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**REVIEW ARTICLE**

- **Vagina: An Ideal Site for Drug Delivery**  
*Patel Geeta Mand Patel Madhabhai M.....426*

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**ABSTRACT**

Exhaustive efforts have been made toward the administration of drugs, via alternative routes, that are poorly absorbed after the oral administration. However, successful delivery of drugs through the vagina remains a challenge, primarily due to the poor absorption across the vaginal epithelium. Modern technology has yielded vaginal drug-delivery systems that provide optimized pharmacokinetic profiles. These characteristics make the vagina an excellent route for drug administration. The vagina allows women to self-administer medication continuously for weeks or months at a time with a single application. The purpose of this communication is to provide the reader with a summary of advances made in the field of vaginal drug delivery.

**KEYWORDS:** Vagina, Vaginal defense, Drug delivery system, First pass effect, Self-administer medication

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- **Fixed Dose Combination Product: Current Status Among Regulatory Agencies**  
*Pawan K Porwal, Nidhi Jain, AK Pathak, MK Panigrahi and Arun K Tiwari.....433*

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**ABSTRACT**

There is alarming increase in irrational Fixed dose combination drugs (FDCs) in recent years and pharmaceutical companies manufacturing these FDCs are luring physicians to prescribe by unethical means. Only a few drugs are lifesaving and essential, rests of the drugs are substitutes for each other. Some may be totally a dumping of drugs into patients without any clinical benefit. With the escalating cost of drugs, there is poor drug compliance, which further magnifies the problem, both for the prescriber as well the patient. Manufacturers of drugs having quickly tuned in to the potential golden egg are marketing fixed dose drug formulations for various diseases. It is high time that regulatory authorities, healthcare professionals, researchers and pharmaceutical companies have to join hands together to formulate guidelines for the FDCs to provide effective and safer drugs to the patients.

Thus, in the present review we have compared current FDC policies of United State Food and Drug Administration (USFDA), European Union (EU) and, India (Central Drugs Standard Control Organization).

**KEYWORDS:** Fixed dose combination drugs (FDCs), Regulatory agencies, Central Drugs Standard Control Organization (CDSCO), United State Food and Drug Administration (USFDA), European Union (EU).

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- **Breast Cancer and Indole -3-Carbinol: Controversy of Estrogen Level and Enzyme Elastase**  
*RA Hajare, KS Parwani, SA Bajad, NA. Chandekar and AVChandewar.....439*

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**ABSTRACT**

Estrogen-responsive breast cancer cells, such as MCF7 and T47D cells, express both estrogen receptor ER $\alpha$  and ER $\beta$ . Indole-3-carbinol (I3C) strongly down-regulated ER $\alpha$  protein and transcript levels, without altering the level of ER $\beta$  protein, in both cell lines. In cells transfected with the ER $\alpha$  promoter linked to a luciferase gene reporter, I3C ablated ER $\alpha$  promoter activity<sup>1-5</sup>. Dietary indole-3-carbinol prevents the development of estrogen-enhanced cancers including breast. Whereas estrogen increases the growth and survival of tumors, indole-3-carbinol causes growth arrest and increased apoptosis and ameliorates the effects of estrogen. Our goal is to best use indole-3-carbinol together with other nutrients (genistein) to achieve maximum benefits for cancer prevention. We evaluated whether genistein, which is the major isoflavonoid in soy, would alter the ability of indole-3-carbinol/DIM to cause apoptosis and decrease expression driven by the estrogen receptor (ER)-alpha. Synergistic effect of indole-3-carbinol and genistein for induction of GADD expression, thus increasing apoptosis, and for decrease of expression driven by ER-alpha. Because of the synergistic effect of indole-3-carbinol and genistein, the potential exists for prophylactic or therapeutic efficacy of lower concentrations of each phytochemical when used in combination.<sup>11</sup> I3C inhibits the enzyme elastase. High levels of elastase in breast cancer cells are suggestive of a poor prognosis because elastase shortens cyclin E, a cellular chemical involved in controlling the cell cycle, and the shortened version of cyclin E speeds up the cell cycle, therefore making cancer cells proliferate faster. I3C prevents the elastase shortening of cyclin E, thus halting the growth of breast cancer cells.

**KEYWORDS:** Indole -3-Carbinol, Enzyme elastase, Estrogen, Genistein.

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- **Microemulsion: A Review**  
*Sumit Yadav, Kawtikwar PS, Sakarkar DM, Gholse YN and Ghajbhiye SD.....441*

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**ABSTRACT**

The improvement of bio-availability of drugs is one of the greatest challenges in drug formulations. Among various approach microemulsion, which is a clear, stable, isotropic mixtures of oil, water and surfactant, has gained more attention due to enhanced oral bio-availability, protect labile drug, control drug release, increase drug solubility, and reduce patient variability. This review is about the fundamental work characterizing the Physico-chemical behavior of microemulsions that needs to be performed before they can live up to their potential as multipurpose drug delivery vehicles. In order to appreciate the potential of microemulsions as delivery vehicles, this review gives an overview of the formation, phase behavior, characterization of microemulsions, and their application in different routes of drug delivery.

**KEYWORDS:** microemulsion, solubility, phase behavior, drug delivery.

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- **Oligonucleotide Based Therapeutics: Aptamers**  
*Bhosale AV, Hardikar SR, Patil Naresh, Bhujbal PU, Khirsagar AA and Malvankar SR.....449*

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**ABSTRACT**

The development of systematic evolution of ligand by exponential enrichment (SELEX) process, made possible the isolation of oligonucleotide sequence with the capacity to recognize virtually any class of target molecules with high affinity and specificity. These oligonucleotide sequences referred as 'Aptamers' and have wide diagnostic, therapeutic and analytical applications. Pre and post SELEX modifications confer biological stability to aptamers against nucleases. This enhances molecular diversity of oligonucleotide libraries and further enhances probability of finding aptamer with unique properties. The differentiating feature of an aptamer from other nucleic acid sequences (antisense nucleotide, si RNA etc) is its ability to fold into a tertiary structure to create a binding pocket to precisely and specifically interact with target.

