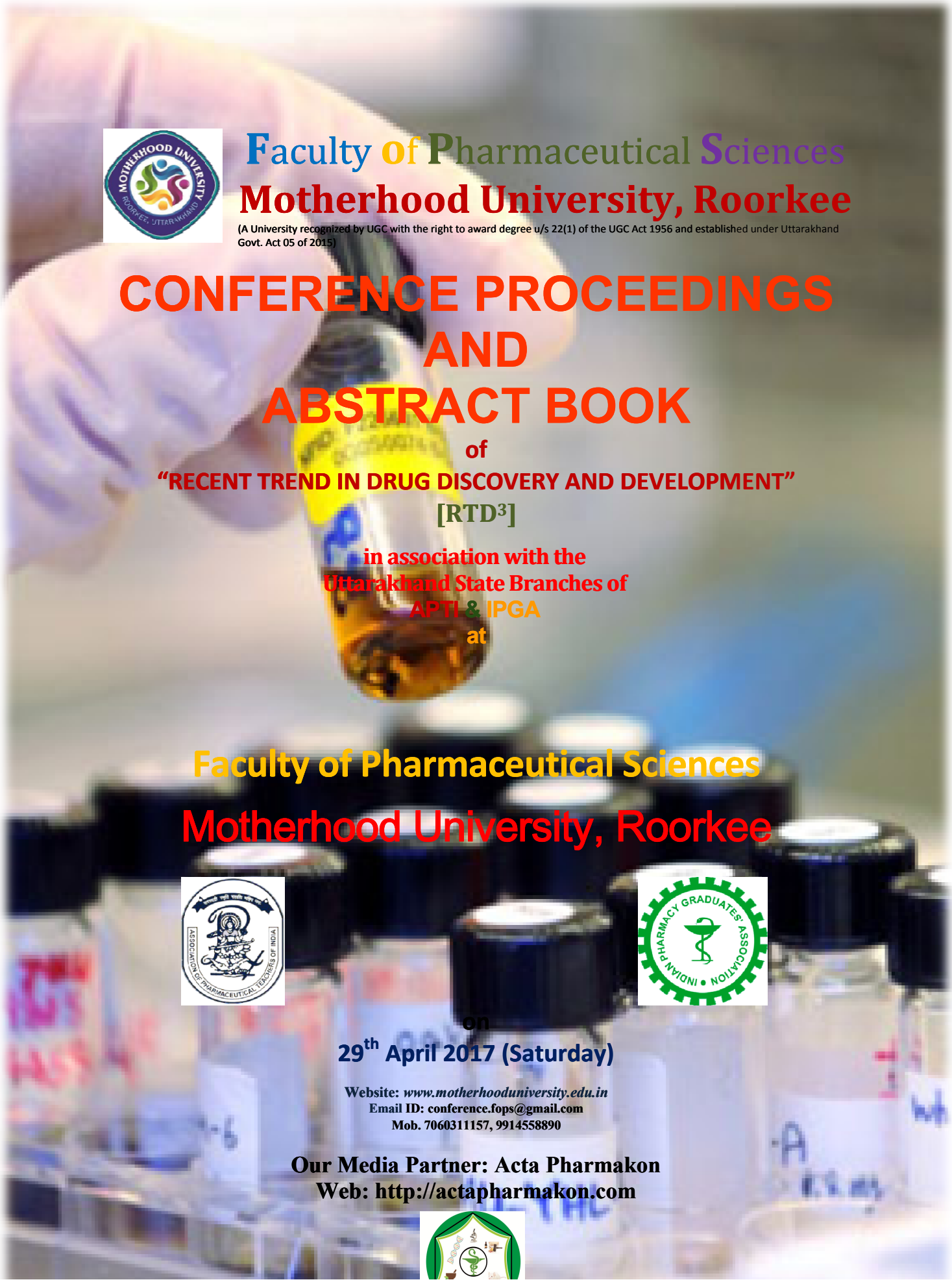

Faculty of Pharmaceutical Sciences
Motherhood University, Roorkee

(A University recognized by UGC with the right to award degree u/s 22(1) of the UGC Act 1956 and established under Uttarakhand Govt. Act 05 of 2015)

CONFERENCE PROCEEDINGS AND ABSTRACT BOOK

of

"RECENT TREND IN DRUG DISCOVERY AND DEVELOPMENT"

[RTD^3]

in association with the
Uttarakhand State Branches of
APTI & IPGA
at

Faculty of Pharmaceutical Sciences
Motherhood University, Roorkee

on

29th April 2017 (Saturday)

Website: *www.motherhooduniversity.edu.in*
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About Motherhood University

Motherhood University, Roorkee has been established under Uttarakhand Govt. Act 5, 2015 in the district of Haridwar. The University campus is located in the vicinity of Holy Ganga River at Roorkee. The University campus can be easily approached by road and railway network as it is situated on Roorkee Dehradun Highway.

The University is promoted by "Motherhood Institute of Management & Technology Society". The Society was established on December 23, 2004 with the objective to provide education, research and training to aspiring youth of Uttarakhand and the country in order to increase their employability. The other objectives of the Society are to establish orphanage, clinics, old age homes and charitable hospitals etc.

The society was founded by a famous Social worker, Shri K.D.Sharma. He believes that though Uttarakhand has been a separate State now, it still requires enhancement in the field of education. With this objective, Shri K.D. Sharma has founded this society to start various vocational and technical programmes for those children who are still deprived of quality Education.

The Motherhood University, Roorkee offers various courses from the academic session 2015-16 onward under different faculties.

About RTD^3

The national Conference RTD^3 is being organized by Faculty of Pharmaceutical Sciences, Motherhood University, Roorkee (Uttarakhand). The RTD^3 is a premier gathering of professors, scientists, technologists, innovators, policy makers, students, researchers, and others interested for sharing ideas, knowledge and experiences across the globe.

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Date: / /

MESSAGE

Dear Delegates,

On behalf of the University, I am pleased to welcome you to Motherhood University, Roorkee to join the National Seminar on **"RECENT TREND IN DRUG DISCOVERY AND DEVELOPMENT" [RTD^3]** on 29th April 2017 (Saturday).

The RTD^3 conference is aim to promote scientific research on the topics of Pharmaceutical Sciences. It is matter of great pleaser for me to see Faculty of Pharmaceutical Sciences breaking barriers and moving forward confidently to organize the National level Conference.

This Abstract Book brings out the key concepts of the RTD^3. Finally, I would like to give my best wishes to organizers for their efforts in developing such a stimulating and interesting National programme on RTD^3.

Prof. (Dr.) Narendra Sharma
Vice-Chancellor
Motherhood University, Roorkee

Campus: Roorkee-Dehradun Road, Vill. Kalyanpur Post Bhagwanpur, Tehsil **Roorkee**, Distt. Haridwar (U.K.) INDIA

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Date: 24th April 2017

MESSAGE

Dear Delegates,

It is a great pleasure to welcome you to "RECENT TREND IN DRUG DISCOVERY AND DEVELOPMENT" [RTD^3] 29th April 2017 (Saturday). The hosting of this Natiional Conference by Faculty of Pharmaceutical Sciences, Motherhood University, Roorkee in association with the Uttarakhand State Branches of APTI & IPGA reflects the eminence and importance of this summit.

The aim of RTD^3 is to deliberate on recent trend in drug discovery and development and to exchange experience and knowledge among the experts from industry and academia around the nation. It will provide a platform for professionals, researchers and scholars to share their ideas and experience over here.

I welcome all the delegats and dignitrories on the behalf of FOPS and Organizing committee of RTD^3.

Prof.(Dr.) Santosh Kumar Verma
Principal & Convener
RTD^3

MESSAGE

THE ORGANISING SECRETORY-RTD^3

Dear Participants,

On behalf of the Board of RTD^3, I welcome you all to the National Conference. This conference abstract book represents program and includes papers of researchers who share an interest in Pharmaceutical Science. As such it sits well with aim of conference to provide a unique opportunity to learn, not just about current research, but also how is studied and practiced throughout the world and, in particular, the region we are visiting. It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Team RTD^3 has worked hard to make this conference happen.

I extend my best wishes and greetings for the release of abstract book and congratulate all the contributors and the editorial board for making this happen. I am very much looking forward to learning about the latest innovations in our field and discussing them during the various social events offered in the conference. In developing the RTD^3 programme, and indeed the entire conference,

I would like to express my sincere gratitude to all people – too many to be named here individually – for their hard work in the logistical preparations.

Mukesh Chandra Sharma
Organising Secretory
RTD^3

AP-NC/RTD3/01

NATURAL TREATMENT OF NEURODEGENERATIVE DISORDERS

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[1] **Shri Ram Murti Smarak, CET (Pharmacy), Bareilly, U.P., India.**

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Abstract

Normal ageing is associated with a slow decline in brain functions such as sensory and motor performance, and at times this decline is accompanied by progressive memory loss, dementia and cognitive dysfunctions, ultimately resulting in limited functionality. Oxidative stress due to increase in free radical generation or impaired endogenous antioxidant mechanism is an important factor that has been implicated in Alzheimer's disease and cognitive deficits seen in elderly. Thus the efforts have been directed to find therapeutic agents both synthetic compounds and natural products that could reduce the oxidative stress and improve the memory. Various herbal drugs whose nootropic activity has already been reported are Cissampelos *pareiera*, Indian Hypericum *perforatum*, Lotus seedpod, Abana, Ocimum *sanctum*, Rutin, Saffron, Chronic coffee and caffeine ingestion, Glycyrrhiza *glabra*. Free radical formation is basically responsible for degeneration of neurons. So, the use of antioxidants nootropic agents may help to prevent the formation of free radicals, thereby minimizing the degeneration of neurons.

Keywords: Oxidative stress, nootropic activity, dementia.

LIPOSOMES AND NANOPARTICLES FOR DRUG DELIVERY AND CANCER IMAGING

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Abstract

Object: Liposomes and nanoparticles for drug delivery and cancerimaging

Introduction: The first closed bilayer phospholipids systems, called liposome, were described in 1965 and soon were proposed as drug delivery systems Lipid nanoparticles are the first nanomedicine delivery system to make the transition from concept to clinical application. The discovery of liposomes or lipid vesicles derived from self-forming enclosed lipid bilayers upon hydration Nanoscale drug delivery systems using liposomes and nanoparticles are emerging technologies for the rational delivery of chemotherapeutic drugs in the treatment of cancer.

