METHOD OF PHARMACOLOGICAL SCREENING

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Formulation and Optimization & Evaluation of Rivastigmine Transdermal patch for the treatment of Alzheimer's disease

Dr. Ramesh D. Ingole , Principal, DJPS College of Pharmacy

Abstract:

The current study used the Eudragit RS100, Eudragit RL100, and HPMC E15 to create and optimize a matrix type transdermal patch containing rivastigmine. Using a solvent casting approach, patches were created using a variety of polymer mixes in varying concentrations and ratios, propylene glycol as a plasticizer, and methanol: chloroform in a 1:1:1.5 ratio as the solvent. Every formulation exhibited physicochemical properties that were deemed acceptable. The drug permeation and flux of batch F11 were found to maintain the drug release for up to 42 hours in an in-vitro permeation testing. The batch that was optimised underwent both a skin irritation and stability evaluation. In the irritant investigation, the rat skin showed no signs of edoema, and the patch remained stable for 30 days at 40º ± 2 ºC and 75± 5% RH.

Formulation, Development & Evaluation Luliconazole Topical Liposomes

Bhamre Pankaj Chudaman, Professor, DJPS College of Pharmacy

Abstract:

A novel medication possibility for the treatment of fungal infections on the skin is liconazole. The current treatment for it has limitations related to extremely poor and sluggish skin absorption, which means that repeated administration over an extended period of time is necessary to completely cure the illness. Therefore, we have created topical liposomes to increase the bioavailability, effectiveness, and reduce the negative effects related to using luconazole topically. Due to short retention times and rapid systemic absorption, current formulations on the market are unable to provide sufficient concentrations of the medication at the target location. Using cholesterol in various ratios and the non-ionic surfactants Span 60, 80 and Tween 60, 80, liconazole liposomes were created by the thin-film hydration technique. Vesicle size, surface shape, percentage entrapment efficiency, and in vitro drug release were assessed for the liposomal dispersion. The produced liposomes showed a range of sizes from 5.210 μm to 6.987 μm, an entrapment efficiency of 53.48 to 75.77%, and an in vitro drug release of 50.30 to 76.68%. The formulation F5 was determined to be the most promising of the 10 created formulations. Also included in this formulation were 1.5%, 2%, and 2.5% w/w carbopol 934p gels. The gel's rheological characteristics, pH, in vitro drug release, and potential for skin irritation were all investigated. Based on the formulation findings, it can be concluded that encapsulating luconazole in non-ionic surfactant vesicles would result in increased therapeutic activity. This is because the medication would be released into the dermis layer for a longer period of time with greater effectiveness.

Formulation, Development and Evaluation of Orodispersible film of Fluoxetine

Kotwal Rupesh Subhaschandra, Professor, DJPS College of Pharmacy

Abstract:

The objective of the study was to formulate, develop and evaluate orodispersible film of Fluoxetine selective serotonin reuptake inhibitors (SSRIS). Orodispersible film disintegrate rapidly and provide prompt dissolution and pleasant mouth feeling, which is suitable for paediatrics, geriatrics, mentally ill patient etc. The orodispersible film were prepared using solvent casting method and films were formulated using different grades and concentration of HPMC E5, E15, E50, PVA, PVP (K30) as a film forming agent, Glycerol and PEG-400 as a plasticizer, Tween 80 as a surfactant, Sodium Saccharine as a sweeteners, Optimal film selected and loaded with Fluoxetine. A 32 full factorial design was applied to systemically to optimise the drug release and folding endurance. The concentration of HPMC E15(X1) and concentration of PEG-400(x2) were selected as independent variables. Folding endurance (R1), disintegration time (R2), the percentage drug release in 5 minute (R3), as dependent variables. According to result the folding endurance was277, disintegration time 22 sec. and % CDR in 5.5 min. F8 is favourable formulation suitable for the immediate release of Fluoxetine.

Solubility Enhancement by Self-Micro Emulsifying Drug Delivery System

Mr. Pimple R.G., Assistant Professor, DJPS College of Pharmacy

abstract**:**

Poor water solubility is a major challenge for orally administered drugs; thus, different strategies are utilized to enhance their solubility and oral bioavailability. A greater attention has been given in recent times to SMEDDS. In order to improve the solubility and oral bioavailability of drugs that are poorly water soluble, SMEDDS is a promising strategy in which pre-dissolving the drug is capsuled to formulate physically stable formulations. SMEDDS is formulated by a self-emulsification mechanism which occurs due to the change in entropy.SMEDDS have advantages such as pre-dissolving formulation overcomes the dissolution as a rate limiting step, improved oral bioavailability, ease of manufacture, avoiding or preventing GIT degradation, and no effect on the process of lipid digestion. Formulation consists of active pharmaceutical ingredients and excipients such as oil/lipid, surfactant, co-surfactant, co-solvents etc. SMEDDS Formulation design involves screening of excipient by solubility studies and emulsification efficiency studies; Pseudo-ternary Phase Diagram construction & its Preparation. Characterizations of SMEDDS involve Visual Evaluation, Droplet Size Analysis, Zeta Potential Measurement, Percentage Transmittance, and Refractive Index.

Formulation, and evaluation of sublingual tablets of Amlodipine

Shaikh Nasir Shabbir, Professor, DJPS College of Pharmacy

Abstract:

Calcium channel antagonists, also known as calcium channel blockers (CCBs), have been widely used for many indications. As the sublingual tablet is placed beneath the tongue, the drug gets absorbed into the systemic circulation within few minutes due to the presence of highly vascularized area and rapid onset of action of the API is achieved. Avoidance of first-pass metabolism and increased patient compliance make this dosage form more convenient. Amlodipine is having ideal properties which make it suitable for sublingual tablet. Formulation variables of superdisintegrants crospovidone and solubilizing agent poloxamer 188 were investigated using conventional direct compression for tablet preparation and its effect of disintegration time and percentage cumulative drug release was evaluated. A 32 full factorial design was employed to investigate the effect of dependent and independent variables. Tablets were also evaluated for evaluated for different parameters like hardness, friability, weight variation, content uniformity, in-vitro disintegration test, in-vitro dissolution test etc. The experimental design was validated by check point batch and evaluated for all the parameters. By regression analysis and numerical optimization the batch found best was having 16mg of crospovidone and drug: poloxamer 188 ratio of 1:5. This batch gave the best disintegration time (9 second) and dissolution (97.78%). The optimized formulation was exposed to stability studies as per ICH guidelines.

