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1	Certificate of Head of Institution
2	List of **M.Pharm [Pharmaceutics]** Students under taking Project work/Field work / Internship-HOI
3	List of **M.Pharm [Pharmaceutics]** Students under taking Project work/Field work / Internship.

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1.	261910805	R KARTHIKEYAN	II	FORMULATION AND EVALUATION OF ABUTILON INDICUM SUPPOSITORIES FOR THE TREATMENT OF HAEMORRHOIDS	-	-
2.	261120507501	R ANANTHKUMAR	II	DEVELOPMENT OF RESVERATROL LOADED NANOCRYSTAL TO IMPROVE SOLUBILITY AND	-	-

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				DISSOLUTIO N RATE		
3.	261120507502	DEVANANDH D	II	DESIGN AND INVITRO CHARACTER IZATION OF ROSUVASTA TIN CALCIUM FLOATING TABLETS BY EMPLOYING RESPONSE SURFACE METHOD	-	-
4.	261120507503	GOKUL L	II	DEVELOPME NT AND CHARACTER IZATION OF BACLOFEN LOADED TRANSETHO SOMES FOR TOPICAL DELIVERY	-	-
5.	261120507504	GOWTHAM K	II	FORMATION AND EVALUATIO	-	-

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				N OF METRONIDAZOLE FLOATING TABLETS		
6.	261120507505	T GOWTHAMAN	II	FORMATION AND EVALUATION OF CALCIUM CARBONATE SUSPENSION USING NATURAL SUSPENDING AGENT – PEDALIUM MURAXLINN	-	-
7.	261120507506	P KALPANA	II	FORMATION AND EVALUATION OF PIROXICAM USING SELF SOLID NONOEMUSIFYING METHOD	-	-

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8.	261120507507	S KAVYA	II	FORMATION AND EVALUATION OF MOUTH DISSOLVING LORATADINE TABLET USING SUPER DISINTEGRANTS	-	-
9.	261120507508	KAYATHRI DEVI K	II	FORMATION AND EVALUATION OF MOUTH SOLUBLE TABLET CONTAINING SOLID DISPERSION OF INDOMETHACIN	-	-
10.	261120507509	C KIRUBHA HARI	II	A STUDY OF DISSOLUTION ENHANCEMENT OF POORLY	-	-

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				WATER SOLUBLE MEFENAMIC ACID BY LIQUISOLID TECHNIQUE		
11.	261120507510	PANTHALARASA S	II	DESING AND EVALUATION OF BILAYERED TABLET CONTAINING DIVALPROEX SODIUM		
12.	261120507511	RASHEENA M	II	DESIGN AND CHARACTRIZATION OF NANOSTRUCTRED LIPID CARRIERS OF CILNIDIPINE FOR ENHANCED BIOAVAILABILITY AND MODIFIED ORAL	-	-

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				DELIVERY		
13.	261120507514	K SRINIVASAN	II	FORMATION AND EVALUATION OF GASTRO RESISTANT MESALAZINE TABLET FOR COLON TARGETED DELIVERY	-	-
14.	261120507515	UMARMUKDAR A	II	FORMATION AND EVALUATION OF FLOATING TABLET CONTAINING KETOCONAZOLE	-	-

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"DEVELOPMENT OF RESVERATROL LOADED NANOCRYSTAL TO IMPROVE SOLUBILITY AND DISSOLUTION RATE"

Dissertation submitted to

THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI-600 032

In partial fulfillment of the requirements for the award of the degree of

MASTER OF PHARMACY

IN

PHARMACEUTICS

Submitted by

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ABSTRACT

In the present study, resveratrol nanocrystal was prepared and evaluated to improve the ılubility and dissolution rate. The different formulations were prepared using different ıncentration of stabilizer, time and stirring speed. Nanosuspension formulationwere prepared ' high speed homogenizing technique. The polaxomer and DMAB used as a stabilizer. The nocrystal was lyophilized using mannitol 2% in which is act as a cryoprotectant. ıaracterization of RES nanocrystal was carried out by infrared spectroscopy (FTIR), particle ːe, zeta potential, entrapment efficiency, drug content and *in vitro* drug release. The *in vitro* ug release profile of RES nanocrystal showed better dissolution rate and F6 formulation was ınd to be a best formulation. The dissolution rate was mainly caused by increasing surface to lume ratio due to nanosized drug particle. In conclusion, nanocrystal technology proved as an ˈective method for improving solubility and dissolution rate of poorly soluble (BCS class II) ıgs.

