Message of Principal

I am pleased to present second annual research compendium of Department of Pharmacy which a compilation of research and development activities conducted in a calendar year. This compendium comprises of detailed information of the publication, ongoing and completed research projects, number of workshops and seminars conducted and attendant by the students and the faculties.

In continuing the dedication of the researchers and the research scholars, Department of pharmacy is aiming to set a matured research institution where our students will get excellent training so that they can compete in the field with other competitors. Pharmacy field is now becoming more research oriented which needs to facilitate the department with sophisticated instruments. The department has been in the procedure of creating the modern research facilities and expecting the industrial projects. The Department has able to get some of industrial projects in collaboration which enhances the confidence of our researchers and research scholars.

This is the second research annual compendium which reflects our continuous strength and hard work showing inclination of the students and the faculty towards the research in various fields of pharmacy. In order to enhance the research environment, our university has framed the research incentive scheme. The enthusiasm of our dedicated faculties has been to encourage our students to do the high impact research projects. I assure that this encouragement and commitment of the faculties of the department will be continued in the time to come. I would like to compliment all the researchers and the researcher scholars who have contributed their knowledge and the novel research ideas at the department. I also congratulate the compilation team to bring this compendium as the ready reference of our dedication towards research and development.

Dr. A K Seth

Principal / HOD,

Department of Pharmacy,

Sumandeep Vidyapeeth,

Piparia, Vadodara

Contents

Research Policy

Introduction

This policy establishes the research environment within which academic staff and postgraduate research students carry out their research. It also provides an overarching framework for the development and implementation of all research management at Sumandeep Vidyapeeth

Objectives

- To develop a proactive mechanism for smooth implementation of research projects.
- To promote research culture among the staffs and students of the university.
- Simplification of procedures like sanctions/purchases for research projects and other aspect.
- To motivate researchers to apply for external funding agency.
- To promote the publication from all research projects.

Practices

- Central research committee circulates the notification regarding inviting research projects from the students and staff of each constituent unit of university twice in a year.
- Interested candidates write a research proposal in the prescribed format provided by central research committee and submit it to central research committee in given time limit.
- Research scholar can also apply for the research fellowship/ financial assistance / grant to university / External agency as per procedure guideline given by central research committee.
- Central research committee reviews the research projects thoroughly scrutinizes the submitted projects, identifies the need of research projects & thrust areas of research project submitted by research student/faculty/scholar of the respective department.
- The research projects which fulfill the entire criterion and satisfy the research thrust possessing will be considered for funding.
- The Central research committee will call external experts for reviewing of projects.
- The principal investigator has to obtain the SVIEC permission before commencement of the research work.
- The Principal investigator should commence his/her project at the pre-decided date and complete in a stipulated time period.
- The Principal investigator must follow the SV instrument purchase procedure for any procurement of instrument/equipment.

- Minimum one fourth grant will be disbursed at the initial stage and subsequently further installments will be disbursed on submission of utilization certificate along with bills and account statement of the previous grant.
- The First installment will be disbursed with a written application for grant with SVIEC letter to Director Research Cell.
- All communication related to grant utilization or withdrawal of installments shall route through Director, Research Cell.
- Any patent generated by research work under this scheme will be shared with Sumandeep Vidyapeeth.
- In all publications, it is mandatory to include the name of Sumandeep Vidyapeeth.

Grant / Incentive received for research

Sr. no.	Name of Faculty	Category for grant/incentive received	Amount in Rs
1.	Mrs Dhanya B Sen	Paper publication	5,000/-
2.	Mr. Sachin Chauhan	Paper presentation at World congress on p'ceutical sciences & chemical technology, Colombo, Srilanka	4,650/-
3.	Mr. Girish Sailor	Paper publication	16,000/-
4.	Mr. Nirmal Shah	Paper publication	29,500/-
5.	Mr. Rajesh Maheshwari	Paper publication	5,000/-
6.	Mr. Ujjwal Sahoo	Paper publication	15,000/-
7.	Dr. Yogesh Yadav	Paper publication	12,500/-

