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Abstract

Research ARTICLE

Development and Evaluation of Oral Osmotic Tablets for Metoprolol Succinate.

*P.S. Salve**.....1797

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ABSTRACT:

The sustained release drug delivery system provides essential therapeutic concentration for desired period of time. The drugs having low biological half-life are suitable candidates to be developed in the SR dosage form. Oral osmotic drug delivery is independent of pH, food condition in the stomach, agitation and other variables providing zero order drug release profile leading to predictable plasma profiles. In this study we optimized the oral osmotic tablets using metoprolol succinate having biological half -life of 2-6 hours and bioavailability of 12%. The effect of drug: osmogen ratio was studied. The core tablets were prepared using sodium chloride as osmotic agent and compressed at a weight of 250 mg using 8 mm standard biconcave punches. The dibutyl phthalate, diethyl phthalate, triethyl citrate, castor oil were used as plasticizers. The PEG 400 was used as pore former. The effect of drug osmotic agent ratio, coating thickness in terms of coating weight gain, amount of plasticizers, and amount of pore former were studied as the important variables affecting the drug release. The tablet coating was carried out using cellulose acetate with plasticizer dibutyl phthalate and pore former PEG 400. The formulation consisting of drug and osmotic agent in 1:1.5 ratio, coating weight gain of 2 %w/v, 20 %w/v dibutyl phthalate, 20 %w/v PEG 400 of cellulose acetate concentration with 2 %w/v coating weight gain has shown zero order release profile.

KEYWORDS: Sustained release, osmotic drug, metoprolol succinate, plasticizer, pore former.

Spectrophotometric Analysis for Estimation of Felodipine in Tablet Dosage Form by Calibration Curve Method

Hemlata M. Nimje, Rajesh J. Oswal, Sandip S. Kshirsagar and Manoj Chavan*.....1805

JSPM's Charak College of Pharmacy and Research, Pune-Nagar Road, Wagholi, Pune-412 207

ABSTRACT:

A simple, rapid and accurate spectrophotometric method has been developed for quantitative estimation of felodipine in bulk and tablet. Felodipine is a long-acting calcium channel blocker (dihydropyridine class) used as an anti-hypertensive and in the treatment of angina. In methanol felodipine exhibits absorption at 362.4 nm and method obeys Beer's law at the concentration range of 10-100 µg/mL. The percentage label claim was found in the range of 98-103%. The proposed method was validated statistically and recovery studies.

KEYWORDS: UV Spectrophotometer, Calibration curve method, Felodipine, tablet

Development of RP-HPLC Method for Estimation of Citalopram Hbr

*Mousumi Karpillai and Sachin Dhangar**.....1807

G.R.Y. Institute of Pharmacy, Borawan, Khargone-451001 Madhya Pradesh, India

ABSTRACT:

A reversed phase HPLC method is developed for the determination of citalopram in pharmaceutical dosage form. Chromatography was carried out on an inertsil C18 column using a mixture of methanol and phosphate buffer (pH 3.4) and acetonitrile (55:40:5 v/v/v) as the mobile phase at a flow rate of 1.35ml/min. Detection was carried out at 254nm. The retention time of the drug was 3.741min. The method produced linear responses in the concentration range of 10-50 µg/ml of Citalopram. The method was found to be applicable for the determination of the drug in tablets.

KEYWORDS: Citalopram, Estimation, Tablets, RP-HPLC.

Ternary Systems of HP β -Cyclodextrin Felodipine Inclusion Complexes: Preparation, Characterization and Solubility Studies

Minal Raghunath Narkhede¹, Bhanudas Shankar Kuchekar² and Jitendra Yadav Nehete³.....1809*

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ABSTRACT:

The aim of this study was to investigate the effect of presence of water soluble polymer, PVP K -25, PEG 6000 and HPMC, on complexation of Felodipine with HP β CD. Solid complexes at mole ratio 1:1 were obtained by freeze drying method. The phase solubility studies indicated the formation of HP- β cyclodextrin complexes at a 1:1M ratio in solution, in presence and absence of water soluble polymers. All complexes were studied by X- ray diffractometry, Differential Scanning Calorimetry, FT-IR spectroscopy and dissolution study. X-ray diffraction data revealed decrement in crystallinity of binary and ternary systems. All DSC curves of binary and ternary systems showed shifting of characteristics melting peaks of pure drug. The process of felodipine complexation with HP β CD, in presence of water soluble polymer was shown to involved aromatic ring, the carbonyl groups in ester bonds and carbon atom of DHP linked via ester bonds. One of aim of complexation was to improve drug solubility and hence the dissolution rate of binary and ternary system tested. As result of inclusion complex formation, obtained by freeze drying method, brought dramatic 20 fold increase Felodipine solubility in presence of water soluble polymer HPMC.

