than further studies will perform on animals. This methods help in using lessanimals in prior stage of study and fewer animals are sacrificed.

The goals of using basic model such as cell in research is to create and discover strong, relevant and reproducible data that can eventually be used to diagnose and treat disease that impact both humans and animals. The genome becomes unstable and prone to mistake and after a few cycles of growth or passes the cell line may not even resemble what you start with. We often see in culture that cells become polyploid which is characteristic of cancer so the tissue culture is the powerful system that has led to significant scientific advanced that has positively impacted human health and reduces the number of animals in research.

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CS-1015

ALTERNATIVE APPROACHES AND PLEMENTING NEW TECHNIQUES FOR TESTING OF DRUGS ON ANIMALS

Aakash[1*], Vedprakash[1], Dr. Deshpande Kaushik Pallav[1], Dr.GiriAkhand Rachna[1], Dr.Pathak A.K. [1]

[1]Department of Pharmacy, Barkatullah University, Bhopal

ABSTRACT

The number of animals used in research has increased with the advancement of research and development in medical technology. Every year, millions of experimental animals are used all over the world. The pain, distress and death experienced by the animals during scientific experiments have been a debating issue for a long time. Besides the major concern of ethics, there are few more disadvantages of animal experimentation like requirement of skilled manpower, time consuming protocols and high cost. Various alternatives to animal testing were proposed to overcome the drawbacks associated with animal experiments and avoid the unethical procedures. A strategy of 3 Rs (i.e. reduction, refinement and replacement) is being applied for laboratory use of animals. Different methods and alternative organisms are applied to implement this strategy. These methods provide an alternative means for the drug and chemical testing, up to some levels. These modern methods include sophisticated tests using human cells and tissues (also known as in vitro methods), advanced computer-modeling techniques (often referred to as in silico models), and studies with human volunteer's.

A brief account of these alternatives and advantages associated is discussed in this review with examples. An integrated application of these approaches would give an insight into minimum use of animals in scientific experiments.

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CS-1016

ALTERNATIVE TO ANIMAL TESTING METHODS IN DRUG DEVELOPMENT

Akashverma*,Manishkeshari, Alkasingh, AnupK.Chakraborty

School of Pharmacy & Research, People's University

ABSTRACT

The origins of the concept of alternatives to animal testing in the 1950s, and the range of replacement alternative methods and progress toward their incorporation into fundamental and applied research, education are discussed. The three R's that is Replacement, Reduction, Refinement are defined. Importance and advantages of alternatives to animal testing methods are mentioned. Information is given about the institutions researching alternatives to animal testing and resources available to assist in searching for alternatives are listed. Ethical considerations on the alternative methods are also discussed. It is concluded that much greater effort should be put into overcoming the barriers to the acceptance of replacement alternatives which currently limit the contributions they have to make toward greater humanity and better biomedical science.

Keywords: Alternatives, Refinement, Inhumanity, In-vitro, In-silico.

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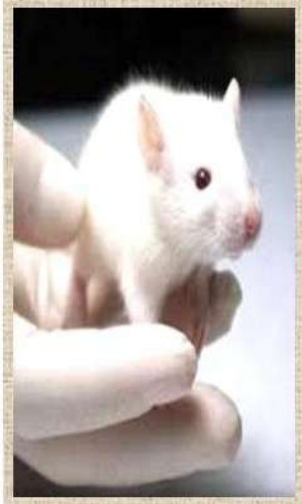

CTICG-2016

CS-1017

GENETICALLY MODIFIED ANIMALS AS MODEL FOR DRUG TESTING

Pallav Kaushik Deshpande [1], Bhaskar Kumar Gupta[2],

[1]Department of Biotechnology, Barkatullah Univesity,Bhopal.462026

[2]School of Pharmacy & Research, People's University, Bhopal 462041

ABSTRACT

Because the genetics and histology of xenografts do not recapitulate the genetics and histology of human tumors, genetically engineered animal models were developed. The use of genetically modified mice for carcinogenicity evaluation began more than 20 years ago, when researchers found that different strains of genetically engineered mice demonstrated that cancer incidence is increased and tumor latency is decreased in mice whose germ line, the Ha-ras oncogene, has been inserted. Previously, the selection of mouse oncology models was based simply on availability of a mouse strain and a known compatible tumor. This frequently resulted in the use of tumor models that while long on history were short on homology and quality control. For these reasons, preclinical efficacy testing for anti-tumor therapies should progress through a series of models of increasing sophistication that includes incorporation of genetically engineered animals and orthotropic and combination therapy models. Genetically modified animals are organisms in which specific genes have been altered (added or ablated) to create models for human and animal diseases. A transgenic animal is defined as an animal that carries one or more foreign genes, deliberately introduced through insertion into the animal's genome. The foreign gene is constructed using recombinant deoxyribonucleic acid (DNA) technologies. The introduction of a gene can also generate therapeutic medicinal products. Standard genetically modified animals include laboratory flies, fish, worms, rodents and (for agricultural or production purposes) pigs, sheep and cows.

Keywords: Xenografts, Genetic engineering, Genetically modified.

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CS-1018

CRUELTY TOWARDS ANIMAL

Ramteke Joy[1], Panse Gayatri[1], Dr. Jain Nidhi[1], Dr. Pathak A.K.[1]

[1]Department of Pharmacy, Barkatullah University, Bhopal

ABSTRACT

Every year countless animals are sacrificed in the name of experimentation and studies for human developmental research but is extremely painful and hazardous for animal life. This practice of live experimentation is known as vivisection, which involves burning blinding cut opening poisoning and starving the creature kept in an enclosure.

For putting these chaos to an end and securing the animals from unnecessary harassment and blood-shed, many organizations came forward, in which first of them was the committee for the purpose of control and supervision of experimentation on animals (CPCSEA). It was formed under the provisions of the prevention of cruelty to animals act 1960 and is supposed to help implement good laboratory practices (GLP) and ensure that the animal testing is carried under proper hygienic and minimum painful conditions.

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CS-1019

NIOSOMAL DRUG FORMULATIONS IN THE TREATMENT OF RHEUMATOID ARTHRITIS.

Shikha Srivastava*, Manju R Singh

University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, India. 492010.

ABSTRACT

Niosomes have been extensively investigated as drug delivery systems in the treatment of rheumatoid arthritis (RA). Low bioavailability, high clearance rates and limited selectivity of several important drugs used for RA treatment require high and frequent dosing to achieve sufficient therapeutic efficacy. However, high doses also increase the risk for systemic side effects. The use of noisome as drug carriers may increase the therapeutic index of these antirheumatic drugs. Physicochemical properties can be changed to optimize penetration through biological barriers and retention at the site of administration, and to prevent premature degradation and toxicity to non target tissues PEGylation reduces the uptake of the noisome by liver and spleen, and increases circulation time, resulting in improved localization at the inflamed site due to enhanced permeability and retention effect. Additionally surfaces can be modified for selective delivery of the encapsulated drug to specific target cells in RA. This review gives an overview of liposomal drug formulations studied in a preclinical setting as well as in clinical practice. It covers the use of noisome for existing antirheumatic drugs as well as for new possible treatment strategies for RA. Both local administration of depot formulations and intravenous administration of passive and actively targeted noisome are reviewed.