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DESIGN AND IN-VITRO CHARACTERIZATION OF ROSUVASTATIN CALCIUM FLOATING TABLETS BY EMPLOYING RESPONSE SURFACE METHOD

A Dissertation submitted to

THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY,
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In partial fulfillment of requirements for the award of the degree of

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IN

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DECLARATION

The work presented in this dissertation entitled **"DESIGN AND IN-VITRO CHARACTERIZATION OF ROSUVASTATIN CALCIUM FLOATING TABLETS BY EMPLOYING RESPONSE SURFACE METHOD "** was carried out by me under the guidance of **Mr.K. JAGANATHAN, M.Pharm.,** Associate Professor, Department of Pharmaceutics, J.K.K Munirajah Medical Research Foundation, College of Pharmacy, Komarapalayam. This work is original and as not being submitted in the part or full for the award of any degree or diploma to this or any other university.

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ABSTRACT

Floating drug delivery system are also referred to as Hydrodynamically Balanced System (HBS). They have a lower bulk density than stomach fluid ie., a bulk density less than one. To enable them to float scientists have created shells of polymers with densities lower than that of gastrointestinal fluid. The main advantages of floating tablets are enhanced drug delivery, improved drug stability, accurate dosing, easy administration, rapid onset of action, pleasant taste and improved patient compliance. Rosuvastatin calcium is a medication commonly prescribed to lower cholesterol levels in the body. It belongs to class of drugs known as statins. Rosuvastatin calcium is mainly used in treatment of Hypercholesterolemia, Mixed dyslipidemia, Cardiovascular risk reduction, Familial hypercholesterolemia, Atherosclerosis prevention.

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"DEVELOPMENT AND CHARACTERIZATION OF BACLOFEN LOADED TRANSETHOSOMES FOR TOPICAL DELIVERY"

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IN

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DECLARATION

I hereby declare that this dissertation "**DEVELOPMENT AND CHARACTERIZATION OF BACLOFEN LOADED TRANSETHOSOMES FOR TOPICAL DELIVERY** "is based on the original work carried out by me under the guidance and supervision of **Mrs. S. KAVIBHARATHI, M. Pharm.,** for submission to The Tamilnadu Dr. M.G.R Medical University, Chennai in the partial fulfillment for the degree of **MASTER OF PHARMACY in Pharmaceutics.** This work is original and has not been submitted in part or full for the award of any other degree or diploma of any other university. The information furnished in this dissertation is genuine to the best of my knowledge and belief. I further declare that this work has not been submitted earlier in part of full for the award of any degree or diploma to this or any other university.

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ABSTRACT

The objective of the work was to develop and characterize Baclofen-loaded transethosomal gel for topical delivery for increased permeation of the drug through the skin. Transethosomes were prepared by the Classical cold method by using different ratios of phospholipid (Soya lecithin), edge activator (Tween 80), and the permeation enhancer (Ethanol). Design of experiment, Box-Behnken Design was constructed to study the formulation variables. The influence of phospholipid, edge activator and permeation enhancer on % entrapment efficiency, % drug content and drug release were demonstrated. The drug-excipient incompatibility was ruled out by FTIR studies. From the FTIR studies, drug compatibility was confirmed.The Transethosomal formulation (F6) showed *In-vitro* drug release of 89.77 ±0.01% at the end of 6th hour, with better entrapment efficiency and drug content. The optimized formulation (F14) was evaluated for Scanning electron microscopy and Zeta potential and their ranges were determined. The optimized formulation (F14) was incorporated into gel and evaluated for pH, spreadability, viscosity, and *In-vitro* drug release. Formulation (F14) showed an *In-vitro* diffusion of 84.60% release at the end of 6th hour. From this study, it was concluded that the formulated Baclofen loaded Transethosomal gel showed better entrapment efficiency and drug diffusion.