In photo-stability studies it is observed that upon inclusion complexation of felodipine with HP β CD showed dramatic decreases in degradation rate constants and increases in the values of $t_{0.1}$ %. The possible reasons for protection of complexed felodipine against photo degradation could be due to inclusion of dihydropyridine ring into CD cavity where, dihydropyridine ring is involved in the first step of drug photo degradation. In docking of felodipine with cyclodextrin derivative (HP β CD), a hypothetical structures of complex also supported inclusion of dihydropyridine ring into CD cavity.

KEYWORDS: Felodipine; Water soluble polymers ; HP β -Cyclodextrin, freeze drying, molecular modeling photostability.

Development and Validation of Spectrophotometric Method for Efavirenz in Pure and in Film Coated Tablet Dosage Form.

Pravin Cholke, S.Z. Chemate, R.S. Joshi, M.A. Raskar and R.L. Sawant.....1816*

P.D.V.V.P.F's College of Pharmacy, Vilad Ghat, Ahmednagar.

ABSTRACT:

Efavirenz belongs to the class of non-nucleoside reverse transcriptase inhibitors and is indicated in the treatment of HIV infection. The aim of this study was to develop simple, sensitive, cost effective, accurate, precise and rapid ultraviolet (UV) Spectrophotometric method for the estimation of Efavirenz in pure form and its formulations. For the estimation of Efavirenz, solvent system employed was 0.1 N sodium hydroxide (NaOH) instead of methanol and wavelength of detection was 247 nm. The developed method was used to estimate the total drug content in commercially available tablet formulations of Efavirenz.

KEYWORDS: Spectrophotometric determination, Sodium Hydroxide, Efavirenz.

Use of Triggers to Detect Adverse Drug Reaction Induced By Cardiovascular Drugs in Outpatient Department in Nasik City

Priyanka Paruthi, Ganesh Pansare and Avinash Khairnar.....1819*

University Department of Interpathy Research of Technology, Maharashtra University of Health Science, Nashik (MS) 420 004

ABSTRACT:

The use of “triggers”, clues to identify Adverse Drug Events (ADEs) is an effective method for measuring the overall level of harm from medications in a health care organization. Cardiovascular drugs have moved to the third place among all drug classes prescribed in the country. The use of multiple medications is a serious problem in current health care system. To detect the ADR in Cardiovascular drugs by using trigger tool methodology was done in the private hospital of Nashik city. Total number of prescriptions was considered and total number of Triggers was calculated in percentage. Total number of positive triggers which had shown ADR was calculated accordingly. Out of 180 sample size total triggers were found to be 21 (11.66%), and ADR reported to be 14 (7.77%), We found 6 (3.33%) such triggers which could not detect any ADR. 71% was the success rate in detecting ADR and 29% was failure in detecting ADR. Improving trigger tools and applying them in analyzing the ADR will surely detect the ADR soon and reduce the risk and harms in patients.

KEYWORDS: Cardiovascular system, Adverse drug event, Adverse drug reaction, triggers.

Pharmacological Investigation of Anticonvulsant Activity of *Sesamum indicum* Linn. 50% Ethanol Leaves Extract

Praveen Kumar¹, Vijay Yadav¹, Vikash Chaurasia¹ and V. Ch. Rao²1822

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²Ethopharmacology Division, National Botanical Research Institute, Lucknow-226001, Uttar Pradesh, India

ABSTRACT:

The anticonvulsant activity of 50% ethanol leave extract of *Sesamum indicum* (ESI) were investigated on various animal models including Strychnine nitrate (SN) induced seizure, Pentylenetetrazole (PTZ) induced seizure, Maximal electroshock seizure model in mice .ESI (100 and 200 mg/kg) produce dose dependent and Significant (P<0.05) increases in onset to clonic and tonic convulsions and at 400 mg/kg showed complete protection against seizure induced by strychnine but not with pentylenetetrazole. 50% ethanol extract of *Sesamum indicum* protected mice against tonic convulsions induced by Maximal electroshock.

KEYWORDS: Anticonvulsant, *Sesamum indicum*, Ethanol

Isolation of Active Constituent of *Acorus calamus* Rhizomes Extract and Evaluation of its Anti-cancer Activity

Alaspure R.N. and Nagdeve S.R.*1825

Sharad Pawar College of Pharmacy Wanadongri, Hingna Road, Nagpur-441110, Maharashtra, India.