Keywords: Niosomes, rheumatoid arthritis, PEGylation

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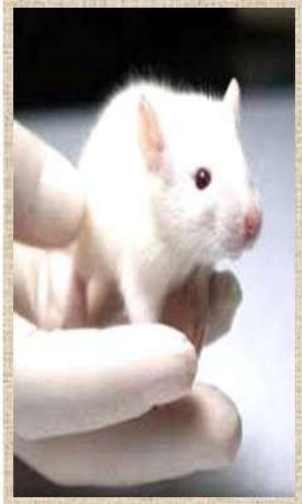

CTICG-2016

CS-1020

POTENTIAL OF *Cuscuta reflexa* ROXB. AND ITS TOPICAL APPLICATION IN ALOPECIA

Satish Patel*[1],Deependra Singh[1], Vinod K. Dixit[2]

[1] **University Institute of Pharamacy, Pt RSU, Raipur-492010**
[2] **Department of Pharmaceutical Sciences, Dr HS Gour University, Sagar, M.P**

ABSTRACT

Alopecia is a dermatological disorder with psychosocial implications on patients with hair loss. Hair loss is one of the most feared side effects of chemotherapy. Plants have been widely used for hair growth promotion since ancient times in Ayurveda, Chinese and Unani systems of medicine. The effect of extracts of *Cuscuta reflexa* Roxb. in testosterone induced alopecia was reported. In the present study, the efficacies of the extracts of *Cuscuta reflexa* in promoting hair growth in cyclophosphamide-induced hair loss have been determined. The study was performed by treated with petroleum ether and ethanolic extract of *Cuscuta reflexa* at the dose 250mg/kg in male swiss albino rats. Cyclophosphamide (125mg/kg) was used to induce alopecia. Groups treated with extracts of plant showed hair regrowth. Histopathology and gross morphologic observations for hair regrowth at shaved sites revealed active follicular proliferation. It concluded that extracts of *Cuscuta reflexa* shown to be capable of promoting follicular proliferation or preventing hair loss in cyclophosphamide-induced hair fall.

Keywords: *Cuscuta reflexa*, Chemotherapy, Alopecia, Cyclophosphamide, Hair loss

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CS-1021

EFFECT OF FERULIC ACID ALONG WITH ASCORBIC ACID IN ANILINE INDUCED SPLEEN TOXICITY

Habeebur Rahman*, Aman B. Upaganlawar

Department of Pharmacology, SNJBs SSDJ College of Pharmacy, Neminagar, Chandwad. India.

ABSTRACT

The present study was design to evaluate the protective effects of ferulic acid and ascorbic acid in combination in aniline hydrochloride induced spleen toxicity. Wistar rats of either sex were used in the study. Spleen toxicity was induced in rats by aniline hydrochloride (100ppm) in drinking water for 30 days. At the end of treatment period various parameters from serum and tissue were evaluated. Aniline hydrochloride treated rats showed a significant alteration in body weight, spleen weight, feed consumption, water intake, hematological parameters (Hemoglobin, RBC, WBC and total Iron content), biochemical parameters (Protein, lipid peroxidation, reduced glutathione and nitric oxide), and membrane bound phosphatase (ATPase). Treatment with combination of ferulic acid and ascorbic acid (40mg/kg) respectively showed a significant recovery in aniline induce spleen toxicity. *In conclusion:* Combination of ferulic acid and ascorbic acid showed better effects than alone antioxidants in aniline hydrochloride induced spleen toxicity.

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CS-1022

INCORPORATION OF NANO-SIZED MATERIALS IN COSMETICS: BIG RISK TO CONSUMERS AND CHALLENGE TO THE REGULATION

Vishwakarma M.., Lilhore K., Pandey S.P., Chandel H.S.

Truba Institute of Pharmacy, Bhopal

ABSTRACT:

Cosmetic industries and cosmetic market is increasing day by day and it has resulted the genesis of some newer efficacious products including nano-sized material but at the similar time it has also resulted the start of new discussion on the safety of such products too. The present study emphasizes over the toxicity of these nano substances when used excessively and the role of the regulatory bodies regarding the incorporation of nonmaterial in the cosmetic products. Three major components of cosmetic products have been taken into consideration viz. *Zinc oxide, titanium di-oxide, fullerenes and silver particles* used mainly in the sunscreen, creams, soaps and face creams. The research shows that the nanoparticles of *titanium dioxide* and *zinc oxide* used in cosmetics, sunscreens and personal care products are photoactive, producing free radicals leading to DNA damage to skin cells. Similarly *silver nanoparticles* were also demonstrated to be highly toxic to in vitro mouse germline stem cells, drastically reducing mitochondrial function and cell viability even at low concentrations. Hence before extensive use of these nanomaterials in cosmetic products, their efficacy and toxicity should be studied exhaustively, properly evaluated and as per need role of the regulatory bodies must be decided.

Keywords: Cosmetics, Nanoparticles, Nanometerials, Nanotoxicity.

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CS-1023

NANO-STRUCTURED CARBON TUBES: A NEW DIMENSION OF THERAPEUTIC DELIVERY

Mandlawadiya M., Nagar B. S., Pandey S.P., Chandel H.S.

Truba Institute of Pharmacy, Bhopal (MP)

ABSTRACT:

Novel drug delivery systems have drawn the attention of researchers as efficient delivery systems for therapeutics because of their properties and characteristics which lend many advantages over the conventional dosage forms. There are several types of drug delivery systems such as liposomes, niosomes, transferosomes, ethosomes etc, which are currently available. IN recent few years, Carbon nanotubes have emerged as a new potential and efficient device for targeting and translocating therapeutic molecules to different parts of the body according to the need. These nano-structured carbon tubes can be functionalised with bioactive peptides, proteins, nucleic acids and drugs, and used to deliver their load to cells and organs. This type of delivery system has displayed low toxicity and considered to be not immunogenic. Nano-structured carbon tubes had also been utilised to target the tumour without any toxic effects to the normal tissues and so it has been thought to be used significantly in cancer treatment. They have been utilised in the glucose detection biosensors and DNA detection biosensors. With all these qualities the systems hold great potential in the field of nano-biotechnology and nano-medicine. But still an exhaustive research is needed to establish and validate the use of carbon nano-tubes for the delivery of therapeutics.

Keywords: Carbon nanotubes, Therapeutics, Delivery system

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CS-1024

PULSATILE DRUG DELIVERY SYSTEM: A NEWER APPROACH OF DRUG DELIVERY

Nayna Singhai , Nargish Bano , Nisha Yadav , Surendra Dangi

School of pharmacy and research, Bhopal

ABSTRACT

Pulsatile drug delivery system is defined as the rapid and transient release of certain amount of molecules within a short time period immediately after a predetermined off released period i.e. lag time or these system have a peculiar mechanism of delivering the drug rapidly and completely after a lag time.

Traditionally, drugs that are released in an immediate or extended manner, as a pulsatile drug delivery system they achieve desired therapeutic effect with minimum side effects , so that patient compliance can be obtained along with reduced dose frequency. These systems are designed according to the circadian rhythm of the body and the drug is released as a pulse. Basically these systems are needed for the drugs that undergo degradation in gastric acidic medium, to deliver the drugs to the distal part of GIT or for the problems following cardiac rhythms like raise in B.P as well as Hormonal imbalance.