Keywords: Baclofen transethosomes, Box-Behnken Design, *In-vitro* diffusion study.

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" FORMULATION AND EVALUATION OF METRONIDAZOLE FLOATING TABLETS"

Dissertation submitted to

THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI-600 032

In partial fulfillment of the requirements for the award of the degree of

MASTER OF PHARMACY

IN

PHARMACEUTICS

Submitted by

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ABSTRACT

Gastro Retentive Drug Delivery System like floating tablets outperforms traditional dosing forms. When compared to conventional tablets, floating tablets have higher bioavailability, higher drug concentration in systemic circulation, and lower frequency of dose. Metronidazole floating tablets were formulated using a variety of polymer combinations by direct compression process. PVP K30, Guar gum, and Xanthum gum are the polymers employed in the composition. The drug-excipients compatibility was determined by FTIR Spectroscopy and a total of nine formulations of floating tablets have been prepared. Among these, an appropriate formulation was chosen. **Metronidazole tablet blends** were previously evaluated for angle of repose, bulk and tapped density, Carr's index, Hauser's ratio, and following compression, the tablets were characterized for physical appearance, hardness, weight variation, friability, floating properties, and in-vitro dissolution testing. The flow properties were found optimum in all the pre-compression parameters and hence suitable for direct compression method. The evaluation of tablets showed good floating effect of about 4-7 hours in almost all the formulations. The floating tablets showed drug release of more than 90% after 6 hours and hence gastric retention was achieved. The study findings revealed that the formulation 3 was found to be the best with a floating lag time of less than a minute and achieved retention in the gastric pH for more than 7 hours with optimum floating behaviour and drug release in the stomach. Hence, the prepared floating system involving a combination of polymers was found to be a reliable tool for gastric retention.

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FORMULATION AND EVALUATION OF CALCIUM CARBONATE SUSPENSION USING NATURAL SUSPENDING AGENT – PEDALIUM MUREX LINN

A Dissertation submitted to

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ABSTRACT

This study aims to formulate and evaluate calcium carbonate suspension formulated using various concentrations of natural suspending agent derived from mucilage of the plant Pedalium murex Linn. Preformulation studies like physical characteristics and assay were done for the active ingredients calcium carbonate and natural suspending agents, Pedalium murex mucilage, Acacia and Tragacanth. 12.5% Calcium carbonate suspensions with 1%, 2%, 3%, 4% and 5% w/v of mucilage of Pedalium murex Linn were formulated using the mucilage as a suspending agent, and its drug content, pH, viscosity, redispersibility, sedimentation volume, degree of flocculation, particle size determination, zeta potential and stability were evaluated and compared against standard natural suspending agents Acacia and Tragacanth. The results showed that the suspensions formulated using mucilage of Pedalium murex Linn exhibited favorable rheological properties and excellent suspending ability. The formulated calcium carbonate suspensions with various concentrations of suspending agent Pedalium murex mucilage demonstrated satisfactory physical characteristics, including viscosity, and sedimentation volume. The pH of the suspensions was found to be within the desired range for a calcium carbonate suspension. The viscosity of the suspension was found to be within the desired range. The sedimentation volume of the suspension was found to be low. The redispersibility of the suspension was found to be excellent. Thus, the suspension displayed good stability over a specified time period. The results of this study showed that the mucilage of Pedalium murex Linn can be used as a natural suspending agent for calcium carbonate suspension. The suspension was found to be stable, with good physical properties. The use of a natural suspending agent is a promising alternative to synthetic suspending agents, as it is cost effective and non toxic less likely to cause adverse side effects. The use of natural suspending agent like Pedalium murex Linn mucilage in the formulation of calcium carbonate suspensions could have significant potential for use as suspending agent in pharmaceutical formulations, offering an alternative to synthetic suspending agents.

Keywords: Calcium carbonate suspension, natural suspending agent, mucilage, Pedalium murex Linn, formulation, evaluation.