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**RESEARCH ARTICLE**

- **In Vitro and In Vivo Evaluation of the Chitosan Microparticulate Ocular Delivery System of Ketorolac Tromethamine**  
*Anupama Chawla and Munish Ahuja.....456*

**ABSTRACT**

The microparticulate ocular delivery system for ketorolac tromethamine based on chitosan was prepared and characterized for particle size, morphology, entrapment efficiency, *in vitro* release and *in vivo* ocular anti-inflammatory activity. Chitosan microparticles of ketorolac tromethamine were prepared by modified emulsification ionic gelation method, using sodium tripolyphosphate as the ionic cross linking agent. Particle size and morphology was assessed using optical microscopy. *In vitro* release was determined using shaker method. *In vivo* ocular anti inflammatory activity was determined in prostaglandin E<sub>2</sub>-induced rabbit ocular inflammation model. The mean particle size and entrapment efficiency was found to decrease, while *in vitro* release was found to increase with decrease in the concentration of chitosan and sodium tripolyphosphate. The release of ketorolac tromethamine from prepared microparticles followed zero order kinetics. The inhibitory effect of ketorolac loaded microparticles against prostaglandin E<sub>2</sub> – induced polymorphonuclear leukocyte migration was found to be slow and sustained. In conclusion, chitosan microparticulate ocular suspension of ketorolac tromethamine can be used for prolonging the precorneal residence and sustaining the drug release.

**KEYWORDS:** Chitosan, Ketorolac tromethamine, sodium tripolyphosphate,

- **Design and Evaluation of Sustained Release Hydrophilic Polymer Matrix Tablet of Glucosamine Sulphate**  
*N Jawahar, R Vinothaboosan, Nagasamy Venkatesh, R Kalirajan, Jubie S and T Eagappanath.....463*

**ABSTRACT**

The purpose of the present work was to develop and characterize an oral sustained release (SR) matrix tablet of Glucosamine sulphate (GS) by employing luctaman gum (xanthone gum) and xanulac gum (guar gum) as matrix materials. A wet granulation technique was employed to prepare matrix tablets by utilizing various concentrations (10, 15, 20, 25, and 30) in the ratio of 1:1 along with 750mg of GS. The granules were evaluated for Bulk density, Tapped density, Compressibility index and Angle of repose. The prepared tablets were evaluated for various physico-chemical parameters by official procedures. The *invitro* release studies of the matrix tablet were carried out in Phosphate buffer pH 1.2 and 6.8 for 12hrs. The granules showed satisfactory flow properties and compressibility. □ll the tablet showed acceptable pharmacotechnical properties and complied within the specifications for tested parameters. The formulation F-IV (25% concentration) could extend the release up to 12hrs and the mechanism of drug was diffusion followed by erosion.

**KEYWORDS:** Glucosamine sulphate, sustained release, matrix tablet, luctaman gum

- **Formulation and In Vitro Evaluation of Gatifloxacin Ophthalmic Inserts**  
*Patel Upendra, Chotai NP, Nagada CD, Kanaki NS and Patel MP.....466*

**ABSTRACT**

Gatifloxacin is a fourth generation fluoroquinolone anti-infective agent useful in the treatment of eye infection such as acute and subacute conjunctivitis, keratitis and keratoconjunctivitis. An attempt has been made to formulate ophthalmic insert of gatifloxacin using hydroxy propyl methyl cellulose, methyl cellulose and polyvinyl alcohol as polymers by solvent casting method with aim of increasing the contact time, achieving controlled release, reduction in frequency of administration and greater therapeutic efficacy. The prepared ophthalmic insert were then evaluated for uniformity of thickness, weight, drug content, surface pH, % moisture absorption and % moisture loss. *In vitro* drug release of formulated batches of ophthalmic insert was performed by studying the diffusion through artificial membrane (transparent cellulose type cellophane paper). Out of twelve (F1 to F12) formulations prepared, the

formulation F11 containing polyvinyl alcohol (6%) showed prolonged and complete release with 99.06% at the end of 7 hours. The result of *in vitro* diffusion study of promising formulation exhibited first order kinetic, which is non-fickian in nature. The Higuchi plot revealed that the release might be diffusion controlled.

**KEYWORDS:** Gatifloxacin, ophthalmic inserts polyvinyl alcohol and *in vitro* release.

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- **Development and Evaluation of Tramadol Hydrochloride Sustained Release Tablet**  
*Mukund G Tawar , Pawar M D and P D Chaudhari.....470*

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**ABSTRACT**

The objective of this study was to develop competitive sustained release tablets of Tramadol Hydrochloride which releases the drug in a sustained manner, by using different polymers and study on there effect on release pattern. The effect of HPMC K100M, HPC, ethyl cellulose, xanthan gum, sodium CMC, ckarbopol 934P, hydrogenated castor oil, with tramadol HCl in ratio (1:1) on release rate was studied. SR tablet of tramadol HCl (dose 100mg) were prepared by wet granulation, dry granulation, melt granulation and direct compression technique. *In-vitro* dissolution studies performed using USP apparatus type I in the phosphate buffer media (pH 6.8) upto 12 h. For 12 h release, the ratio of drug with alone carbopol 934P (1:0.8) was found to be best suited for modulating the delivery of highly water soluble drug tramadol HCl.

**KEYWORDS:** Tramadol HCl, polymers, non-fickian release, sustained release

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- **In-Vivo Evaluation of Glipizide Floating Microspheres**  
*Gupta Rishikesh, Prajapati SK, Bhardwaj P and Chaurasia H.....474*

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**ABSTRACT**

Oral controlled drug delivery system primarily aim to increase the bioavailability of drug, but the main obstacle for oral controlled<sup>2-4</sup> drug delivery system is inability to restrain and locate dosage form within desired region of gastrointestinal tract from where the drug has maximum absorption. Floating Microspheres of Glipizide was prepared by solvent evaporation method<sup>1</sup>. A polymeric mixture of Ethyl cellulose and hydroxy propyle methyl cellulose (HPMC). Its *in-vitro*<sup>5-8</sup> performance was evaluated by the usual pharmacopoeal and other tests such as drug polymer compatibility (FTIR scan), yield (%), Micrometric properties such as Tapped density, (%). Compressibility particle size analysis (by Optical Microscopy), drug entrapment efficiency, surface topography (SEM) and *in-vitro* release study. The % yield of microspheres was up to 83.0±0.41. The shape and surface morphology of microspheres were studied by optical microscopy and SEM, respectively. Drug loading efficiency was found to be good. On the basis of result increasing polymer ratio increased the particle size (maximum up to 200.89±16.61). *In-vivo* efficiency of the optimized batch GF-1 was performed in healthy normal Wistar rats (250-300gm) by measuring the hypoglycemic effect produced after oral administration.

**KEYWORDS:** Glipizide, Floating microspheres, *In-vivo* study.

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- **Drug Use Evaluation of Anti-Hypertensives at a Teaching Hospital in South India.**  
*S Palanisamy, A Sumathy, C Sundaramoorthi and KSG Arul Kumaran.....477*

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**ABSTRACT**

The retrospective study was aimed to analyze the patient history to identify the risk factors involved in the hypertension, to identify the co-morbidities, past and present illness, to monitor the prescription and trends in the treatment of hypertension and to estimate the cost of anti hypertensive prescribed to the patient's. The total number of patients included in the study was 60. The prevalence of hypertension was predominantly more with male patients than in female patients. The average age (57 years) of the population clearly indicates the elderly patients were affected more. It was alarming that 30 % of the total study population was identified as the first time hypertensive in the overall population. 26.7% of the study

population was found to be mild hypertensive, around 23.3% of the study population was isolated systolic hypertensive and rest of the population was moderate and severe hypertension.