Method: All the methods of preparing the liposomes involve four basic methods:

1) Drying down lipids from organic solvent. 2) Dispersing the lipid in aqueous media.
3) Purifying the resultant liposome. 4) Analyzing the final product.

Methods for preparation of nanoparticles;
a) Solvent evaporation b) Nanoprecipitation c) Emulsification/solvent diffusion
d) Salting out e) Dialysis f) Supercritical fluid technology (SCF)

Results: Improved pharmacokinetic properties controlled and sustained release of drugs and lower systemic toxicity .The liposome drug delivery systems have played a significant role in formulation of potent drugs to improve therapeutics, commercial availability of liposomal and albumin-nanoparticles-based has focused attention on this innovative and exciting field. Nanoparticles increased precision in chemotherapeutic targeting of prostate cancer and new avenues for the treatment of breast cancer.

Discussion/Conclusions: Cancer nanotherapeutics are rapidly progressing and are being implemented to solve of conventional drug delivery systems .Nanoparticles have the ability to accumulate in cells without being recognized by P-glycoprotein, one of the main mediators of multidrug resistance, resulting in the increased concentration of drugs and therapeutics for cancer treatment and inability to enter the core of the tumors resulting in impaired treatment with reduced dose.

AP-NC/RTD3/03

A REVIEW ON PROGERIA

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Abstract

Progeria (Hutchinson–Gilford progeria syndrome, HGPS, progeria syndrome) is an extremely rare genetic disorder wherein symptoms resembling aspects of aging are manifested at a very early age. Classical Hutchinson–Gilford progeria syndrome is usually caused by a sporadic mutation taking place during the early stages of embryo development. It is almost never passed on from affected parent to child, as affected children rarely live long enough to have children themselves. There have been only two cases in which a healthy person was known to carry the LMNA mutation that causes progeria. These carriers were identified because they passed it on to their children. Progeria may be a de novo dominant trait. It develops during cell division in a newly conceived zygote or in the gametes of one of the parents. It is caused by mutations in the LMNA (lamin A protein) gene on chromosome 1; the mutated form of lamin A is commonly known as progerin.

Key words: Progeria, Prelamin A, lamin A, HGPS, Morpholinos

AP-NC/RTD3/04

EFFECT OF MACRONUTRIENTS AND GIBBERELLIC ACID ON PHOTOSYNTHETIC MACHINERY, NITROGEN FIXATION, CELL METABOLITES AND SEED YIELD OF CHICKPEA (*Cicer arietinum* L.)

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Abstract

An experiment was carried out with an aim to enhance the performance of chickpea by the spray of a small quantity of phosphorus (P) and/or sulphur (S) with or without the soaking of GA treatment (10^{-6}M GA for 8h) and/ or the GA spray treatment (10^{-6}M GA at 60-70 DAS). P and S each at 2 kg/ha were sprayed in two equal splits i.e. half at 60 and the remaining half at the 70 DAS alone or in combination with the GA treatment. Prior to sowing, total seeds of chickpea were grouped into two; one group of seeds was soaked in 0M GA (control) and the other group were soaked in 10^{-6}M GA aqueous solution, each for 8 hours. There were total sixteen treatments with ten combinations of P and/or S with GA are possible viz., F_{PS}, S_{GA} + F_P, S_{GA} + F_S, S_{GA} + F_{PS}, F_{GAP}, F_{GAS}, F_{GAPS}, S_{GA} + F_{GAP}, S_{GA} + F_{GAS} and S_{GA} + F_{GAPS}. The combined application of P and S with GA showed better responses and further improvement in carbonic anhydrase (CA) activity, stomatal conductance (*gs*), net photosynthetic rate (P_N), nitrate reductase activity (NR), and leghemoglobin content (Lb) at two sampling stages (90 and 100 DAS). This treatment also increased pod number per plant, seed yield per plant and harvest index (HI), seed protein and carbohydrate content at harvest. This combination augmented the protein content (21%), carbohydrate content (11%), seed yield (86%) and HI (91.78%).

Key words: gibberellins; carbonic anhydrase; nitrate reductase; photosynthesis.

CONSEVATIONAL AND MEDICINAL ASPECTS OF C*ENTELLA ASIATICA* (L.) MANDUKPARNI: AN IUCN RED LISTED VANISHING ENDANGERED PLANT

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Abstract

Herbal medicine in India is resurrecting with a huge demand with a number of new pharmaceuticals sprouting out in the due course of time. Though the situation is promising to the herbal practitioners, the increase in consumption of the flora in the name of medicine, etc. critically affects the biodiversity, thereby drawing a plenty of indigenous plants to the endangered species list releases by the IUCN. Mandukparni is one such indigenous and endemic. Plant species to the Ganga plains, which requires an urgent attention to be conserved. According to the Red List of threatened species 44 plant species are critically endangered, 113 endangered and 87 vulnerable. Population growth, urbanization and the unrestricted collection of medicinal plants from the wild is resulting in an over exploitation of natural resources and harvests and destruction of habitats. Therefore, the management of traditional medicinal plant resources has become a matter of urgency. An over increasing demand of uniform medicinal plants based medicines warrants their mass propagation through plant tissue culture technology. Traditional medicine and Astrological services too yield references which make us understand its bondage with the culture and tradition of the country. This review article shade a beam of light on several attempts that can bring about awareness among the Herbal practitioners and Environmentalists to take critical voluntary measures in conserving such Red Listed plant in nearest future.

Keywords: Herbal medicine, Mandukparni, Brahmi and herbal gardens

FORMULATION & EVALUATION OF FLOATING BEADS OF DILTIZEM HCL

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Abstract

Objective: Diltiazem, a benzothiazepine calcium-channel blocker, is used alone or with an angiotensin-converting enzyme inhibitor, to treat hypertension, chronic stable angina pectoris, and Prinzmetal's variant angina. The elimination half-life of Diltiazem is 3 to 4.5 hours. In the present research work multiple unit floating drug delivery systems of Diltiazem Hydrochloride were prepared by using sodium alginate, mustard oil and olive oil.

Methods: The floating systems were prepared by using emulsion gelation technique to improve gastric retention. The prepared beads were evaluated for physical characterization floating lag time, total floating time, swelling index and *in vitro* drug release studies.The prepared beads were found to be spherical, free flowing and remain buoyant for 24 hrs with a short floating lag time.

Results: Percentage drug content of beads in the formulation F9 For olive oil and H8 for mustard oil was found to be in the range of 95.89 to 54.08% . Swelling properties of all formulation increased as the concentration of SCMC increased. The particle size increased as the amount of polymer was increased in each formulation.

Conclusion: Floating beads of Diltizem HCL could prompt a potential sustained drug delivery over an extend period of time that can reduce dose frequency. It was also found that the cumulative drug release from all formulations was found to be between 94.93 to 100.042.

AP-NC/RTD3/07

EFFECT OF MELT SONOCRYSTALLIZATION ON SOLUBILITY CHARACTERISTICS OF CURCUMIN

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Abstract

Curcumin being therapeutically acclaimed possesses so many advantages but it suffers from the limitation of poor solubility and low dissolution that can lead to its limited applicability. The bioavailability problem can overcome by enhancing the solubility as well as dissolution of curcumin. The project was aimed to develop melt sonocrystallized based gastro retentive floating tablets of curcumin that can improve the solubility and dissolution of curcumin. Melt sonocrystallized curcumin (MSC CMN) was developed by without using any excipient to improve its solubility and thereafter developed as a gastroretentive dosage form. The MSC form of CMN was then analyzed for particle size and its distribution, flow properties, equilibrium solubility and intrinsic dissolution rate. X-ray diffraction, scanning electron microscopy were also conducted to evaluate the effect of MSC on powder particles of drug. The melt sonocrystallized form of CMN exhibited improved solubility and flow properties. MSC form of drug showed better dissolution in different media in comparison to its original form of drugs and found to be superior to its pure form. MSC CMN was then formulated as gastroretentive floating tablet and evaluated for in vitro buoyancy studies, thickness, hardness, friability and weight variation, *in vitro* drug release study and anticancer activity. Of all the four formulations (F1-F4) prepared, formulation F4 was found to be the best in terms of diameter and thickness (8.051±1.14 mm and 3.02±1.13 mm), hardness (3.50 ± 1.52kg/cm^2), % friability (0.57±1.36), weight variation (399 ± 1.85). *In vitro* drug release of F4 formulation was compared with CT (control tablet). The maximum drug release of CT was 32.74 ± 1.57 % at 12 h. In case of MSC CMN (F4) percent drug release was maximum i.e. 96.22 ± 1.43 %. MSC CMN showed controlled drug release over 12 hours. Thus, it was concluded that MSC CMN gastroretentive system could prove to be a superior system for improving the solubility as well as bioavailability of drug.

Keywords: Melt sonocrystallization, Curcumin, X-ray diffraction, scanning electron microscopy

AP-NC/RTD3/08

EFFECT OF THE ETHANOLIC EXTRACT OF *CRATAEVA NURVALA* BARK ON THYROXINE AND TRIIDOTHYRONINE LEVELS IN THE NORMAL HEALTHY FEMALE MICE

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Abstract

Objectives: *Crataeva nurvala* is used in various ayurvedic formulations for therapeutic effects like diuretic, nephroprotective, antiurolithiatic, anticancer etc. So, this study was conducted to evaluate the effect of the ethanolic extract of *Crataeva nurvala* (CNet) bark on thyroid hormone i.e. thyroxine (T_4) and triidothyronine (T_3) levels in the normal healthy female mice.

Methods: 18 Healthy Swiss albino female adult mice of 28-33 g were divided into three groups i.e. normal (NOR) treated with vehicle, NOR+CNet 400, group treated with 400 mg/Kg CNet and NOR+CNet 600, group treated with 600 mg/Kg CNet for 15 days, per os (p.o.). The variation in the T_4 and T_3 levels was recorded using ELISA, 24 hours after last dose. The results were expressed as mean±SEM, using one-way ANOVA followed by Bonferroni posttests to compare all columns.