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FORMULATION AND EVALUATION OF PIROXICAM USING SELF SOLID NANOEMULSIFYING METHOD

Dissertation submitted to

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Our immense privilege and profound gratitude to **Dr. N. SENTHILKUMAR., M.Pharm., Ph.D., Principal,** JKKMMRF's Annai JKK Sampoorani Ammal college of Pharmacy, Komarapalayam, for his whole hearted support and guidance which helped us to complete this dissertation work in grand successful manner.

We express our heart full thanks to **Dr.S.CHANDRA., M.Pharm., Ph.D.,** Professor, Head of the department, **Mr. K. JAGANATHAN, M.Pharm.,** Associate professor Department of pharmaceutics, **Mr.VIJAY AMIRTHRAJ, M.Pharm.,** vice principal and head, pharmaceutical analysis, JKKMMRF's Annai JKK Sampoorani Ammal college of Pharmacy, Komarapalayam. For their impeccable continual dedicative support to my project work from initiation till final successful completion of the work.

I express my profound indulge to all **My Staff Members, Lab Assistants and Librarian** for their kind co- ordination during this work. The completion of this dissertation is not only fulfillment of my dreams but also the dreams of my parents who have taken lot of pain for me in completion of higher studies.

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ABSTRACT

Aim of the present work was to develop the liquisolid tablets of mefenamic acid using liquisolid technique. The liquisolid compacts of mefenamic acid LSC1 and LSC2 were prepared using different concentration 1:1 and 1:05 ratio of non-volatile liquid (PEG-400) respectively and also carrier material (microcrystalline cellulose) and coating material (aerosil 200) were added. The prepared formulations were subjected to the FTIR, DSC and XRD studies. The FTIR and DSC studies indicated no interaction had taken place between the drug and polymers. The XRD study showed the change in crystalline nature of drug into amorphous nature. The mefenamic acid liquisolid tablet formulations F1, F3, F5 and formulations F2, F4, F6 were prepared using LSC1 and LSC2 liquisolid compacts. Different concentration of super-disintegrant (crospovidone) was used for the tablet formulations F1-F2, F3-F4 and F5-F6 and it was 2%, 4% and 6% respectively. The pre-compression parameters and the post-compression parameters of formulations were evaluated. The drug release study of mefenamic acid was performed in phosphate buffer pH 6.8 for 30 min. Formulation F3 showed satisfactory % drug release among the prepared formulations. In formulation F3, % drug release of mefenamic acid was 97.68±2.03%. The MDT and % DE for formulation F3 was found to be 1.03 min and 112.71% respectively. From the stability study, it was found that selected formulation F3 was stable during study period. The liquisolid tablets of mefenamic acid were formulated successfully to achieve the enhancement of dissolution rate of mefenamic acid using liquisolid technique.

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FORMULATION AND EVALUATION OF MOUTH DISSOLVING LORATADINE TABLET USING SUPER DISINTEGRANTS

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ABSTRACT

he objective of the work was design to improve palatability in orally administered products has ompted the development of formulation with improved performance and acceptability.Mouth-ispersing tablets dissolve or break down in saliva and are ingested without the use of water. ntihistamine loratadine is primarily used to treat hay fever, allergies, itchy eyes, and hives /mptoms. It functions by obstructing histamine, which the body releases after an allergic reaction. he objective of the current study was to use the physical mixing approach to increase the olubility and dissolving rate using Croscarmellose sodium. From FTIR identification of drug is one and followed by physicochemical parameters. Determination of drug polymer compatibility is by FTIR method. Loratadine MDT were prepared by using different perdisintegrants as Croscarmellose sodium, Orange peel pectine and Hibiscus mucilage by direct mpression method. Only the physiochemical characterization, formulation, and in-vitro sessment of Loratadine mouthwash pills were carried out in this study. In addition to in-vitro search, in-vivo drug studies are crucial. Future in-vivo research is vital to establish the in-vitro -vivo correlation that is required for the development of successful formulations and also long-rm stability studies.