ABSTRACT:

In present work, attempt was made to study anti-cancer activity of *Acorus calamus* rhizomes. From the results it is clearly proved that rhizomes of *Acorus calamus* showed promising anti-cancer activity. Preliminary phytochemical screening revealed that alkaloid might be responsible for anti-cancer activity. Isolated compound gave positive test for alkaloid. The anti-cancer activity of methanolic extract and isolated compound was carried out by Onion cell and Yeast cell models. The results showed anti-cancer activity when compared to methotrexate, which was used as standard.

KEYWORDS: *Acorus calamus*, anti-cancer

In Vitro Anti Arthritic Activity of *Grewia tiliifolia* (Aerial parts)

T. Sheela Rani*, Annapoorna Vadivelu, Lakhshmi Devi, Ravi Teja, K. Chitra and C. Uma Maheswara Reddy...1833

Faculty of Pharmacy, Sri Ramachandra University, Porur, Chennai, India – 600116

ABSTRACT:

Rheumatoid arthritis is a major ailment among rheumatic disorders. It is a chronic condition with multiple causation and affects the people in their most active period of their life. Traditional ethno medical uses indicate the selected medicinal plant *Grewia tiliifolia* (Aerial parts) is used to treat wound, ulcer and skin disease¹. Literature reveals

that pharmacognostical evaluation has reported for the presence of glycosides, proteins, saponins, carbohydrate, tannins etc². Since no further scientific study has been made in vitro anti arthritic activity so an attempt has been made to carry out the present research work. The present study deals with the in-vitro anti arthritic activity using effect of membrane stabilization and protein denaturation using different concentrations. The results are compared with standard drug. The methanolic extract of the selected medicinal plant showed significant activity.

KEYWORDS: *Grewia tiliifolia*, anti arthritic, membrane stabilization, protein denaturation.

In Vitro Antioxidant Activity of *Terminalia chebula* Fruit Extracts

J.S. Vaghela and S.S. Sisodia.....1835

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ABSTRACT:

Terminalia chebula fruits are rich in tannins and also contain flavonoids and phenolic compounds. This quantity of phytochemicals present in the fruit is estimated by Total phenolic content (TPC) and Total flavanoid content (TFC) assays. It is observed that *Terminalia chebula* has high Phenolic content. The flavonoid content and the total antioxidant activity of *Terminalia chebula* fruit extracts are also high. These phytochemicals are responsible for the antioxidant activity of the alcoholic extract of *Terminalia chebula* fruits. In vitro antioxidant activity of *Terminalia chebula* fruit is further proved by its capacity to scavenge DPPH free radical, superoxide, nitric oxide, hydrogen peroxide, hydroxyl radical and lipid peroxides. The *Terminalia chebula* fruit extracts has been observed to scavenge the above generated Reactive Oxygen Species (ROS) comparable to the natural antioxidant, ascorbic acid and rutin (flavonoid).

KEYWORDS: *Terminalia chebula*, antioxidant activity, scavenging, free radical, Reactive oxygen species.

Formulation and Evaluation of Chitosan Based Polyelectrolyte Complex Hydrogels for Extended Release of Metoprolol Tartrate

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ABSTRACT:

Chitosan based polyelectrolyte complexes (PEC) were developed in the form of beads and hydrogels using simple ionic gelation technique by interaction of positively charged chitosan with negatively charged sodium alginate, carboxymethyl cellulose sodium and κ -carrageenan. The surface morphology was investigated by scanning electron microscopy, which showed that spherical or disc shaped beads were formed by changing counter-ion and the hydrogels showed smooth and rough surfaces. The polyelectrolyte complex formation was confirmed by DSC and FTIR. The beads were evaluated for drug entrapment, particle size and the matrix tablets were evaluated for tablet parameters. The mean particle size of beads was 544.89 to 891.15 μ m. The entrapment of metoprolol tartrate in beads was 43.43 to 57.42%. The increase in the concentration of chitosan increased the mean particle size and drug entrapment. The Metoprolol tartrate extended release matrix tablets were prepared by direct compression of polyelectrolyte complex hydrogels. Hydrogel beads and extended release tablets were evaluated for swelling behavior and *in vitro* release. The hydrogel beads and matrix tablets showed pH sensitive swelling with low swelling in HCl buffer, while more swelling in phosphate buffer. The *in vitro* release of metoprolol tartrate was very slow in HCl buffer and was rapid in phosphate buffer. The *in vitro* release of metoprolol tartrate was in the order of chitosan-carboxymethylcellulose sodium < chitosan-sodium alginate < chitosan- κ -carrageenan. Hence chitosan based polyelectrolyte complex containing carboxymethylcellulose sodium was found to extended the release of metoprolol tartrate up to 12 h.