**KEYWORDS:** Drug Use Evaluation, Antihypertensives, Hypertension, Drug Utilization

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- **Validated RP-HPLC Method for Simultaneous Determination of Amlodipine Besylate and Hydrochlorothiazide from Pharmaceutical Preparation and Biological Samples**  
*Bhatia Neela Manish, Deshmane Snehal Jawaharlal, More Harinath Nivrutti and Choudhari Praffula Balkrishna.....482*

**ABSTRACT**

A simple sensitive, rapid, accurate and precise reverse phase high performance liquid chromatographic method has been developed for the simultaneous estimation of amlodipine besylate and hydrochlorothiazide from pharmaceutical preparation, blood sample and urine. The method involves HIQ Sil C<sub>18</sub> 5µm column (250 mm x 4.6 mm i.d.) using phosphate buffer pH 3.5: Acetonitrile (60:40V/V) as mobile phase at a flow rate of 1ml/min with wavelength detection at 240nm. Losartan potassium was used as an internal standard. The retention time of hydrochlorothiazide, amlodipine besylate and Losartan potassium were 3.7, 5.5 and 8.7 ±0.02 minutes respectively. The developed method was applied for simultaneous estimation of the two drugs from pharmaceutical formulation, plasma and urine and was validated according to ICH and USFDA guidelines. The recovery of both the drugs was found to be greater than 98% and % RSD did not exceed 2% indicating high degree of accuracy of the proposed HPLC method.

**KEYWORDS:** Amlodipine besylate; hydrochlorothiazide; losartan potassium; plasma; urine.

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- **Quantitation of Valsartan in Human Plasma by High Performance Liquid Chromatography with Fluorescence Detection and its Application to Bioequivalence Study**  
*SR Shinde, S I Bhoir, NS Pawar and AM Bhagwat.....487*

**ABSTRACT**

A selective, accurate and precise high-performance liquid chromatographic method was developed for the quantitation of an angiotensin II receptor antagonist Valsartan in human plasma. HPLC separation was performed on a reversed phase Inertsil ODS-3V, C<sub>18</sub> (250x4.6mm, 5µ) column, using an isocratic mobile phase of Acetonitrile : Water (60 : 40, v/v) containing 0.1% Triethylamine and pH was adjusted to 3.5 with 10% orthophosphoric acid. The peak response in terms of peak area was measured with fluorescence detector, set at an excitation wavelength 250 nm and emission wavelength 371 nm, at room temperature.

The method was validated in terms of linearity, accuracy, precision, recovery, stock solution, freeze-thaw cycle, autosampler stability and bench top stability. Linearity was observed over a range of 20-1500 ng/mL. The validated method was successfully applied for the analysis of plasma samples from a Pharmacokinetic study.

**KEYWORDS:** Valsartan, Fluorescence, Pharmacokinetics.

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- **Preparation and Characterization of Bi-Layer Matrix Tablets of Amoxicillin Tri-Hydrate**  
*P Narayana Raju, M Lakshmi Narasu, KNV Rao, K Shanta Kumari and K Prakash.....491*

**ABSTRACT**

Amoxicillin bi layer matrix tablets were prepared using cellulose acetate (CA) and cellulose acetate butyrate (CAB) as matrix polymers for the extended release of amoxicillin. The matrix tablets consists of one immediate release layer which release and one sustained release layer which release the drug for a prolonged period of time. The matrix tablets were prepared by direct compression method. The prepared matrix tablets were characterized for the physical properties, drug content, differential scanning calorimetry (DSC) and in vitro dissolution studies. The prepared matrix tablets were kept for accelerated stability study as per ICH guidelines for about 3 months. The prepared bi layer matrix tablets were showing good physical

properties. The initial rapid drug release from the bi layer matrix tablets was observed. The drug release was extended up to 16 hours. Differential scanning calorimetric thermographs shows the stable character of Amoxicillin tri-hydrate. The release kinetics study revealed that the prepared matrix tablets were best fitted to the first order in all the formulations. All the formulations were best fitted to Higuchi model indicated that the drug release was diffusion controlled. The release kinetics study revealed that the prepared bi-layer matrix tablets were best fitted to the first order. All the formulations were best fitted to Higuchi model indicated that the drug release was diffusion controlled. The prepared matrix tablets were having high commercial application.

**KEYWORDS:** Amoxicillin tri-hydrate; cellulose polymers; bi layer matrix tablets; controlled release; stability.

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- **Validated Spectroscopic Method for Estimation of Sumatriptan succinate in Pure and from Tablet Formulation**  
*A. Elphine Prabakar, R. Kalaihelvi, B. Thangabalan R. Karthikeyan , Ch. Prabhakar and P. Vijayaraj Kumar.....495*
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**ABSTRACT**

Sumatriptan succinate (sumatriptan) is a 5HT<sub>1D</sub>-Serotonin receptor agonist which is used to treat migraine and it has good vasoconstrictor properties. Only HPLC methods are available for analysis of the same but they are expensive. There is no UV method is available. Here we have developed a new, precise and simple UV spectrophotometric method for estimation of sumatriptan from tablet formulation. The drug obeyed the Beer's law and showed good correlation. It showed absorption maxima at 220 nm; double distilled water. The linearity was observed between 1 – 12 mcg/ml. The results of analysis were validated by recovery studies. The recovery was more than 99%. The method was found to be simple, accurate, precise, economical and robust.

**KEYWORDS:** Sumatriptan, UV-Vis Spectrophotometry, Migraine, Validation.

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- **Eco-Friendly Synthesis and Biological Evaluation of Some Novel N-Substituted Piperazinyl Fluoro Quinolone Derivatives**  
*K Girija and Divya Chacko.....498*
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**ABSTRACT**

A series of novel N-substituted piperazinyl fluoro quinolones were synthesized under microwave technology. In the SAR study the aryl substituent's on the piperazine nitrogen were found to play an important role for the Anti-HIV and cytotoxic activity. Four compounds were synthesized through modifying the N4-hydrogen of the piperazine in fluoroquinolones with phthalimide. The purity of the synthesized compounds were ascertained by TLC and melting point determination. The structures of the synthesized compounds were screened for their Anti-HIV and invitro cytotoxic activity.