Keywords: Loratadine , Super disintegrants, Croscarmellose sodium,Mouth soluble tablet,

In vitro drug release.

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FORUMULATION AND EVALUATION OF MOUTH SOLUBLE TABLET CONTAINING SOLID DISPERSION OF INDOMETHACIN

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ABSTRACT

The objective of the work was to design was to increase the solubility and dissolution rate of Indomethacin by the preparation of its solid dispersion. Indomethacin is a non-steroidal anti-inflammatory drug mainly used for Musculo skeletal & joint disorders, which is having major drawback of this drug is its very low water solubility and low erratic absorption from GIT. The purpose of the present investigation was to increase the solubility and dissolution rate with polyvinyl pyrrolidone k30, PEG-4000and PEG-6000 using solvent evaporation and physical mixture method and preparation of MDT of indomethacin with different super disintegrant. Drug polymer interaction were investigated (XRD) and (FTIR). The DSC, XRD and FTIR results showed no drug-polymer chemical interaction in the solid dispersion. Indomethacin solid dispersion with PVP K-30 (1:5) by solvent evaporation was used for the preparation of mouth dissolving tablet with various superdisintegrant by direct compression and sublimation method. The formulated fast dissolving tablets were evaluated for hardness, friability, wetting time, disintegration and in vitro drug released. The hardness of the prepared tablets were found in the range of 2.4 kg/cm2 to 3.2 kg/cm2. The friability values were less than 1%. All the formulation had disintegration time less than 1 min. The formulation SBP3 containing 4% crospovidone showed 99.93% drug released within 5 min. FT-IR spectra revealed no chemical incompatibility between the drug and PVP K-30. The formulations were found to be stable with insignificant change in the hardness, disintegration and in vitro drug released pattern.

Keywords: Indomethacin; Solid dispersion, polyvinyl pyrrolidone K-30; mouth soluble tablet; super disintegrants.

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A STUDY ON DISSOLUTION ENHANCEMENT OF POORLY WATER SOLUBLE MEFENAMIC ACID BY LIQUISOLID TECHNIQUE

Dissertation submitted to

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In partial fulfillment of the requirements for the award of the degree of

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ABSTRACT

Aim of the present work was to develop the liquisolid tablets of mefenamic acid using liquisolid technique. The liquisolid compacts of mefenamic acid LSC1 and LSC2 were prepared using different concentration 1:1 and 1:05 ratio of non-volatile liquid (PEG-400) respectively and also carrier material (microcrystalline cellulose) and coating material (aerosil 200) were added. The prepared formulations were subjected to the FTIR, DSC and XRD studies. The FTIR and DSC studies indicated no interaction had taken place between the drug and polymers. The XRD study showed the change in crystalline nature of drug into amorphous nature. The mefenamic acid liquisolid tablet formulations F1, F3, F5 and formulations F2, F4, F6 were prepared using LSC1 and LSC2 liquisolid compacts. Different concentration of super-disintegrant (crospovidone) was used for the tablet formulations F1-F2, F3-F4 and F5-F6 and it was 2%, 4% and 6% respectively. The pre-compression parameters and the post-compression parameters of formulations were evaluated. The drug release study of mefenamic acid was performed in phosphate buffer pH 6.8 for 30 min. Formulation F3 showed satisfactory % drug release among the prepared formulations. In formulation F3, % drug release of mefenamic acid was 97.68±2.03%. The MDT and % DE for formulation F3 was found to be 1.03 min and 112.71% respectively. From the stability study, it was found that selected formulation F3 was stable during study period. The liquisolid tablets of mefenamic acid were formulated successfully to achieve the enhancement of dissolution rate of mefenamic acid using liquisolid technique.