KEYWORDS: Metoprolol tartrate; Swelling; *In vitro* release; Polyelectrolyte complex, Chitosan, Hydrogel

Spectrophotometric Methods for Determination of Olsalazine Sodium

S.M. Malipatil*, Mogal Dipali and Bharath S. Athanikar.....1852

Department of Pharmaceutical Analysis, H.K.E.S's College of Pharmacy, Gulbarga-585105, Karnataka (India).

ABSTRACT:

Three simple, sensitive, selective and accurate spectroscopic methods (A, B and C) have been developed for quantitative estimation of olsalazine sodium in bulk drug and pharmaceutical formulation (capsules). Method A and B is based on the reduction of ferric ions to ferrous ion by olsalazine sodium, which further in presence of 1,10-Phenanthroline, 2,2'-Bipyridyl produce blood red coloured chromogen with absorption maximum at 510 nm and 518 nm respectively. Method C is based on the direct colorimetric measurements of olsalazine sodium with 0.1N Sodium hydroxide. It gives yellowish-orange coloured chromogen with absorption maximum at 465nm. Method A, B and C obey Beer's law in concentration range of 1-5 µg/ml, 5-25 µg/ml and 1-5 µg/ml respectively. Interference studies were conducted and it was found that the common excipients usually present in the dosage forms do not interfere in the proposed methods. The optical characteristics, regression analysis data, and precision of the methods were calculated. The proposed methods were found to be accurate, reproducible and consistent. It was successfully applied for the analysis of marketed formulation and could be effectively used for the routine analysis of formulations.

KEYWORDS: Olsalazine Sodium, double distilled water, 1,10-Phenanthroline, 2,2'-Bipyridyl, 0.1N Sodium hydroxide (0.1N NaOH).

Exploring the Protective Role of Water Extract of *Spirulina platensis* on Flutamide-Induced Lipid Peroxidation Using 4-Hydroxy Nonenal and Nitric Oxide as Model Markers

Supratim Ray*.....1857

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ABSTRACT:

This *in vitro* study was designed with an aim to evaluate free radical scavenging activity of water extract of *Spirulina platensis* on flutamide-induced lipid peroxidation using 4-hydroxy nonenal and nitric oxide as model markers. In this study goat liver has been used as liver source. The results suggest that flutamide could induce lipid peroxidation to a significant extent and it was also found that water extract of the *Spirulina platensis* has the ability to suppress the flutamide-induced toxicity.

KEYWORDS: Flutamide, *Spirulina platensis*, lipid peroxidation, 4-hydroxy-2-nonenal, nitric oxide

Formulation and Evaluation of Sustained Release Methotrexate Microcapsules

B. Chandrasekhara Rao¹*, S. Vidyadhara², K.V. Ragahavendrarao⁴, K. Vanitha Prakas¹, B. Umashankar¹ and Srilatha¹.....1861

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³J&J Dechane Pharmaceuticals Pvt Ltd., Hyderabad, India.

ABSTRACT:

Development of sustained release oral dosage forms is beneficial for optimal therapy regarding efficacy, safety and patient compliance. In present work an attempt has been made to formulate sustained release micro capsule of methotrexate by using polymers, which is preferably used as a cancer agent. Microcapsules were prepared using polymer ethyl cellulose and eudragit, by emulsion solvent evaporation technique. Varying concentrations of eudragit, drug, EC, are taken and three formulations were prepared. Further evaluation studies were carried out. Further work is required to stabilize the product; in-vivo studies estimate the amount of drug present in the various organs with disposition kinetics and establish appropriate dosage regimen to gauge the significant changes in the metabolism of the drug before further studies.

KEYWORDS: Methotrexate, Microcapsules, SustainedRelease.

Quantitative Analysis of Glimepiride and Metformin by Derivative Spectrophotometric Method in Pharmaceutical Preparation.

*Madhuri D. Game**.....1865

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ABSTRACT:

A simple, sensitive, rapid, accurate and precise spectrophotometric method was developed for simultaneous estimation of glimepiride and metformin in tablets by employing first order derivative zero crossing method and validated for accuracy, precision, ruggedness, linearity, range and specificity. The wavelengths selected for quantitation were 238.6 nm (zero cross point of metformin) for glimepiride and 230.0 nm (zero cross point of glimepiride) for metformin. Linearity was maintained within a concentration range from 4.0 - 30.0 µg/ml for glimepiride and 5 -30 µg/ml for metformin. The limit of detection limit and limit of quantification for glimepiride were found to be 2.0 and 4.0 µg/ml respectively and for metformin 5.0 and 8.0 µg/ml respectively. Accuracy was confirmed by recovery studies and precision by marketed formulation analysis. The mean % labeled claim ± S.D.for glimepiride and metformin were 99.12±0.187and101.22±0.812 respectively. % R.S.D. values for ruggedness studies were less than 2% indicated reproducibility of the method. Commercial tablet formulation was successfully analyzed using the developed method.