Pulsatile drug delivery systems shows various advantages such as predictable, reproducible and short gastric residence time, less inter and intra subject variability, improved stability , limited risk of local irritation, improved bioavailability, no risk of dose dumping and flexibility in drug designing. This review shows that Pulsatile drug delivery systems will work as a great tool of treatment for such type of diseases which depends on circadian cycle.

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CS-1025

EVALUATION OF ANTI-DIABETIC AND ANTIOXIDANT ACTIVITY OF *CRINUM DEFIXUM* BULBS EXTRACT

Rakesh Tirkey

Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India 492010.

ABSTRACT

The present study was aimed to investigate Anti-diabetic and antioxidant activity of *Crinum defixum* bulbs extract (Family: *Amaryllidaceae*). It is commonly found in the various north east and south regions of India. The bulbs were collected, shade dried and extracted with ethanol using Soxhlet extractor. Anti-diabetic activity of ethanolic (EECD) extracts of *Crinum defixum* was carried out on Wistar albino rats. The observation showed The ethanolic extract of *Crinum defixum* (200 and 400 mg/kg, p.o.) showed significant reduction ($P < 0.05$) of fasting blood glucose levels in streptozotocin induced type II diabetic rats on the 10 and 15 days. In the oral glucose tolerance test, the extract increased the glucose tolerance. It also brought about an increase in the body weight of diabetic rats.

The extracts were also evaluated for antioxidant activity by free radical scavenging assay using DPPH and showed a prominent antioxidant activity but were comparatively lower than standard significantly ($P<0.05$).

Further studies are needed to be done to isolate the active phytoconstituents responsible for bringing the Anti-diabetic activity and antioxidant activity.

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CS-1026

SOLID LIPID NANOPARTICLE: A REVIEW

Surendra Dangi , Sudhir Ray, Saquib Raza.

School of Pharmacy & Research, People's University

ABSTRACT

Solid lipid nanoparticles are at the forefront of the rapidly developing field of nanotechnology with several potential applications in drug delivery, clinical medicine and research as well as in other varied sciences. Solid lipid nanoparticle (SLN) dispersions have been proposed as a new type of colloidal drug carrier system suitable for intravenous administration. The system consists of spherical solid lipid particles in the nanometer ranges, which are dispersed in water or in aqueous surfactant solution. It is identical to an oil-in water emulsion for parenteral nutrition but the liquid lipid (oil) of the emulsion has been replaced by a solid lipid, i.e., yielding Solid Lipid Nanoparticles. Different production methods which are suitable for large scale production and applications of solid lipid nanoparticles are described. Appropriate analytical techniques for characterization of solid lipid nanoparticles like photon correlation spectroscopy, scanning electron microscopy, differential scanning calorimetry are used during study. Present review focused on various aspects of method of preparations of solid lipid nanoparticles ,various route of their administration and their biodistribution. If appropriately investigated, SLNS may open new vistas in therapy of complex diseases.

Keywords: Solid lipid nanoparticles (SLN), colloidal drug carriers, homogenization.

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CS-1027

COLON SPECIFIC DRUG DELIVERY SYSTEM

Surendra Dangi , Anoop kirar

School of Pharmacy & Research, People's University, Bhopal (M.P.), India

ABSTRACT

The colon specific drug delivery system (CDDS) should be capable of protecting the drug en route to the colon i.e. drug release and absorption should not occur in the stomach as well as the small intestine, and neither the bioactive agent should be degraded in either of the dissolution sites but only released and absorbed once the system reaches the colon. The colon is believed to be a suitable absorption site for peptides and protein drugs for the following reasons; (i) less diversity, and intensity of digestive enzymes, (ii) comparative proteolytic activity of colon mucosa is much less than that observed in the small intestine, thus CDDS protects peptide drugs from hydrolysis, and enzymatic degradation in duodenum and jejunum, and eventually releases the drug into ileum or colon which leads to greater systemic bioavailability. And finally, because the colon has a long residence time which is up to 5 days and is highly responsive to absorption enhancers so it may be beneficial . During the past decades research is going on in developing the method to target the drug to the specific region. The goal of targeted drug delivery is to deliver the drug to the specific organ .Colon targeted drug delivery is used to deliver the substances that are degraded by the digestive enzyme in the stomach such as protein and peptide. Present review emphasize on treatment of various disease like ulcerative colitis , crohn`s disease , intestinal cancer, diarrhoea as well as for the treatment of disease sensitive to circadian rhythms like Asthma Angina for the delivery of steroids by using CDDS.

Keywords: Colon specific drug delivery, pH sensitive, time controlled dependent, microbial triggered, pressure controlled and osmotically controlled system.

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CS-1028

PHARMACOLOGICAL EVALUATION OF CO-ENZYME Q10 IN HYPERHOMOCYSTEINEMIC MEDIATED RENAL IMPAIRMENT

Shaiba *Sana Qureshi*, *Jeetendra Kumar Gupta*

Institute of Pharmaceutical Research, GLA University Mathura, U.P.

ABSTRACT

The study deals with the evaluation of Coenzyme Q10, a lipophilic moiety against renal impairment in hyperhomocysteinemic rat. Twenty Wistar albino rats were divided into four groups. Each group had five animals. Group 1 served as control group who received normal diet (chow feed) and water ad libitum. Group 2 hyperhomocysteinemia (HHCY Control) were fed on L-methionine (1.7g/kg/day, p.o.) once a day. The third group (test drug 1) was treated with Coenzyme Q10 at a low dose of (50 mg/kg body weight) + L-methionine (1.7g/kg/day, p.o.) through oral gavage. The fourth group (test drug 2), received high dose of Coenzyme Q10 (100 mg/kg body weight) + L-methionine (1.7g/kg/day, p.o.) through same route. Additionally, doxorubicin injections at a dose of 5 mg/kg was given through intraperitoneal route after 1 hour of L-methionine dosing at an interval of 15 days to second, third and fourth groups of animals to induce hyperhomocysteinemia mediated nephrotoxicity. The experiment was terminated after 28 days, animals were killed and homocysteine, creatinine and urea concentration in the serum were determined. The serum homocysteine, creatinine and urea levels were determined. These levels in HHCY group were significantly elevated with respect to normal group of animals and were characterized with severe hyperhomocysteinemia. The levels were reduced in the Coenzyme Q10 (50 and 100 mg/kg, p.o) treated groups in dose dependent manner when compared to the HHCY group. Coenzyme Q10, fat soluble moiety can be considered as a feasible candidate for nephroprotection in rats with hyperhomocysteinemia.

Keywords: Hyperhomocysteinemia, Coenzyme Q10, doxorubicin, methionine, creatinine, urea

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CS-1029

LOTEPREDNOL ETABONATE LOADED POLYMERIC NANOPARTICLE FOR OCULAR DELIVERY: PREPARATION AND *IN-VITRO, EX-VIVO* CHARACTERIZATION.

Abhishek K. Sah* and Preeti K. Suresh

University Institute of Pharmacy, Faculty of Technology, Pt. Ravishankar Shukla University, Raipur (C.G.) India

ABSTRACT

Background of the work and Objectives: The aim of this research work was to investigate the interaction of loteprednol etabonate (LE) loaded poly (D,L-lactide co-glycolide) (PLGA) polymer based nanoparticles with ocular mucosa *ex vivo*.