Ongoing research projects

Industry sponsored research projects			
Sr. No.	**Name of the project**	**Industry name**	**Funds received** (Rs)
1	In vivo effect of FcE Bik in Anaphylaxis models of Rats and Guinea pig	Century Pharmaceutical Limited, Halol	**--**
2	Effect of Livplus (PHF) on experimentally induced hepatotoxicity in animals.	Bacfo Pharmaceutical India ltd, Noida	18,000/-
3	Effect of Diabac (PHF) on experimentally induced type II diabetes in rats.	Bacfo Pharmaceutical India ltd, Noida	39,500/-
4	Effect of Lithocare (PHF) on experimentally induced urolithiasis in rats.	Bacfo Pharmaceutical India ltd, Noida	19,500/-
5	Acute toxicity study & Evaluation of calcium containing formulation on serum calcium level of ovariectomized rat model	Vasu Healthcare Pvt. Ltd, Vadodara	20,000/-

PG Students research projects		
Sr no	**Name of student**	**Title of the project**
1.	Vipul Vanjara	Formulation and evaluation of extended release gastroretentive microspheres for anti hyperlipidemic drug
2.	Gopi Solanki	Formulation and evaluation of nanoparticles coated with folic acid for cancer targeting
3.	Anamika Joshi	Influence of formulation parameters on preparation of microspheres by emulsification solvent evaporation technique
4.	Ronak Patel	Study of some solubility enhancement techniques in the development of the liquid dosage form of poorly soluble drug
5.	Pratik Patel	Solubility enhancement of poorly water soluble drug by solid dispersion technique
6.	Chinar Mehta	Formulation and evaluation of omeprazole delayed release tablets
7.	Shreyas Shah	Formulation and evaluation of new drug delivery system for cefpodoxime proxetil
8.	Himanshu Vyas	Formulation and evaluation of sublingual film of ondansatron
9.	Sisal Shah	Process validation of paracetamol suspension
10.	Ishita contractor	Process validation of piroxicam capsule 20 mg BP
11.	Krishna Chauhan	Process validation of paracetamol tablet and diclofenac sodium 630 mg BP
12.	Ruchi Mistry	Process validation of tablet manufacturing process of orodispersible carbamazepine
13.	Charvi Patel	Process validation of Lumefantrine and Artemether tablet
14.	Chirag Patel	Analytical method development and validation of Zaltoprofen and paracetamol in combined dosage form
15.	Ms Richa Agarwal	Antidiabetic and antihyperlipidemic activity of DIABAC (polyherbal formulation) on STZ – NA induced type II diabetes in rats
16.	Ms Bhagyashree Pandya	Effect of Livplus (Polyherbal formulation) on experimentally induced hepatotoxicity in animals
17.	Ms Falak Dakwala	Acute toxicity study and evaluation of calcium containing formulation (Maxcal - C) on serum calcium level of ovaractomized rat model
18.	Sumaiya Lalat	Effect of vinpocetine and sesame seed on diabetic nephroplathy in wistar rats

Faculty research projects		
1.	Dr. Rajesh Maheshwari	Effects of coenzyme Q10 with antidiabetic and antihyperlipidemic drugs in experimental induced diabetic complication.
2.	Dr. Ujjwal Sahoo	Design synthesis and pharmacological evaluation of novel oxadiazole, triazole and thiazolidinone-4-one
3.	Mr. Sachin Chauhan	Design development optimization and evaluation of nanoparticulate drug delivery system of some anticancer drug.
4.	Mr. Nirmal Shah	Techniques to improve bioavailability of Selective Estrogen Receptor modulators (SERMs) for treatment of osteoporosis
5.	Mr. Ashim Kumar Sen	Development and validation of new analytical methods of some group of pharmaceuticals from its bulk and pharmaceutical dosage form
6.	Mrs. Dhanya Sen	Development and validation of new analytical methods of some antihypertensive and antidiabetic group of pharmaceuticals from its bulk and pharmaceutical dosage form
7.	Mr. Girish Sailor	Design development optimization and evaluation of novel drug delivery system of some phytopharmaceuticals.
8.	Mrs. Falguni B Tandel	Analytical method development and pharmacokinetic study of some new anti-inflammatory agents
9.	Mr. Ankur Javia	Design, development and characterization of colon cancer targeting folic acid conjugated Capecitabine nanoparticles
10.	Mr. Chintan Aundhia	Formulation design and development of nano carrier system for treatment of osteoporosis
11.	Mr. Ghanshyam Parmar	Pharmacognostic and pharmacological standardization of some Euphorbias plants.
12.	Mrs. Aarti Zanwar	Analytical method development and validation of some drugs combinations.