KEYWORDS: Glimepiride, metformin, drug analysis, derivative spectrophotometry

Lovastatin Loaded Chitosan Nanoparticles: Preparation, Evaluation and *In vitro* Release Studies

*Anilkumar J. Shinde and Harinath N. More**.....1869

Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Near Chitranagari, Kolhapur

ABSTRACT:

The goal of the present investigation was to formulate and evaluate a potential of chitosan nanoparticles as carriers for the lovastatin drug. Lovastatin is a BCS class-II drugs having low solubility and high permeability. Since lovastatin undergoes extensive first pass extraction in the liver, the availability of the drug to the general circulation is low (< 5%). Nanoparticles were prepared by modified ionotropic gelation method using 3² full factorial design. From the preliminary trials, the constraints for independent variables X1 (concentration of chitosan) and X2 (concentration of sodium tripolyphosphate) have been fixed. Factors included concentration of chitosan and STPP, have been examined to investigate effect on particle size, encapsulation efficiency, zeta potential, % release, SEM, FTIR, XRD and DSC analysis of lovastatin. Release study was conducted by in vitro dialysis membrane method using phosphate buffer pH 7.4 at 37°C. The diameter of prepared nanoparticles was controlled in the range of 100 - 800nm. Experimental results showed that lovastatin encapsulation efficiency was decreasing with increasing chitosan concentration. The particle size is independent of encapsulation efficiency. Spectrograms of FTIR and DSC showed that lovastatin physically absorbed by chitosan matrix. SEM photographs demonstrated prepared nanoparticles were in spherical shape and narrow diameter distribution. In vitro drug release study of selected factorial formulations (CL1, CL4, CL7) showed, 87.42± 0.020 %, 85.72± 0.025%, and 78.88± 0.025% release respectively in 24 hrs. The Zeta potential of all the batches were in the range of + 30 mv and batch CL4 was found to be + 35.32 mv. So it conclude that prepared all formulation were good stability. The release profiles of all batches were very well fitted by both the zero order mode and the anomalous transport. These results indicate that lovastatin nanoparticles could be effective in sustaining drug release for a prolonged period.

KEYWORDS: Chitosan, factorial design, Ionotropic gelation, Lovastatin, sustained release

Formulation and Evaluation of Floating Pulsatile Microspheres of Aceclofenac for Rheumatoid Arthritis

*Jessy Shaji * and Amol Shinde*.....1877

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ABSTRACT:

The purpose of present work is to develop microspheres for floating pulsatile release of aceclofenac intended for chronopharmacotherapy. Floating pulsatile concept was applied to increase the gastric residence of the dosage form having lag phase followed by a burst release. The floating pulsatile microspheres were prepared by emulsion solvent diffusion technique. Polymers used for the preparation were Eudragit L100 and Eudragit S100 which gets solubilized at pH above 6 and 7 respectively. The floating microsphere provides two phase release pattern with initial lag time during floating in acidic medium followed by rapid release in phosphate buffer. This approach suggested the use of floating pulsatile microsphere as promising drug delivery for site and time specific release of aceclofenac for chronotherapy of rheumatoid arthritis.

KEYWORDS: Floating pulsatile drug delivery system, microspheres, Aceclofenac, Rheumatoid Arthritis.

Evaluation of Pharmacognostic and Physicochemical Parameters of Trikatu churna - an Ayurvedic Classical Drug

A K Meena^{1*}, A K Mangal^{1†}, G V Simha¹, MM Rao¹, P Panda¹, Harjit Singh¹, M M Padhi² and Ramesh Babu²...1882

¹National Institute of Ayurvedic Pharmaceutical Research, Patiala-147001, Punjab.

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ABSTRACT:

Standardization of herbal formulations is essential in order to assess the quality, purity, safety and efficacy of drugs based on the amounts of their active principles. The aim of the present work is to standardization of Trikatu churna. The churna makes this traditional drug more stable for long term storage and hence, easier to prepare. The Trikatu churna is a reputed drug mentioned in the ancient books of Ayurveda used for the treatment of fever, asthma, cold and cough, diabetes, nasal diseases, obesity, anorexia, digestive, respiratory system and normal urinary tract function.

Trikatu churna was prepared as per Ayurvedic Formulary of India and attempts to evaluate the Organoleptic characters, phytochemical study, pharmacognostic study and physicochemical parameters like pH, Loss on drying at 105°C, Water soluble extract, Alcohol soluble extract, Total Ash, Acid insoluble ash. The study revealed specific identities for crude drug taken which will be useful in identification and control to adulterations of the drugs.