Analysis of ethanolic extract of Cinnamon By Reverse phase high performance liquid chromatography

Kabra Pritishchandra Sureshchandraji, Assistant Professor, DJPS College of Pharmacy

Abstract:

Cinnamon is also known as Ceylon cinnamon, a plant that has been used for the purpose of medication and cure for health conditions. The Cinnamon extract was studied by using reversed phase high performance liquid chromatographic (RP-HPLC) method. Methods The RP-HPLC system included a Model 1100 pump supplied with a multi solvent delivery system, an Agilent C18 (6 μm, 4.6 x 250 mm) column and a photodiode array detector. The solvent consisted of acetonitrile (CH3CN) and water (0.01% formic acid). It was set up to run in a gradient elution as follows: 0 min, 10:90; 3 min, 10:90; 30 min, 90:10; 35 min, 90:10; 36 min, 10:90; and 45 min, 10:90. The flow rate was set as 1 mL/min (temperature of the column = 25o C) and the UV absorbances were measured at λ = 210, 254 and 280 nm. The peaks in the chromatograms were recorded and reviewed. A triplicate trial was performed for each sample volume = 10 μL, per injection. Results The compounds with the highest absorbance values were eluted within nine minutes, whereby the solvent ratio was 30:70 (CH3CN:H2O). It is suggested that aloe emodin was separated much earlier, at retention time, RT = 1.676 minutes. Later, the Eugenol, tannins (phlobatannin) [calcium oxalate,starch) could be eluted, respectively at RT = 8.171 and 8.721 minutes. Conclusions The Cinnamon compounds could be identified by comparing their retention times with the monograph. Some unresolved, minor peaks, that were not well isolated (RT = 2.2 and 8.3 minutes) could be attributed to the less polar metabolites of cuminaldehyde, The RP-HPLC technique appears to be adequate for routine analysis of the Cinnamon.

Phytochemical investigation of Coccinia grandis leaves extract of ethanolic extract

Suryawanshi Milind Balaji, Assistant Professor, DJPS College of Pharmacy

Abstract:

Coccinia Grandis is also known as scarlet gourd Creeper and can be found throughout Asia and tropical Africa. C. Grandis is a plant species belonging to the gourd and the family of Cucurbitaceae. Numerous studies proved the therapeutic effects of this plant including anti-obesity, anti-inflammatory, antioxidant, insecticidal, antimicrobial, cytotoxic and immunomodulatory properties. The previous phytochemical studies of Coccinia Grandis has revealed the presence of tetracyclic triterpenes, trigonelline (alkaloid), rutin (flavonoid), tannins, L-proline (α-amino acid), L-asparagine (α-amino acid) and quisqualic acid. In addition, isoenzyme A and isoenzyme B (Enzyme), the two forms of the cysteine synthase are also present in C. Grandis.The chemical constituents of leaves of C. grandis were extracted using organic solvents. The TLC profile of chloroform extract of C. grandis was established and chemical constituents were purified by PTLC. Results Two long chain fatty acids derivatives were successfully isolated from the crude chloroform extract and the structures were confirmed by using NMR analysis. Conclusions The phytochemical study on Malaysian C. grandis confirmed the presence of terpenes in chloroform extract.

Formulation of Mucoadhesive microsphere of Loperamide

KanchanS. Jamkar, Assistant Professor, DJPS College of Pharmacy

Abstract:

To develop and evaluate the mucoadhesive microsphere using combinations of natural polymers chitosan and xanthan gum for sustained release. In the present work mucoadhesive microspheres were prepared by using natural polymers like chitosan and xanthan gum by using the emulsion chemical cross-linking method. Chemical cross-linking was done by using glutaraldehyde. The 22 factorial design was employed to show the effect of cross-linking agent and processing factor-like stirring and speed. Prepared microspheres were evaluated for their particle size, surface morphology, drug entrapment efficiency, in vitro drug release, swelling index, and mucoadhesive strength. The size of microspheres of factorial batches were in the range of 24-40µm. The swelling index was showed in the range of 1.42-1.50 percentage. The equation of multiple regression revealed that there was significant interaction among factors. The glutaraldehyde concentration had a positive effect on % entrapment efficiency, % cumulative drug release and % mucoadhesion. Stirring speed showed a negative impact on % entrapment efficiency, % cumulative drug release and % mucoadhesion. The interactive effect of glutaraldehyde concentration and the stirring speed was found to be positive for % entrapment efficiency and % cumulative drug release. In vitro drug release study of optimized formulation F3 show 95 % of drug release with 5 h indicating sustained release behavior with diffusion mechanism. The SEM image of the optimized batch was spherical with a porous surface. The obtained in this research work indicated that a promising potential of chitosan and xanthan gum combination for the preparation of the mucoadhesive microsphere of Loperamide.

Formulation &*In-vitro* evaluation of Sulfanilamide 15% vaginal cream

Mr. Kiran N. Khodke, Assistant Professor, DJPS College of Pharmacy

Abstract:

Sulfanilamide is a sulfonamide antibiotic that has been used to treat various bacterial infections, especially in the genitourinary tract. However, its oral administration is associated with adverse effects such as nausea, vomiting, hypersensitivity, and haemolytic anaemia. Therefore, the aim of this study was to formulate and evaluate a sulphanilamide 15% vaginal cream as an alternative dosage form. The cream was prepared by using a fusion method with Lanoline as a base. The cream was then evaluated for its physicochemical properties, such as pH, viscosity, spreadability, homogeneity, and stability. The cream was also tested for its in-vitro antimicrobial activity against Escherichia coli, Staphylococcus aureus, and Candida albicans using agar diffusion method. The results showed that the cream with mixed base had the most favorable characteristics, such as pH of 4.8, viscosity of 25789 mpa.s, spreadability of 10 cm, and homogeneity of 98.5%. The cream also exhibited good stability under accelerated and normal conditions for three months. The cream showed significant antimicrobial activity against all the tested microorganisms, with inhibition zones ranging from 15 to 25 mm. The cream was found to be non-irritant and safe for vaginal application.

Formulation and characterization of Novel nano-gel

Karpe C.E., Assistant Professor, DJPS College of Pharmacy

Abstract:

The purpose of writing this review on gastroretentive drug delivery systems was to compile the recent literature with special focus on various gastroretentive approaches that have recentlybecome leading methodologies in the field of site-specific orally administered controlled released drug delivery. A controlled drug delivery system with prolonged residence time in thestomach is of particular interest for drugs that i) are locally active in the stomach, ii) have an absorption window in the stomach or in the upper small intestine, iii) are unstable in the intestinal or colonic environment, or iv) exhibit low solubility at high pH values controlled release drug delivery. The purpose of this paper is to briefly describe the gastro retentive drugdelivery (GRDD), factors related to GRDD, its advantages disadvantages, and emphasis is given over its significance over conventional form of drug deliveries.