Completed research projects

Industry sponsored research projects			
Sr. No.	**Name of the project**	**Industry name**	**Funds received (Rs)**
1	Effect of Normacid syrup and powder in experimentally induced peptic ulcer in mice	Ayur Lab, Halol	18,000/-
2	Effect of Dibolin PHF in experimentally induced type 2 diabetes in rats	Ayur Lab, Halol	10,000/-
3	In vivo evaluation of AHR – 1 (PHF) on anaphylaxis model in rats	Ayur Lab, Halol	32,750/-

PG Students research projects		
Sr no	**Name of student**	**Title of the project**
1.	Juned M gazi	Formulation evaluation and opatimisation of beta cyclodextrine inclusion complex of aceclofenac
2.	Mahesh C Rathi	Development and characterization of nanoparticulate delivery system of quetiapine
3.	Vishal N Raval	Formulation evaluation of gastroretentive drug delivery of gliclazide
4.	Anju Kanojiya	Formulation, Evaluation and opatimization of self emulsifying grug delivery system an antifungal drug
5.	Jayesh J Patel	Design, development,Optimization and characterization of aceclofenac loaded ethosome for transdermal delivery
6.	Aniket R Raval	Formulation, Evaluation and opatimization of Mebendazole colon targeted sr pellets by extrusion spheronization
7.	Milan S Patel	Formulation evaluation and opatimization of dry suspension formulation of azithromycin
8.	Hemil H Desai	Formulation and evaluation of enteric coater pellets of esomeprazole compressed into delayed release tablets
9.	Pratik Patel	Formulation, developamet and evaluation of chlorhexidine gluconate gel for periodontitis
10.	ketan D Patel	Formulation and evaluation of atorvastatin nanosuspension for bioavailability improvement
11.	Sonu D naik	Process validation of loperamide HCI tablet
12.	Hardik Shah	Validation of water treatment system and heating ventilation and air conditioning system in Pharmaceutical industry
13.	Dhaval N Darji	Development and validation of stability indicting method for the assay and related substance of acipimox in bilk drug form by HPLC
14.	Krishna R Patel	Development and validation of RP- HPLC method for estimation
15.	Ishwardan J. gadhvi	HPLC Method development and validation for estimation of withaferin a in poly -herbal formulation
16.	Kinnar P patel	Development and validation of stability-indicating method for the assay and related substance of ceftriaxone in ceftriaxone for injection USP
17.	Ankit Prajapati	Analytical method development and validation of voglibose and metformin in combined dosage form
18.	Krupa D Shah	development and validation of paracetamol and tramadol in tablet dosage form by UV method and HPLC method
19.	Prdip G Parikh	Retrospective process validation of roseamine soft getatin capsule
20.	Maunang M Patel	Analytical method development and validation of lawsone