Methods: Rhodamine (Rd) was used as a fluorescent marker compound to prepare Rd-LE-PLGA-NPs. The formulation was characterized for various parameters like particle size, polydispersity index (PDI), zeta potential, XRD, DSC, surface morphology, drug entrapment and *ex-vivo* permeation profile. The prepared formulation was evaluated for their penetration profile in freshly excised goat cornea using Franz diffusion apparatus and confocal laser scanning microscopy (CLSM). The integrity of the corneal tissue was investigated by optical digital microscopy of the histopathological slide stained with hematoxylene and eosin dye.

Results and conclusions: The result clearly showed that drug loaded nanoparticle exhibited better permeation profile as compared to plain drug suspension. Additionally, less intensity of fluorescence was observed from drug suspension as compared to LE-PLGA-NPs. There was uniform and intense florescence observed across the total depth of excised goat corneal tissue, suggesting improved penetration profile of nanoparticles, which can be attributed to the nano size range of the formulation and precorneal retention of the nanocarrier. *Ex vivo* permeation showed prolonged release pattern from NPs for up to 4 hours. The entrapment efficiency and mean diameter was found to be 96.31±1.68 % and 167.6±0.37 nm respectively. The TEM confirmed the nano dimension of the particles. The results advocate that the prepared novel nanoparticulates could be a potential carrier for ophthalmic therapeutics.

Keywords: CLSM, Loteprednol etabonate, nanoparticle, ocular delivery, PLGA.

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CS-1030

CAN SIDE CHAIN INTERACTIONS NUCLEATE SUPRAMOLECULAR HETEROGENEITY IN SYNTHETIC TRIPEPTIDES?

Ankita Sharma Gangele, Priyanka Tiwari and Anita DuttKonar,*

Dept of Chemistry and School of Pharmaceutical Sciences, Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal 462033.

ABSTRACT

Molecular architectures are ubiquitous in nature. In an attempt to artificially imitate their importance in supramolecular chemistry herein we report the conformational heterogeneity displayed by four synthetic peptides differing in terminal sidechains. X-ray diffraction studies reveal that the terminally protected tripeptide Boc-4(I)-Phe-Aib-Ile-OMe (**I)** crystallizes in two different conformations, a type III □□ turn and an open strand structure which self-assembles to form a double helical assemblage using hydrogen bonding and various non-covalent interactions. In contrast, the isomeric tripeptide Boc-4(I)-Phe-Aib-Leu-OMe (**II)** does not support the formation of this supramolecular architecture. In order to gain further insight regarding the importance of 4-(I)-Phe in double helical nucleation, we have synthesized tripeptides **III** & **IV**, where the positions of 4-(I) Phe has been replaced by 4-(F) Phe in peptide **III** and 4-(N_3)-Phe in peptide **IV**. But interestingly, none of these molecules exhibit double helical architecture. Therefore our investigation illustrates that optimum balance of sidechain interactions between the terminal residues of tripeptides play a key role in the overall stabilization of supramolecular architectures and introduces significant conformational heterogeneity within the peptide backbone. Furthermore FESEM images obtained from the materials of all the peptides display this anamolous behavior. Thus these peptides **I - IV** may serve as prominent candidates in understanding the structure and function of misfolded disease causing peptides like prion and Alzheimer's amyloid. They may also be useful for protein modification and rational design in peptidomimetics and crystal engineering studies.

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CS-1031

CAN SELF-ASSEMBLED HYDROGELS COMPOSED OF AROMATIC AMINO ACID DERIVATIVE FUNCTION AS DRUG DELIVERY CARRIER?

Priyanka Tiwari, Sonu Sahu, Sadhna Thakur, and Anita DuttKonar,*

Department of Chemistry and School of Pharmaceutical Sciences, Rajiv Gandhi ProudyogikiVishwavidyalaya, Bhopal, MadhyaPradesh, INDIA

ABSTRACT

Low molecular weight hydrogelators (LMOHGs) have attracted recent attention due to their diversified applications. In an attempt to artificially imitate their importance in the design of drug delivery carrier, we have synthesized two simple *N*-terminaly protected aromatic amino-acid derivatives that form efficient stable hydrogels at room temperature. The gelation property of the hydrogels have been thoroughly investigated by various techniques and its strength has been determined by rheological studies. Inorder to explore the efficacy of the hydrogels as tools for drug delivery, we have developed hydrogel nanoparticles (HNPs) using a surfactant and high speed homogenization approach. Interestingly, our hydrogel nanoparticles display good entrapment efficiency and release kinetics of the model drug 5-Fluoro Uracil from the hydrogel matrix. Our experimental results reveal that hydrogel **II** displays slightly higher efficiency as a drug delivery carrier may be due to the presence of aromatic ring in the backbone incomparison to hydrogel **I**. This increased strength may be attributed to the increase of π–π □interaction when the aromatic residue is present in the backbone. Therefore the nanoparticles generated from hydrogel **II,** may have better hydrogen bonding ability with drug in comparison to the hydrogel **I**. Henceforth resulting in slightly slower release of drug from the hydrogel matrix. This fact may shed some light about the candidature of our hydrogels as future carriers for drug delivery. However, further studies to evaluate the candidature of these novel type of these aromatic amino acid hydrogel nanoparticles for nano-medical applications is under investigation.

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CS-1032

REVIEW ON ALZHIEMER'S DISEASE

Wesley Wilson Thomas*, Md Aquib Alam, Santosh kumar Gurjar, Dheeraj Nagar, Ms.AlkaSingh, Mr. Anup Chakraborty

School of Pharmacy & Research, People's University

ABSTRACT

Alzheimer's is a disease of the brain that causes problems with memory, thinking and behaviour. It is not a normal part of aging. Alzheimer's gets worse over time. Although symptoms can vary widely, the first problem many people notice is forgetfulness severe enough to affect their ability to function at home or at work, or to enjoy lifelong hobbies. The disease may cause a person to become confused, get lost in familiar places, misplace things or have trouble with language. It can be easy to explain away unusual behavior as part of normal aging, especially for someone who seems physically healthy. Researchers are working to uncover as many aspects of Alzheimer's disease and related dementias as possible. Ninety percent of what we know about Alzheimer's has been discovered in the last 15 years. Some of the most remarkable progress has shed light on how Alzheimer's affects the brain. The hope is this better understanding will lead to new treatments. Many potential approaches are currently under investigation worldwide.

Keywords: Alzheimer's, memory, dementia, brain

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CS-1033

ALTERNATIVE OF ANIMAL TESTING

Rudra Pratap Singh Solanki*, Pintu Das, Vinay Parbhakar, Alka Singh, Anup K. Chakraborty

School of Pharmacy and Research, People's University

ABSTRACT

Use of animals for various purposes like food, transportation, pets, sports, recreation and companionship is as old as the human beings itself. Using animals for the purpose of research is one of the extended uses. Various animals like mice, rats, hamsters, rabbits, fishes (examples – zebra fish, trout), birds (mainly chicken), guinea pigs, amphibians (xenopus frogs), primates, dogs, cats etc. are being used in research for a long time. Drug testing and toxicological screenings which are useful in the development of new treatments for infectious and non-infectious diseases is the main purpose of such studies. Alternatives to animal testing were proposed to overcome some of the drawbacks associated with animal experiments and avoid the unethical procedures. Various alternatives to animal use have been suggested, which need to be implemented in an effective manner. For this integration of various computer models, bioinformatics tools, in vitro cell cultures, enzymatic screens and model organisms are necessary.