Formulation and Evaluation of Fast Dissolving Oral Film of Gilclazide

Mr. Hanuman S. Kolse , *Assistant Professor, DJPS College of Pharmacy*

Abstract:

Fast dissolving drug delivery systems such as mouth dissolving films (MDF) are novel dosage forms that disintegrate or dissolve within the oral cavity. These offer a convenient way of dosing medications, not only to special population groups with swallowing difficulties such as children and the elderly, but also to the general population. Mouth dissolving films of gilclazide were prepared by solvent casting method, which involved the deaeration of the solution, transfer of appropriate volume of solution into a mould, drying the casting solution, cutting the final dosage form into strips (size 3x4 cm) to contain the desired amount of drug (10mg), packaging and storage. The films were specifically designed for people with swallowing difficulties such as pediatric and old age populations. Several formulations were developed by varying polymer (HPMC) and plasticizer (glycerol) concentrations. The films were evaluated for thickness, folding endurance, weight variation, disintegration time, drug content and dissolution time.

1,3,4 OXADIAZOLES DERIVATIVES AS PRECURSOR FOR CANCERTREATMENT:- AN OVERVIEW

Miss. Shinde J.B.. Assistant Professor, DJPS College of Pharmacy

Abstract:

In this review we are presenting the Anticancer activity of the 1,3,4 Oxadiazole. Therefore designing new anti-cancer drugs with high efficiency and broad spectrum activity is a significant need of today. Drug resistance, generally caused because of long term cancer treatment is rapidly becoming a major worldwide problem. The design of new compounds to deal with the resistance problem has become one of the most important goals of anti-cancer research today. This review article describes the anticancer activity of 1,3,4 oxadiazole ring being reported on various cancer cell lines system and will be useful in guiding the researchersacross the world working on this moiety and consequently will be instrumental in the advancement of 1,3,4-oxadiazole chemistry.

Formulation, Development and Evaluation of Floating Beads of Nateglinide

Tengse K.A., *Assistant Professor, DJPS College of Pharmacy*

Abstract:

Nateglinide is an antidiabetic drug have short haif life approx. 1.4 hr and is rapidly and completely absorbed orally. Floating dosage form administered in single unit form such as hydrodynamically balanced systeam is sometimes unreliable in prolonging the gastric retension time different formulations of repaglinide were prepared varying concentration of polymers like gellangum, pectin,sodium lginate. All the forulations were evaluated for parameters like %yeild,%swelling index %entrapment efficiency, floating lag time, total floating time,% drug release. In present investigation 32 full factorial design was used for optimization of beds dosage forms. In this design glean gum/sodium alginate (X1) and concentration of light liquid paraffin(X2) were used as independent variables & %entrapment efficiency(Y1) and % drug release(Y2) were selected as dependent variables. Repaglinide were successfully prepared which exhibited an acceptable release profile over 12 hr.

Antibacterial activity of Camellia sinuses Extract against isolated UTI pathogen

Nemane Shraddha Tukaram, Assistant Professor, DJPS College of Pharmacy

Abstract:

Urinary tract infection (UTI) has become a more serious problem today, due to multidrug resistance of Gram-positive (GP) and Gram-negative (GN) bacteria. Camellia sinensis is used as a medicinal plant in traditional system of healing many infectious diseases. The goal of our research was to evaluate antimicrobial efficiency of Camellia sinuses (green tea) leaves extracts against isolated UTI pathogens. Methods green tea extracts were obtained with maceration technique using two solvents separately: distilled water and methanol . Agar well diffusion assay was used for evaluation of antimicrobial properties of leaves extracts against isolated UTI pathogens. Minimum inhibitory concentrations and minimum bactericidal concentrations were determined by broth dilution method and agar plate method. The preliminary phytochemical analyses of the plants were carried out using standard procedure.. A total of 5 UTI pathogens were isolated from the UTI patients attending in the hospital such as Pseudomonas aeruginosa, Klebsiella pneumonia, E. coli, Enterococcus faecalis and Staphylococcus aureus. Aqueous and ethanol extracts expressed antimicrobial activity against isolated UTI pathogens except S.aureus at 500 mg/ ml. Zone of inhibition of the extracts were compared with ciprofloxacin (250mg/ml). Ethanolic extracts of Camellia sinensis inhibited the growth of P. aeruginosa and E. faecalis at 62.5 mg/ml and K. pneumoniae at 125 mg/ml. Aqueous extracts of Camellia sinensis inhibited the growth of K. pneumoniae and E.coli at 250mg/ml. Ethanol extracts of Camellia sinensis exhibited bactericidal activity against P. aeruginosa and E. faecalis at 250 mg/ml. Ethanolic extracts exhibited better antibacterial activity against tested strains than water extracts. The antibacterial activity of the Camellia sinuses was due to the presence of alkaloids, tannins, flavanoids, terpenoids and sugar.

Systematic Investigation of Efavirenz Solubility and Dissolution Behavior different Solublizer

Khose Mahadeo Vitthalrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

The objective of the present work was to enhance solubility of Efavirenz by incorporating solubilizer like PVP K30, Eudragit EPO and Soluplus using Solid Dispersion Techniques. Based on phase solubility study, most suitable solubilizer and ratio of drug: polymer were screened. Plackett Burman design was adopted to screen out significant process parameters for pellets. The pellets of Efavirenz were prepared by Extrusions and Spheronization using Avicel PH 101 as an Extruder aid and Crosscarmelose sodium as a disintegrating agent employing Central Composite design. Amount of Crosscarmelose Sodium,amount of MCC and Spheronization speed were selected as independent factors and % Cumulative Drug Release and disintegration time were selected as dependent variables. Prepared pellets were characterized by particle size, particle shape, disintegration time, % yield, % encapsulation efficiency and % of drug release. The pellet formulations of Efavirenz were successfully prepared by extrusion spheronization technique. The optimized formulation showed higher solubility and drug release as compared to pure drugs.

Solubility and Dissolution Enhancement of Etorocoxib by Solid Dispersion Technique with Novel Carriers

Pentewar Ram Shankarao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Etoricoxib, a widely prescribed anti-inflammatory analgesic drug belongs to BCS class II and exhibit low and variable oral bioavailability due to its poor solubility and dissolution rate. To increase solubility and hence the dissolution rate, solid dispersions were prepared. Solid dispersion was prepared by 'solvent evaporation' and 'Hot Melt Extrusion' methods using Soluplus, Eudragit EPO and PVP K30 as carriers in different proportions of 1:1, 1:2 and 1:4. The solid dispersions were characterized for solubility, drug content uniformity, and dissolution rate and similarity factor analysis. The solid dispersions exhibited enhanced dissolution rate. The dissolution data was fitted in zero order, first order, higuchi model and korsmeyer-peppas equation. The formulation containing drug and the carrier revealed similar dissolution profiles with factorial dissolution.