		in polyherbal formulation by HPC
21.	Vimaldas Patel	Enhancement of dissolution profile o f lornoxicam tablets by improving its solubility by various techniques
22.	Imran Umatiya	Formulation and evaluation of solid lipid nanoparticles of isoniazid
23.	Mr Ankit Patel	Development and characterization of new natural polymer for the formulation of sustained release oral dosage form
24.	Juhi D Patel	Design,development and characterization of ph sensitive hydrogel for intestinal delivery of prednisolone
25.	Hiren Patel	Formulation and evaluation of nanoemulasion of ketoconazole for topical delivery
26.	Devendra Sharma	Preparation and evaluation of aceclofenac topical microemulsion gel
27.	Sunny Shah	Design, development, opatimization and charaterization of immediate release tadalafil tablet
28.	Chirag S Patel	Preparation and in -vitro characterization of methotrexate loaded nano suspension
29.	Jaymin N Desai	New analytyical method development and validation od cefixime and linezolid in tablet dosage form
30.	Chirag M Patel	Analytical method development and validation of cefixime and azithromycin in combined dosage form
31.	Viral Shah	Development and validation of cetypyridinium chloride and benzocaine by Rp-HPLC method
32.	Mukesh Rathi	New analytical method development and validation of tramadol hydrochloride and dicyclomine hydrochloride in tablet dosage form
33.	Sujit Kumar Sharma	New analytical method development and validation of tolperison hydrochloride and diclofenac sodium in dosage form
34.	Snehak K Tank	New analytical Method development and validation of tolperisone hydrochloride and lornoxicam in tablet dosage form
35.	Vivak Dhola	Effect of tank wood seed alone and combinition with vitamine and lycopic acid on ethylene glycol and vitamin D3 induce urolithiasis in rat
36.	Barvaliya Nitesh	Effect of curcumin and several antioxidenta on doxorubicin induced cardiotoxicity in rat
37.	Shivam S Jani	In vivo evaluation of PHF on anaphylaxis model on rats and G. pig
38.	Priydutt S Bhatt	New analytyical method development and validation od cefixime and linezolid in tablet dosage form
39.	Manoj R Patel	Analytical method development and validation of cefixime and azithromycin in combined dosage form

40.	Jaymin D Patel	Formulation and characterization of nanosuspension of an anti- viral drug
41.	Ghanshyam V Patel	Design, Formulation and characrerization of cyclosporine loaded colon targeted microspheres for the treatment of rheumatoid arthritis
42.	Manan Shah	Design, development and Optimization of sustain release metoclopramide microsphere
43.	Gandhi Kevin S	Formulation and evaluation of carbamazepine extended release tablets
44.	Ashwin Patel	Losartan potassium loaded transdermal patch: Design and I vitro characterization
45.	Sachin R Patel	Formulation, opatimazation and evaluation of gastro retentive controlled release floating microspheres of venlafaxine HCL
46.	Kashyap Patel (Old batch)	Design evaluation of controlled release floating microspheres for better management hypertension

Barvaliya NA, Kumar S, Sen AK, Zanwar A, Seth A. Spectrophotometric method development and validation of tolperisone hydrochloride and lornoxicam in tablet dosage form. Pharma Science Monitor. 2013;4(3).

Abstract

Two simple, accurate and economic spectrophotometric methods in UV/VIS region have been developed for the determination of Tolperisone Hydrochloride and lornoxicam in bulk and tablet formulations using 0.1N Sodium Hydroxide as a solvent. The first UV spectrophotometric method was a determination using the simultaneous equation method at 260.0 nm and 288.0 nm. The second UV spectrophotometric method is the Q - analysis (absorption ratio) method, which involves the formation of absorbance equation at 273.68 nm (isoabsorptive point) and at 260 nm the maximum absorption of Tolperisone Hydrochloride. The linearity ranges for Tolperisone Hydrochloride and Lornoxicam were 3-27 Î¼g/ml and 2-27 Î¼g/ml respectively. Developed method was applied to its marketed formulation. The method was validated statistically and recovery study was performed to confirm the accuracy of the method. The method was found to be rapid, simple, accurate and precise.

Keywords: Lornoxicam, Tolperisone hydrochloride, RP-HPLC, force degradation, validation.

Darji DN, Desai D, Zanwar A, Sen AK, Seth A. Development and validation of uv spectroscopy method for the estimation of faropenem sodium in bulk and dosage form. Pharma Science Monitor. 2013;4(3).

Abstract

The simple, precise, accurate and economical UV Spectrophotometric methods have been developed and validated for the routine estimation of Faropenem Sodium in bulk drug and Pharmaceutical dosage form. The drug shows maximum absorption at 306nm and obeyed Beer-Lambert's law in the concentration range of 3-15Î¼g/ml at 306nm. The drug showed linearity in the concentration range of 3-15Î¼g/ml. The linear regression equations were calculated to be y=0.0014x+0.005(RÂ²=0.998) at 306nm.The results of estimation of marketed tablet formulations were found to be 98%.The % recovery was found to be 98.9-99.13. The intraday and inter day assay was within 2%.which indicates accuracy and reliability of the method as well as noninterference from excipients. So this method can be used for the routine quality analysis.

