

CONTENT

REVIEW ARTICLE

- **Bioadhesive Polymers as a Platform for Drug Delivery: Possibilities and Future Trends**
Raj Kumar Poddar, Pankaj Rakha, SK Singh and DN Mishra.....01

ABSTRACT

This paper aims to review the developments in the bioadhesive drug delivery systems to provide basic principles to the young scientists, which will be useful to circumvent the difficulties associated with the formulation design. Bioadhesion can be obtained by the building of either non-specific interactions with the mucosal surface, which are driven by the physicochemical properties of the particles and the surfaces, or specific interactions when a ligand attached to the particle is used for the recognition and attachment to a specific site at the mucosal surface. Starting with a review of the oral mucosa, mechanism of drug permeation, and characteristics of the desired polymers, this article then proceeds to cover the theories behind the adhesion of bioadhesive polymers to the mucosal epithelium. The primary goal of bioadhesive controlled drug delivery is to localize a delivery device within the body to enhance the drug absorption process in a site-specific manner. This article reviews desirable properties of bioadhesive polymers and the latest advancement in the field.

KEYWORDS: Bioadhesion, oral mucosa, drug permeation, bioadhesive polymers.

- **Preparation and Evaluation of Intra-Vaginal Gel: A Review**
Lalit Kumar and Ruchi Verma.....07

ABSTRACT

Purpose of this article is to introduce about the vaginal drug delivery, preparation of intra – vaginal gel and methods used for the evaluation of most effective intra – vaginal gel. Perhaps vagina is less explored, but efficient route for administration of drugs due to the presence of dense blood vessels network. To date, most vaginal drug delivery systems are traditionally used to deliver contraceptives and drugs to treat vaginal infections. However, vaginal drug delivery is not limited to these drugs as the vagina has promise as a site to topically deliver drugs which will be absorbed systemically because of the dense network of blood vessels in the vaginal wall. This is an advantage over other routes of transdermal and trans-mucosal drug delivery. In addition, vaginal drug delivery has an advantage over oral delivery because it avoids the hepato-gastrointestinal first-pass metabolism of drugs. This review article contains classification of gel, mechanism of absorption, and method of preparation and evaluation of intra-vaginal gel is also well explained in this review article.

KEYWORDS: Gel, Vagina, Intra-vaginal.

• **Alternative Strategies in Solid Dispersion Manufacturing**

MP Wagh, MH Bele, JS Patel and AY Pawar.....14

ABSTRACT:

Solid dispersion technique is being used to enhance the dissolution rate of poorly water-soluble drugs and/or BCS class II drugs (Low solubility and High permeability). Conventionally, it can be prepared by two methods; melting and solvent evaporation. But these approaches are found to be having certain limitations regarding reproducibility, scale-up and stability of the drug. Various novel strategies have been tried for solid dispersion manufacturing such as lyophilization (freeze drying), melt agglomeration process, spray drying technology, use of surfactant, electrostatic spinning method, spray coating on sugar beads with a fluidized bed coating system, hot melt extrusion, direct capsule filling and super critical fluid technology. These technologies have been found to eliminate several drawbacks posed by the conventional methods of manufacturing of solid dispersions such as laborious preparation methods, reproducibility, scaling up of manufacturing processes, stability of drug, and vehicle. The paper highlights the potential applications and limitations of these novel approaches in solid dispersion manufacturing.

KEYWORDS: Solid dispersion, surfactants, supercritical fluid technology, direct capsule filling.