**KEYWORDS:** Thalidomide , Norfloxacin, Ciprofloxacin, Sparfloxacin , Gatifloxacin , Phthalimide, Microwave assisted organic synthesis

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- **Formulation and In Vitro Characterization of Valsartan Solid Dispersions**  
*K.Venkates Kumar, N.Arunkumar, PRP Varma, C. Rani , Neema George.....502*
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**ABSTRACT**

The poor solubility of drug substances in water and their low dissolution rate in aqueous G.I.T fluid often leads to insufficient bioavailability. Solubility is an important physicochemical factor affecting absorption of drug and its therapeutic effectiveness. Consequences of poor aqueous solubility would lead to failure in formulation development. In the present investigation, an attempt was made to improve the solubility and

dissolution rate of a poorly soluble drug, Valsartan by solid dispersion method using sodium starch glycollate (SSG) as carrier. Four different formulations (SD1 to SD4) were prepared with varying drug: carrier ratios viz. 1:1, 1:3, 1:5 and 1:9 and the corresponding physical mixtures were also prepared. The formulations were characterized for solubility parameters, drug release studies and drug-polymer interactions by using phase solubility studies, dissolution studies; XRD analysis, FTIR spectrum, TLC analysis and UV overlay spectra. All the formulations showed marked improvement in the solubility behavior and improved drug release. Formulation containing drug: polymer ratio of 1:9 showed the best release with a cumulative release of 87.18% as compared to 34.91 % for the pure drug. The release increased with increase in carrier content. The interaction studies showed no interaction between the drug and the carrier. It was concluded that sodium starch glycollate as a carrier can be very well utilized to improve the solubility of poorly soluble drugs.

**KEYWORDS:** Solid Dispersion, solubility, Valsartan, Dissolution improvement.

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- **Development and In-Vitro Evaluation of Gastro-Retentive Floating Drug Delivery System of Cefixime Trihydrate**  
*Pradip P Gade, Mohd. Majid Iqbal and K Sreenivasa Rao.....507*

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**ABSTRACT**

Floating matrix tablets of cefixime trihydrate were developed to prolong gastric residence time and increase drug absorption further increasing the bioavailability. Cefixime trihydrate was chosen as a model drug because it is well absorbed from stomach and upper part of small intestine. A simple Spectrophotometric method has been employed for the estimation of cefixime. This method is based on the formation of yellow to yellowish brown complex of cefixime with palladium (II) chloride in the presence of sodium lauryl sulphate. The tablets were prepared by direct compression technique, using polymer such as hydroxy propyl methyl cellulose (HPMC K4M), sodium CMC and carbopol 934P in different combinations with other standard excipients like sodium bicarbonate and lactose. Sodium bicarbonate used as gas generating agent and lactose was used as filler. Magnesium stearate used as lubricant. Tablets were evaluated for physical characterization viz. hardness, friability, swelling index, floating capacity, thickness and weight variation. Further tablets were evaluated for in-vitro drug release up to 12 hr. The effect of polymer concentrations on buoyancy and drug release pattern was also studied. In-vitro drug release mechanism was evaluated by PCP V-3 software. Carbopol 934P had a negative effect on the floating properties also decreased the drug release. But Carbopol provided a firm structure to the swollen tablet. A lesser Floating lag time (FLT) and a prolonged floating duration could be achieved by varying the amount of effervescent and using different polymer concentrations. All the matrix tablets showed significantly greater swelling index due to the swelling agents like sodium CMC. The sodium CMC containing formulations had greater swelling index compared to other. Polymer swelling is crucial in determining the drug release rate and is also important for floatation. All the tablets exhibited controlled and prolonged drug release profiles and some floated over the dissolution medium for more than 12 hr. The type of polymer affects the drug release rate and the mechanism. The paddle speed affected the floating lag time and floating duration it had a negative effect on the floating properties. The optimized formulation followed the Higuchi release model and showed non-fickian diffusion mechanism. It also showed no significant change in physical appearance, drug content, floatability or in-vitro drug release pattern after storage at 45° C at 75 % RH for three months.

**KEYWORDS:** Cefixime trihydrate; bioavailability; swelling index; floating capacity.

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- **Formulation Design, Preparation of Losartan Potassium Microspheres by W/O Emulsion Solvent Evaporation Method and It's In Vitro Characterization**  
*Rout Prasant Kumar, Ghosh Amitava, Nayak Udaya Kumar and Nayak Bhabani Shankar.....513*

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**ABSTRACT**

Present investigation describes preparation of microspheres prepared by W/O emulsion solvent evaporation method followed by *in vitro* characterization statistically. Microspheres containing Losartan potassium were prepared by solvent evaporation method by using sodium alginate and Acycoat E30D as rate

controlling polymer. The microspheres were found to be discrete, spherical with free flowing properties. The morphology, particle size distribution, total entrapment of Losartan potassium into the micro particles and their release profiles were investigated. The morphology was investigated by Scanning Electron Microscopy. The mean geometric particle size of the microspheres prepared by W/O emulsion solvent evaporation method was found in a range of 126-150  $\mu\text{m}$  respectively. The drug entrapment efficiency of all the formulations was found to be more than 80 %. The drug carrier interactions were investigated in solid state by FT-IR spectroscopy and HPLC study. *In vitro* drug release rate for microspheres (F12) was found to be sustained over 8 hours obeying zero order kinetic with good entrapment efficiency and flow properties. Hence it can be concluded that the formulation F12 has potential to deliver Losartan potassium in a controlled manner over other formulations and can be adopted for a successful delivery of Losartan potassium for oral use for safe management of hypertension. All data are verified as statistically significant by using one way ANOVA at 5 % level of significance ( $p < 0.05$ ).

**KEYWORDS:** Losartan potassium, Microspheres, W/O emulsion solvent evaporation, Entrapment efficiency.

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- **Determination of Benzenesulphonic Acid in Amlodipine Besylate Drug Substance by Ion Chromatography with Suppressed Conductivity Detection**  
*Kalpana Vasanthan, Bala Krishnan S, Shantha Arcot and Vijayageetha R.....517*
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**ABSTRACT**

A simple method for the detection of Benzenesulphonic acid content in Amlodipine Besylate drug substance using ion chromatography with suppressed conductivity detection is presented. A mixture of 1.3 mM Sodium carbonate and 2.0 mM Sodium bicarbonate was used as an eluant. The method showed linear responses over the sample target concentration ranges 35-65 $\mu\text{g/ml}$ . The correlation coefficient was found to be 0.9985. The accuracy of the method was determined by preparing the sample concentration in the ranges 70%, 100% and 130% in triplicate and the % recovery was found to be within 98.0 to 102.0. The Method precision and the intermediate precision were demonstrated by the relative standard deviations (R.S.D) of <1% for both the analyst. The Ruggedness was determined by changing the variables such as column, instrument and different analyst on different days. The method was fully validated for the determination of Benzenesulphonic acid in Amlodipine Besylate drug substance.