Result: NOR+CNet 400 had shown the significant rise in T_4 levels (**P<0.05) but with the highly significant decrease in T_3 levels (***P<0.0001) in comparison with the NOR group. NOR+CNet 600 on the other hand have shown no significant change w.r.t. NOR group but had significantly lowered T_4 levels ($^{@@@}$P<0.0001) and significantly increased T_3 levels ($^{@@}$P<0.05) as compared to NOR+CNet 400, thus sustaining the normal levels.

Conclusions: The effect of CNet 400 was found to be inhibitory on thyroid gland deiodinases thus reducing the peripheral conversion of T_4 to T_3. However, CNet 600 was able to sustain the euthyroid levels, similar to that of normal group. So, higher dose of CNet was found to be safer to be recommended in euthyroid patients for treating other ailments, whereas lower should be studied extensively to determine its effects in hypothyroid conditions, as well.

Keywords: Crataeva nurvala, thyroxine, triidothyronine, iodothyronine deiodinases, euthyroid

AP-NC/RTD3/09

EMERGENCE OF NOVEL HERBAL DRUGS TARGETING 5-DEIODINASES FOR TREATMENT OF HYPOTHYRODISM

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Abstract

Hypothyroidism is a common disease, in which the thyroid gland does not produce an enough thyroid hormone. It is more prevalent with increasing age, there are more than 10 million cases per year in India. 5-Deiodinases enzymes, plays an important role in activation and deactivation of thyroid hormone and it transform thyroxine (T_4) into triidothyronine (T_3) via deiodination. The main mechanism of conventional anti-thyroid drugs like propylthiouracil, is to block the thyroid hormone synthesis and to inhibit peripheral conversion of T_4 to T_3 via inhibition of deiodinases.Thiocynates and perchlorates inhibit of iodide trapping whereas release of hormones is inhibited via iodine, iodides of Na^+ and K^+. Treatment drugs have potential to generate adverse effects like acute reactions (thrombocytopenia, lymphadenopathy), chronic overdose (lacrimation, rhinorrhea) and thyrotoxicosis etc., so the hypothyroidism treatment scenario is shifting toward herbal treatment with lesser side effects. There is an increasing evidence that some herbal drugs like *Costus pictus* extract, flavonoids including catechin from tea (*Camellia sinensis*), quercetin (found in apple, onions, red grapes etc.), kaempferol (from delphinium), can up regulates the expression of key enzyme 5-deiodinases, involved in thyroid hormone synthesis and also restores the thyroid hormones level in experimental hypothyroidism. In conclusion, the efficacy of some herbal drugs is proven over above mentioned mechanism, further investigations on expression and activity of 5-deiodinases in the thyroid gland needs to be carried out.

Keywords: Thyroxine, *Camellia sinensis, Costus pictus*

AP-NC/RTD3/10

SYNTHESIS, CHARACTERIZATION AND PHARMACOLOGICAL SCREENING OF NOVEL SUBSTITUTED 2, 6-DIARYLPIPERIDINE-4-ONE DERIVATIVES

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Abstract

Today medicinal chemistry is offering many complicated challenges. The most difficult and at the sometime most rewarding challenge is the rational design of new therapeutic agents for treating human disease. Piperidine alkaloids occur in few species of higher plants, microorganisms and animals. Lobeline alkaloid is the main constituent of *Lobelia inflata*. Piperidine is an active ingredient in black pepper (*Piper nigrum*). It is respiratory stimulant in mammals; on hydrolysis it gives piperic acid and piperidine. Other piperidine alkaloids are isopelletierine, coniine, arecoline, anabasine. 4-piperidones are important piperidine derivatives. Piperidiones play a important role as intermediate of substituted piperidine and they are found to be a part of more complex biologically active compounds apart from analgesic, anti inflammatory, antifungal, local anesthetic activities. The antihistamines are valuable synthetic intermediate for the preparation of various alkaloids and pharmaceutical compounds. This prompted to me, to synthesized new derivatives of 4-piperidinone nucleus by using Mannich reaction and synthesized substituted 2, 6-diarylpiperidine-4-one derivatives. A total of 4 compounds were synthesized and characterized by elemental analysis, FT-IR and ^{1}H-NMR spectral data analysis and screened for their pharmacological activities.

Keywords: Piperidione, Histamine, Mannich reaction, Elemental analysis, 2,6 diarylpiperidine-4-one

AP-NC/RTD3/11

MEDICATED CHEWING GUMS

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Abstract

Introduction: Chewing gum has been used for centuries to clean the mouth or refresh the breath. Chewing gum incorporated with various types of active ingredient is one of such example of novel drug delivery.

Objective: The aim of this study was to formulate medicated chewing gum. Chewing gum can be retained in the oral cavity for a long period and, if the drug is readily absorbed across oral mucosa, chewing gum can provide fast onset time for a systemic effect and the potential for avoidance of gastrointestinal and hepatic first–pass metabolism of susceptible drugs.

Methods: During the chewing process the drug contained in the gum product is released from the mass into saliva & could be absorbed through the oral mucosa or swallowed reaching stomach for gastro-intestinal absorption. Many therapeutic agents are absorbed in the oral cavity. For the drugs having significant buccal absorption, dosage forms such as Lozenges, Chewable tablets and Chewing Gum permits more rapid therapeutic action compared to per-oral dosage forms.

Result: Chewing gum not only offers clinical benefits but also is an attractive, discrete and efficient drug delivery system. Nowadays more and more disease can be treated with Novel Drug Delivery Systems. The reason is simple that the chewing gum delivery system is convenient, easy to administer anywhere, anytime and its pleasant taste increases the product acceptability and patient compliance.

Conclusion: Medicated chewing gums could be a great way of delivering drug to the body either for local or systemic effect. The preparation procedure is easy and the dosage form is convenient to use, has got great patient compliance. The mouth freshening effect also adds some advantages.

AP-NC/RTD3/12

SIGNIFICANCE OF PHARMACOVIGILANCE IN HEALTH CARE: INDIAN SCENARIO

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Abstract

Pharmacovigilance is like a sunshade to describe the processes for monitoring and evaluating ADRs and it is a key component of effective drug regulation systems, clinical practice and public health programmes. The number of Adverse Drug Reactions (ADRs) reported resulted in an increase in the volume of data handled, and to understand the pharmacovigilance, a high level of expertise is required to rapidly detect drug risks as well as to defend the product against an inappropriate removal. As such, the underreporting of adverse events, in relation to drugs that are on the market, is estimated to be in the region of 90%. The hospitalization due to ADRs in some countries is about or more than 10%. In addition, it is estimates that 10-20% of the hospital inpatient suffers from ADRs. Appropriate and effective monitoring of ADRs, i.e. pharmacovigilance, is the only best way to safeguard the public health. Spontaneous reporting system (SRS) is the first and most widely used method to report ADRs in spite of under-reporting as a major limitation. It is enable to early detection of new, rear and serious ADRs. Based on those reported cases signal is generated. Signal is new possible causal link between a suspected ADR and drug; which is previously unknown or incompletely documented. Disproportionality analysis is most commonly used method of data interrogation to figure out the association between drug and ADR of interest. The severity of under-reporting of ADRs is very high; it estimates that only 6% of ADRs are reported. There are many factors associated with under reporting of ADRs; categorized as personnel and professional characteristics of healthcare professional and their knowledge and attitude to ADR reporting. In terms of ADR reporting knowledge and attitudes of health professionals is strongly related. Under-reporting can be significantly improved by appropriate educational intervention. The current global network of pharmacovigilance centers, coordinated by the Uppsala Monitoring Centre, would be strengthened by an independent system of review. This would consider litigious and important drug safety issues that have the potential to affect public health adversely beyond national boundaries. Recently, pharmacovigilance has been confined, mainly to detect adverse drug events that were previously either unknown or poorly understood. Pharmacovigilance is an important and integral part of clinical research and these days it is growing in many countries. Today many pharmacovigilance centers are working for drug safety monitoring in this global pitch, however, at the turn of the millennium pharmacovigilance faces major challenges in aspect of better safety and monitoring of drugs. In this review we will discuss about drug safety, worldwide pharmacovigilance centers and their role, benefits and challenges of pharmacovigilance and its future consideration in healthcare sectors.

Keyword: Uppsala, Pharmacovigilance.

DOCKING STUDY OF PHYTOCONSTITUENTS OF *SENECIO AMPLEXICAULIS* (ASTERACEAE)

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Abstract

Introduction

Senecio amplexicaulis Kunth. Syn. *Ligularia amplexicaulis* DC. (Asteraceae) is an important medicinal plant found throughout the Himalayan region at an altitude of 3500-4000m. The plant is used medicinally by the tribes of Garhwal Himalayas for treatment of various ailments. The plants of the genus Senecio are used as traditional medicine in infections, rheumatism, cancer and inflammation (Naithani, 1984). The aim of research work was to perform docking studies of the phytoconstituents isolated from *S.amplexicaulis* on various target enzymes. The target enzymes were selected on the basis of some traditional medicinal uses.

Methodology

The plant *Senecio amplexicaulis* Kunth. was collected from Nawali Bugyal, Dewal, District Chamoli, North-West Himalayas, Uttarakhand, India and identified by Botanical Survey of India (BSI 42099), Dehradun, Uttarakhand, India. The air-dried whole part of the plants was chopped and powered. The plant material (15 kg) was extracted in Soxhlet extractor with petroleum ether, ethyl acetate and methanol. The extracts were concentrated by rotary vacuum evaporator (40ºC) and air-dried to afford crude extracts. The crude extracts were then subjected to column chromatography over silica gel (60-120 mesh; gradient elution with chloroform: methanol). The isolated phytoconstituents were characterized by chemical and spectral analysis. The phytoconstituents were then subjected to docking studies with target enzymes. In order to explore interactions of phytoconstituents, the isolated compounds were structurally optimized by using energy minimization and the structures with the lowest energy were selected for the following docking study. The crystal structure of various target enzyme obtained from Brookhaven Protein Data Bank were used in the docking experiments. Water molecules were deleted and the remaining complex was used as a starting structure in the docking study. Docking was performed with version 4.0 of the program AutoDock, which combines a rapid energy evaluation through precalculated grids of affinity potentials with a variety of search algorithms to find suitable binding positions for a

ligand on a given protein. When docking, the target enzymes were kept rigid, but all the torsional bonds in phytoconstituents were set free to perform flexible docking. Polar hydrogens were added by using the Hydrogens module in AutoDock Tools (ADT); after that, Kollman united atom partial charges were assigned.