Novel Approaches for Solubility Enhancement

Pulgamwar Gajanand Venkatrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

The solubility enhancement process play a important role in the formulation development to achieve the bioavailability and therapeutic action of the drug at the target site. The poor dissolution characteristics of water insoluble drugs are a major challenge for pharmaceutical scientists. It is frequently documented that almost 40% of NCEs discovered by the pharmaceutical researcher are poorly soluble or lipophilic in nature. Most of the drugs in the pharmaceutical development are emerging from the high throughput screening methodology which are resulting in increased molecular weight and thus occurs bioavailability and solubility problems pf drugs. Bioavailability issue can be due to insufficient solubility of permeability. Most compounds face the solubility problems. The BCS reflects that class II and IV drugs have low water solubility, poor dissolution and low bioavailability. Hence, various methods of solubility enhancement are being developed, like solid dispersion, Particle size reduction, Inclusion complexation, Supercritical fluid process, modification of crystal habit, salt formation, use of surfactant, cosolvency, hydrotrophy etc. Each technique is with several merits and demerits. In this review, there are novel approaches method like solid dispersion, liquid solid technique, SMEDDS by using different surfactants which are improve the solubility and bioavailability of drugs.

Formulation and Evaluation of Sublingual Tablet of Zolmitriptan

Suryakar Vijaykumar Bapurao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Zolmitriptan is a 5-HT receptor agonist. It is used in the acute treatment of migraine having low bioavailability about 40% orally due to hepatic first pass metabolism. The purpose of the present research was to formulate fast acting sublingual tablets of zolmitriptan. In certain diseases such as migraine therapy fast pharmacological response required. By using direct compression method zolmitriptan sublingual tablets were prepared. Preliminary screening was done for selection of superdisintegrants and gelling polymers. flusing action of saliva is reduced by gelling polymer and provide enough time for drug to be absorb. 32 full factorial design was used for the optimization of the concentration of cross povidone and carbopol 934P; disintegration time, % drug release at 2min and % drug release at 15min were selected as dependent variable. The optimized batch has disintegration time 91 % in 15 min. Ex-vivo permeation study of optimized batch was done using porcine buccal mucosa and was compared with the conventional market formulation. The result shows higher drug release (>90 %) in optimized formulation compared to marketed product (45%). As a result, sublingual tablet administration of zolmitriptan formulated with appropriate excipients and especially with crospovidone and carbopol 934P seems promising alternative to traditional routes. The study point of zolmitriptan sublingual tablet is ease of administration, high bioavailability and faster onset of action.

Novel Strategies to Improve Topical Drug Delivery

Lad Susihlkumar Udhavrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Novel Drug Delivery System. Novel Drug delivery System (NDDS) refers to the approaches, formulations, technologies, and systems for transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effects. The primary aim of topical and cutaneous drug delivery is to deliver active therapeutic and similar substances to a specific target site in a particular dermal layer at optimum dose to reach a safe and efficacious outcome. But the effective topical therapy depends on both the active pharmaceutical ingredient as well as the characteristics of the delivery system. Conventional drug delivery systems involve lots of drawbacks like improper rate of drug delivery, poor retention, low bioavailability, barrier in penetration, inefficient drug targeting and many more. While the novel strategies possess merits like ease of administration and better patient compliance. The present market focus is on the innovative and improvised topical drug delivery. This review includes strategies like spray bandage, nanoemulgel, film forming systems, and formulations based on nanotechnology. The classical formulation pertaining to topical drug delivery product demands cautious maneuver of both the defensive barriers as well as the selection of a soluble drug carrier. A widespread research is required to unfold new delivery systems focusing on improved efficacy and elimination of side effects compared to existing systems.

Formulation and Evaluation of Gelling System for Othalmic Drug Delivery of Erythromycin

Dahiphale Vijay Bagirao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Conventional ophthalmic dosage forms provide low bioavailability and less pre-corneal drug residence time due to nasolacrimal drainage and blinking action of the eyes. The major challenge is to formulate a system to improve the contact time of the drug in the eyes. The present study was aimed to prepare and evaluate in situ gelling system for the effective delivery of Erythromycin to combat ophthalmic infections. Methods Development of novel in situ gelling system using Erythromycin was based on the concept of ion triggered in-situ gelation. Sodium Alginate was used as a gelling agent in combination with Hydroxypropyl methylcellulose (HPMC K100) as a viscosity enhancing agent. The prepared formulations were evaluated for physical appearance, pH, gelling capacity, viscosity, stability studies, drug content, in vitro diffusion study and s spreadability test. Results All formulations were found to be clear and free from undissolved particles. The pH of the formulations was within the range of 6.8 – 6.92 which is safe for ophthalmic use. Formulation F4 (Sodium Alginate 1.2% and HPMC 0.5%) showed optimum viscosity of 48cps, good spreadability and gelling capacity that will improve residence time of the drug in eyes. All the formulations were found to have drug content uniformity of 98 ±2% p. In vitro, drug release studies showed that the drug was released in the of order F2<F1<F3.Peppas model showed drug released from the system by diffusion mechanism. Conclusion The developed in situ gelling systems may provide greater ocular bioavailability and it may be proposed to treat ocular infections by retaining the drug for a prolonged period in the eyes.

Formulation and Evaluation of Fast-dissolving Oral film

Choure Hanumant Vachistha, Assistant Professor, DJPS College of Pharmacy

Abstract:

Fast-dissolving oral films (ODF) are thin sheets designed to rapidly disintegrate when in contact with saliva to release the incorporated active, without the need for swallowing. Difficulty in swallowing solid dosage forms (e.g. tablets) has been identified as one of the factors affecting the non-compliance of patient populations such as paediatric and geriatric. Thus, ODF may serve as an alternative to existing dosage forms. This study aimed to formulate and characterise a series of ODFs made from hydroxypropyl methylcellulose (HPMC) andchitosan, plasticised with glycerol and sorbitol. Methods Three formulae of each HPMC and chitosan were prepared by solvent casting technique. The resulting films were characterised physically (i.e. visual appearance) and mechanically (i.e. mass and thickness variation, folding endurance and tensile strength). Furthermore, the placebo films were also assessed in terms of their disintegration time and contact angle. Results The films produced were not sticky, easy to handle and acidic in nature. They had an average mass between 18to 26 mg and thickness between 40 to 70 μm. Films of chitosan were significantly thicker than the HPMCs.