**KEYWORDS:** Benzenesulphonic acid, Ion chromatography, Amlodipine Besylate, conductivity detection.

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- **Isolation, Purification, Partial Characterization And Antibacterial Activities of Compound Produced by some Actinomycetes from Sedimented Waters**  
*Sumathi R, Saravana kumar A, Rajeswari R and Pavani S.....521*
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**ABSTRACT**

The aim of present study was the isolation, purification, partial characterization and antibacterial activities of compound produced by some actinomycetes from sedimented waters. Actinomycetes are gram positive, non motile, non capsulated bacteria that are characterized by the formation of branching filaments. The emergence of pathogenic bacteria which are resistant to multiple antibiotics, represent growing threat to human health and has given additional importance to the search for the newer drugs. Approximately two-thirds of the known secondary metabolites are produced by members of the order actinomycetales. The water samples of the region of Tamilnadu, Uttar Pradesh, and Madhya Pradesh have the capability to produce Actinomycetes. Luria-Bertani agar medium was one of the best medium for the isolation of Actinomycetes from sedimented water. The antibacterial assay of isolated Actinomycetes was carried out against some gram positive and gram negative microorganisms. The cultural characteristics of the isolated strains were studied from the antibacterial assay and the strain ST6 was selected for further study. Fermentation of ST6 was carried out by using synthetic medium 1. The recovery of the fermentation broth was carried by vacuum filtration and centrifugation. Extract of supernatants S1, S2 were carried out by using solvent ethyl acetate, chloroform. The two extracts SAM 1, SAM 11 were recovered. Their antibacterial activity was studied by using *E.coli* (ATCC 11880), *S.aureus* (ATCC 29737), *S. typhi* (ATCC 2356), *M.luteus* (ATCC 11880). The zone of inhibition was observed. Sam 11 showed good zone of

inhibition as compared to SAM 1. The analysis of the two extracts were carried out by the  $R_f$  values were found to be as 0.8 (SAM 1), 0.79 (SAM 11). Also from UV and IR studies the SAM 1 and SAM 11 showed the  $\lambda_{max}$  of 230nm and 250nm. The IR spectrum of SAM 1 indicated the functional groups like C=O, C-O, NH, aromatic substituted compound and for SAM 11 indicated the functional groups like C=O, C-O, NH, HX and aromatic substituted compound. The DNA of ST6 was extracted by cell lysis technique and purification was carried out by agarose gel electrophoresis. The DNA bands were separated according to the molecular weight as compared with standard marker DNA.

**KEYWORDS:**

- **A Validated Stability Indicating HPTLC Method for Determination of Pentoxifylline in Bulk and Pharmaceutical Formulation**  
*RM Jeswani, PK Sinha, KS Topagi and MC Damle.....527*

**ABSTRACT**

A simple selective precise and stability-indicating high performance thin layer chromatographic method of analysis of Pentoxifylline, both as a bulk drug and in formulations was developed and validated. The method employed TLC (Thin Layer Chromatography) aluminum plates pre-coated with silica gel 60 F<sub>254</sub> as the stationary phase. The solvent system consisted of chloroform : acetone (5:5, v/v). This system was found to give compact spots for Pentoxifylline ( $R_f$ , retardation factor, value=0.48). Pentoxifylline was subjected to hydrolytic, oxidative, dry heat and photo-degradation. The responses for products of degradation were well separated from the pure drug. Densitometric analysis of Pentoxifylline hydrochloride was carried out in the absorbance mode at 275 nm. The linear regression analysis data for the calibration spots showed good relationship with (regression)  $r^2 = 0.9947$  in the range of 200–2000 ng (nanogram). The limits of detection and quantitation were 43.90 ng/spot and 131.73 ng/spot, respectively. The drug does not undergo degradation with acidic hydrolysis and oxidative conditions, but gets affected in and alkaline hydrolytic and neutral hydrolytic conditions. As the method could effectively resolve the drug from its degradation products, it can be employed as a stability-indicating one.

**KEYWORDS:** Pentoxifylline, HPTLC, Stability indicating.

- **Simultaneous Estimation of Ofloxacin and Satranidazole in Bulk and Dosage form by Ratio Spectra Derivative Spectroscopy**  
*Shashikant R Pattan, Syed N Lateef, Prakash N Kendre, Nachiket S Dighe and Rahul K Godge.....531*

**ABSTRACT**

A new sensitive, simple, rapid and precise method for simultaneous estimation of Ofloxacin and Satranidazole in bulk and combined tablet dosage form has been developed. The method is based on ratio derivative Spectrophotometry. The amplitude in first derivative of the ratio spectra at 300 nm and 222 nm (minima) were selected for Ofloxacin and Satranidazole respectively. The concentration range for Ofloxacin and Satranidazole chosen was 2-20 µg/ml and 3-30 µg/ml respectively. The method showed good linearity, accuracy and reproducibility. Results of analysis validated statistically and by recovery studies.

**KEYWORDS:** Ofloxacin, Satranidazole, UV- spectrometry, Ratio derivative method.

- **Evaluation of Ayurvedic Compound Formulation – Krimimudgara Rasa**  
*Saluja AK, Shah UD, Mona R Kukkar, Rajiv R Kukkar and Shukla SH.....534*

**ABSTRACT**

Quality assurance is an integral part of all systems of medicine to ensure quality medicament. Thus, there is an urgent need to evaluate such parameters which can be adopted by the pharmaceutical industries. In the communication, attempts have been made to evaluate *Krimimudgara Rasa*, an Ayurvedic compound formulation. one sample procured from market (MF) and one sample prepared in laboratory (LF) were subjected to physicochemical analysis, HPTLC fingerprinting, and botanical characterization, and

compared using authentic ingredients as reference. It was observed that the microscopic and chromatographic analyses compliment each other in their findings, and can be used effectively for the identification of raw materials in the compound formulation (s).

**KEYWORDS:** *Krimimudgara Rasa*, Ayurvedic formulation, Quality control parameters, Drug standardisation, Pharmacognosy

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- **Anthelmintic and Preliminary Phytochemical Screening of *Nymphaea nouchali* Burm.f. Against Intestinal Helminthiasis**  
*Priyabrata Pattanayak, Sridhar Sahoo, Bainateya Mohanty and Sudhir K Padhi.....537*
- 

**ABSTRACT**

Extracts from the thalamus of *Nymphaea nouchali* Burm.f. were investigated for their anthelmintic activity against *Pheretima posthuma*. Various concentrations (5-20 mg/ml) of each extract were tested in the bioassay, which involved determination of time of paralysis time of death of the worms. The activity of Chloroform and alcoholic extracts were found to be more significant than both the standards even at a dose of 10mg/ml. Piperazine xitrate and Albendazole(10mg/ml) were included as standard references and distilled water as control.