Docking of phytoconstituents to target enzymes was carried out using the empirical free energy function and the Lamarckian genetic algorithm. The grid maps representing the proteins in the actual docking process were calculated with AutoGrid. The dimensions of the grids were thus 60Å×60Å×60Å, with a spacing of 0.375Å between the grid points.

RESULTS

The phytoconstituents isolated from *S.amplexicaulis* were structurally minimized and then docked into the target enzymes. The binding free energy, a measure of affinity towards target enzyme was calculated by Autodock4. Some of the phytoconstituents exhibited good binding free energy with target enzymes, thus suggesting their biological activity potential. The compound (L-01) exhibited binding energy of 7.53Kcal/mol against target enzyme 1ACL and thus, it can be explored for anticancer activity.

Key Words: Garhwal Himalaya, Autodock, Lingularia amplexicaulis, Anticancer

AP-NC/RTD3/14

FORMULATION AND EVALUATION OF FAST DISINTEGRATING TABLET CONTAINING PHYTOCONSTITUENTS

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Abstract

Phytoconstituents use since ancient times and are highly estimated all over the world as a rich source of therapeutic agents for the prevention of diseases and ailments. The effectiveness of any herbal medication is dependent on the delivery of effective level of the therapeutically active compound. But a severe limitation exists in their bioavailability when administered orally or by topical applications due to their hydrophilic nature and unique chemical structure. The aim of this study was to prepare Fast disintegrating tablet containing *Azadirachta indica* showed various pharmacological activities like Cough, asthma, piles, and phantom tumor. The tablets were prepared using micro crystalline cellulose as diluents and aspartame as sweetening agent along with Natural super disintegrant. The superdisintegrant used in this study was Isapghula mucilage and Banana powder. The tablets were evaluated for weight variation, hardness, friability, wetting time, water absorption ratio and disintegration time (DT) and dissolution study.

Key Words: Fast disintegrant tablet, *Azadirachta indica* powder, Isapghula mucilage

AP-NC/RTD3/15

OPHTHALMIC FORMULATIONS: A REVIEW

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Abstract

This article depicts thus far developed drug dosage forms intended to be administered by topical ocular route, i.e., eye drops, in situ gels, ocular inserts, ointments, multicompartment drug delivery systems, and bioadhesive ophthalmic dosage forms. Heretofore, much work have established that new and more complex ophthalmic dosage forms reveal advantage over traditional ocular delivery systems and are capable to raise the bioavailability of the active substance by reducing the defenselessness of delivery systems to defense mechanisms of the eye, increasing contact period of drug with the cornea, enhancing the penetration through the complex eye structure, and providing controlled release of drugs, which allows reducing the drug application frequency. This paper also describes in vitro and in vivo studies recommended to be acted upon for various ophthalmic drugs dosage forms in order to judge if the form is acceptable from the perspective of desired properties and patient's compliance.

AP-NC/RTD3/16

FIXED DOSE COMBINATION! WHY?

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Abstract

The Fixed Dose Combinations (FDCs) are the pharmaceutical preparations that include two or more drugs or therapeutically active ingredients in a specific fixed ratio to obtain a single dosage form. These are usually conceptualised on the idea that certain drugs potentiate the action of other drugs when given together. The main motives of FDCs were to improve the medication compliance by reducing the pill burden on patients, target the multiple diseases/conditions, to obtain a particular pharmacological action that cannot be with single drug, to overcome the toxicity etc.

The most common therapeutic areas flooded with FDCs are algesia, psychosis, anxiety and/or depression. Millions of FDCs are frequently available in the market and recommended by practitioners also even without being approved by the competent and regulatory authority. These combinations are practically found to be very dangerous, unsafe or even lethal sometimes.

If any adverse drug reaction occurs by using an FDC then it will be much difficult to identify the responsible active ingredient. This problem might be alleviated by starting the medications individually and monitoring the reactions, and then switching to an FDC (if required) when no problems have been observed. So many times, the patient may not actually need so many drugs, thus subjected to additional side effects. The cross tolerance is very common and most dangerous with FDCs of antibiotics. Many times, the FDCs cause supertoxicity which should be ever avoided. In this context, many countries including India has banned thousands of such FDCs that are unethical, unapproved and not rationale for good health. This particular article discussed such FDCs in detail.

AP-NC/RTD3/17

ALTERNATIVES TO EXPERIMENTAL ANIMALS: A NEED OF EXPERIMENTAL PHARMACOLOGY

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Abstract

Today all we are living in the robotic world which has handicapped our lives without medicines. So, drugs are playing a vital role in current life style. The discovery and development of any new drug usually costs several years, lot of money and most important lives of many experimental animals. Day by day, with the demand of drug discovery, use of laboratory animals is increasing which is a major concern of ethics. The unbearable pain, distress and death experiences have become very common for laboratory animals. Beside the ethical concerns, there are several disadvantage of animal experimentation like requirement of special skilled manpower, special working environment, highly time consuming protocols, huge cost, etc. To overcome the drawbacks associated with animal experiment and to avoid the unethical procedures, there are several alternatives to animal experiments (development and implementation of test method that avoid the use of live animals) that can significantly worth more in limited time period and can avoid un-necessary suffering of animals. The CPCSEA has suggested the 3R strategy for animal alternatives. These 3R includes Replacement (preferred use of non animal methods over animal methods whenever it is possible to achieve the same scientific aim), Reduction (follow the research protocols that enables the researchers to obtain comparable level of information from fewer laboratory animals, or to obtain more information from same number of animals) and Refinement (prefer the methods that alleviate or minimize the potential of pain, suffering or distress to experimental animal and take care of their welfare). A plethora of techniques and methods like *in-vitro* studies, *in-silico* experiments, cell-line protocols, computer-aided drug designing, high-throughput screenings, computer simulated experiments and many more are available that can be followed to implement these strategies are hereby discussed.

AP-NC/RTD3/18

SYNTHESIS AND BIOLOGICAL EVALUATION OF SOME NEW 1, 3, 4-OXADIAZOLE DERIVATIVES.

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Abstract

In recent year heterocyclic compounds analogues and derivatives have attracted strong interest due to their useful biological and pharmacological properties. Oxadiazole derivatives play vital role in biological field such as anti-microbial, anti-viral, anti-tubercular, anti-inflammatory and anti-convulsant activity. The entire synthesized compounds were characterized by IR and 1H-NMR spectroscopy. A series of 4-{2-[5-(2-derivative)-[1, 3, 4] oxadiazol-2-yl]-vinyl}-phenol were synthesized and evaluated for antimicrobial, anticonvulsant activity and Neurotoxicity. A majority of the compounds was active in MES test. These synthesized compounds had been tested for antimicrobial activity and some compound found to be active. These compounds show the good Analgesic activity and antibacterial activity against Escherichia coli. The synthesized compounds show anticonvulsant activity the compound 3a and 3b displayed significant anticonvulsant activity.

Keywords: - Oxadiazole, antimicrobial, anticonvulsant, synthesized, Analgesic activity.

AP-NC/RTD3/19

ANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF LANSOPRAZOLE CAPSULE FORMULATION BY UV SPECTROSCOPY AND RP-HPLC AS PER ICH GUIDELINE

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Abstract

A simple chemo metrics-assisted spectrophotometric and RP-HPLC method for the determination of lansoprazole in capsule form is described. Lansoprazole is an active proton-pump inhibitor drug act by irreversibly blocking the hydrogen/potassium adenosine triphosphatase enzyme system (the H^+/K^+ ATPase, or, more common gastric *proton pump*) of the gastric parietal cell. The UV absorption spectra and of the studied drugs, in the range of 200-400 nm and RP-HPLC scanning range of 254nm.The developed spectrophotometric and RP-HPLC method is simple, rapid, precise, accurate, reliable and
economical when compared to other methods? The method was also applied for capsule formulations. It gives better results in terms of accuracy, precision and linearity over a range of 5- 25 µg/ml in UV spectrophotometer and 10-120µg/ml in RP-HPLC for lansoprazole. The limit of detection in capsule dosage form are 2µg/ml and for RP-HPLC 10µg/ml, the limit of quantification for capsule are 5µg/ml and for RP-HPLC 30µg/ml for pharmaceutical formulation. The % RSD is less than 1.3%, and the recovery is 95.93-99.42%, the retentation time 4.96 and recovery is97.60% as results the above method can be applied for bulk and finished product of lansoprazole.

Keywords: spectrophotometry, PPI-drug, proton pump.

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PHARMACOGNOSTIC AND PHYTOCHEMICAL STUDY OF ROOTS OF *ATIVISHA (ACONITUM HETEROPHYLLUM* WALL.)

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Abstract

The study includes the establishment of pharmacognostic and phytochemical characters of *Ativisha* (*Aconitum heterophyllum* Wall. ex Royle, Ranunculaceae) .We performed histological, histochemical, phytochemical tests, using standard protocols. Pharmacognostic characterization of *Ativisha* and others was done as completely as possible. On basis of histochemical analyses revealed the presence of alkaloid, terpenoid-alkaloid complex, lipids and calcium oxalate majorly. Morphological study of *A. heterophyllum* shows that it has an ovoid-conical taproot/ root modification, having color pale yellowish to dark brownish, faint fauly odor, bitter taste & short starchy fracture. Transverse section of the *Aconitum heterophyllum* root shows a cork and periderm. Cortex form by 7 – 9 layers of parenchymatous cells enriched with simple starch grains, some time compact parenchyma cells along with brownish matter observed. Centrally narrow with parenchyma cells surrounded by wide 4 cross-sectional vascular bundles (4 in number). The vascular bundles occupying 40-45 % area of the stele region in the section. Preliminary phytochemical investigations revealed the presence of primary and secondary metabolites as carbohydrates, phenolics in methanolic and aqueous extract. The alkaloids may be present in chloroform extract .Result also indicated that, petroleum ether and chloroform extracts of *Aconitum heterophyllum* showed presence of steroids and triterpenoids.