Keywords: Alternatives, Drug testing, toxicological screenings, unethical

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CS-1034

DESIGN AND FORMULATION OF *TRIDAX PROCUMBENS* BASED POLYHERBAL CREAM FOR WOUND HEALING POTENTIAL

Chandra Pratap Singh*, Pawan Kumar Mishra and Surya Prakash Gupta

Department of Pharmaceutical Science & Technology, AKS University, Satna (MP)-485001

ABSTRACT

The present research has been undertaken with the aim to design, formulate and evaluate the polyherbal *Tridax procumbens* based cream comprising of Aloe vera, Marigold, Henna, Papaya and Neem. The cream was evaluated for pharmaceutical parameters & wound healing activity. The cream was formulated using accurately weighed amount of drug extract along with base and other suitable additives. The pH of all the formulations were checked and found to be compatible with the normal pH range of the skin. The formulation showed good spreadability, homogeneity, consistency, there was no change in the appearance and no phase separation was noticed. The cream was evaluated for wound healing activity as period of contraction and tensile strength using excision wound model. Albino wistar rats were divided into 5 groups where betadine ointment was used as reference standard, one served as positive control (ointment base), one negative control and the other two as treated groups. In the model, the rate of wound contraction was accused as healing parameter at every third day. The result showed that topical application of cream increases the percentage of wound contraction and decreases epithelization time in treatment group as compared to other groups which may be due to additive activity of the phytoconstituents present in the extract and hence, may be used as a potential herbal formulation for wound healing.

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CS-1035

IMPLEMENTATION OF TWO LATEST "R"S OF CPCSEA GUIDELINES IN PHARMACOLOGY RESEARCH

Saquib Raza, Sudhir Ray, Nayna Singhai , Nargish Bano , Nisha Yadav

School of Pharmacy & Research, People's University

ABSTRACT

CPCSEA (Committee for the Purpose of Control and Supervision of Experimentation on Animals), a statutory body of India Government that regulates the use of animals before, during and after use in experimentation has established "5 R"s for precisely defining proper usage of laboratory animals before, during and after experimentations. Among these, the latest "2 R"s stand for 'Rehabilitation' and 'Reuse' respectively. The 4th "R", Rehabilitation deals with post-experimentation care of animals with the aim to reduce and/ or avoid pain and sufferings of animals due to physical, physiological and psychological trauma that the animals have gone through during experimentation and to provide the animal a life markedly different from laboratory housing and care, until the point of its natural death. The 5th "R", Reuse refers to the fact when an animal is used again in the same or different protocol based experiments where an unused animal would have been equally sufficient to meet the objectives of the second/ or subsequent use. Incorporation of these two "R"s will help to meet the requirement of animal experiments in unavoidable research sectors and simultaneously maintain the ethical guidelines for animal usage in laboratories.

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CS-1036

ANTI-ADDICTION, TECHNIQUES AND DRUGS FOR REDUCING ADDICTION

RashiBajaj* Anand Kumar, Ankit Kumar, Amita pal, Anup K. Chakraborty

School of Pharmacy & Research, People's University

ABSTRACT

Compulsive physiological need for and use of a habit-forming substance (as heroin, nicotine, or alcohol) characterized bytolerance and by well-defined physiological symptoms uponwithdrawal; *broadly***:** persistent compulsive use of a substanceknown by the user to bephysically,psychologically, or socially harmful. Detox is a process through which the withdrawal symptoms of a particular type of drug such as an opiate are managed as the toxins from the drug are removed from the body. However, removing the drug from the body will also be accompanied by cravings in some cases physical, psychological and emotional. A number of stimuli can set off a craving response within the brain. Anti-craving drugs seem to work by blocking the receptors associated with cues that set off relapse. However, some cues are not affected by the blocking of these reward receptors. These include alcoholism, opiate addiction, nicotine addiction and cocaine addiction. Other research studies focus on the use of non-pharmaceutical biological treatments, such as laser lights, as a means of eliminating addictions. Researchers at the University of California-San Francisco discovered that exposing the prelimbic region of the brain to laser lights significantly reduces addictive behavior in cocaine-dependent rats. The study, which highlighted the importance of the prelimbic region in decision-making and behavioral flexibility, could help drive further research in humans.

Keywords: Addiction, Detox, Carving, Anti carving drugs

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CS-1037

ANTI-INFLAMMATORY DRUG DESIGN USING A MOLECULAR HYBRIDIZATION APPROACH- AN OVERVIEW

Snehal S. Manekar

Government College of Pharmacy, Amravati, Maharashtra

ABSTRACT

The current treatment of inflammation is limited by several adverse effects. Combinations of adequate subunits through the molecular hybridization of anti-inflammatory drugs can create new entities with superior therapeutic activity and better safety profiles. Molecular hybridization is a molecular modification approach to obtain multiple ligands/compounds with pharmacokinetic advantages over concomitant administration of two different drugs. Inflammation is the initial trigger of several different diseases, such as Alzheimer's disease, asthma, atherosclerosis, colitis, rheumatoid arthritis, depression, cancer; and disorders such as obesity and sexual dysfunction. New anti-inflammatory drugs developed using molecular hybridization techniques to obtain multiple-ligand drugs can act at one or multiple targets, allowing for synergic action and minimizing toxicity. This work is a review of new anti-inflammatory drugs developed using the molecular modification approach.

Keywords: anti-inflammatory; hybridization; multiple-ligands; mutual prodrug

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CS-1038

FORMULATION, DEVELOPMENT AND EVALUATION OF RAPID DISINTEGRATING TABLET OF AN ORAL HYPOGLYCEMIC AGENT

Kalyani Sakure1,P. G. Yeole2

1Rungta College of Pharmaceutical Sciences and Research, Kohaka-Kurud Road,
Bhilai, 490 024, Chhattisgarh India

2Institute of Pharmaceutical Education and Research, Borgaon (Meghe), Wardha, 442 001, Maharashtra India

ABSTRACT

An oral hypoglycemic agent has severe dissolution related problems thus, the present investigation is aimed at improving dissolution characteristic of poorly water soluble drugs. The present study demonstrate significant improvement in solubility, dissolution rate and thereby bioavailability of Glimepiride by solid dispersion method. Solid dispersion of Glimepiride with Gelucire 50/13 in 1:3(w/w) as carrier by spray drying method was found to exhibit higher dissolution rate and appeared to be the most valuable dispersion for developing fast release rapid disintegrating tablet of Glimepiride.