Keywords: Faropenem Sodium, water, UV Spectrophotometric, calibration curve, Validation parameter.

Dhola VV, Yadav SK, Sen AK, Zanwar A, Seth A. The simultaneous estimation of tolperisone hydrochloride and diclofenac sodium in tablet dosage form by uv spectrophotometric methods. Pharma Science Monitor. 2013;3(3).

Abstract

Two methods for simultaneous estimation of Tolperisone Hydrochloride and Diclofenac Sodium in combined tablet dosage form have been developed using Methanol as a solvent. The first UV spectrophotometric method was a determination using the simultaneous equation method at 254 nm and 282 nm. The second UV spectrophotometric method is the Q - analysis (absorption ratio) method, which involves the formation of absorbance equation at 278 nm (isoabsorptive point) and at 254 nm the maximum absorption of Tolperisone Hydrochloride. The linearity ranges for Tolperisone Hydrochloride and Diclofenac sodium were 6-18 Î¼g/ml and 2-6 Î¼g/ml respectively. The accuracy of the methods was assessed by recovery studies was found to be 101.11 Â± 1.28 and 101.96 Â± 1.92 for simultaneous equation method and 101.7 Â± 1.71 and 101.17 Â± 1.59 for Q analysis (absorption ratio) method for Tolperisone Hydrochloride and Diclofenac Sodium respectively. These methods are simple, accurate and rapid; those require no preliminary separation and can therefore be used for routine analysis of both drugs in quality control laboratories.

Keywords: Diclofenac Sodium, Tolperisone Hydrochloride, Q–analysisspectrophotometric method, simultaneous estimation method.

Maheshwari RA, Sailor GU, Patel L, Balaraman R. Amelioration of cisplatin-induced nephrotoxicity by statins. Indian journal of pharmacology. 2013;45(4):354.

Abstract

OBJECTIVES: This study aimed to investigate the protective effect of simvastatin (SIM) and rosuvastatin (RST) on cisplatin (CIS)-induced nephrotoxicity. **MATERIALS AND METHODS:** Adult female Wistar rats were divided into six groups: control group (Group 1) received 0.5% sodium carboxy methyl cellulose, group 2 and group 3 received SIM and RST for 10 days, respectively, and group 4 was injected single dose of CIS (7 mg/kg, i.p.). Group 5 and 6 were treated with SIM (10 mg/kg, p.o.) and RST (10 mg/kg, p.o.) for 10 days, respectively. All groups received cisplatin on the 5(th) day of treatment. Renal function tests like serum creatinine, urea, BUN, albumin, calcium, uric acid and magnesium, serum lipids, and markers of oxidative stress such as renal malondialdehyde (MDA) level and superoxide dismutase (SOD) and catalase (CAT) activities were measured. All tissues were investigated for histopathological changes. **RESULT:** CIS reduced the renal function, which was reflected with significant increase in serum urea, BUN, serum creatinine, uric acid and also significant decrease serum calcium, magnesium, albumin levels. In addition, cisplatin caused renal tubular damage with a higher MDA level, depletion of SOD and CAT activity, and elevation of serum lipids. SIM or RST ameliorate CIS induced renal damage due to improvement in renal function, oxidative stress, suppression of serum lipids, and histological alteration. **CONCLUSIONS:** This finding suggests that simvastatin and rosuvastatin may have a protective effect against cisplatin-induced kidney damage via amelioration of lipid peroxidation as well as due to improvement of renal function, and lipid-lowering effects.

Keywords: Cisplatin; nephrotoxicity; rosuvastatin; simvastatin

Patel KR, Desai D, Zanwar A, Sen AK, Seth A. Development and validation of uv spectroscopy method for estimation of roflumilast in bulk and tablet dosage form. Pharma Science Monitor. 2013;4(3).