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DESIGN AND EVALUATION OF BILAYRED TABLET CONTAINING DIVALPROEX SODIUM

Dissertation submitted to

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ABSTRACT

The objective of the study is to design and evaluate bi-layered tablet of Divalproex sodium containing immediate release layer and sustained release layer. Divalproex sodium is considered as the most important antiepileptic drug and widely used for treatment of epilepsy and bi-polar disorders and prophylaxis of migraine. The FTIR study revealed that there was no interaction betweendrug and polymer and combination can be safely prepared. Both layers were prepared by wet granulation technique as poor flow property exhibited by pure drug. The immediate release layer was formulated by using sodium starch glycolate, croscarmellose sodium as superdisintegrants and evaluated for physical parameters, disintegration time and *in vitro* drug release. The optimized immediate release layer (IF6) with highest in vitro release of 98.11 was selected for bi-layered tablet formulation. HPMC K4M and HPMC K100M polymer used to retard the drug release from sustained release layer in different proportion and combination and evaluated for physical parameter along with in vitro drug release studies. The optimized sustained release layer (SF8) which extends the Divalproex sodium release more than 18 hrs was selected. *In vitro* drug release studies were performed using USP type II apparatus (paddle method) in 900 ml of phosphate buffer pH 6.8 at 100 rpm. Finally Bi-layered tablets were prepared by double compression of selected sustained release layer and immediate release layer of Divalproexsodium. The tablets were evaluated for hardness, thickness, weight variation, friability, drug content uniformity and *in vitro* drug release. All the physical parameters were in acceptable limit of pharmacopeial specification. The stability studies, shown the bi-layer tablet was stable at 40^0C / 75% RH for a period of 3 months.

KEY WORDS: Bi-layered tablet, epilepsy, wet granulation, Divalproex sodium, immediate release, sustained release.

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DESIGN AND CHARACTERIZATION OF NANOSTRUCTURED LIPID CARRIERS OF CILNIDIPINE FOR ENHANCED BIOAVAILABILITY & MODIFIED ORAL DELIVERY

Dissertation submitted to

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ABSTRACT

The objective of the work was to design and characterize nanostructured lipid carriers of Cilnidipine for enhanced bioavailability and modified oral delivery. Nanostructured lipid carriers were prepared by Solvent evaporation method using the lipids (Solid lipid: glyceryl monostearate and Liquid lipid: oleic acid), Emulsifier (Tween 80) & co-emulsifier (Soya lecithin). A design of experiment (Factorial design 2^3) was constructed to study the formulation variables. The influence of the solid lipid, liquid lipid concentration and the concentration of the surfactant on drug release, particle size and drug entrapment efficiency was demonstrated. The Drug-Lipid incompatibility was ruled out by FTIR studies. Evaluation studies like percentage yield, particle size, entrapment efficiency, drug loading, zeta potential and *in-vitro* drug release for formulations were performed. From the FTIR studies, the drug-lipids and drug-emulsifier compatibility was confirmed, that, the lipids and emulsifier did not interfere with the drug used. The Drug Entrapment efficiency was found to be in range of 53.66±0.10%-89.3±0.02. The Mean particle size was found to be in range of 214.5 nm-455.3nm. *In-vitro* drug released varied from 67.24-93.06%. Cilnidipine loaded nanostructured lipid carriers was successfully optimized using the factorial design. The optimized formulation F9 showed good *In vitro* drug release of 93.10% release at the end of 8 hour. From this study it could be concluded that the formulated nanostructured lipid carriers of cilnidipine by solvent evaporation method showed good entrapment efficiency and drug release.

Keywords: Nanostructured lipid carriers (NLC's), Solid lipid nanoparticles (SLN's), Cilnidipine, Bioavailability, *In vitro* drug release.

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FORMULATION AND EVALUATION OF GASTRO RESISTANT MESALAZINE TABLETS FOR COLON TARGETED DELIVERY

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ABSTRACT

The main aim of present work was to formulate and evaluate of gastro resistant mesalazine tablets for colon targeted delivery system. Colon drug release formulations are those which delivers the drug in colon region. The matrix tablet was prepared by direct compression method using by various concentration of HPMC and eudragit S 100 polymers. The powder mixture were subjected to various pre compression parameters such as angle of repose , bulk density , tapped density and shows satisfactory results and compressed tablets are evaluated for post-compression parameters such as weight variation , thickness , hardness , friability , drug content in-vitro dissolution and stability studies. In-vitro dissolution studies were carried out for 24 hours using 0.1N HCL for 2 hours and pH 7.4 phosphate buffer for 24 hours and the result showed that formulations F4 and F6 showed good dissolution profile to control the drug release respectively. Formulation containing higher concentration of HPMC and eudragit S 100 along with drug release for period of 24 hours. The compatibility of the drug polymers and excipients were determined by FT – IR Spectroscopy. Results showed that the drug was compatible with polymers and other excipients. The release data was fitted to various mathematical models such as zero order and first order kinetics and drug release. The stability studies were carried out for 3 months and results indicates that the selected formulations (F4 and F6) were stable.