KEYWORDS: Trikatu churna, Ayurveda, Pharmacognocny, Asthma, Diabetes, Standardization.

A Validated LC-MS/MS Method for the Determination of Tamsulosin Hydrochloride in Six Brands; Applications to Content Uniformity and Dissolution Studies

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ABSTRACT:

A rapid, sensitive and specific positive electrospray liquid chromatography-tandem mass spectrometry (LC-MS/MS) method for the determination of tamsulosin hydrochloride (TAM) in capsules and tablets was developed and validated. The method was applied for measuring TAM contents in 6 different brands of the drug and for evaluating the *in vitro* dissolution profiles of those brands under simulated gastric conditions. The MS analysis was performed using MS XTerra[®] RP-C8 column under isocratic conditions using a mobile phase of acetonitrile: water: formic acid (80:20:50µl v/v/v) at a flow rate of 0.4 ml/min. Quantitative analysis was performed using MRM transitions at *m/z* 410.4>148.6 (TAM) and *m/z* 236.8>120.4 (procaïnamide as IS). The established calibration curves showed good linearity (*r*: 0.995 ± 0.003) over the concentration range 1-25 µg/ml of TAM with a limit of quantification (LOQ) of 1.0 µg/ml (RSD% < 24.1) and limit of detection of 0.39µg/ml. The intra-day and inter-day precision (RSD%) were <10.8%, whereas the intra-day and inter-day accuracy (Bias%) were < +1.4 %. Content uniformity study using LC-MS/MS indicated that TAM contents were in the range of 0.295-0.379 mg (dose: 0.4 mg). Dissolution studies using LC-MS/MS showed that the % release values of TAM from the controlled-release formulations varied from 4.2 to 53.8%, whereas for immediate-release formulation, the % drug release was 89.2%. Statistical analysis using student-t test indicated significant differences between the reference brand and some generic brands of TAM with respect to content uniformity and

dissolution testing. The obtained results proved that the developed LC-MS/MS method was successful for the analysis of low-dose TAM products for both content uniformity and *in vitro* dissolution studies.

KEYWORDS: Tamsulosin hydrochloride; LC-MS/MS; Content uniformity; Dissolution study; Statistical analysis

Spectrophotometric Estimation of Etodolac and Thiocolchicoside in Tablet Dosage

R. Tiwari* and S. Pillai.....1891

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ABSTRACT:

Simple, precise and economical spectrophotometric methods have been developed for the simultaneous estimation of Etodolac and Thiocolchicoside in combined tablet dosage form. The first method is based on the use of simultaneous equation, the second method is based on the use of absorbance ratio method and the third one is based on multicomponent mode method. Both the drugs obey the Beer's law in the concentration ranges employed for these methods. The methods were validated by following the analytical performance parameters suggested by the International Conference on Harmonization. All validation parameters were within the acceptable range. The developed methods were successfully applied to estimate the amount of Etodolac and Thiocolchicoside in bulk and combined tablet dosage forms.

KEYWORDS: Thiocolchicoside, Etoricoxib, simultaneous equation, absorbance ratio method, Multicomponent mode method

Analgesic Activity of Roots of *Aralia racemosa*

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ABSTRACT:

The analgesic activity of various extracts of *Aralia racemosa* was evaluated by tail flick method and acetic acid-induced writhing method. It was found that all the extracts showed significant narcotic analgesic activity with tail flick method. The activity was found to be maximum of methanol extract and minimum of petroleum ether extract. The activities were about 30-60 percent of that of morphine sulphate. Similar results were obtained from acetic acid induced writhing test. Significant activity was shown by all extracts. The activity was maximum of methanol extract and minimum of petroleum ether extract and the activity was comparable to that produced by standard aspirin.

KEYWORDS: *Aralia racemosa*, Analgesic activity, Tail flick method, Acetic acid- induced writhing, Aspirin.

Protective Effect of *Butea monosperma* Flowers Against Gentamycin Induced Renal Toxicity

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ABSTRACT:

Nephroprotective effect of flowers of *Butea monosperma* (BMF) against gentamycin-induced nephrotoxicity in male Wistar rats was assessed. Rats administered with gentamycin daily at 80 mg/kg i/p, for 9 days showed a significant increase in serum urea, serum creatinine and blood urea nitrogen and histopathological examination of kidney revealed extensive proximal tubular necrosis with marked glomerular changes. Methanol extract of *Butea monosperma* (BMF) at a dose rate of 100 mg/kg p.o. and 200 mg/kg p.o. showed a significant reduction in serum creatinine, blood urea nitrogen and serum urea levels. These effects were predominant with 200 mg/kg. In conclusion, our results suggest that BMF treatment reduces gentamicin-induced nephrotoxicity and this effect seems to be dose dependent.