**KEYWORDS:** *Nymphaea nouchali* Burm.f., Anthelmintics, Phytochemical screening, Tannins.

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- **Pharmacognostical studies on *Ficus retusa* leaf.**  
*Swapnadeep Parial, DC Jain and SB Joshi.....540*
- 

**ABSTRACT**

Our present communication deals with pharmacognostical and preliminary phytochemical studies on the leaf of *Ficus retusa*, which is used in folklore uses of Mandsaur. No reports are available on macroscopical and microscopical and phytochemical studies, hence, the present attempt was undertaken to investigate the macroscopical, microscopical and phytochemical studies. The study revealed the presences of wide range of phytoconstituents like sterols, terpenoids, glycoside, flavonoids, polyphenols, proteins, and carbohydrates.

**KEYWORDS:** *Ficus retusa* syn. *microcarpa* leaf (Moraceae), Chilkan (Hindi), Indigenous medicine, Madhya Pradesh, Medicinal plants, Pharmacognostical characters and Preliminary phytochemical studies.

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- **Antinociceptive Effect of *Abutilon indicum* Linn Leaf extract**  
*Balamurugan Gunasekaran and P Muralidharan.....544*
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**ABSTRACT**

*Abutilon indicum* Linn (Sweet) (Malvaceae) leaves were extracted with water and evaluated for its antinociceptive effects by employing various models such as acetic acid-induced writhing test, tail immersion test, hotplate method and formalin-induced nociceptive test. The extract at 200 and 400 mg / kg concentration significantly ( $p < 0.01$ ) reduced the number of writhes produced by acetic acid (0.6 %) and significantly increased the reaction time in thermal models such as hot water tail immersion, hot plate method and formalin-induced test in a dose dependent manner ( $p < 0.01$ ). Morphine (7.5 mg / kg) and Indomethacin (10 mg /kg) were employed as the standard drugs for comparison. The results of the present study revealed that the aqueous extract of leaves of *Abutilon indicum* exhibits a potential analgesic effect, which may be mediated by both central and peripheral mechanisms.

**KEYWORDS:** *Abutilon indicum*, writhing test, hot water tail immersion, hot plate, formalin test, nociception.

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- **Statistical Optimization of Orodispersible Tablets Containing Telmisartan Using Factorial Design and Response Surface Methodology**  
*Satish K Mandlik, DS Nandare, MM Joshi, PD Chudiwal and KS Jain.....548*

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**ABSTRACT**

This study investigated utility of a  $3^2$  factorial design and Response Surface Methodology for orodispersible tablets containing Telmisartan. In an attempt to construct a statistical model for the prediction of disintegration time and percentage friability, a  $3^2$  factorial design was used to optimize the influence of the amounts of superdisintegrant (Polacrillin Potassium),  $X_1$  and subliming agent (Camphor),  $X_2$  which were independent variables. Tablets were prepared by direct compression with camphor sublimation method. Based on the experimental design, different drug release rates and profiles were obtained. Mathematical equations and response surface plots were used to relate the dependent and independent variables. The obtained results showed that dispersion of the drug in the polymer considerably enhanced the dissolution rate. Concerning the optimization study, the multiple regression analysis revealed that an optimum concentration of camphor and higher concentration of Polacrillin potassium are required for obtaining rapidly disintegrating tablets. Hence, this investigation demonstrated the potential of the experimental design in understanding the effect of the formulation variables on the quality of orodispersible tablets containing Telmisartan.

**KEYWORDS:** Orodispersible tablets, Telmisartan, Factorial Design.

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- **Enhanced Skin Permeation of Glimepiride by  $\beta$ -Cyclodextrin and Iontophoresis**  
*Ashish Jain, Satish Nayak, Bijaya Ghosh, Rajesh S Jadon and Virendra Gajbhiye.....552*

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**ABSTRACT**

Enhanced skin permeation of glimepiride by iontophoresis across the pigskin was investigated. The experiment was carried out using cathodal iontophoresis (current density  $0.5 \text{ mA cm}^{-2}$ ) along with the passive controls. At all time points iontophoresis considerably increased the permeation rate compared to passive controls. Glimepiride is one of the third generation sulfonylureas used for treatment of type 2 diabetes. Poor aqueous solubility of the drug leads to irreproducible clinical response or therapeutic failure in some cases due to subtherapeutic plasma drug levels. Consequently, the rationale of this study was to improve the biological performance of this drug through enhancing its solubility and permeation rate by help of  $\beta$ - cyclodextrin ( $\beta$ -CyD) and iontophoresis.

**KEYWORDS:** Glimepiride; Iontophoresis;  $\beta$ - cyclodextrin; Pigskin.

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- **In Vitro Anti-HIV-Type 1 and Antioxidant activity of *Emblica officinalis***  
*C Bothiraja, Mukesh B Shinde, S Rajalakshmi and Atmaram P Pawar .....556*

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**ABSTRACT**

Infections with the human immunodeficiency virus (HIV) are the most serious problems worldwide. Characteristic of an extracted medicinal plant is of great therapeutic significance. *Emblica officinalis* Linn is a valuable natural plant used in the South East Asian traditional medicine for different infection.. In this paper, aqueous extract of *Emblica officinalis* was prepared by cold maceration. The obtained dried extract was subjected to in-vitro anti HIV activity using viral p-24 assay as a criteria for the detection of viral load and antioxidant activity by using Beta Carotene-linoleate oxidation model. The aqueous extract (40 mg/100 ml) showed significant reduction in viral load as compared to control titer value and showed antioxidant activity. It is contributed by Flavonoids and polyphenols constituents. The results of the present study indicating that the aqueous extract of the *Emblica officinalis* can be used against Human Immunodeficiency Virus type 1. Being antioxidant, it can be used to prevent neurological diseases (damage of brain cell mitochondria ) by HIV.

**KEYWORDS:** *Emblica officinalis*, Viral p-24 Assay, Anti HIV , Antioxidant.

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- **Preparation and Evaluation of Metformin Hydrochloride Microcapsules**  
*UD Shivhare, V Darakh, VB Mathur, KP Bhusari and MD Godbole.....559*

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**ABSTRACT**

Metformin hydrochloride, an orally administered drug used to lower blood glucose level in patients with non-insulin dependent diabetes mellitus (NIDDM). Its plasma half-life is relatively short and requires frequent dosing. With this view, metformin hydrochloride microcapsules were prepared using hydrophobic polymers i.e. Eudragit S100, ethylcellulose, cellulose acetate by o/o solvent evaporation technique. Different batches of microcapsules were prepared by altering the drug: polymer ratio. Best optimized formula was evaluated for its drug polymer interaction by IR spectra, X-ray diffraction for any polymorphic changes. Scanning electron microscopy indicated that microcapsules prepared were discrete spherical and covered with continuous coating.