It can be concluded that pharmacognostic profile of *Ativisha* is helpful in developing standards for quality, purity and simple identification.

Keywords: *Aconitum heterophyllum* Wall, Pharmacognostic evaluation, Phytochemical Studies

AP-NC/RTD3/21

REVIEW ON PREPARATION OF COLON TARGETED NANOPARTICLES AS PER GUIDELINE FOOD AND DRUG DEPARTMENT

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Abstract

Nanoparticles particles in the size range 1-100 nm is developing as a class of therapeutics for cancer. Early clinical outcomes propose that nanoparticle therapeutics can show enhanced effectiveness, while concurrently reducing side effects, owing to properties such as more targeted localization in tumors and active cellular uptake. Primary approaches for CDDS (Colon Specific Drug Delivery), which includes prodrugs, pH and time dependent systems and microbial triggered drug delivery system achieved limited success and accepting limitations. Newly developed CDDS, which includes pressure controlled colonic delivery capsules (PCDCS), CODESTM and osmotic controlled drug delivery are unparalleled in terms of achieving in vivo site specificity and feasibility of fabrication operation. This review also focuses on evaluations of CDDS in general.

AP-NC/RTD3/22

A REVIEW ON SELF-EMULSIFYING DRUG DELIVERY SYSTEMS: STRATEGY FOR IMPROVING ORAL DELIVERY OF POORLY SOLUBLE DRUGS

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Abstract

Oral route is the easiest and most convenient route for drug administration. Oral drug delivery systems being the most cost-effective and leads the worldwide drug delivery market. The major problem in oral drug formulations is low and erratic bioavailability, which mainly results from poor aqueous solubility. This may lead to high inter- and intra-subject variability, lack of dose proportionality and therapeutic failure. It is estimated that 40% of active substances are poorly water soluble. For the improvement of bio-availability of drugs with such properties presents one of the greatest challenges in drug formulations. Various technological strategies are reported in the literature including solid dispersions, cyclodextrins complex formation, or micronisation, and different technologies of drug delivery systems. Including these approaches self-emulsifying drug delivery system (SEDDS) has gained more attention for enhancement of oral bio-availability with reduction in dose. Sedds are isotropic mixtures of oil, surfactants, solvents and cosolvents/surfactants. The principal characteristic of these systems is their ability to form fine oil-in-water (o/w) emulsions or micro-emulsions upon mild agitation following dilution by an aqueous phase. For lipophilic drugs, which have dissolution rate-limited absorption, sedds may be a promising strategy to improve the rate and extent of oral absorption. This review article explains how self-emulsifying drug delivery systems can increase the solubility and bioavailability of poorly soluble drug.

Key words: self emulsifying drug delivery system (SEDDS), oil, co-surfactant, surfactant, self-micro-emulsifying drug delivery systems (SMEDDS).

AP-NC/RTD3/23

GIBBERELLIC ACID BASED INTEGRATED CO-ORDINATION WITH PHOSPHORUS AND SULPHUR AUGMENT GROWTH, CARBON FIXATION CAPACITY, PODULATION, SEED-CHEMISTRY AND ECONOMIC VALUE OF CICER ARIETINUM L. : A TRADITIONAL HERB

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Abstract

An experiment was conducted to compare the effectiveness of two macro-nutrients (P and S) singly or in combination with GA in two modes of application (seed soaking and foliage spray) on growth, photosynthesis, yield attributes and quality parameters of chickpea. The concentration of GA applied is 10^{-6}M, period of seed soaking duration is 8h and stage/s of growth used for spray application are 60-70 DAS. P and S each at 2 kg/ha (1.3 mg P and 1.7 mg S kg^{-1}) were sprayed in two equal splits i.e. half at 40 and the remaining half at the pre-flowering stage (60 DAS) alone or in combination with the GA treatment. Prior to sowing, total seeds of chickpea were grouped into two; first group of seeds was soaked in 0M GA (water) and the second group were soaked in 10^{-6}M GA solution, each for 8 hours. The crop performance was assessed in terms of morphological features, biochemical characters at 80 and 90 DAS and seed yield and seed carbohydrate content at 160 DAS. The application of GA proved effective in alleviating the morphology, photosynthesis, and CA activity, number of pods per plant and carbohydrate content. However, combined application of P and S with GA showed better responses. Moreover, the most significant facts we were interested in were to enhance the seed yield per plant and carbohydrate content. The combination of P and S together with GA augmented the seed yield.

Key words: Gibberellins, photosynthesis, chickpea, leghemoglobin, yield

AP-NC/RTD3/24

MISUSE OF DRUG: DRUG ABUSE

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Abstract

Drug abuse is a serious public health problem that affects almost every community and family in some way. Each year drug abuse causes millions of serious illnesses or injuries among Americans. Abused drugs include Methamphetamine, Anabolic steroids, Club drugs, Cocaine, Heroin, Inhalants, Marijuana, Prescription drugs, including opioids etc. Drug abuse also plays a role in many major social problems, such as drugged driving, violence, stress, and child abuse. Drug abuse can lead to homelessness, crime, and missed work or problems with keeping a job. It harms unborn babies and destroys families. There are different types of treatment for drug abuse. But the best is to prevent drug abuse in the first place. June 26 is celebrated as International Day against Drug Abuse and Illicit Trafficking every year. It is an exercise undertaken by the world community to sensitize the people in general and the youth in particular, to the menace of drugs. The picture is grim if the world statistics on the drugs scenario is taken into account. With a turnover of around $500 billions, it is the third largest business in the world, next to petroleum and arms trade. About 190 million people all over the world consume one drug or the other.

Key words: Drug abuse, Family, Crime.

AP-NC/RTD3/25

PREVELENCE OF DIABETES AND THYROID DISORDER IN MODEL TOWN, JALANDHAR: A QUESTIONAIRE AND INTERVIEW BASED STUDY

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Abstract

Objective: Diabetes and thyroid disorder has become a major health challenge worldwide. Both conditions involve dysfunction of the endocrine system. Various studies have found that diabetes and thyroid disorders mutually influence each other and quiet prevalent these days, due to sedentary lifestyle and other risk factors. To the best of our knowledge, no such study depicting the prevalence of these diseases is conducted in Jalandhar, Punjab.

Method: This study was a questionnaire and face-to-face interview based survey, conducted at Golden Hospital, Model Town, Jalandhar on 32 respondents collecting the data w.r.t. demographic, lifestyle details along with the clinical details of thyroid and diabetes patients of both genders excluding infants, aged 7-70 yrs, weight 20-120 Kg, engaged in studies, business, retirees, other professional etc. Due consent before the study was taken from hospital authorities and patients. The data were collected from mid of November 2016 to early December 2016. **Result:** The study showed that the diabetes and thyroid disorders are more prevalent in people of age group 50-75yrs, with 60-120 Kg body weight, mostly in patients belonging to business class and private occupation and retirees. Out of the total respondents i.e. 32 patients under treatment, 15 were now engaged in exercise, 21 avoiding junk food and 5 have adopted Yoga as lifestyle modification to cope up with a disease. Out of 12 diabetes sufferer, 10 suffered from predominantly diabetes type II and 20 patients were of thyroid disorders, out of which 7 suffered with hyperthyroidism and 5 were of hypothyroidism and 8 patients with unclear status of thyroid subtype.

Conclusion: No coexistence of thyroid and diabetes was observed, however prevalence of thyroid disorders was found to be more than diabetes in Jalandhar that may be attributed to increased awareness about diabetes in patients.

AP-NC/RTD3/26

SYNTHESIS AND BIOLOGICAL EVALUATION OF SOME NEW ISOXAZOLE DERIVATIVES

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Abstract

A series of Dimethyl-[4(5-phenyl-isoxazole-3-yl)-phenyl]-amine derivatives were synthesized and evaluated for Antimicrobial and Analgesic activity. Isoxazole derivatives play vital role in biological field such as anti-microbial, anti-viral, anti-tubercular, anti-inflammatory and anti-convulsant activity. The entire synthesized compounds were characterized by IR and 1H-NMR spectroscopy. These Isoxazole derivatives were synthesized from substituted aldehyde and substituted acetophenone. A series of Isoxazole derivatives were synthesized and evaluated for Antimicrobial and Analgesic activity. The Antimicrobial activity of the synthesized compounds was evaluated, on B. subtilis and Esteria coli. The present investigation deals with the synthesized compounds possessing good antimicrobial activity. The analgesic activity was performed by Eddy's hot plate method and compounds were found to be active.

.**Keywords: -** Isoxazole, antimicrobial, Analgesic, synthesized, evaluation.

AP-NC/RTD3/27

RECENT TRENDS IN DRUG DISCOVERY AND DEVELOPMENT OF ANTINEOPLASTIC AGENTS FOR BREAST CARCINOMA

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Abstract

Carcinoma is defined as a complex series of disease condition caused by persistent tissue injury and host–environment interactions. Breast carcinoma is the most important cancer in females that develops from breast tissue. Risk factors for developing breast cancer include obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or infertility, old age, and family history. About 5–10% of cases are due to genes inherited from a person's parents, including BRCA-1 and BRCA-2 among others. Most anticancer agents work by influencing DNA. Alkylating agents (e.g. cyclophosphamide) and platinum drugs (e.g. cisplatin, carboplatin) prevent the cancer cells from reproducing, but they are not phase-specific; they work in all cell cycles. Antimetabolites (e.g. 5-fluorouracil, capecitabine, gemcitabine, methotrexate) damage cells during the S-phase of a cell cycle. Antitumor antibiotics (e.g. doxorubicin, epirubicin, bleomycin, mitoxantrone) interfere with the enzymes involved in DNA replication. Topoisomerase inhibitors (e.g. topotecan, etoposide) interfere with topoisomerase enzymes and in this way help to separate the strands of DNA so that they can be copied. Mitotic inhibitors (e.g. paclitaxel, docetaxel, vinorelbine, vinblastine, vincristine) are active during the M phase of a cell cycle, but they can damage cells in all phases of a cycle. Tamoxifen for estrogen receptor positive tumors has been an important therapeutic advance in breast cancer treatment. Exemestane is a potent steroidal inhibitor of human placental aromatase. Recent trends show a substantial increase in the development of more selective agents for combating metastatic breast carcinoma.