Hepatoprotective Effect of *Moringa oleifera* in Isoniazid Induced Rats

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ABSTRACT:

The present study was carried out to screen and evaluate the hepatoprotective activity of flower extract of *Moringa oleifera*. Hepatoprotective activity of ethyl acetate extract of *Moringa oleifera* was examined against Isoniazid induced liver damage in rats using silymarin as control. Enzyme activities of Aspartate Transaminase (AST), Alanine Transaminase (ALT), Catalase and Thio barbituric Acid Reactive substance (TBARS) were analyzed. Results indicate that ethyl acetate extract of *M.oleifera* has potent activity over isoniazid treatment as compared to control. Results of the present investigation confirm the traditional uses of this plant as a potential hepatoprotective agent.

KEYWORDS: *Moringa oleifera*, Hepatoprotective activity, Aspartate Transaminase (AST), Alanine Transaminase(ALT), Catalase and Thiobarbituric Acid Reactive substance (TBARS)

QSAR Modeling of Antimycobacterial Activities of N-Benzylsalicylamides and N-Benzylsalicylthioamides Derivatives against *Mycobacterium kansasii* CNCTC My (235/80) Using Topological Parameter

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ABSTRACT:

The aim of the present work is to explore the utility of QSAR study on the *in vitro* antimycobacterial activities of N-Benzylsalicylamides and N-Benzylsalicylthioamides derivatives reported by Dolezal et al against *Mycobacterium kansasii* CNCTC My (235/80) using electrotopological state atom (E-state) parameter. The reported minimum inhibitory concentrations [MIC] of the compounds determined after 14 days of incubation. Different statistical tools used in this communication are stepwise regression analysis and partial least squares analysis (PLS). All the developed models indicate the importance of connecting moiety methylcarboxamido / methylthiocarboxamido group between two substituted phenyl groups. Based on internal validation (Q^2), external validation (R^2_{pred}) PLS analysis was found to be the best model ($Q^2=0.595$, $R^2_{pred}=0.759$).

KEYWORDS: QSAR, E-state, stepwise regression, PLS, N-Benzylsalicylamides, Benzylsalicylthioamides, *Mycobacterium kansasii*

Effect of *Wedelia paludosa* (Asteraceae) on Brain Neurotransmitters and Enzyme Monoamine Oxidase, Following Cold Immobilization Stress

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ABSTRACT:

Recently there has been a shift in universal trend from synthetic to herbal medicine, which we can say 'Return to Nature'. In this regard India has a unique position in the world, where a number of recognized indigenous systems of medicine viz., Ayurveda, Siddha, Unani, Homeopathy, Yoga and Naturopathy are being utilized for the health care of people. *Wedelia paludosa* (Family Asteraceae), is a reputed medicinal aromatic plant used in traditional system of medicine. The herb is used as a tonic, in Hepatoprotective, Splenomegaly and in skin diseases. The other minor uses are the juice is administered in combination with aromatics for jaundice. The fresh plant is rubbed on the gums in tooth ache and applied with a little oil for headache. The leaves are considered as a tonic, alternative and useful in the cough, cephalgia skin diseases and alopecia. An infusion of the plant is given for swelling in the abdomen. In Assam the plant is used to prevent the effects of bad waters in hill tracts. The leaves are used in dyeing grey hair and in promoting the growth of hair. As a decoction, the plant is used in uterine haemorrhage and menorrhagia. The effect of aqueous extract of *Wedelia paludosa* leaves were evaluated on stress induced changes in brain

neurotransmitters and enzyme monoamine oxidase levels in wistar rats. The extract was found to possess normalizing activity against cold immobilization stress induced changes in dopamine (DA), 5-hydroxy tryptamine (5-HT), norepinephrine (NE), 5-hydroxy indole acetic acid (5-HIAA), and enzyme monoamine oxidase (MAO). The results obtained provide biochemical evidence for anti-stress activity of *Wedelia paludosa* aqueous extract.

KEYWORDS: anti-stress activity, brain neurotransmitters, cold immobilization stress, *Wedelia paludosa*.