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- **Application of HPLC Technique as Stability-Indicating Method for Determination of Gatifloxacin Sesquihydrate in Pharmaceutical Preparations and Bioanalysis in Human Plasma**  
*Greeshma Mehta, Advait Dixit and Sadhana Rajput.....563*

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**ABSTRACT**

Stability-indicating HPLC method of analysis of gatifloxacin sesquihydrate (GS) both as a bulk drug and in pharmaceutical formulations was developed and validated. An isocratic separation was achieved using a  $\mu$ Bondapak<sup>TM</sup> ODS C18 (300 mm X 3.9 mm i.d., 10  $\mu$ m particle size) column with a flow rate of 0.8 ml/minute and using a UV detector to monitor the eluate at 293 nm. The mobile phase consisted of acetonitrile and sodium acetate buffer pH 3.4 (0.2 % triethylamine was added in buffer and pH of buffer was adjusted to 3.0 with o-phosphoric acid) in the ratio of 25:75 v/v. The drug was subjected to oxidation, hydrolysis, photolysis, dry heat and wet heat to apply stress conditions. The degraded products were well separated from the pure drug. The method was also applicable to quantitative determination of GS in human plasma. The developed method was validated in terms of selectivity, linearity, limit of quantitation, limit of detection, precision, accuracy and recovery. Degradation products resulting from the forced degradation studies did not interfere with the detection of GS and the method is thus stability-indicating.

**KEYWORDS:** Stability-indicating; HPLC; Gatifloxacin sesquihydrate; Forced degradation

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- **Design of Pop Rice Based ORS Formulation: Physicochemical and Microbiological Investigation**  
*Rumana Jahangir, Md. Ifta Khairul Alam, Tasnuva Haque, Md. Mesbah Uddin Talukder and Shammy Sarwar.....572*

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**ABSTRACT**

Pop rice (Khoi) prepared from paddy (locally called Gios Paddy) without sand heating. Then it was grinded to fine powder and then packed into a sachet (high density polyethylene sachet). The salt ingredients were kept separately into the same sachet. After reconstitution all the physicochemical and microbiological tests were performed time to time to investigate whether formulation can be effectively used for the treatment of diarrhoea upto 8 hours. It was observed that the electrolytes concentration and osmolarity remained same in addition to small change of pH within this time period. Furthermore, total bacterial count and total fungal count were found within the standard specification upto 6 hours and also the pathogenic bacteria was found absent in the pop rice based ORS solution. Therefore, pop rice powder based ORS solution can be easily and effectively used for the treatment of diarrhoea.

**KEYWORDS:** Pop rice, Oral Rhydration Salt, physicochemical and microbiological investigation.

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- **New Spectrophotometric Methods for the Determination of Imatinib in Bulk Drug and in Pharmaceutical Formulations**  
*R Karthikeyan, B Thangabalan, A Elphine Prabahar and P Vijayaraj Kumar.....578*

## ABSTRACT

Two simple and sensitive spectrophotometric methods (A and B) for the determination of imatinib in bulk drugs and pharmaceutical formulations are described. In method A, distilled water was used as solvent and shows absorbance maximum at 251 nm. In method B, 0.1 N HCL was used as solvent and shows absorbance maximum at 230 nm. In both the methods linearity was found to be in the range of 10 - 50 µg/ml; for method A ( $Y=0.0184 X+0.0061$ ;  $r^2=0.9992$ ) and for method B ( $Y=0.0164 X-0.0032$ ;  $r^2=0.9997$ ), respectively. These methods were tested and validated for various parameters according to USP guidelines. The quantitation limits were found to be 0.0334 and 0.0279 µg mL<sup>-1</sup>, for both the methods. The proposed methods were successfully applied for the determination of imatinib in pharmaceutical formulations. The results demonstrated that the procedure is accurate, precise and reproducible (relative standard deviation <2%), while being simple, cheap and less time consuming and can be suitably applied for the estimation of imatinib in different dosage forms.

**KEYWORDS:** Imatinib, UV-spectrophotometric methods, validation.

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- **Simultaneous Spectrophotometric Methods for Estimation of Cefixime and Erdosteine in Synthetic Mixture**  
*Nanda RK, Gaikwad J and Prakash A.....582*
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## ABSTRACT

Two simple, rapid, accurate and economical methods have been developed for the estimation of Cefixime and Erdosteine in synthetic mixture. First method is based on solving the simultaneous equation for the two drugs and second method is based on multicomponent analysis. Cefixime has absorbance maxima at 289.0 nm and Erdosteine at 235.0 nm using methanol as solvent for both methods. The Beer Lambert range was observed in concentration range of 10-50 µg/ml for both Cefixime and Erdosteine. The results of both methods have been statistically validated and found to be satisfactory. The recovery studies confirmed the accuracy of the proposed methods.

**KEYWORDS:** Cefixime, Erdosteine, Simultaneous equation, Multicomponent.

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- **Formulation and evaluation of Isoniazide Dispersible tablets using Natural substances as Disintegrants**  
*BS Kuchekar, SR Pattan, RK Godge, RB Laware, NS Dighe and SK Parjane AN Merekar.....585*
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## ABSTRACT

Dispersible tablets of Isoniazide were prepared using natural substances as disintegrant such as Ispaghula husk powder, Cassia tora powder, Cassia tora powder (defatted), Cassia nodosa powder in different concentration by direct compression method. Formulations were evaluated for the standard of dispersible tablets and were compared with marketed products. It was observed that all the formulations were acceptable with reasonable limits of standard required for dispersible tablets. The study reveals that natural gums used as disintegrants were effective in low concentration.

**KEYWORDS:** Dispersible tablet, direct compression, Isoniazid, natural disintegrants.

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- **Anti-Inflammatory Activity of Petroleum Ether Extract of Seeds of *Ocimum Basilicum* Linn**  
*Pankaj Rakha, Manju Nagpal, Sunil Sharma and Milind Parle.....589*
- 

## ABSTRACT

In the present study we have studied the effect of petroleum ether extract of seeds of the plant *Ocimum basilicum* Linn. on acute phase of inflammation induced by carrageenan and formalin. The chronic phase of inflammation was studied using cotton pellet granuloma technique. The increase in paw thickness was measured using digital vernier caliper after 1, 2, 3 and 4h of injection. Petroleum ether extract at dose of 400 mg/Kg significantly inhibited acute phase of inflammation induced by carrageenan and formalin. The decrease in the weight of granuloma was also found by the extract at dose of 400mg/kg. The study clearly

shows that the petroleum ether extract of seeds of *Ocimum basilicum* Linn. possesses significant anti-inflammatory activity.