Keywords:

An oral hypoglycemic agents, Rapid disintegrating tablet, Solid dispersion, Glimepiride

CTICG-2016

CS-1039

IN VITRO SCREENING OF DRUG DISPLACEMENT STUDIES: AN ALTERATION TO IN VIVO EXPERIMENTS

Pawan K. Porwal*,[1], Gokul S. Talele[2]

[1]Department of Pharmaceutical Chemistry, SNJB's SSDJ College of Pharmacy, University of Pune, Chandwad, India-423101

[2]NGSPM's College of Pharmacy, University of Pune, Nasik, India 422 213

ABSTRACT

A simple, sensitive, fast, and economical HPLC method was developed and validated for simultaneous estimation of two fixed dose combinations frequently prescribed in diabetes (Metformin plus Glibenclamide) and hypertension with dyslipidemia (Amlodipine plus Atorvastatin) in Human plasma for the first time. The validated HPLC method was used to quantify the concentration of selected actives in ultrafiltrate. Protein precipitation was employed to extract the selected analyte form human plasma. A four to five fold increase in unbound fraction was observed when spiked to human serum albumin. Further the unbound fraction of highly albumin bound drugs was increased nearly to double when incubated with Gly-HSA as compare to HSA.

Key words: Metformin; Glibenclamide, amlodipine; atorvastatin; HPLC-UV; Protein Binding, Glycated human serum albumin

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CS-1040

MODULATORY EFFECT OF HYDROALCOHOLIC FLOWER EXTRACT OF *SPATHODEA CAMPANULATA* AGAINST *E. COLI* INDUCED PERITONITIS AND ITS ANTI-MICROBIAL ACTIVITY

Saman Pathan[1] and Sourabh Jain[2]

[1 and 2]Pinnacle Biomedical Research Institute (PBRI), Bhopal

ABSTRACT

Effect of *Spathodea campanulata*, an Ayurvedic formulation proven to be effective in the therapy of abdominal infection, was investigated on the peritoneal cavity in *Albino wistar* Rats. The preliminary phytochemical screening of the hydroalcoholic flower extract of *Spathodea campanulata* revealed the presence of glycosides, alkaloids, carbohydrate, flavonoids, saponins, tannins, steroids and triterpenoids. In the present study the *Spathodea campanulata* flower extract was tested for antimicrobial activity against gram negative microorganism (*Escherichia coli*). Results showed dose dependent anti-microbial activity. *Spathodea campanulata* exhibited significant protection in *E. coli* induced peritonitis in normal rats. It significantly reduced the viable *E. coli* cells when incubated in rats. Activity is attributed to flavonoids and tannins. In *In-vivo* study of *E. coli* Peritonitis, the significant protection was observed at 200 mg/kg body weight and 400 mg/kg body weight dose for 7 days.

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CS-1041

PROTECTIVE EFFECT OF *SPATHODEA CAMPANTULATA FLOWER* AGAINST CISPLATIN INDUCED GENOTOXICITY IN BONE MARROW CELL BY MICRONUCLEUS ASSAY OR CHROMOSOMAL ABERRATION ASSAY

Sulakshana Pal Singh[1] and Amit Nayak[2]

[1 and 2]Pinnacle Biomedical Research Institute (PBRI), Bhopal

ABSTRACT

Objective: Although cisplatin is board spectrum high efficacy anticancer drug, but its Clastogenetic nature was also back side of mirror, its metabolites directly or indirectly affect the dividing cell and will able to abberated new cells. Our nature is the finest source of antioxidants that helps to reduced all thoughts reasons that produced the clastogenticity that was previously reported in many articles. In our present study aimed to investigate the chemoprotective potential of *spathodea campantulata* flower against cisplatin (cis)-induced the genotoxicity.

Method: Albino rats (100-120 gm) (n=6) per group. Control (0.5 ml saline /day), Extract (200 or 400 mg/kg/day), consecutively 5 days dosing, Cis (i.p) (6mg/kg) was administered after 1 hr last extract treatment, both chromosomal aberration and micronucleus assay were performed after 24 hr cis treatment.

Results: We found that cis was significantly increased micronuclei formation, chromosomal aberration in dividing cell ,but it were reversed gradually after extract treatment, effect was clearly reflected that aberration were dose dependently reduced.

Conclusion: The extract has anti genotoxic effect. The dose and efficacy of results could be extrapolated in future for reduced the toxicity.

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CS-1042

BIOAVAILABILITY ENHANCERS FROM INNATE ORIGIN

Chandni D, Anuradha G, Vinod D, Azaz K., Chandel H. S.

Truba institute of pharmacy, Bhopal

ABSTRACT

Currently the utilization of herbal medicines augmented all over the world due to their therapeutic properties and lesser unfavourable effects as contrast to the modern medicines. However, many herbal drugs and herbal extracts despite of their impressive *in-vitro* findings demonstrates less or negligible *in-vivo* activity due to their poor lipid solubility or improper molecular size, resulting in poor absorption and hence poor bioavailability. Nowadays with the advancement in the technology, novel drug delivery systems open the door towards the development of enhancing bioavailability of herbal drug delivery systems. For last one decade many novel carriers such as liposomes, microspheres, nanoparticles, transferosomes, ethosomes, lipid based systems *etc*. have been reported for successful modified delivery of various herbal drugs. Many herbal compounds including quercetin, genistein, naringin, sinomenine, piperine, glycyrrhizin and nitrile glycoside have demonstrated capability to enhance the bioavailability. The objective of this study is to summarize various available novel drug delivery technologies which have been developed for delivery of drugs (herbal), and to achieve better therapeutic response. An attempt has also been made to compile a profile on bioavailability enhancers of herbal origin with the mechanism of action (wherever reported) and studies on improvement in drug bioavailability, exhibited particularly by natural compounds.

Keywords: Bioavailability, microspheres, nanoparticles, transferosomes, liposomes, ethosomes

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CS-1043

THE BIOPHARMACEUTICAL CLASSIFICATION SYSTEM (BCS): PAST AND PRESENT SCENARIO OF SCIENTIFIC FRAMEWORK FOR BIO-WAIVER EXTENSION AND NEED OF ITS VALIDATION

Hussain T., Shukla N., Pandey S.P, Verma K., Chandel H. S.,

Truba Institute of Pharmacy, Bhopal, M.P

ABSTRACT

Initially bio-waiver was only applied to the scale-up and post approval changes but in the present scenario as the generic drug market is increasing day by day, the need of bio-equivalence studies and bio-waiver for new products is increasing**.** Biopharmaceutical classification system **(BCS)** has emerged as a better tool for the bio-waiver extension, which avoids the unnecessary human experiments and by this way cost of developing generic product has significantly reduced. But till now the application of BCS has not fully explored due to the unavailability of accurate solubility and permeability data. At the same time, these data can play pivotal importance in new drug discovery and lead optimization. Despite the important role of BCS in the bio-waiver extension, the validity and authenticity of this system has been the subject of extensive research and discussion and is yet to be established.

Keywords: Bio-waiver, Bio-equivalence

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CS-1044

PREPARATION & EVALUATION OF AYURVEDIC FORMULATION: VATI

Neelam Singh, Madhu Gupta, C.P.Singh and Surya Prakash Gupta*

Department of Pharmaceutical Science & Technology
AKS University, Satna (MP)-485001

ABSTRACT

In the present study, Panchkola powder was prepared and converted into Panchkola Ghan Vati. These tablets (Vati) were evaluated for weight variation, hardness, Friability, Disintegration test etc. The present study showed that Vati has been standardized by intervention of modern quality control measure. The pharmacognostic characters for the raw material could be employed as quality control standards for evaluating its identity and can be used for routine analysis. The Vati evaluated on the basis of the above mentioned parameters showed satisfactory results.