Formulation of Antibacterial Ointment from the Ethanolic Crude Extract of EchinopusRoot

Hange Dipak Dagdu, Assistant Professor, DJPS College of Pharmacy

Abstract:

According to World Health Organization cases of Antimicrobial Resistance (AMR) have exponentially increased yet fewer antibacterial agents are discovered on the past years. AMR hampers the control of infectious diseases resulting to an increase in health care cost and risk of spreading resistant microorganisms in the community, these events is a growing public health challenge and poses a global health crisis if remain.uncontrolled. Echinopus root on the otherhand has been well studied and has shown abundant and potential source of phytoconstituents that may be developed as antimicrobial agent and incorporate it to an applicable dosage form, therefore to address this concern the researchers formulate a root-derived antibacterial ointment from the ethanolic crude extract from Piper betlle locally known as echinopus. Mature echinopus root were collected, dried and extracted. The extract was then subjected to physicochemical characterization and antibacterial assay by means of agar-plate method. The plant concentration that exhibits the most active effect against Staphylococcus aureus and Pseudomonas aeruginosa will be used in the formulation of antibacterial ointment. To ensure the safety of the formulated product, initial dermal irritation test was conducted using rabbits.The yield of ethanolic extract of echinopus root extract is 9.922% and is found to have greenish-black color, creosote-like odor and has syrupy consistency. The ethanolic crude extract was soluble in acetone, ethanol, and ether and insoluble in water. The optimized extract concentration of 60% was further develop to ointment and is the subjected to antibacterial assay against Staphylococcus aurous and Pseudomonas aeruginosa resulting to a zone of inhibition of 23.05±1.35 mm and 26.40±0.89 mm compared to mupirocin (14.93 ±0.03 mm and 17.55±0.03 mm). Dermal irritation test has also shown that the formulated extract does not show any skin reactions to test animals.Based on the result of the study, the formulated ointment of the optimized ethanolic crude extract of echinopus root has shown to be a potential agent to be further studied considering its good preliminary antibacterial effect and dermal irritation test.

Review on Mucoadhesive Buccal Gels

Alure Bhalchandra Shivajirao, Assistant Professor, DJPS College of Pharmacy

Abstract:

The buccal region of the oral cavity is an attractive target for administration of drug of choice, particularly in overcoming deficiencies associated with the latter mode of administration. The development of mucoadhesive system that allows increased retention time on mucosa is necessary. For this reason the development of mucoadhesive preparation for buccal administration becomes important and mucoadhesive gels are easily dispersed through the oral mucosa. Gels prepared with mucoadhesive polymers such as natural and synthetic polymers constitute a promising option. An accurate selection and combination of the materials allow the design of pharmaceutical forms suitable for different purposes, by simply modifying the formulation composition. The selective polymers displaying mucoadhesive properties that are capable of –H bond formation, processes, swelling over water load properties and sufficient flexibility for intangle ment with mucous. The formulation according to few inventions cover the mouth cavity by being gelled at body temperature by means of using polymers being liquid at room temperature and gelling at body temperature when it sprayed into the mouth, which can be adhered into the oral cavity by means of mucoadhesive polymers. Gels of mucoadhesive polymers resulted in preparations with desirable rheological features as well as texture (firmness and adhesiveness) and mucoadhesive properties, which could benefit the therapeutic efficacy, by increasing the residence time and easiness for topical application for the buccal mucosa. Additionally, the developed preparations exhibited sustained drug release as intended for these systems. This review provides the brief knowledge about the mucoadhesive gels by discussing briefly the structural features of mucosa, mechanism of mucoadhesion, various theories of mucoadhesive buccal dosage forms, permeation enhancers, and the various evaluation method.

Formulation and Evaluation of Topical Hydrogel of Val acyclovir

Mande Santosh Venkatesh, Assistant Professor, DJPS College of Pharmacy

Abstract:

The aim of present work was to develop and characterize liposomal topical gel of antiviral agent Val acyclovir for the effective treatment and prevention of herpes simplex virus on the skin especially in case of cold sores. The objective of the work was to prepare and evaluate various physicochemical and biological properties of topical gels prepared by using different grades of Carbopol. The liposomes were developed from indigenous, natural solid lipid by using simple reverse phase evaporation technique. Topical drug delivery system offers localized effect, controlled release of drug, it enables a steady blood-level profile, resulting in reduced systemic side effects and sometimes improved efficacy over dosage form. Carbopol 940 hydrogel in polymer concentration of 1% w/v is promising for topical as well as controlled release systems for valacyclovir than Carbopol 934 and Carbopol 971. Valacyclovir liposomal formulation with desired characteristics for topical administration could be successfully prepared by using cholesterol and lecithin in ratio 1:2. Valacyclovir loaded liposomes showed enhanced skin permeation as well as retention of drug molecules in skin thus therapeutic level of drug could be achieved topically.

Techniques Used To Enhance Bioavailibility of Poorly Water Soluble Drugs

Jadhav Arti sanjay, Assistant Professor, DJPS College of Pharmacy

Abstract:

There are various techniques to enhance the drug solubility such as particle size reduction, nanosuspension, use of surfactants, salt formation, solid dispersion, etc

Solubility of drugs molecules remains one of the most challenging aspects in formulation development. Many water soluble drugs are present in the BCS class Π category, which are characterized by low solubility and high permeability. By increasing the dissolution rate, the solubility of drug can be easily enhanced. As oral route is one of the most desirable and preferred method for drug administration, thus solubility of drug is a major challenge in formulation designing. About 35% of the orally administered drugs are having solubility problems. Thus, because of these solubility problems, the bioavailability of drugs also gets affected. Various solubility enhancement techniques are available for increasing the solubility as well as permeability of drugs like micronization, salt formation complexation, co-solvent addition, conservation and Solid dispersion. The purpose of this review we concentrated on improvement of the solubility of poorly water soluble drugs by preparing various methods.

Amblyopia types and Diagnosis in pediatric ophthalmology

Zagade Krusha Arnokrau, Assistant Professor, DJPS College of Pharmacy

Abstract:

Amblyopia is clinically defined as reduction of visual acuity in one or both eyes, caused by abnormal binocular interaction during the critical period of visual development, that cannot be attributed to any ocular or visual system abnormality or to refractive error.1 The American Academy of Ophthalmology considers amblyopia an interocular difference of 2 lines or more in a visual acuity table (without specifying any), or visual acuity worse than or equal to 20/30 with the best optical correction. With an incidence of 3% to 6%, amblyopia is the most common cause of low visual acuity in children and adults in developed countries and has great economic and social impact.3-5 Individuals with amblyopia often have restricted career options and reduced quality of life, including less social contact, cosmetic distress (if associated with strabismus), low self-esteem, visual disorientation, and fear of losing vision in the other eye.5-8The adoption of interocular difference of visual acuity as a definition contemplates many of the points that concern the different definitions for amblyopia, such as reduction of visual acuity, functional imbalance between the eyes, and inadequate binocular information input in primary visual cortex amblyopia is also called lazy eye, it is a disorder in which brain fails to process imputes from one eye and overtime favours the other eye , it results in decreased in an eye that otherwise typically appear as normal it is most common cause of decreased Vision mostly in small children and younger ones.