**KEYWORDS:** Anti-inflammatory, carrageenan, formalin, granuloma.

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- **Factorial Design Based Formulation and Characterization of the Controlled Release Methotrexate Beads**  
*Kotadiya RM,, Patel VA and Patel HV.....592*

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**ABSTRACT**

Methotrexate is an ideal candidate for incorporation in a controlled release device to diminish its adverse effect after oral administration. Beads were prepared by using chitosan as a polymer and Tripolyphosphate as a gelling agent. In this investigation, 3<sup>2</sup> full factorial design was used to investigate the joint influence of two variables: the concentration of Tripolyphosphate (X<sub>1</sub>) and concentration of Span 80 (X<sub>2</sub>) on the drug content (DC) and time for 50% drug dissolution (t<sub>50</sub>). A statistical model with significant terms is derived to predict DC and t<sub>50</sub>. The DC value and t<sub>50</sub> value for the nine batches showed the response ranges from a 30.61 to 58.56 % and 120 to 300 min, respectively. The beads of best batch (CH1) were found comparatively smooth, spherical in shape and free flowing. The size analysis study revealed that the beads mean particle sizes ranging from 500 to 1000. The results of similarity factor, f<sub>2</sub>, confirmed that the release of drug from prepared formulation was similar to that of desired drug release profile. The results of multiple linear regression analysis concluded that for obtaining controlled drug release with high drug content, the beads should be prepared using relatively lower levels of Tripolyphosphate and Span 80.

**KEYWORDS:** Factorial design, Methotrexate, chitosan, span 80, tripolyphosphate

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**SHORT COMMUNICATION**

- **Spectrophotometric Methods for the Determination of Etoricoxib in Pharmaceutical Formulations**  
*Chaple DR and Bhusari KP.....597*

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**ABSTRACT**

Simple UV and first derivative spectrophotometric methods have been developed for the determination of etoricoxib in tablet dosage form. In simple UV method, spectrum of etoricoxib in 0.1 N HCl showed absorbance maximum at 271.6 nm, where as in first derivative spectrum it shows maxima at 265.2 nm and minima at 301.6 nm. Beer's law is obeyed over the concentration range 1-25µg/ml. The developed methods have been successfully applied for the determination of etoricoxib in tablet dosage form. The results obtained by the proposed methods were validated by recovery studies.

**KEYWORDS:** Etoricoxib, derivative spectrophotometry.

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- **Antimicrobial Activity of Leaf Extracts of *Cleodendrum viscosum*. Vent**  
*N Siju, GR Rajalakshmi, D Vivek, Hariraj N, RV Shiniya, MK Shinojen and KV Pravith.....599*

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**ABSTRACT**

Anti microbial activity of various leaf extracts of *Cleodendrum viscosum* were tested against organism *Staphylococcus aureus*, *Streptococcus pyrogen*, *Escherichia coli*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, *A.niger* *A. flavus*, *C. albicans* and *Salmonella typhi*. The plant exhibited a broad spectrum of antimicrobial activity .

**KEYWORDS:** Antibacterial, Antifungal activity, *Cleodendrum viscosum*, Leaf extracts.

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- **Release of Ibuprofen from Stearic Acid Based fusion Matrix**  
*Goupale DC, Ghode P, Mehta K and Dhongade H.....601*

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**ABSTRACT**

The aim of the present study was to investigate the release of Ibuprofen (IB) from Stearic acid (SA) fusion matrix in different pH environments. The drug, Ibuprofen was added in weakly acidic waxy material i.e. stearic acid. This mixture was melted and re-solidified to get hard solid matrix. The results showed that the matrix has poor release (1%) in acidic medium (pH 1.3), 3% release in pH 3.6 and 12% release in pH 7.2 after 4 hrs. On other hand in basic medium (at pH 10.2) the matrix has complete release 99.97% within 30 minutes. The stearic acid fusion matrix significantly decreased the rate of drug release as the pH decreases of the dissolution medium. This fact may be implemented to develop colon specific (Basic environmental) drug delivery for drug those are gastric irritant.

**KEYWORDS:** Release, fusion matrix, Ibuprofen

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- **Absorption Ratio Method for Simultaneous Estimation of Haloperidol and Trihexyphenidyl in Tablet**  
*SP Wate and AA Borkar.....603*

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**ABSTRACT**

A simple, accurate, economical and reproducible procedure for simultaneous estimation of haloperidol (HP) and trihexyphenidyl (THP) in their tablet dosage form is described. The method involves absorbance measurement at 218.8 nm (isobestic point) and 245.0 nm ( $\lambda_{max}$  of haloperidol), in methanol and 0.1N HCl (90:10). Both the drugs obey Beer Lambert's law in the concentration range of 2.5-12.5  $\mu\text{g/ml}$  (HP) and 1.0-5.0  $\mu\text{g/ml}$  (THP). The results of analysis have been validated statistically and by recovery studies.

**KEYWORDS:** Haloperidol, Trihexyphenidyl, Validation

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- **Simultaneous Estimation of Omeprazole and Cisapride in Pharmaceutical Dosage Form**  
*Vijaya P. Godse, Mane Shrinivas R, AV Bhosale and AV Kasture.....605*

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**ABSTRACT**

A simple, rapid, reproducible and economical procedure for routine simultaneous analysis of Omeprazole and Cisapride in oral dosage form has been developed using multicomponent mode of analysis. The method is based on the native Ultraviolet absorbance maximas of the two drugs in methanol. The interference among the components of the formulations was reduced by employing five mixed standards and four sampling wavelengths of 214.5nm, 221.5nm, 230nm and 240nm. The method has been validated statistically. The recovery was between 99 to 101%.

**KEYWORDS:** Omeprazole, Cisapride, multicomponent mode

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- **Preliminary Phytochemical Screening, Free radical Scavenging and Antimicrobial activities of Citrus auranticum fruit bio-mass**  
*SL Munne, DV Parwate and VN Ingle.....607*

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**ABSTRACT**

The present study was undertaken to evaluate antioxidant activity and antimicrobial activity of methanol extracts of gamma irradiated and unirradiated *Citrus auranticum* fruit bio-mass. *In-vitro* antioxidant activity has been investigated by 1,1-Diphenyl, 2-picryl-hydrazyl free radical scavenging method. The extracts were subjected to antibacterial (*Staphylococcus aureus*, *Escherichia coli*, *Salmonella typhi*) and antifungal (*Aspergillus niger* and *Candida albicans*) screening by disc diffusion method. Preliminary phytochemical investigation was done and different phytoconstituents present were identified.

**KEYWORDS:** *Citrus auranticum*, Antibacterial, Antifungal, Free radical scavenging, Gamma radiation

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