Abstract

Analytical method development and validation play important roles in the discovery, development and manufacture of pharmaceuticals. A s

imple and reproducible UV – spectrophotometric method for the quantitative determination of Roflumilast in tablet formulation was developed and validated in the present work. The parameters linearity, precision, accuracy, robustness was studied. Roflumilast has the maximum wavelength at 248 nm. Analytical calibration curves were linear within a concentration range from 1 to 307g/ml. The developed method was applied directly to the analysis of the pharmaceutical tablet preparations. %RSD was found to be 0.166. The result of analysis has been validated statistically. Hence the proposed method can be used for the reliable quantification of Roflumilast in tablet formulation.

Keywords: UV Spectrophotometry, Roflumilast, Pharmaceutical tablet dosage form**,**Calibration curve, Validation Parameter

Pratik P, Ankur J. (2013). Formulation and Evaluation of Sustained Release ChlorhexidineIn Situ Gel for Periodontitis. An International Journal of Pharmaceutical Sciences, 4, 465-78.

Abstract

Conventional formulation for the treatment of periodontitis has certain drawbacks. A newconcept of in situ gel was develop to overcome the shortcoming of conventional formulation which deals with periodonititis. Periodontitis is a common and widespreaddisease, which occurs due to the pathogenic bacterial infections established within thegingival sulcus. In situ mucoadhesive gel of Chlorhexidine gulconate was prepared usingthe cold method using Pluronic F 127 and Xanthan gum for their thermo sensitive gelation and mucoadhesive nature respectively. The prepared in situ gel was evaluated for viscosity, gelation temperature, mucoadhesive force, in vitro drug release, pH, drug content. Drug-excipients compatibility study was done by FTIR. Results showed no evidence of interaction between drug and excipients. The formulation was optimized using factorial design. The optimized formulation was subjected to stability study. Optimized formulation had the gelation temperature of 37.2ºC with the mucoadhesive force of 5.18 gm/cm2. From the result it was concluded that xanthan gum not only showed good mucoadhesion but also modify the drug release from in situ gel. We could rely upon this statistical design to optimize the formulation. Hence the formulation could be used for the treatment of periodontitis.

Keywords: Chlorhexidine gluconate, In situ mucoadhesive gel, Thermosensitive, Periodontitis.

Shah HB, Sen AK, Zanwar A, Seth AK. Method development and validation for ceftazidime injection by uv-visspecrophotometer.Pharma Science Monitor. 2013;3(3).465-478.

Abstract

The present study describes a simple, accurate, precise and cost effective UV-Vis Spectrophotometric method for the estimation of ceftazidime, a third generation cephalosporin anti-biotic in dry powder injection and drug substances. The solvent usedthroughout the experiment was distilled water. The λmax or the absorption maxima of the drug was found at 255.80 nm. Beer's law was obeyed in the range of 4.0-24.0 µg/ml.The method was successfully developed by first derivative spectra and respect the linearity. The developed method was successfully validated with respect to linearity, accuracy and precision. The sample concentrations are measured on weight basis throughout the experiment. The method was validated and shown linear in the mentioned concentrations. The correlation coefficient for ceftazidime was 0.999. The recovery values for ceftazidime ranged from 99.6-100.1 %. The relative standard deviation of six replicates of assay was less than 2 %. The percent relative standard deviation of inter-day precision ranged 1.1-1.3 % and intra-day precision 0.9-1.3 % of ceftazidime. The limit of detection and limit of quantification of ceftazidime was 0.5 µg/ml and 1.55 µg/ml. This method can be applicable for quantitative determination of the titled drug with respect to assay from their new commercial formulation of injection in quality control laboratories.

Keywords: UV-Vis Spectrophotometer, Method validation, Ceftazidime.

Shah KD, Sahoo U, Sen DB, Zanwar A, Seth A. Development and validation of spectrophotometric method of acenocoumarol in bulk and tablet dosage form. Pharma Science Monitor. 2013;4(3).