• **Ethosomes: Novel Approach in Transdermal Drug Delivery System**

Roge Ashish B, Sakhare Ram S, Bakal RL, Channawar MA, Bakde BV, Gawande SR and Chandewar AV.....23

ABSTRACT:

Transdermal drug delivery system is emerging system as compared to oral and parenteral. In TDDS, patch system was developed to control the release of drug. Conventional transdermal drug delivery system achieved advantages over the oral and parenteral. Consequently a number of vesicular drug delivery systems such as liposomes, niosomes were been developed as novel transdermal drug delivery system. Firstly, it delivers the drug at a rate directed by the needs of the body, over the period of treatment. Secondly, it channel the active entity to the site of action. However, TDDS has limited market success due to the barrier properties of the Stratum Corneum and stability of formulation. Ethosomes is better achievement in vesicular drug delivery system, helpful to achieve goal needed by NTDDS. Ethosomes are noninvasive delivery carriers that enable drugs to reach the deep skin layers and/or the systemic circulation. This review focus on introduction, mechanism of penetration, method of preparation, methods of characterization and application in the field.

KEYWORDS: TDDS, CTDDS, NTDDS, Stratum Corneum, Vesicular Drug Delivery System, Ethosomes.

• **A Brief Review on Gastro Retentive System**

Dahake MN, Wattamwar PP, Bongirwar RA, Mohale DS, Bakal RL and Chandewar AV.....28

ABSTRACT:

Oral delivery of drug is the most preferable route of drug delivery due to ease of administration, patient compliance and flexibility in formulation etc. However, it is a well accepted fact that it is difficult to predict the real in vivo time of release with solid, oral controlled release dosage forms. Various attempts have been made to prolong the retention time of the dosage form in the stomach. One such approach is development of floating microspheres involves preparation of a device that remains buoyant in the stomach contents due to its lower density than that of the gastric fluids. Floating microspheres are gastro-retentive drug delivery systems based on non-effervescent approach. These microspheres are characteristically free flowing powders consisting of proteins or synthetic polymers, ideally having a size less than 200 micrometer. Floating microspheres are prepared by solvent diffusion and evaporation methods to create the hollow inner core. Floating microspheres are specially gaining attention due to their wide applicability in the targeting of drugs to stomach.

KEYWORDS: Oral controlled release dosage form, retention time, floating microsphere.

RESEARCH ARTICLE

- **Isolation and Characterization of Antibiotic Production from Soil Isolates by Fermentation**

Chandrashekhara S, BK Nanjwade, PS Goudanavar, FV Manvi Shamrez Ali M.....32

ABSTRACT

In screening of new antibiotics, several actinomycetes were isolated from soil samples. Crowded plate technique was used for the isolation of actinomycetes. The morphological and cultural characterization of A-4 strain was performed. In medium formulation study for A-4 and A-4 mutant, various carbon and nitrogen sources were tested for maximum antibiotic production using zone of inhibition and packed cell volume (%) as parameters. Various fermentation conditions like pH, temperature and DO₂ were also optimized for the maximal production of antibiotic from both A-4 and A-4 mutant. All medium formulation as well as bioprocess parameters for A-4 and A-4 mutant strains was compared. Some actinomycetes strains, showed promising antimicrobial scores against different strains of bacteria and fungi. From the six strains selected, one strain designated as A-4 showed maximum antimicrobial property against gram positive and gram negative strains as well as various fungi. Morphological and cultural studies showed that A-4 is belongs to actinomycete genus.. The strain A-4 and A-4 mutant was found to be having better antimicrobial activity in comparison with other soil isolates of actinomycetes.

KEYWORDS: Actinomycete, Antibiotic, Crowded plate technique, Zone of Inhibition, Fermentation.

- **Comparison of Biorelevant and Compendial Dissolution Media and Prediction of In-vivo Plasma Profile of BCS Class II Drug.**

Manju Nagpal, Pankaj Rakha, Surinder Goyal, Gitika Dhingra and Sunil Gupta.....37