Needle free injection technology A novel drug delivery system

Mule Geetanjali Trambkeshwar, Lecturer, DJPS College of Pharmacy

Abstract:

Needle free injection technology is an extremely broad concept which include a wide range of drug delivery systems that drive drugs in the skin using any of the forces as Lorentz, Shock waves, pressure by gas or electrophoresis which propels the drug through the skin, virtually nullifying the use of hypodermic needle. This technology is not only touted to be beneficial for the pharma industry but developing world too find it highly useful in mass immunization programmes, bypassing the chances of needle stick injuries and avoiding other complications including those arising due to multiple use of single needle. The NFIT devices can be classified based on their working, type of load, mechanism of drug delivery and site of delivery. To administer a stable, safe and an effective dose through NFIT, the sterility, self life and viscosity of drug are the main components which should be taken care of. Technically superior needle-free injection systems are able to administer highly viscous drug products which cannot be administered by traditional needle and syringe systems, further adding to the usefulness of the technology. NFIT devices can be manufactured in a variety of ways; however, the widely employed procedure to manufacture it is by injection moulding technique. There are many variants of this technology which are being marketed, such as Bioject® ZetaJetTM, Vitajet 3, Tev-Tropin® and so on. Larger investment has been made in developing this technology with several devices already being available in the market post FDA clearance and a great market worldwide.

FORMULATION AND EVALUATION OF CALENDULA AND POMELO PEEL ANTI-ACNE GEL

Shaikh Bilal Shaikh Shakil, Lecturer, DJPS College of Pharmacy

Abstract:

The herbal ball has been used as a Thai traditional medicine for relieving many diseases including acne. However, the application process of the herbal ball in practice is complicated and time consuming. The objective of this work was to utilize an herbal ball extract to formulate a gel to reach a more favorable use of the herbal ball for acne treatment. An herbal ball consisting of the Benchalokawichian remedy and the stem bark powder of was prepared. The obtained herbal ball was steamed and squeezed to obtain the extract. Gel formulations containing the herbal ball extract at concentrations of 0.1, 1 and 5% w/w were prepared based on a carbomer gel. The herbal ball extract had antioxidant and anti activities and minimum bactericidal concentration The 5% w/w gel formulation had antimicrobial activity against P. acnes, showing an inhibition zone value of This indicates that the developed gel formulation has potential for acne treatment. In comparison to the traditional method of herbal ball usage, the application of herbal ball extract in the form of gel should be more convenient to useCalendula Calendula officinalis, Garden marigold, Pot marigoldThe flower petals of the calendula plant (Calendula officinalis), or pot marigold, have been used formedicinal purposes since at least the 12th century Calendula is native to Mediterranean countries butsnow grown as an ornamental plant throughout the world. Calendula has high amounts of flavonoids, plant-based antioxidants that protect cells from being damaged by unstable molecules called free radicals Calendula appears to fight inflammation, viruses,and bacteria. cuts, as well as the minor infections they cause. Calendula also has been shown to help.

Forced degradation and stability indicating studies of drugs

Pitale Yogesh Rangnath, Lecturer, DJPS College of Pharmacy

Abstract:

Forced degradation is a degradation of new drug substance and drug product at conditions more severe than accelerated conditions. It is required to demonstrate specificity of stability indicating methods and also provides an insight into degradation pathways and degradation products of the drug substance and helps in elucidation of the structure of the degradation products. Forced degradation studies show the chemical behavior of the molecule which in turn helps in the development of formulation and package. In addition, the regulatory guidance is very general and does not explain about the performance of forced degradation studies. Thus, this review discusses the current trends in performance of forced degradation studies by providing a strategy for conducting studies on degradation mechanisms and also describes the analytical methods helpful for development of stability indicating method,degradation products that can be studied to determine the stability of the molecule.

A REVIEW ON ANTIDIABETIC PLANT: ACTIVE INGREDIENT, EXTRACTIONTECHNIQUE AND ACTING MECHANISM

Giram Mayuri sanjay, Lecturer, DJPS College of Pharmacy

Abstract:

Diabetes mellitus is a chronic disorder characterized by hyperglycemia because of impaired insulin action, diminished insulin production, increased hepatic glucose production, andoxidative stress. There are multiple therapies available to treat diabetics, but total recovery from diabetes may not possible. In addition, allopathic drugs have some adverse effects such as renal impairments, mal-absorption, flatulence, diarrhea, and abdominal bloating. The anti- diabetic medicines from plants have a similar mechanism of action as allopathic drugs and reduce side effect with low cost. Anti-diabetic effects of herbals are attributed to their ability to restore the function of pancreatic tissues by causing an increase in insulin release or inhibitintestinal absorption of glucose or increase facilitation of metabolites in insulin-dependent processes.Berberisaristata herb is called Indian barberry or tree turmeric and it belongs to family Berberidaceae. It is used in ayurvedic medicine system from long times. The stem barkof Berberisaristata herb is rich in berberine and isoquinoline alkaloids. Both chemical compounds are anti-fungal, anti-bacterial, anti-oxidant, anti-viral, ant-diabetic, anti-tumor andanti-inflammatory in nature. A brief review on the extraction techniques for mentioned parts is also included. Furthermore, the acting mechanisms for the anti-diabetic activity were described, and the related active ingredients were identified.

MICROENCAPSULATION-A PROMISING OF NOVEL APPROACH IN DRUG DELIVERY SYSTEM: REVIEW

Amle Balasheb Babasaheb, Lecturer, DJPS College of Pharmacy

Abstract:

Microencapsulation is the process of surrounding or enveloping one substance within another substance on a very small scale, yielding capsules ranging from less than one micron to several hundred microns in size. The encapsulation efficiency of the microparticles or microsphere or microcapsule depends upon different factors like concentration of the polymer, solubility of polymer in solvent, rate of solvent removal, solubility of organic solvent in water etc. Microparticles offer various significant advantages as drug delivery systems, including: (i) an effective protection of the encapsulated active agent against (e.g. enzymatic) degradation, (ii)the possibility to accurately control the release rate of the incorporated drug over periods of hours to months, (iii) an easy administration and (iv) Desired, pre-programmed drug release profiles can be provided which match the therapeutic needs of the patient. This article is a review of microencapsulation and materials involved in it, morphology of microcapsules, microencapsulation technologies, purposes of microencapsulation, and benefits of microencapsulation, release mechanisms, and application and their use in a wide variety of industrial, engineering, pharmaceutical, biotechnology and research applications.