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FORMULATION AND EVALUATION OF FLOATING TABLET CONTAINING KETOCONAZOLE

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ABSTRACT

The primary purpose of this research work was to prepare a gastro-retentive drug delivery system of Ketoconazole. It is a dibasic anti-fungal drug (pKa value: 6.51 and 2.94), with poor water solubility; and it has a short elimination half-life of 2 h. it has been reported that the solubility and dissolution of ketoconazole have found to be increased in the stomach pH than in the intestinal pH conditions. Formulation trials were carried out polymers HPC and xanthan gum. The effect of sodium bicarbonate and citric acid ondrug release profile and floating properties were also investigated. The amount of HPC and Xanthan gum were found to significantly influence all *in-vitro* response parameters. The optimization was carried out by using central composite design by taking HPC, Xanthan gum and sodium bicarbonate as independent variables and floating lag time, % drug release for 12 h, as dependent variables respectively. The results of pre-compressionand post-compression parameters of all the formulations were found to be within the limits. The optimized formulation showed slow and complete drug release up to 12 h in the stimulated stomach pH conditions with floating lag time of 160 sec. Accelerated stability studies of the optimized formulation indicated no appreciable change in the drug content and *in-vitro* drug release rates of formulation. Thus, floating tablet of Ketoconazole was successfully developed for sustained action.

Key words: Floating drug delivery, Gastro-retentive drug delivery, Ketoconazole, Buoyancy, optimization design.

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FORMULATION AND EVALUATION OF ABUTILON INDICUM SUPPOSITORIES FOR THE TREATMENT OF HAEMORRHOIDS

A Dissertation submitted to

THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY,

CHENNAI—600032

in partial fulfillment of the requirements for the degree of

MASTER OF PHARMACY

IN

PHARMACEUTICS

Submitted By

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CERTIFICATE

This is to certify that the dissertation work entitled "**FORMULATION AND EVALUATION OF ABUTILON INDICUM SUPPOSITORIES FOR THE TREATMENT OF HAEMORRHOIDS**" is the bonafide work carried out by, **Mr.KARTHIKEYAN R (Reg. No: 261910805)** under the guidance and supervision of **Dr. S. CHANDRA, M. Pharm, Ph.D.,D.Lit.,** Professor and Head, in the Department of Pharmaceutics.

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DECLARATION

The work presented in this dissertation entitled "**FORMULATION AND EVALUATION OF ABUTILON INDICUM SUPPOSITORIES FOR THE TREATMENT OF HAEMORRHOIDS**" was carried out by me under the guidance of **Dr. S. CHANDRA, M.Pharm, Ph.D., D.Lit.,** Professor, & Head of the Department, Department of Pharmaceutics, J.K.K Munirajah Medical Research Foundation, College of Pharmacy, Komarapalayam. This work is original and as not being submitted in part or full for the award of any degree or diploma to this or any other university

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CONCLUSION

Abutilon indicum herbal suppositories were formulated by heat molding method and were subjected for physical evaluation, weight variation, content uniformity, disintegration, melting point, mechanical strength, and *in-vitro* dissolution studies.

All tests shown satisfactory results. All five formulations showed more than 50% drug release within 25min. This is due to the addition of Tween 80 in the formulation. Based on the in- vitro release rate studies, it can be concluded that polyethylene glycol 4000 can be used as a base which were easily soluble in aqueous medium, disperses rapidly and has higher rate of release for immediate release of Abutilon indicum herbal suppositories.

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