ABSTRACT

The performance of biorelevant and compendial media was compared to test dissolution of drugs belonging to class II according to Biopharmaceutic Classification Scheme (BCS) and their potential was determined in predicting *in-vivo* profile. The solubility of Carbamazepine was determined in various media having different pH (water, SGF_{SP}, SIF_{SP}, SGF_{SP}SLS, FaSSIF and FeSSIF), to calculate D/S values in different media. Dissolution of Carbamazepine, a neutral drug was studied using USP apparatus II in water, SGF_{SP}, SIF_{SP}, SGF_{SP}SLS, FaSSIF and FeSSIF. Hixson- Crowell model was applied to determine drug release kinetics. The *in vivo* profile was predicted from *in vitro* dissolution data using modified form of model proposed by Nicolaidis in 2001. Dissolution of Carbamazepine from tablet formulation was found to be dependent upon concentration of solubilizing agents. The similarity factor indicated pH independent dissolution of carbamazepine in different dissolution media. The *in vivo* profiles predicted using *in vitro* dissolution of carbamazepine in biorelevant media supported better absorption in the presence of food which matches the literature facts. The Biorelevant Media therefore are better at discriminating *in vitro* release characteristics for forecasting *in vivo* performance of poorly soluble drugs.

KEYWORDS: Biorelevant media, FaSSIF, FeSSIF, BCS.

- **Formulation and Evaluation of Ethyl Cellulose Coated Microspheres of Aceclofenac**

SM Sarode, MK Kale and G Vidyasagar.....41

ABSTRACT:

The pain is symptomatic of some form of dysfunction and resultant inflammatory processes in the body. More than 15% of the worldwide population suffers for instance from some form of osteoarthritis and this incidence is even higher in elderly. As the world population is grows older, this incidence will continue to rise. Aceclofenac has been shown to have potent analgesic and anti-inflammatory activities and due to its preferential cox-2 blockade it has better safety than conventional NSAIDs with respect to

adverse effects on gastrointestinal and cardiovascular system. Ethyl cellulose microspheres of Aceclofenac were prepared by emulsion- solvent evaporation technique that is an industrially feasible technique. The microspheres are spherical, discrete and free-flowing. Encapsulation efficiency was found to be 81%. Aceclofenac release from microspheres was slow and diffusion controlled. Good liner relationships were observed between percent coat and release rate of the microspheres. These microspheres were found suitable for oral controlled release.

KEYWORDS: Microencapsulation, controlled release, Aceclofenac.

- **Characterization and Evaluation of Glibenclamide Transmucosal Drug Delivery System**
PS Goudanavar , RS Bagali and SM Patil.....44
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ABSTRACT

In an attempt to develop mucoadhesive buccal drug delivery system, buccal tablets of Glibenclamide were prepared using polymers such as carbopol-934, Hydroxypropylmethyl cellulose HPMCK4M, and sodium carboxy methyl cellulose (Sod. CMC) in various proportions and combinations. The tablets were evaluated for different physicochemical parameters like weight variation, friability, hardness, drug content, water absorption studies, bioadhesive performance, release characteristics and surface pH. Tablets containing carbopol-934 and sodium CMC showed a maximum *in vitro* release of 82.27%. The formulations were subjected to graphical treatments according to Higuchi's equation and Peppas's equation. The best formulation F1 confirmed that the release mechanism is by diffusion, the rate of release following first order kinetic model.

KEYWORDS: Buccal tablet, bioadhesive performance, release characteristics, surface pH,

- **Design and Evaluation of Modified Release Dosage Form Containing Bupropion Hydrochloride**
Dipen Patel, DM Patel, ST Prajapati, JB Dave and CN Patel.....47
-

ABSTRACT

In the present investigation an attempt was made to reduce the frequency of dose administration, to improve the patient compliance by developing Modified release matrix tablet of Bupropion Hydrochloride (BPH). Bupropion has been approved by the Food and Drug Administration (FDA) for use in smoking cessation. Eleven batches of matrix tablets of BPH were developed by using direct compression technique and coated with Opadry white. Compressed tablets were evaluated for weight variation, hardness, friability, similarity factor (f_2) and *in vitro* dissolution using paddle (USP type II) method. Drug excipients compatibility study was also performed using differential scanning calorimetry (DSC). All the formulations were compared with the innovator. Among the eleven formulations F11 batch shows comparative dissolution profile with the innovator.