Keywords: Carcinoma, Breast carcinoma, Antineoplastic agents.

AP-NC/RTD3/28

Vaccine for Diabetes: A Breakthrough in Endocrinology

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Abstract

Recently a breakthrough occurs in the field of endocrinology with the announcement of vaccine for diabetic patients. It will make the diabetics to get rid of routine insulin injections. The vaccine was announced in the 75th scientific sessions of American Diabetes Association with a statement that the US-FDA will evaluate the vaccine on 150 people who are in an innovative stage of type-1 diabetes. This vaccine was composed of Bacillus Calmette Guerin and showed promising results when injected twice a month only. The mechanism of action includes enhancement of TNF (tumor necrosis factor) levels and removal of the T-cells which are considered to impede the insulin production. Patients suffering from type 1 diabetes are found deficient in TNF which boost the researchers to ponder over this concept.Bacillus Calmette-Guerin, a vaccine which has been used for tuberculosis over many years ago was discovered by French scientist in 1920 and has actually shown pledge in reversing this illness. This vaccine is not so much recommended for tuberculosis in developed countries, now-a-days. It is now typically utilized for treating bladder cancer and is considered quite safe. It could play a protective role in diabetes as repeated standard doses were considered to prevent the onset of type-1 diabetes. This vaccine is again, under trials, to develop an enduring restorative action for the people who have had type-1 diabetes for several years. The primary objectives of our discussion are to inform the diabetics regarding this concept.

AP-NC/RTD3/29

THIAZOLIDINE-2, 4-DIONE DERIVATIVES: POTENTIAL ANTIBACTERIAL AGENTS

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Abstract

Thiazolidine-2, 4-dione derivatives have constituted one of the largest areas of research in medicinal chemistry. Thiazolidine-2, 4-dione derivatives are established pharmacophore amongst heterocyclic compounds with wide range of pharmacological activities. Some promising pharmacophoric activities of thiazolidine-2, 4-dione nucleus containing moiety includes: antiobesity, hypolipedemic, antidiabetic, antihypertensive, antioxidant, anti-inflammatory, aldose reductase inhibitors, antineoplastic *etc*. 3-(4-formyl phenoxy)-N-phenylpropanamide thiazolidine-2, 4-dione derivatives **(4a-4e)** were synthesized by following three step reactions. Melting points were determined by an open capillary tube method and was uncorrected. The

structure of the synthesized compounds were determined by FT-IR, ^{1}H NMR and mass spectral

analysis. Synthesized compounds were evaluated for antibacterial activity using agar well diffusion assay method against selected Gram-positive (*Staphylococcus aureus* MTCC 1430, *Bacillus subtilis* MTCC 0441) and Gram- negative (*Escherichia coli* MTCC 1573, *Pseudomonas aeruginosa* MTCC 2453) strains and the activity expressed as the diameter of zone of inhibition in millimeter (mm). From the results of antibacterial activity compound **4e** was found to be most active against all the tested bacterial strains. The present work also describes the effect of substituents on thiazolidine-2, 4-dione moiety for antibacterial activity.

Keywords. ***Thiazolidine-2, 4-dione, antibacterial, Knoevenagel condensation***.

P-NC/RTD3/30

PHARMACOGNOSTICAL, PHYTOCHEMICAL AND PHARMACOLOGICAL INVESTIGATION ON ROOT OF *BAUHINIA VARIEGATA*

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Abstract

Herbal medicine is the oldest form of health care known to mankind. Herbs had been used by all cultures through history. The root of *Bauhinia* variegata linn (Leguminosae) are reported to be of great medicinal importance and was widely used in traditional medicine to treat a wide range of complains. It contained many secondary metabolites which are suitable to be used as medicines. The phytochemical screening revealed that *Bauhinia* variegata contained terpenoids, flavonoids, and tannins, saponins, reducing sugars, steroids and cardiac glycosides. The review on pharmacological studies showed that *Bauhinia* variegata exerted anticancer, antioxidant, hypolipidemic, antimicrobial, anti-inflammatory, nephroprotective, hepatoprotective, antiulcer, immunomodulating, molluscicidal and wound healing effects. The present studies aimed to evaluate the chemical constituents and the pharmacological and therapeutic effects of *Bauhinia* variegata by proposed methods. The root was pharmacognostically investigated, the extracts were phytochemical evaluated for primary and secondary metabolite and the ethanolic extract was evaluated for anticonvulsion activity which was moderate by maximal electroshock seizure method. The obtained results for anticonvulsant activity of *Bauhinia variegate* (root part) plant extract (ethanol) (100mg/kg and 200mg/kg) exhibit significant anticonvulsant activity by reducing the recovery time and p0.001.

Keywords: *Bauhinia variegate,* anticonvulsant, phytochemical, extracts, evaluation.

AP-NC/RTD3/31

EMERGENCE OF NOVEL HERBAL DRUGS TARGETING 5-DEIODINASES FOR TREATMENT OF HYPOTHYRODISM

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Abstract

Hypothyroidism is a common disease, in which the thyroid gland does not produce an enough thyroid hormone. It is more prevalent with increasing age, there are more than 10 million cases per year in India. 5-Deiodinases enzymes, plays an important role in activation and deactivation of thyroid hormone and it transform thyroxine (T_4) into triidothyronine (T_3) via deiodination. The main mechanism of conventional anti-thyroid drugs like propylthiouracil, is to block the thyroid hormone synthesis and to inhibit peripheral conversion of T_4 to T_3 via inhibition of deiodinases.Thiocynates and perchlorates inhibit of iodide trapping whereas release of hormones is inhibited via iodine, iodides of Na^+ and K^+. Treatment drugs have potential to generate adverse effects like acute reactions (thrombocytopenia, lymphadenopathy), chronic overdose (lacrimation, rhinorrhea) and thyrotoxicosis etc., so the hypothyroidism treatment scenario is shifting toward herbal treatment with lesser side effects. There is an increasing evidence that some herbal drugs like *Costus pictus* extract, flavonoids including catechin from tea (*Camellia sinensis*), quercetin (found in apple, onions, red grapes etc.), kaempferol (from delphinium), can up regulates the expression of key enzyme 5-deiodinases, involved in thyroid hormone synthesis and also restores the thyroid hormones level in experimental hypothyroidism. In conclusion, the efficacy of some herbal drugs is proven over above mentioned mechanism, further investigations on expression and activity of 5-deiodinases in the thyroid gland needs to be carried out.

AP-NC/RTD3/32

Phytopharmacological update on *Prosopis cineraria*

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Abstract

Prosopis cineraria (*P. cineraria*), Family- Fabaceae, an indigenous plant mentioned in Ayurveda with several clinical benefits. Locally it is called Kalpavriksha, is an artistic and literary theme common to the Hindu Bhagavatas, the Jains and the Buddhists .accourding to hindu mythology it is refereed as Shammi tree because lord Rama and Laxamana placed their swords and weapons on this tree. *Prosopis* comprises about 44 species distributed mainly in Southwest Asia, Africa and America from western North America to Patagonia . Vernacular names are Khejri (Hindi and Sanskrit), Janti/Loong tree (Rajasthani), Jand (Punjabi), Sami (Gujarat), Sumri (Tamil) and Jammi (Telugu) and in Sind it is known as Kandi. Leaves contain campesterol, cholestrol, sitosterol, stigmasterol, actacosanol, hentriacontane, methyl docosanoate etc. These compounds possessed potent antioxidant, hypoglycemic and thyroid inhibiting properties. Fresh Leaves juice mixed with lemon juice is used for dyspepsia; extract of crushed pods is used for earache, toothache, pain relief from fractured bones while aqueous extract of bark and leaves are useful in wounds if applied externally. *P. cinerarias* showed various pharmacological activities like Analgesic and antipyretic activities, Antihyperglycemic and antioxidant activities, Antihypercholesterolemic activity, Antitumor activities, Nootropic activity , Respiratory and gastrointestinal activity, Anticonvulsant activity, *In vitro* antioxidant activity, *In vitro* antimicrobial activity, Toxicity studies due to presence of various secondary metabolites.

Key words: *Prosopis cineraria,* Kalpavriksha, Hindu mythology.

AP-NC/RTD3/33

Evaluation of microbial activity, standardization, characterization of total extract and active phytoconstituents of *Roylea elegans*

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Abstract

Medicinal plants are part of human society to combat diseases, from the dawn of civilization. Plant *Roylea elegans* (aerial parts), belonging to family lamiaceae also has a wide potential to treat different microbial activity. The flavonoids, terpenoids, alkaloids and coumarins are reported to have antimicrobial activity. Extraction procedure like soxhlet method shall be used to make total extract and isolate active principles by TLC and by other suitable methods.Standardization parameters are evaluated for characterization of total extract and active principles which is responsible for different antimicrobial activity. Evaluation of microbial activities like antimicrobial, antibacterial and antifungal activity shall be done on the basis of particular phytoconstituents which is responsible for microbial activity. Standardization and characterization parameters of total extract and active principles of plant shall be done.

KEYWORDS: *Roylea elegans*, antimicrobial, standardization parameters, flavonoid.

AP-NC/RTD3/34

Novel Drug Delivery Approach for Herbal Formulations

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Abstract

Across the ancient several years, great approaches have been made on development of novel drug delivery systems (NDDS) for plant actives and extracts. Novel drug delivery system is a novel approach to drug delivery that addresses the limitations of the traditional drug delivery systems. If the novel drug delivery technology is applied in herbal medicine, it may help in increasing the efficacy and reducing the side effects of various herbal compounds and herbs. Novel drug delivery system is advantageous in delivering the herbal drug at predetermined rate and delivery of drug at the site of action which minimizes the toxic effects with increase in bioavailability of drugs. In novel drug delivery technology, control of the distribution of drug is achieved by incorporating the drug in carrier system or in changing the structure of the drug at molecular level. Incorporation of herbal drugs in the delivery system aids to increase in solubility, enhanced stability, protection from toxicity, enhanced pharmacological activity, improved tissue macrophage distribution, sustained delivery and protection from physical and chemical degradation. Various approaches in case of novel herbal drug delivery system includes different types of formulations such as liposomes, phytosomes, pharmacosomes, niosomes, nanoparticles, microspheres, transferosomes, ethosomes, transdermal drug delivery system and proniosomes etc. A number of plant constituents like flavonoids, tannins, terpenoids etc. showed enhanced therapeutic effect at similar or less dose when incorporated into novel drug delivery vesicles as compared to conventional plant extracts. Hence, there is a great potential in development of novel drug delivery system for valuable herbal drugs as it provides efficient and economical drug delivery.