Abstract

A simple, accurate and precise UV spectrophotometric method has been developed for the quantitative estimation of Acenocoumarol in bulk and tablet dosage form. The λmax was found to be 291 nm. Beer's law was obeyed in the concentration range of 1-21 µg/ml. The regression equation was y = 0.0541 x + 0.1014 with value of R2 as 0.9994. The method showed good linearity, accuracy, LOD, LOQ and reproducibility. The result of analysis has been validated statistically. Hence the proposed method can be used for the reliable Quantification of Acenocumarol in tablet formulation.

Keywords: Acenocoumarol, Anticoagulant, UV spectrophotometer, Validation.

Shah N, Seth A, Chauhan S, Aundhia C, Javia A, Sailor G. Formulation, design and characterization of microemulsion based system for topical delivery of antipsoriatic drug. WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES. 2013;3(2):1464-80.

ABSTRACT

The purpose of this study was to develop a stable methotrexate (MTX)loaded microemulsion gel (MMG) for topical use in psoriasis toimprove cutaneous deposition and local effect. The pseudo-ternaryphase diagrams were developed for various microemulsion formulations composed of Capmul MCM - C8 as oil phase, Tween 20as surfactant and polyethylene glycol 400 (PEG 400 as cosurfactant. Composition of microemulsion system was optimized using concentration of oil, surfactant/cosurfactant (1:1) and water as independent variables. The MTX- loaded microemulsion was characterized by droplet size and zeta potential. Microemulsion gel was prepared by adding 1% Carbopol 934 as a gelling agent. The transdermal ability of MTX from microemulsion gel was evaluated byin vitro permeation study. The results shows that optimized microemulsion formulation was composed Capmul MCM - C8 (7.5% w/w), Tween 20(37.5% w/w), PEG 400 (12.5% w/w) and water (42.5% w/w). The optimized microemulsion was found to be relatively uniform in size of optimized (11.52 ± 0.6 nm). The MMG showed enhanced in vitro permeation ability with better drug deposition capacity compared MTX solution, gel and microemulsion. The results suggest that the MMG is promising formulation for topical delivery of MTX for psoriasis treatment.

Keywords: Methotrexate; Microemulsion; Microemulsion gel; Topical delivery; Antipsoriatic.

Yadav YC, Srivastava D. Nephroprotective and curative effects of Ficusreligiosa latex extract against cisplatin-induced acute renal failure. Pharmaceutical biology. 2013;51(11):1480-5.

Abstract

CONTEXT: Ficusreligiosa L. (Moraceae) is widely planted in the tropics. Its chemical constituents include tannin, saponingluanol acetate, β-sitosterol, leucoanthocyanidin and leucoanthocyanin which are used for the treatment of pain, inflammation, impotence, menstrual disturbances, uterine tonic and urine related problems. OBJECTIVE: To determine the possible nephroprotective and curative effects of F. religiosa latex methanol extract against cisplatin induced acute renal failure. MATERIALS AND METHODS: Methanol extract was obtained by maceration process. Rats were divided in five groups. Group 1 was administered acacia (2% w/v) of 5ml/kg throughout the experiment; group 2 was treated with single dose of cisplatin (5mg/kg i.p.) on the 1st day; group 3 (200mg/kg p.o.) of extract control for the 1st to 10th day, group 4 (200mg/kg p.o.) of extract from the 1st to 10th day and a single dose of cisplatin (5mg/kg, i.p.) on 11th day while group 5 received the same dose of cisplatin on day 1 and extract (200mg/kg p.o.) from the 7th to 16th day.

RESULTS: Phytochemical screening of the extract revealed the presence of glycoside, alkaloids, tannins (phenolic compounds), flavonoids and amino acids. The half maximal inhibitory concentration (IC50) values of the extract were 31.75±0.12 and 18.35±0.48μg/ml, respectively. The cisplatin-treated group 2 showed significant changes; renal functions, biochemical parameters and histopathology were significantly (**$p<0.01$) recovered by 200 mg/kg curative and protective groups. DISCUSSION AND CONCLUSION: These findings demonstrated that F. religiosa latex and constituents have excellent nephroprotective and curative activities and thus have great potential as a source for natural health products.

Keywords: Creatinine, glutathione, histopathology, lipid peroxidation