KEYWORDS: Bupropion Hydrochloride Tablet, In-vitro dissolution study, DSC.

- **Quantization of Aceclofenac in Pharmaceutical Formulations by RP-HPLC**
Santanu Ghosh and BB Barik.....52
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ABSTRACT:

An isocratic reversed phase high-performance liquid chromatographic (HPLC) method with ultraviolet detection at 281 nm has been developed for the determination of aceclofenac in dosage formulation. Good chromatographic separation aceclofenac was achieved by using a stainless steel analytical column Inertsil ODS, C18, 250 x 4.6 mm, 5 μ . The system was operated at (30 \pm 2 $^\circ$ C) using a mobile phase consisting of buffer: acetonitrile (600:400) at a flow rate of 1.5 ml/min. The calibration curve for aceclofenac was linear over the tested concentration range of 50%, 75%, 100%, 125% and 150% with reference to the label claim and a correlation coefficient of 1.00. The intra- and inter-run precision and accuracy results were 99.07 to 100.20 with the %RSD of 0.45% and tailings factor 1.16. The proposed

method was validated for its selectivity, linearity, accuracy, and precision. The method was found to be suitable for the quality control of aceclofenac in bulk drug as well as in formulation.

KEYWORDS: Aceclofenac, UV detection, RP-HPLC, dosage formulation, method validation.

- **Transdermal Drug Delivery System of Salbutamol Sulphate: Formulation and Evaluation**

Vaseeha Banu T. S., Sukhen Som, Mohamed Khaleel and Nirmal T. Havannavar.....56

ABSTRACT:

Salbutamol Sulphate (SS) is a selective β_2 adrenergic receptor agonist having oral bioavailability of 50%. The transdermal films of SS were formulated using solvent casting technique. Solutions containing polymers i.e. Hydroxy Propyl Methyl Cellulose (HPMC) and Ethyl Cellulose (EC) at different concentrations (1%, 1.5%, 2%, 2.5%, and 3%) were prepared. These solutions were then used to prepare films. Prepared films were then evaluated for their different physicochemical parameters like physical appearance, weight variation, thickness, drug content, folding endurance, tensile strength, percent elongation and finally in vitro release study across rat abdominal skin. Between the two polymers used results revealed that the films prepared by using 2% HPMC with 30% propylene glycol(PG) was very flexible with high folding endurance and uniform drug content, further release study showed 88.68% release across the rat abdominal skin for 24 hours.

KEYWORDS: Salbutamol, Asthma, Bronchitis

- **Target Retentive Biodegradable Periodontal Disks for Simultaneous Extended Release of Metronidazole and Doxycycline: Formulation Consideration**

Gaurav Tiwari, Ruchi tiwari and Awani K Rai.....62

ABSTRACT

Buccoadhesive erodible disks of metronidazole and doxycycline were prepared using different bioadhesive polymers along with excipients like magnesium stearate. The purpose of designing the erodible disk was to obviate the need for removal of exhausted device. The optimized disk containing 3% w/w of magnesium stearate along with hydroxypropylmethylcellulose K4M and sodium carboxy methyl cellulose in the ratio of 1:3 was found to release the drug for a period of over 6.0 h without getting dislodged. Maximum in vitro drug release was found to be 94.78% in 6.0-h study. *In situ* release characteristics were evaluated using a 'flow-through assembly', which simulated the conditions of the human buccal cavity. The drug concentrations in the in situ samples were found to be above minimum inhibitory concentration (MIC) of the drug. The bioadhesive performance and the surface pH of the disks were satisfactory. Metronidazole and Doxycycline disks were tested against microorganisms commonly found in oro-dental infections namely *Staphylococcus aureus*, *Escherichia coli* and *Streptococcus mutans*. The disk as well as the in situ samples showed inhibition of growth of microorganisms. Thus a stable, extended release periodontal disks containing both metronidazole and doxycycline with satisfactory bioadhesion was developed.