Keyword: Novel drug delivery, plant actives, phytosomes, transferones, niosomes.

AP-NC/RTD3/35

Renal Stone - Allopathic or Ayurvedic Treatment: A Dilemma

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Abstract

Renal stone is a serious debilitating problem throughout the world, affecting approximately 12% of the population. Its pathogenesis is multi-factorial, strongly related to dietary habits and lifestyle practices. The physiochemical mechanisms of stone formation include urine supersaturation followed by nucleation, growth, aggregation, and crystal retention. Most of stones, that remained tiny enough, travels through the urinary tract and pass out of the body even without being noticed by patients. But stones, larger than 5mm or that fail to pass through urinary tract, requires significant medical help.

The allopathic systems of medicines usually target single aspect of underlying aetiology. For renal stones, there is no clinically satisfactory medicine which can be used to dissolve the stones and/or prevent the stone formation and recurrence. The only effective treatments available are surgery and interventional procedures like Percutaneous Nephrolithotomy, Ureteroscopy, Extracorporeal Shock Wave Lithotripsy etc. These treatments are prohibitively costly for common man, need hospitalization, careful follow up for long time and moreover have quite common recurreance rate.

Ayurvedic treatment especially with herbal drugs targets multiple steps of aetiology of renal stone and also effective in prevnting the stone formation. The herbal treatment is non-surgical, does not require any sophisticated technique and hospitalization of patient. It is quite affordable for common man and furthermore also has the potential of inhibiting/reducing the reccurence. However, in case of emergency, herbal remedies are againg helpless and patients have to undergo surgical procedures.

AP-NC/RTD3/36

pH stability studies of Aceclofenac

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Abstract

Before the development of any dosage form, it is essential to find some fundamental physical and chemical properties of the drug molecule. It helps to decide many of the approaches in formation and development. The purpose of stability testing is to provide evidence on how the quality of a drug substance or drug product varies with time under the influence of a variety of environmental factors such as temperature, humidity, light and enables recommended storage conditions. The aim of the present study is to find out the maximum stability pH at which aceclofenac is stable. Stability study was done for 90 days using HPLC. Various pH solution of Aceclofenac was prepared (pH 3, 4, 5, 6, 7, 8, 9, and 10) & amount of drug remaining in different solution after various time interval was compared with the standard aceclofenac solution.

Keywords: HPLC, aceclofenac, stability, pH.

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AP-NC/RTD3/37

Polymeric carriers for delivery of hydrophilic and hydrophobic drug

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Abstract

Various polymer carriers like nanoparticles, microparticles, polysaccharides, lectins and liposomes used to target the drug to a specific site. Liposomal drug delivery is showing its contribution to varied areas like drug delivery, cosmetics, and structure of biological membrane. Liposomes can act as a polymeric carrier for a variety of drugs, having a potential therapeutic effectiveness. Liposomes are colloidal carriers, having a size range of 0.01 – 5.0 μm in diameter. Liposomes have got a potential advantage of encapsulating both hydrophilic as well as hydrophobic drugs and targeting them to the various therapeutic agents like anticancer drugs, vaccines, antimicrobial agent, genetic materials, proteins and macromolecules can be encapsulated within the bilayered vesicles. Liposomal technology was used for the successful encapsulationand deliver of various drug molecules like paclitaxel, acyclovir, tropicamaide, arteether , chloroquine diphosphate, cyclosporine and dithranol. Drugs entrapped in liposomes can have significantly altered pharmacokinetics parameters. The effectiveness of the liposomal formulation depends on its ability to deliver the drug molecule to the targeted site over a prolonged period of time and reducing its (drug's) toxic effects simultaneously.

Keywords- Polymeric carrier, Liposome,

RECENT TRENDS IN DRUG DISCOVERY AND DEVELOPMENT

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In the past drug discoveries were a part of accidental discoveries, another approach was to use body's own biological molecules to treat a disease like; insulin later on biotechnological drugs like monoclonal antibiotics were introduced. So the drug discovery has its roots from the very basic approaches which in the recent years had changed drastically. The basic methodology of the drug discovery has been revolutionized with the development of some newer, fast and automated techniques. The cumulative drug discovery may arise from any of these approaches viz. structure- based drug design, fragment-based drug design, natural products-based drug design, diversity-oriented synthesis, and chemogenomics. Target based drug discovery bears its own advantages and remains as one of the most effective tool for the drug discovery when combined with techniques like High Throughput Screening (HTS). In HTS larger number of compound can be screened for their biological activity for the given target based approach. Computer aided drug designing (CADD) has paved a new way to the discovery of new drug, this is cost effective, versatile and is an indispensible tool in drug discovery compared to experimental based methods. Because of their respective strengths and weaknesses for drug discovery, HTS and CADD techniques are often seen as complementary to each other. The advancements in the modern molecular biological methods with the knowledge of human genomes, the modern drug discovery now largely changed to hypothesis-driven target-based approach. Moreover, QSAR (Quantitative Structure Activity Relationships) remains with its own importance of discovering new analogues of the drugs. In modern days laboratories are computerised and automated and are now the centres to capture technological and biological synergies. Today academia, the regulatory agencies and the pharmaceutical industries all contribute to drug discovery in order to cater the needs and treatment for the society.

Keyword: Fragment-based drug design, Chemogenomics, High Throughput Screening(HTS)

AP-NC/RTD3/39

Recent Trends in QSAR and Structure-Based Drug Design

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Abstract

Pharmaceutical innovation provides medical discoveries that are vital to the quality of healthcare and longevity. Increasing additions to the medical database is a way of providing safer and wider medical alternatives to various disease conditions. Quantitative structure-activity relationship is an essential and integral part of computer-aided drug design and discovery but it sounds a lot when get its integration with cheminformatics tools, thermodynamic data, and structural information. These integrations are prone to be unveiled and scrutinized when structure-based drug design is applied to a known three-dimensional (3D) structure of a given protein. To pursue this, the quantification of favorable and unfavorable interactions requires knowledge of the thermodynamics of the interactions. Modern QSAR approaches are characterized by the use of multiple descriptors of chemical structure combined with the application of both linear and nonlinear optimization approaches, and a strong emphasis on rigorous model validation, to afford robust and predictive QSAR models.

Keywords: Cheminformatics, multiple descriptors, linear and nonlinear optimization, validation;

In vitro antioxidant screening of *Hedychium spicatum* rhizome

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Abstract

The rhizome of *Hedychium spicatum* belonging to family zingiberaceae are reported to have great medicinal value such as carminative, spasmolytic, hepatoprotective, anti-inflammatory, antiemetic, antidiarrhoeal, analgesic, expectorant, antiasthmatic, emmenagogue, hypoglycaemic, hypotensive, antimicrobial, anthelmintic, insectrepellent etc. By looking the high traditional use of *Hedychium spicatum*, the present study deals with in vitro antioxidant activity of the methanol extract of rhizome of *Hedychium spicatum* by DPPH assay method. The methaolic extract were tested and compared to standards BHA and vitamin C. From the results it was found that methanolic extxract was not more potent than standards but shown significant antioxidant activity.

Keywords: *Hedychium spicatum,* Standardization, Zingiberaceae, Phytochemicals, HPTLC

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AP-NC/RTD3/41

DEVELOPMENT AND VALIDATION OF BIOANALYTICAL METHOD FOR ESTIMATION OF AMLODIPINE BESYLATE USING INTERNAL STANDARD AMLODIPINE D4 MALEIC ACID BY LCMS/MS.

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Abstract

Development in the bioanalytical technology and the application of pharmacokinetic principles has created a synergistic partnership that plays a vital, influential role in the discovery and development of new medicines. In the bioanalytical investigation a fast, sensitive, accurate and reproducible high performance liquid chromatography-mass spectrometry method has been developed and validated for the quantitative estimation of amlodipine besylate in human plasma using Amlodipine D4 Maleic acid used as internal standard by solid phase extraction (SPE) technique. The separation was based on reversed phase chromatography by using a Genesis AQ C18 column (100×4.6 mm, 5µm), with Organic Mixture: Buffer Solution: 90:10, v/v as the mobile phase under the isocratic conditions at a flow rate 1 ml/min. The retention time of amlodipine besylate & amlodipine D4 maleic acid (internal standard) was found to be 1.38 minutes. A tandem mass spectrometer, as detector, was used for quantitative analysis in positive mode by a multiple reaction monitoring .The method was validated over the range of 0.05-13.108 ng/ml showed the correlation coefficient (r) ≥0.9996 with mean extraction recovery 78.20% at low, middle and high level. All the validation parameter like accuracy, precision, reproducibility was within the required limits. No detectable carry-over and no relevant cross- talk and matrix effect occurred. Based on the analytical results and short run time, the method is suitable to support routine analysis of therapeutic drugs monitoring from human plasma of treated patients or for pharmacokinetic studies.

Floating drug delivery system promising approaches for increasing the bioavailability of drug with absorption window in stomach

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Abstract

INTRODUCTION- Floating systems or dynamically controlled systems are low-density systems that have sufficiently buoyancy to float over the gastric contents and remain buoyant in the stomach without affecting the gastric emptying rate for a prolonged period of time. Oral delivery of drugs is by far the most preferable route of drug delivery due to the ease of administration, low cost of therapy, patient compliance and flexibility in formulation etc. Oral sustained drug delivery formulations show some limitations connected with the gastric emptying time. Gastric emptying of dosage forms is an extremely variable process and ability to prolong and control emptying time is a valuable asset for dosage forms, which reside in the stomach for a longer period of time than conventional dosage forms.

OBJECTIVE- Incorporation of the drug in a controlled release gastro retentive dosage forms (CR-GRDF) which can remain in the gastric region for several hours would significantly prolong the gastric residence time of drugs and improve bioavailability, reduce drug waste, and enhance the solubility of drugs that are less soluble in high pH environment. It is new drug delivery system maximize effectiveness and compliance.