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CS-1045

CHEMOTHERAPY AND IMMUNOTHERAPY FOR TUBERCULOSIS

Amandeep Thakur*, Navneet Sharma, Naveen Kumar, NeerajSaukta, Niteshkumar, Nitish Thakur, Arun Kumar, Ashok Kumar, Avneet Gupta

LR Institute of pharmacy, Solan (HP)

ABSTRACT

Tuberculosis (TB) is a mycobacterium infection which occurs due to *Mycobacterium tuberculosis*. It is the major infectious diseases with a mortality rate of nearly two million mostly in developing countries every year. This increases occurrence of resistance of *Mycobacterium tuberculosis* strains to the most effective antibiotics which serves as a major factor contributing to the current TB epidemic. This situation has lead to a rise in the need ofthe development of chemotherapy and immunotherapy. Chemotherapy is unique two phase therapy which consist of first line and second line drugs. The drugs like Isoniazid, Ethumbutol (First line) and ofloxacin, kanaycin (Second line) are commonly used. These drugs used more effective and easily available. The first line drugs are more effective than the second line drugs. Combination drug therapy is desirable as a single drug is ineffective in the cases of MDR-TB. The commonly known treatment of TB is DOTS. The immunotherapy show good result in MDR-TB. The use of immunotherapy with Interlukin-2, Interferon and Interlukin-7 as an adjacent to drug treatment may improve success rate of MDR- TB shortensthe treatment time for drug sensitive TB and improves the immunity by enhancing *Mycobacterium tuberculosis* elimination to prevent the recurrence of disease.

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CS-1046

A COMPARATIVE REPORT ON THE PERCENTAGE YIELD OF VOLATILE OIL FROM CITRUS FRUITS BY HYDRODISTILLATION.

HemRaj Vashist*, RB Sharma, Diksha Sharma

L. R. Institute of Pharmacy, Rajgarh Road, Solan - 173223, INDIA

ABSTRACT

Background-Citrus fruits are known to provide volatile oil from their peel. The standard procedure for extraction is known as eculle by which the peel is twisted clockwise or anticlockwise by the aid of forceps.

Objective- In the present study the eculle method has replaced by Hydrodistillation of coarsely powdered citrus peel.

Material and Method- Three varieties like *Citrus lemonis* (CLE), *Citrus sinensis* (CSE) and *Citrus aurantium* (CAE) of citrus and orange were used. Hydrodistillation of peels were done by taking 30 g coarsely powdered peel in 500 ml flask. Clevenger apparatus for volatile oils lighter than water was used for the experiment. Extraction was continued for 3 hours.

Result- The amount of volatile was obtained as 0.9ml for CLE, 1.3ml for CSE and 2ml for CAE which represent to 3%, 4.3%, and 6.6% for CLE, CSE, and CAE respectively.

Conclusion- From the percentage yield it was concluded that on hydrodistillation out of CLE, CSE and CAE, CAE provided more amount of volatile oil which further denotes CAE as better source of volatile oil than other two varieties.

Keywords: Citrus fruits, Hydrodistillation, volatile oil.

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TARGETING PI3K/AKT AND RAS/RAF/MEK/ ERK PATHWAY IN CANCER: A NEW DRUG DISCOVERY APPROACH

Vivek Asati*, Debarshi Kar Mahapatra

Institute of Pharmaceutical Sciences, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur- 495009, Chhattisgarh (India)

ABSTRACT

A protein kinase is a kinase enzyme that modifies other proteins by chemically adding phosphate groups to them (phosphorylation). Phosphorylation usually results in a functional change of the target protein (substrate) by changing enzyme activity, cellular location, or association with other proteins. These kinases regulate cellular functions, including transcription, translation, proliferation, growth and survival. In which PI3K/Akt and Ras/Raf/MEK/ ERK kinases play an important role in anticancer activity. The PI3K pathway is over-activated in the majority of human cancers. This may occur through oncogenic activation of upstream RAS isoforms and tyrosine kinase receptors, or by mutational activation of components of the PI3K pathway themselves. Stimulation of the PI3K and Ras pathways enhance growth, survival, and metabolism of cancer cells. Migration, invasion, and angiogenesis are also supported by both signaling pathways. Thus, the PI3K and Ras pathways are an attractive candidate for the therapeutic targeting of tumors. Multiple kinases within the PI3Ks and Ras like AKT, mTOR, MEK, and ERK have been selected for inhibition, and dual inhibitors have also been produced. Recently, the development of kinase inhibitors with enhanced specificity considers these pathways inhibitors for further investigation in clinical trials. These inhibitors produced enhanced effect when given in combination with other drug to interrupt more than one pathway. Here we describe the inhibitors currently under investigation in clinical trial for the treatment of cancer targeting Raf/MEK/ ERK and PI3K/Akt pathways.

Keywords: PI3K inhibitors, Cancer, Ras, AKT, mTOR, PI3K, MEK, ERK, Raf

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RECENT DEVELOPMENT IN NOVEL DRUG DELIVERY SYSTEMS OF HERBAL DRUGS

Nishtha sahu

Department of pharmacy, Barkatullah University Bhopal (M.P)

ABSTRACT

Phospholipids-based drug delivery system has been found promising for valuable and efficient herbal drug delivery. Complexing the polyphenolic phytoconstituents in the molar ratio with phosphatidyl choline results in a new herbal drug delivery system, known as"Phytosome". It is the phytolipids delivery system which forms a bridge between the convectional delivery system and novel delivery system. Phytosomes are advanced forms of herbal products that are better absorbed, utilized to produce better results than those produced by conventional herbal extracts. Phytosomes show better pharmacokinetic and therapeutic profiles than conventional herbal extracts. Phytosomes are prepared by complexing the polyphenolic phytoconstituents in the ratio of 1:2 or 1:1 with phosphatidyl choline. The Phytosome protects herbal extract components from destruction in digestive secretions and gut bacteria by forming little cell, which is capable of being transferred from a hydrophilic environment into the lipid-friendly environment of the enterocyte cell membrane and finally reaching blood. Various Phytosome herbal formulations are Silybin phytosome, Ginkgo biloba phytosome, Olive oil phytosome, Centella phytosome, Boswellia phytosome, Resveratrol phytosome, Curcumin phytosomes, Green Tea phytosome,Silybin phytosome,Quercetin phytosomes,Grape seed, Hawthorn, Milk thistle, Green tea and Ginseng phytosome.