KEYWORDS: Bioadhesive polymers; Extended release; Metronidazole; Doxycycline; Periodontal diseases

- **Effect of Dispersing Agent on the Characteristics of Eudragit Microspheres**

Sethi RK, Sahoo SK, Das PK and Barik BB.....67

ABSTRACT

Eudragit RS microspheres containing Indinavir sulphate for oral use were prepared using two different dispersing agents: aluminium stearate and magnesium stearate, by solvent evaporation method. The effects of the type and concentration of the dispersing agents and the inner phase polymer concentration on the size of microspheres was studied. The morphology of microspheres was characterized by scanning electron microscopy. The surface of microspheres prepared with aluminium stearate was

smoother and non-porous. When magnesium stearate was used as dispersing agents, the particle size of microspheres decreased. Increasing amounts of this dispersing agent led to the accumulation of their free particles onto the surfaces of the microspheres. The drug release from the microspheres was faster with the microspheres from aluminium stearate based on their hydrophobic structures. The encapsulation efficiency is more in case of aluminium stearate in comparison to magnesium stearate. Formulation containing aluminium stearate shows a more sustained effect than formulation containing magnesium stearate. This may be due to the fact that aluminium stearate is more hydrophobic in comparison to magnesium stearate.

KEYWORDS: Indinavir sulphate, Dispersing agent, Eudragit RS 100, controlled release.

- **Development of a New, Simple, Sensitive and Cost-Effective Method for Estimation of Atenolol in Formulation and Bulk**

Mohamed Khaleel, Nirmal T Havannavar, Sukhen Som and Vaseeha Banu TS.....72

ABSTRACT

Atenolol is selective β_1 -adrenergic receptor blocking agent with insignificant partial agonist activity and weak membrane stabilizing properties. Atenolol is official in Indian Pharmacopoeia (IP) and British Pharmacopoeia (BP) and the official method for its assay is by non-aqueous titration. Literature survey revealed non-aqueous titration used for the assay of pure drug and in formulations, High Performance Liquid Chromatography (HPLC) and Gas Liquid Chromatography (GLC) methods for the determination of this drug from serum & urine and Colorimetric and Spectrophotometric methods to estimate this drug in its formulations. But the titrimetric method suffers from various drawbacks and is not satisfactory for pharmaceutical products. This prompted us to develop a newer, simple and cost-effective method for estimation of Atenolol in formulation and bulk. This method is based upon the reaction of Atenolol with dinitrofluorobenzene in acetone in presence of borax and dioxane to develop a yellow colour which is then determined spectrophotometrically at 389 nm (λ max of the complex formed). A series of dilutions containing atenolol 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 $\mu\text{g/ml}$ were prepared among which linearity showed at the range of 2-24 $\mu\text{g/ml}$. Calibration plot was obtained by using above dilutions. By using the calibration plot the amount of atenolol present in tablet formulation and bulk was found out and the results were satisfactory and encouraging.

KEYWORDS: Atenolol, Spectrophotometric determination, λ max, calibration curve

- **Formulation of Diclofenac Sodium Delayed-Release Disintegrating Tablets**

Shajahan Abdul, Mangesh E Bhad, Anil V Chandewar, Jayesh M Jain and Sunil B Jaiswal.....77