NIOSOMES AS A NOVEL DRUG DELIVERY SYSTEM

Dr. Ramesh D. Ingole , Principal, DJPS College of Pharmacy

Abstract:

Niosome are non-ionic surfactant vesicles obtained by hydrating mixture of cholesterol and non-ionic surfactants. It can be used as carriers of amphiphilic and lipophilic drug. In niosomes drug delivery system, the medication is encapsulated in a vesicle. Niosomes are biodegradable, biocompatible non-immunogenic and exhibit flexibility in their structural characterization. The main object of this project work is the application of niosome technology is used to treat a number of diseases, niosome have good opportunity in research and beneficial for researcher and pharma industries. Niosome appears to be a well preferred drug delivery system over liposome as niosome being stable and economic also niosomes have great drug delivery potential for targeted delivery of anti-cancer, anti-infective agents. Drug delivery potential of niosome can enhances by using novel drug delivery concepts like proniosomes, discomes and aspasome. Niosomes also serve better aid in diagnostic imaging and as a vaccine adjuvant.Treatment of infectious diseases and immunisation has undergone a revolutionary shift in recent years. Not only a large number of disease-specific biological have been developed, but also emphasis has been made to effectively deliver these biological. Niosomes represent an emerging class of novel vesicular systems. Niosomes are self-assembled vesicles composed primarily of synthetic surfactants and cholesterol. Comprehensive research carried over niosome as a drug carrier. Various drugs are enlisted and tried in niosome surfactant vesicles. Niosomes proved to be a promising drug carrier and has potential to reduce the side effects of drugs and increased therapeutic effectiveness in various diseases.Thus, these areas need further exploration and research so as to bring out or to make for commercially available niosomal preparation.

PHARMACOGENOMICS AND PHARMACOGENETICS

Bhamre Pankaj Chudaman, Professor, DJPS College of Pharmacy

Abstract:

Pharmacogenetics and pharmacogenomics involve the study of the role of inheritance in individual variation in drug response, a phenotype that varies from potentially life-threatening adverse drug reactions to equally serious lack of therapeutic efficacy. This discipline evolved from the convergence of rapid advances in molecular pharmacology and genomics. Originally, pharmacogenetic studies focused on monogenic traits, often involving genetic variation in drug metabolism. However, contemporary studies increasingly involve entire "pathways" encoding proteins that influence both pharmacokinetics—factors that influence the concentration of a drug reaching its target(s)—and pharmacodynamics, the drug target itself, as well as genome-wide approaches. Pharmacogenomics is also increasingly moving across the "translational interface" into the clinic and is being incorporated into the drug development process and the governmental regulation of that process. However, significant challenges remain to be overcome if pharmacogenetics-pharmacogenomics is to achieve its full potential as a major medical application of genomic science.The approval of new medicines has slowed significantly over the past years. In order to accelerate the development of new compounds, novel approaches in drug development are required. Translational medicine or research, an emerging discipline on the frontier of basic science and medical practice, has the potential to enhance the speed and efficiency of the drug development process through the utilization of pharmacogenetics and pharmacogenomics. The utilization of these methods in the drug development process may therefore identify patient sub-populations that exhibit more effective responses and/or an improved benefit/risk profile upon treatment.

POST COVID DIABETES

Kotwal Rupesh Subhaschandra, Professor, DJPS College of Pharmacy

Abstract:

A novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARSCoV-2) (coronavirus disease 2019 (COVID-19]) is now at global pandemic levels causing significant morbidity and mortality. Patients with diabetes are particularly vulnerate and more likely to get severe complications when infected with this virus. Although the information continues to emerge, here we provide our perspective on initial outcomes observed in hospitalized patients with diabetes and the potential role played by the proinflammatory metabolic state in these patients that promotes fertile ground for the virus inflammatory surge, resulting in severe insulin resistance and severe hyperglycemia. The rapidly evolving renal failure, hypotension, pressor and steroid use, and variable nutritional support further complicates their management. Thus, timely implementation of glucose management protocols addressing these complex scenarios while also following COVID19-related trajectories in inflammatory biomarkers and being cognizant of the health care provider exposure may substantially affect morbidity and mortal. people with diabetes have higher risks of various infections. Therefore, these diabetic patients might be at increased risk of COVID-19 and have a poorer prognosis. Up until now, little is known about critical role in the pathogenesis. This study aims to investigate the clinical characteristics of COVID-19 patients with diabetes and secondary hyperglycemia, as well as to explore the purported mechanisms. 80 confirmed COVID-19 subjects were classified into the euglycemia. group, secondary hyperglycemia group, and diabetes group. Severity of COVID-19 was defined based on the diagnostic and treatment guideline for SARS-CoV-2 issued by Chinese National Health Committee. According to the severity of the disease, patients of the mild type and common type were registered as mild cases (patients with minimal symptoms and negative CT findings), while patients of the severe type and critical type were enrolled as severe cases (patients with positive CT findings and different extent of clinical manifestations).

PRECISION MEDICINE: A NEW ERA FOR TREATMENT

Mr. Pimple R.G., Assistant Professor, DJPS College of Pharmacy

Abstract:

There is great potential for genome sequencing to enhance patient care through improved diagnostic sensitivity and more precise therapeutic targeting. To maximize this potential, genomics strategies that have been developed for genetic discovery — including DNA-sequencing technologies and analysis algorithms — need to be adapted to fit clinical needs. This will require the optimization of alignment algorithms, attention to quality-coverage metrics, tailored solutions for paralogous or low-complexity areas of the genome, and the adoption of consensus standards for variant calling and interpretation. Global sharing of this more accurate genotypic and phenotypic data will accelerate the determination of causality for novel genes or variants. Thus, a deeper understanding of disease will be realized that will allow its targeting with much greater therapeutic precision.Precision medicine describes the definition of disease at a higher resolution by genomic and other technologies to enable more precise targeting of subgroups of disease with new therapies. Prominent examples include cystic fibrosis and cancer.Clinical genomics exists at the intersection of sequencing-led discovery genetics in population cohorts and historical low-throughput approaches to genetic diagnosis in patients. As a result of the different aims of these two endeavours, technologies and algorithms that have been developed for discovery genomics need to be optimized before application to clinical medicine.Areas of need include the improvement of sequencing technologies. Current short-read approaches are limited in areas of the genome of low complexity (such as repeats), regions of high GC content, regions that are highly polymorphic or that include small-scale (indel) or large-scale (structural variant) disruption of the open reading frame.