METHODS- Floating systems are low density systems that have sufficient buoyancy to float over the gastric contents and remain in the stomach for a prolonged period. While the system floats over the gastric contents, the drug is released slowly at the desired rate, which results in increased gastro-retention time and reduces fluctuation.

RESULT- FDDS is an approach to achieve drug release for long duration. Polymers play an important role in Controlled drug delivery system. Acrylic polymers are widely used for the preparation of floating microspheres.

CONCLUSION- Floating drug delivery system have come forward as an efficient means of enhancing the bioavailability and controlled delivery of drugs. The advancement in delivery technology will lead to the development of large number of floating delivery system to optimize the delivery of molecules that exhibit absorption window, low bioavailability and extensive first pass metabolism.

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Design and Development of Natural polymer contains Microsphere drug delivery system

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Introduction- Microspheres are characteristically free flowing powders consisting of proteins or synthetic polymers which are biodegradable in nature and ideally having a particle size less than 200 µm2. They facilitate accurate delivery of small quantities of potent drug and reduced concentration of drug at site other than the target organ or tissue. They provide protection for unstable drug before and after administration, prior to their availability at the site of action.

Objective- Controlled release drug delivery systems are being developed to address many of the difficulties associated with traditional methods of administration. Controlled release drug delivery employs devices—such as polymer-based disks, rods, pellets, or micro particles— that encapsulate drug and release it at controlled rates for relatively long periods of time.

Methods- Chitosan microspheres can be prepared by reacting chitosan with controlled amounts of multivalent anion resulting in cross-linking between chitosan molecules. This cross-linking can be achieved in acidic, neutral, or basic environments depending upon the methods applied. Chitosan microspheres/nanoparticles can be prepared by various methods such as cross-linking with anions, precipitation, complex-coacervation, modified emulsification and ionotropic gelation, precipitation-chemical cross-linking, glutaraldehyde cross-linking, thermal cross- linking etc. Selection of any of the methods depends upon factors such as particle size requirement, thermal and chemical stability of the active drug molecule, reproducibility of the release kinetic profiles, stability of the final product and residual toxicity associated with the final product.

Result-microsphere is approach to achieve that the controlled release drug delivery system developed many difficulties with traditional method.

Conclusion-Microsphere offer vast advances in the pharmaceutical field. The recent use allows targeting the delivery of such drugs which offers difficulties in the immoral delivery. Now higher dose can be administered as microspheres thus limiting gastrointestinal side effects and allowing a full course of antibiotics to be given in a single dose. In recent years studies, of microspheres have been increased so that it may be used more diverse application and it is evident that the range of its application is vast and enormous.

AP-NC/RTD3/44

Over view of Optimization Problem and Solution for Pharmaceutical Products

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Abstract

Optimization is now a mainstream discipline in high technology product development and a natural extension of the ever-increasing analytical abilities in order to increase the yield of the product and to maintain the product quality consistently; key issues of product optimization are targeted at maintaining a set of homogeneous conditions and enhance their productivity by improving their accuracy. The aim of this project was to give a survey of the techniques that are available and those research papers in which they have been used, restricting ourselves to optimization techniques and their applications in pharmaceutical technology, analysis, clinical chemistry and medical chemistry .In the following pages, experimental design and optimization are presented to give the experimentalist useful tools in the real experimental situation, as well as the necessary theoretical background. Key discussions are focused on handling optimization methods, optimization-simulation models in pharmaceutical processing and computer assisted optimization methodologies. This dissertation gives systematic reviews and determines an objective list of criteria, and finds all previously published original research papers that meet the criteria. This project also gives bibliographic information on the issues of optimization, optimization tools, efficiency of optimization methods, and trends in optimization studies.

Key words: - Optimization, Technology, Productivity, Discussion, Determination.

Naturaceuticals approaches used for prevention and treatement of various disease

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Abstract

Introduction- Recently good advances made on development of novel nutraceutical materials delivery systems for plant actives and extracts. The Phytosome technology applied to herbal extracts (ginkgo, milk thistle, green tea) successfully as well as phytochemicals (curcumin, silybin), with remarkable results both in animals and in human pharmacokinetic studies. The formulation of the dietary supplements, functional foods or herbal products into marketed medicinal products is known as "nutraceuticals"; a term which combines "nutrition" and "pharmaceuticals".

Objective- The objective of naturaceutical drug delivery system is that to provides medical or health benefits including the prevention and/or treatment of a disease.

Methods-Mechanisms involved are varied and may work individually or collectively in providing the effects. For example, phenolic compounds are known to act as antioxidants or by mechanisms that are independent of their antioxidant activity. In addition, conjugation of bioactives with other active or inactive components may affect the activity of the resultant products. Therefore, conjugation of phytosterols with docosahexaenoic acid (DHA) was found to lower cholesterol in a mouse model and esters of epigallocatechin gallate with docosahexaenoic acid were able to arrest colon cancer in mice. Processing of bioactives may also alter their bioactives and could therefore influence their efficacy in in-vitro and possibly in vivo models.

Result-The naturaceuticals basically lowers the cholesterol level and able to arrest colon cancer in mice.

Conclusion- Herbal medicine is now globally accepted as a valid alternative system of therapy in the form of pharmaceuticals, functional foods etc., a trend recognized and advocated by World Health Organization (WHO). But the drug delivery system for herbal drugs is quite traditional and out of date. An extensive research is going on in the area of novel drug delivery and targeting for plant actives and extracts. However, research in this area is still at the exploratory stage.

AP-NC/RTD3/46

ROLE OF NANOPARTICLES IN BIOLOGY AND MEDICINE IN RECENT ERA

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Abstract

Nano biotechnology is that branch of nanotechnology that deals with biological and biochemical applications or uses .and it is often studies existing elements of living organisms and nature to fabricate new nano-devices. In fact Many nanotechnologies are involve to developnew medicines and devices from biology and new material such as Nanomaterial's are at the leading edge of the rapidly developing field of nanotechnology. Their unique size-dependent properties make these materials superior and indispensable in many areas of human activity. This brief review tries to summarise the most recent developments in the field of applied nanomaterials, in particular their application in biology and medicine, and discusses their commercialisation prospects. As mentioned above, the fact that nanoparticles exist in the same size domain as proteins makes nanomaterials suitable for bio tagging or labelling. However, size is just one of many characteristics of nanoparticles that it is rarely sufficient if one is to use nanoparticles as biological tags. In order to interact with biological target, a biological or molecular coating or layer acting as a bioinorganic interface should be attached to the nanoparticle. Examples of biological coatings may include antibodies, biopolymers like collagen, or monolayers of small molecules that make the nanoparticles biocompatible.

AP-NC/RTD3/47

DEVELOPMENT AND EVALUATION OF ETHOSOMAL GEL OF GENTAMYCIN

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Abstract

One of the approaches for increasing the skin penetration of drugs and many cosmetic chemicals is the use of vesicular systems, such as, liposomes and ethosomes. Ethosomes are phospholipid-based elastic nanovesicles containing a high content of ethanol (20–45%). Ethanol is known as an efficient permeation enhancer. Ethosomal systems are much more efficient in delivering substances to the skin in the terms of quantity and depth, than either conventional liposomes or hydroalcoholic solutions. The aim of the study is to develop and characterize gentamicin containing ethosomal gel. Ethosomal delivery systems have been developed using, phosphatidylcholine, ethanol, and cholesterol. Ethosomes were prepared by cold method and formulation variables were optimized. Drug and lipid interactions were studied by fourier transform infrared spectroscopy (FTIR). Particle size were measured by Malvern Zeta-sizer. In vitro release studies were performed in medium using modified Franz diffusion cell phosphate buffer 5.5. Stable ethosomes of mean size range 190 nm to 300 nm was developed with entrapment efficiency of 65-84 %. As amounts of ethanol & phospholipids increased in the formulation, increased entrapment efficiency was observed. Release studies showed the sustained release of the drug from the ethosomal gel. The release pattern of drug is analyzed and found to follow Higuchi equation rather than zero and first order. Cold method, using soya lecithin produced stable ethosomal formulation.

Keywords: Ethosomes, Gentamicin, phosphatidylcholine, release studies, FTIR, stability studies.

AP-NC/RTD3/48

Patient Counselling in Diabetes and Cardiovascular Problems

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Abstract

Diabetes, often referred to by doctors as diabetes mellitus, describes a group of metabolic diseases in which the person has high blood glucose (blood sugar), either because insulin production is inadequate, or because the body's cells do not respond properly to insulin, or both. Patients with high blood sugar will typically experience polyuria (frequent urination), they will become increasingly thirsty (polydipsia) and hungry (polyphagia). Diabetes is a long-term condition that causes high blood sugar levels. In 2013 it was estimated that over 382 million people throughout the world had diabetes. In Type 1 Diabetes, the body does not produce insulin. Approximately 10% of all diabetes cases are type 1. In Type 2 Diabetes, the body does not produce enough insulin for proper function. Approximately 90% of all cases of diabetes worldwide are of this type. The most common diabetes symptoms include frequent urination, intense thirst and hunger, weight gain, unusual weight loss, fatigue, cuts and bruises that do not heal male sexual dysfunction, numbness and tingling in hands and feet.

Patient suffering from Diabeties and cardiovascular problems needed to be counselled on drugs, disease and life style modifications to get optimum effect of drug therapy. Diabetic Type 1 patients should follow a healthy eating plan, do adequate exercise, and take insulin, to lead a normal life. Type 2 patients need to eat healthily, be physically active, and test their blood glucose. They may also need to take oral medication, and/or insulin to control blood glucose levels. As the risk of cardiovascular disease is much higher for a diabetic, it is crucial that blood pressure and cholesterol levels are monitored regularly. As smoking might have a serious effect on cardiovascular health, diabetics should stop smoking.

Regular monitoring of Blood sugar levels, HbAIC, bloodpressure, serum cholesterol level, diet control, regular excercise are certain facts on which patient needed to be regularly counselled and monitored for effective therapy management.

Important Dates

Paper Submission Open	April 05, 2017
Early Bird Registration	April 17, 2017
Paper Submission Close	April 22, 2017
Notification of Acceptance	April 24, 2017
Camera Ready Submission	April 25, 2017
Conference Date	April 29, 2017

Conference Venue

Seminar Hall, D-Block

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