ABSTRACT

The aim of this study was to design diclofenac sodium delayed-release (DR) disintegrating tablets, which upon oral ingestion rapidly disintegrate into DR pellets without affecting drug release pattern. Diclofenac sodium was mixed with microcrystalline cellulose (MCC) and different enteric polymers to produce DR matrix pellets by high-shear pelletization process. The process variables involving the different stages of high-shear pelletization process such as premixing of the solids; liquid addition stage; wet massing stage; and drying stage along with formulation variables including different types and amount of enteric polymers were investigated. Diclofenac sodium DR pellets were successfully prepared in a single step without DR polymer membrane coating and the dissolution profile was comparable with reference product, Voveran[®], diclofenac sodium DR tablets. The optimised DR multiparticulates were compressed with tableting excipients into multiple unit pellet system (MUPS) tablets. The percentage of DR pellets in the tablet compression blend, the different size fraction of filler excipients, the compression machine speed were considered to have less variation in content uniformity in tablets by using a 3^3 factorial design. By including an optimum amount of DR pellets in the compression blend containing tableting excipients of desired size distribution, the tablets with less variation in content uniformity and unaffected drug release profile, at all compression machine speeds is achievable.

KEYWORDS: Diclofenac sodium, matrix pellets, high-shear pelletization, delayed-release

• **Design and Evaluation of Buccoadhesive Microspheres for Smoking Cessation**

Athawale R, Ghadge S, Shahi S and Singh A.....90

ABSTRACT

The present research work was designed with an aim to develop and evaluate buccoadhesive microspheres by cross linking method and determine the suitability of the formulation in nicotine replacement therapy. The developed microspheres were evaluated for various physicochemical parameters like appearance, particle size distribution, DSC studies, angle of repose, drug content, mucoadhesion time, in vitro release behaviour and ex vivo drug permeation through porcine buccal mucosa. The release kinetics was further explored by using Korsmeyer- Peppas equation. Stability studies of optimized batches of microspheres were carried out as per ICH guidelines. The optimized batch was found to have the particle size between 100- 150 μm and angle of repose 28.34 ± 0.2 , thus showing good flowability. The DSC thermogram revealed the engulfment of the drug into microspheres. The drug content of all the batches was found to be in the range of 96-105%. The mucoadhesion time was found to be 8.4 ± 0.5 hrs. The *in vitro* release profile revealed that the drug release was sustained for 8hrs. The n value nearer to 0.5 indicates that the drug followed the Fickian diffusion pattern of release kinetics. Further *ex vivo* permeation studies of microspheres showed 88.91% drug permeation through the buccal mucosa in 8 hours with good correlation coefficient 0.9980 with the in vitro dissolution studies. Thus the developed microspheres will be a very effective buccal drug delivery system for the treatment of nicotine addiction .

KEYWORDS: Nicotine replacement therapy, nicotine bitartrate dihydrate, microspheres, buccal tablets.

• **Formulation and Evaluation of Controlled Release Microspheres of Zidovudine**

Vinod R, Ashok Kumar P, Amit S Yadav, Someshwara Rao B and Suresh V Kulkarni.....96

ABSTRACT

The aim of this study was to formulate and evaluate microencapsulated controlled release preparations of zidovudine, using Copolymers Eudragit S 100 and RL 100 (acrylic and methacrylic acid esters) and Ethyl cellulose as the retardant material. Microspheres were prepared by solvent evaporation method using an acetone/liquid paraffin system. Magnesium stearate was used as the droplet stabilizer and n-hexane was added to harden the microspheres. The prepared microspheres were characterized for their micromeritic properties, drug loading, as well by Fourier transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM). The *in vitro* release studies were performed in pH 7.4, phosphate buffer. The prepared microspheres were white, free flowing and spherical in shape. The drug-loaded microspheres show 81-93% of entrapment and release was extended more than 10hrs. Stability studies revealed that polymers used were stable and compatible with the drug and there is no significant effect on physical characteristics, drug content and dissolution profile of the microspheres. Scanning electron microscopy study revealed that the microspheres were spherical with rough surface. The best-fit release kinetics was achieved with Higuchi's plot followed by First order and Zero order. The release of Zidovudine was influenced by the drug to polymer ratio, particle size & was found to be diffusion controlled.

KEYWORDS: Controlled release, Ethyl cellulose, Eudragit S100 and RL 100, Microspheres, Zidovudine.