Keywords: Noval drug delivery system, Herbal drug, Phytosomes

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CAMPTOTHECIN-LOADED SLNS: A NOVEL APPROACH TO TARGET GLIOBLASTOMA

Amol Chandekar, Anand Shrivastava

School of Pharmacy & Research, People's University

ABSTRACT

Glioblastoma is extremely resistant to treatment, despite the conventional multimodality therapy, surgery, radiotherapy, and chemotherapy. In order to overcome these challenges, a new approach has been developed by Susana *et al.* (2013). They targeted camptothecin loaded solid lipid nanoparticles (SLN) into the brain parenchyma after crossing the blood–brain barrier. Developed camptothecinloaded SLN showed mean particle size < 200 nm, low polydispersity index (<0.25), negative surface charge (-20 mV), and high camptothecin association efficiency (>94%). Synchrotron small and wide angle X-ray scattering (SAXS/WAXS) analysis indicated a maintained SLN physical stability in contact with DMPC membrane, whereas SLN change the lamellar structure of DMPC into a cubic phase, which is associated with efficient release of the incorporated drugs. Cytotoxicity studies against glioma and macrophage human cell lines revealed cell death with the lowest maximal inhibitory concentration (IC50) values, revealing higher antitumour activity of camptothecin loaded SLN against gliomas. Furthermore, in vivo biodistribution studies of intravenous camptothecin loaded SLN performed in rats proved the positive role of SLN on the brain targeting since significant higher brain accumulation of camptothecin was observed, compared to non-encapsulated drug. Pharmacokinetic studies further demonstrated lower deposition of camptothecin in peripheral organs, when encapsulated into SLN, with consequent decrease in potential side toxicological effects. These outcomes confirmed the promising potential of camptothecin-loaded SLN for antitumour brain treatments.

Keywords: Brain targeting, Camptothecin, Cytotoxicity, Glioblastoma, Solid lipid nanoparticles (SLN)

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COMPARATIVELY STUDY OF *OCIMUM SANCTUM* AND *EEUCALYPTUS CAMDULENSIS* LEAF EXTRACTS AGAINST BACTERIA

Amol Chandekar, Anand Shrivastava

School of Pharmacy & Research, People's University

ABSTRACT

Herbs and spices are very important and useful as therapeutic agent against many pathological infections. Increasing multidrug resistance of pathogens forces to find alternative compounds for treatment of infectious diseases. Microbial pathogenecity and other infectious diseases have been controlled by use of commercially available antimicrobial drugs since last many years. In the present study the antimicrobial potency of Ocimum Sanctum and Eeucalyptus leaf has been investigated against local clinical bacteria. Three types of extracts of each Ocimum Sanctum and Eeucalyptus leaf including aqueous extract, methanol and chloroform extract had been assayed separately against drug resistant Escherichia coli, Pseudomonas, Aeruginosa, Staphylococcus aureus, Staphylococcus epidermidis and Salmonella typhi. The antibacterial activity was determined by disc diffusion method. All tested bacterial strains were most susceptible to the Ocimum Sanctum extract and showed poor susceptibility to the Eeucalyptus leaf extract. The results of present study have provided the justification for therapeutic potential of spices. The practice of using spices as supplementary or alternative medicine in developing countries will not reduce only the clinical burden of drug resistance development but also the side effects and cost of the treatment with allopathic medicine In conclusion, the results of present study have provided the justification for therapeutic potential of spices. In conclusion, the results of present study have provided the justification for therapeutic potential of spices.

Keywords: Ocimum Sanctum and Eeucalyptus leaf, Antibacterial activity, Extracts

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INDIAN MEDICINAL PLANTS USED FOR TREATMENT OF DEMENTIA

Sonam Soni, Mukesh K. Singh, Mukesh Sharma, Pravin Kumar

Rungta College of Pharmaceutical Sciences and Research, Kohka-Kurud Road, Bhilai – 490024 Chhattisgarh

ABSTRACT

Dementia is a progressive neurological disease of the brain. It demolishes the vital brain cells, indicating on observable decline in mental abilities. Dementia is not an acute condition that suddenly appears, and it usually does not require emergency treatment, but it can some time develop suddenly like in case of severe injury, disease or toxin destroys brain cells or it can develop slowly, especially in senior citizens and it is more common with women than the men. There are 3.7 million Indian suffer from dementia (2.1 million women and 1.5 million men). Degradation on proper level of acetylcholine (ACh) due to the excessive AChE activity produce to constant Ach deficiency leads to memory and cognitive impairments. The herbal medicine numerous plants have been used to treat age related cognitive, now a days herbal medicine is popular in all over the world. The herbal medicine like withania somnifera, centella asiatica, bacopa monieri, prunus amygdalusa etc, which having property to improve memory and lesson age related cognitive deficits, have advantage over on the therapeutic agent like currently prescribed drug such as tacrine or donepezil they show undesirable side effects, that is no or minimal with herbal medicine. Memory enhancer herbs enhance the memory and increase the blood circulation in the brain.

Key words: Dementia, Memory, Brain disorders, Enhancer, Herbal Medicine.

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CS-1052

SELF EMUSIFING DRUG DELIVERY SYSTEM

Ganesh Solanki, Sumit Chourasiya

School Of Pharmacy & Research, People's University Bhopal

ABSTRACT

The oral delivery of hydrophobic drugs presents a major challenge because of the low aqueous solubility of such compounds. Self-emulsifying drug delivery systems (SEDDS), which are isotropic mixtures of oils, surfactants, solvents and co-solvents/surfactants, can be used for the design of formulations in order to improve the oral absorption of highly lipophilic drug compounds. SEDDS can be orally administered in soft or hard gelatin capsules and form fine relatively stable oil−in−water (o/w) emulsions upon aqueous dilution owing to the gentle agitation of the gastrointestinal fluids. The efficiency of oral absorption of the drug compound from the SEDDS depends on many formulation−related parameters, such as surfactant concentration, oil/surfactant ratio, polarity of the emulsion, droplet size and charge, all of which in essence determine the self-emulsification ability. Thus, only very specific pharmaceutical excipient combinations will lead to efficient self-emulsifying systems. Although many studies have been carried out, there are few drug products on the pharmaceutical market formulated as SEDDS confirming the difficulty of formulating hydrophobic drug compounds into such formulations. At present, there are four drug products, Sandimmune® and Sandimmun Neoral® (cyclosporin A), Norvir® (ritonavir), and Fortovase® (saquinavir) on the pharmaceutical market, the active compounds of which have been formulated into specific SEDDS. Significant improvement in the oral bioavailability of these drug compounds has been demonstrated for each case. The fact that almost 40% of the new drug compounds are hydrophobic in nature implies that studies with SEDDS will continue, and more drug compounds formulated as SEDDS will reach the pharmaceutical market in the future.

Keywords: Self-(micro)emulsifying drug delivery systems (S(M)EDDS); Self-emulsifying oil formulations (SEOF); Lipophilic drugs; Oral delivery; Oral bioavailability, lipid formulations

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CURRENT TREATMENT FOR VISCERAL LEISHMANIASIS: A REVIEW

Atul Tripathi, Amber Vyas

University Institute of Pharmacy · Pt. Ravishankar Shukla University Amanaka G.E. Road, Raipur

ABSTRACT

Visceral leishmaniasis is the most common form of leishmaniasis. It is a skin infection caused by a single-celled parasite that is transmitted by sand fly bites. There are about 20 species of Leishmania that may cause Visceral leishmaniasis. Some Leishmania species are closely linked to humans and are therefore found in cities (Leishmania tropica), whereas some are more traditionally associated with animal species and are therefore considered zoonoses (Leishmania major). The evidence for optimal treatment of Visceral leishmaniasis is patchy. Although the visceral form of the disease is often self-limiting, it does result in significant scarring and can spread to more invasive, mucocutaneous disease. Therefore, treatment may be considered to prevent these complications. Drugs for systemic and topical treatment are presented and discussed with regard to their application, use, and adverse effects.

Keywords: Visceral leishmaniasis, Leishmania tropica, Leishmania major.

Thank You