In-Vitro Anthelmintic Activity of Root Bark of *Tabernaemontana citrifolia* Linn against Intestinal Helminthiasis

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ABSTRACT:

The aim of the present study was to evaluate anthelmintic potential of crude extract of root bark of *Tabernaemontana citrifolia* Linn using *Perithima posthuma* and *Ascaridia galli* as test worms. Various concentrations (10-100 mg/ml) of the methanolic extract were tested in the bioassay, which involved determination of time of paralysis and time for death of the worms. Piperazine citrate (10 mg/ml) was used as standard reference and distilled water as control. The result of the present study indicated that the crude methanolic extract significantly demonstrated paralysis and also caused the death of worms especially at higher concentration of 100 mg/ml, as compared to standard Piperazine citrate. The preliminary phytochemical screening showed the presence of carbohydrates, alkaloids, tannins and saponins and are supposed to be responsible for the activity. In conclusion the traditional use of bark of the plant *T. citrifolia* as an anthelmintic has been confirmed and further studies are suggested to isolate the active principle/s responsible for the activity.

KEYWORDS: *Tabernaemontana* root bark, Anthelmintic, Phytochemical screening, Tannins, Steroids.

Hypoglycemic and Antimicrobial Activity of *Pterocarpus marsupium roxb.*

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ABSTRACT:

The effect of ethanolic extract of *Pterocarpus marsupium* was studied in albino rats after induction of diabetes mellitus by alloxan (150mg 1kg body weight) and its complications were reduced by the administration of the ethanolic extract of *P.marsupium*. The biochemical parameters such as glucose, cholesterol, total protein, triglycerides, very low density lipoprotein, low density lipoprotein and high density lipoprotein in serum were observed and the biochemical parameters were reversed after drug administration. The ethanolic extract of leaves was also tested antimicrobial activity against *E. Coli*, *S. Aureus*, *A. niger* and *C. albicans*.

KEYWORDS: *Pterocarpus marsupium* leaves, Diabetes mellitus, Alloxan, Antidiabetic, Antimicrobial activity.

REVIEW ARTICLE

Newer Biologically Active Pyridines: A Potential Review

*Nadeem Siddiqui**, *Waqar Ahsan, M. Shamsheer Alam, Andalip, Bishmillah Azad and M. Jawaid Akhtar*.....1918

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ABSTRACT:

A large and emergent demand for the pyridine derivatives exists because of their many medicinal, pharmaceutical and agricultural uses. The pyridine derivatives have several considerable biological applications such as anticonvulsant, antimicrobial, antidiabetic, antiviral, anticancer and antimycobacterial agents. Potential novel routes include the conversions of alkynes, epoxides and alcohols. This review will be of interest for people active in: Organic Chemistry, Organometallic Chemistry, Transition Metal Chemistry, Stereo selective Synthesis, and Heterocyclic Chemistry.

KEYWORDS: Pyridine; Anticonvulsant; antiviral; antimicrobial activity

A Review: Increasing Solubility of Poorly Soluble Drugs, by Solid Dispersion Technique

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ABSTRACT:

The solubility of a drug is one of the most important part of the drug formulation development. The effectiveness of drug is completely depends on the, solubility and bioavailability. This article reviews the various preparation techniques for solid dispersion and compiles some of the recent technology transfers. The different types of solid dispersions based on the molecular arrangement have been highlighted. Some of the practical aspects to be considered for the preparation of solid dispersions, such as selection of carrier and methods of physicochemical characterization, alongwith an insight into the molecular arrangement of drugs in solid dispersions are also discussed.

KEYWORDS: Solid dispersion, poorly soluble drug, carrier, solubility, bioavailability

***Benincasa hispida*: A Natural medicine**

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ABSTRACT:

The present review gives information about the natural herb, *Benincasa hispida* (Ash gourd, Family: Cucurbitaceae), its traditional medicinal value and proven pharmacological activities. *Benincasa hispida* (Thunb.) Cogn, is best suited to the moderately dry areas of the lowland tropics and relatively drought-tolerant. It is a large climbing or trailing herb with stout hispid stems. Fruits are 30 to 45 cm long broadly, cylindric, not ribbed hairy, ultimately covered with a waxy bloom. Phytochemical review indicates the presence of triterpenes: alnusenol, multiflorenol, isomultiflorenol; flavone: iso-vitexin; and sterols: lupeol, lupeol acetate, and beta-sitosterol. Most of the peoples usually take its fruits as vegetable. All parts of the fruit can be used as medicine. Fruits of this plant are traditionally used as a laxative, diuretic, tonic, aphrodisiac, cardiogenic, urinary calculi, blood disease, insanity, epilepsy, and also in cases of jaundice, dyspepsia, fever, and menstrual disorders. *Benincasa hispida* shows some characteristics pharmacological activities evaluated by many scientists in experimental animal models. So, this article gives the true reason of 'Why *Benincasa hispida* can be called as A Natural medicine'?

KEYWORDS: *Benincasa hispida*, Cucurbitaceae, Phytochemistry, medicinal fruit, Pharmacological activities.