• **Formulation and Evaluation of Chronomodulated Drug Delivery System**

Mukund G Tawar, Satish V Shirolkar, Mahesh D Pawar, Nishant S Gandhi and Nilesh B Deore.....100

ABSTRACT:

A pulsatile drug delivery system which is time dependent, consist of an effervescent core surrounded by consecutive layers of swelling and rupturable layers were prepared and evaluated. The cores comprising of the active agent Terbutaline sulphate (β blocker) was prepared by direct compression method using

different ratios of Microcrystalline cellulose, Osmotic agent and effervescent agent. The outer rupturable layer consists of Eudragit RS/RL (1:1) which surround the inner swelling layer comprising of Hydroxy propyl methyl cellulose E5. The effect of various formulation and processing parameters were studied. The rupture and drug release studies were carried out using the USP paddle method at 50 rpm in 0.1 N HCl, and Phosphate buffer pH 6.8. The lag time of drug release was increased by increasing the rupturable layer and decreased by increasing the swelling layer level. The osmotic and the effervescent effect were involved in the drug release, as shown by the studies.

KEYWORDS: Nocturnal Asthma, Chronomodulated drug delivery, Terbutaline Sulphate, Swelling layer, Rupturable layer.

• **Compatibility Studies Between Gatifloxacin and Pharmaceutical Excipients through Differential Scanning Calorimetry and Infra Red Spectroscopic**

Rajendra Jangde, Rahul Singhour and SJ Daharwal.....103

ABSTRACT

Proper formulation is an important aspect of any dosage form design. FT-IR and Differential scanning calorimeter were used to evaluate the compatibility of Gatifloxacin and selected Excipients used in the development of suspensions formulation. In the first phase of Differential scanning calorimeter was used in the any interaction. In the next phase, excipients defined as prototype formula were tested for their compatibility with Gatifloxacin. Based on the results, methyl paraben and polyvinyl pyrrolidone were found show interaction with Gatifloxacin. Results of Differential scanning calorimeter and FT-IR demonstrated incompatibility between Gatifloxacin and MethylParaben. All the excipients defined in the prototype formula were found to be compatible with Gatifloxacin. Using the Excipients that were found to be compatible with Gatifloxacin. FT-IR and Differential scanning calorimetry was used to investigate the physicochemical compatibility between Gatifloxacin and various used in suspension manufacturing. The Gatifloxacin found to be compatatible with polyvinyl alcohol and acacia. Although interactions of Gatifloxacin with methyl paraben, polyvinyl pyrrolidone were observed. It cannot be conclusive stasted that interactions incompatibility will occur during storage at room temperature.

KEYWORDS: Gatifloxacin, FTIR, differential scanning calorimetry, Pharmaceutical excipients, preformulation compatibility.

• **Enhancement of Dissolution Rate Studies on Solid Dispersion of Aceclofenac**

S.Lakshmi Thotacherla, A.M.Shamsunisha, Y.Sirisha, C.Valarmathi, K.L.Senthilkumar, Ezhilmuthu, A.Vasanthan, P.Sumathy,.....107

ABSTRACT

Aceclofenac is a Non- Steroidal Anti Inflammatory drug indicated for the relief of pain and inflammation, associated with rheumatoid arthritis, osteo arthritis, ankylosing, spondylitis. The percentage of dissolution rate of drug released from pure Aceclofenac was obtained 26.48% in 180min. The aim of the study was to enhance the dissolution rate on solid dispersion of Aceclofenac by using PEG6000 as carrier in three different ratios such as ACF:PEG6000-1:1, 1:2 and 1:4 by fusion method or melting method. The percentage of drug release of Aceclofenac from solid dispersions ACF:PEG6000-1:1,1:2 and 1:4 was 59.65%,84.75%,98.34% respectively in 180min. Aceclofenac from solid dispersions due to enhancing effect of PEG6000.

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