REVIEW ON VETERNARY DRUG DELIVERY SYSTEM

Shaikh Nasir Shabbir, Professor, DJPS College of Pharmacy

Abstract:

One of the challenges to the success of veterinary pharmacotherapy is the limited number of drugs and dosage forms available exclusively to this market, due to the interspecies variability of animals, such as anatomy, physiology, pharmacokinetics, and pharmacodynamics. For this reason, studies in this area have become a highlight, since they are still scarce in comparison with those on human drug use. To overcome many limitations related to the bioavailability, efficacy, and safety of pharmacotherapy in animals, especially livestock and domestic animals, polymers-based drug delivery systems are promising tools if they guarantee greater selectivity and less toxicity in dosage forms. In addition, these tools may be developed according to the great interspecies variability. To contribute to these discussions, this paper provides an updated review of the major polymer-based drug delivery systems projected for veterinary use. Traditional and innovative drug delivery systems based on polymers are presented, with an emphasis on films, microparticles, micelles, nanogels, nanoparticles, tablets, implants and hydrogelbased drug delivery systems. We discuss important concepts for the veterinarian about the mechanisms of drug release and, for the pharmacist, the advantages in the development of pharmaceutical forms for the animal population. Finally, challenges and opportunities are presented in the field of pharmaceutical dosage forms for veterinary use in response to the interests of the pharmaceutical industry.

ROLE OF FUNCTIONALISED GUM IN SOLID DISPERSION OF AN ANTIBIOTIC DRUG

Kabra Pritishchandra Sureshchandraji, Assistant Professor, DJPS College of Pharmacy

Abstract:

Solid dispersions have attracted considerable interest as an efficient means of improving the dissolution rate and hence the bioavailability of a range of poorly watersoluble drugs. Solid dispersions of poorly water-soluble drugs with watersoluble carriers have been reduced the incidence of these problems and enhanced dissolution. Since a solid dispersion is basically a drug–polymer two-component system, the drug–polymer interaction and performance.Poor water solubility is one of the major drawbacks for the various types of drugs and various approaches have been introduced for the enhancement of solubility of such drugs. The solubility behaviour of drugs is one of the most challenging aspects for formulation development. Solid dispersions are one of the most promising strategies to improve the oral bioavailability of poorly aqueous soluble drugs by reducing drug particle size to the absolute minimum, increasing surface area and hence improving drug wettability, bioavailability may be significantly improved. Solid dispersions are generally prepared with a drug which is having poor aqueous solubility and with a watersoluble hydrophilic carrier. This project work reviews the various preparation techniques for solid dispersion and compiles some of the recent technology transfers. The different types of solid dispersions based on the molecular arrangement have been highlighted. Some of the practical aspects to be considered for the preparation of solid dispersions, such as selection of carrier and methods of physicochemical characterization, along with an insight into the molecular arrangement of drugs in solid dispersions are also discussed. Finally, an in-depth rationale for limited commercialization of solid dispersions and recent revival has been considered.The focus of this project workon advantages, disadvantages and the method of preparation, and characterization of the solid dispersion.

ROLE OF NANOCRYSTALS AND NANOSUSPENSION IN DRUG DELIVERY SYSTEM

Suryawanshi Milind Balaji, Assistant Professor, DJPS College of Pharmacy

Abstract:

Rapid advancement in drug discovery process is leading to a number of potential new drug candidates having excellent drug efficacy but limited aqueous solubility. By virtue of the submicron particle size and distinct physicochemical properties, nanosuspension has the potential ability to tackle many formulation and drug delivery issues typically associated with poorly water and lipid soluble drugs.Nearly 40% of drugs coming to the market nowadays are having poor solvency related issues and 70% molecules in discovery pipeline are in effect fundamentally insoluble in water. Nanocrystals is an unmistakable instrument to tackle the issue identified with poor fluid solvency and helps in improving the bioavailability of various drugs as presented in the literature. The particle size reduction came about into temperamental nanocrystalline system and the phenomenon of ostwald ripening happens. These techniques are preparing to the improvement of nanosized objects, which can play out multiple technological tasks. There are a few couples of noteworthy benefits of nanocrystal formulations, for example, upgrade oral bioavailability, improved dose proportionality, reduced food effects, appropriateness for administration by all routes and probability of sterile filtration because of diminished particle size range. One of the most adequate preferences of nanocrystals is their wide scope of utilization, for example, ophthalmic delivery, oral delivery, transdermal delivery, pulmonary delivery, intravenous delivery and targeted delivery, especially for tumour and brain. The increment in commercial value of nanocrystals just as the measure of nanocrystal products in the market is picking up more of attention to be utilized as a strategy so as to get commercial advantages. In this project work a brief and accurate precis of nanosuspension is stated with specific spotlight on nanosuspension preparation methodologies, benefits and few major applications of nanosuspensions.

STEM CELL THERAPIES

KanchanS. Jamkar, Assistant Professor, DJPS College of Pharmacy

Abstract:

Stem cell-based therapy, including human pluripotent stem cells (hPSCs) and multipotent mesenchymal stem cells (MSCs), has recently emerged as a key player in regenerative medicine. hPSCs are defined as self-renewable cell types conferring the ability to differentiate into various cellular phenotypes of the human body, including three germ layers. MSCs are multipotent progenitor cells possessing self-renewal ability (limited in vitro) and differentiation potential into mesenchymal lineages, according to the International Society for Cell and Gene Therapy (ISCT). This review provides an update on recent clinical applications using either hPSCs or MSCs derived from bone marrow (BM), adipose tissue (AT), or the umbilical cord (UC) for the treatment of human diseases, including neurological disorders, pulmonary dysfunctions, metabolic/endocrine-related diseases, reproductive disorders, skin burns, and cardiovascular conditions. Moreover, we discuss our own clinical trial experiences on targeted therapies using MSCs in a clinical setting, and we propose and discuss the MSC tissue origin concept and how MSC origin may contribute to the role of MSCs in downstream applications, with the ultimate objective of facilitating translational research in regenerative medicine into clinical applications. The mechanisms discussed here support the proposed hypothesis that BM-MSCs are potentially good candidates for brain and spinal cord injury treatment, AT-MSCs are potentially good candidates for reproductive disorder treatment and skin regeneration, and UC-MSCs are potentially good candidates for pulmonary disease and acute respiratory distress syndrome treatment.

VALIDATEDSPECTROPHOTOMETRIC DETERMINATION OF ACYCLOVIR BY DERIVATIVE METHOD

Mr. Kiran N. Khodke, Assistant Professor, DJPS College of Pharmacy

Abstract:

A derivative spectrophotometric method was validated for quantification of acyclovir in poly (nbutylcyanoacrylate) (PBCA) nanoparticles. Specificity, linearity, precision, accuracy, recovery, detection (LOD) and quantification (LOQ) limits were established for method validation. Firstderivative at 252 nm eliminated interferences from nanoparticle ingredients and presented linearity for acyclovir concentrations ranging from 5to 30.0 µg/mL (r = 0.9982). Precision and accuracy data demonstrated good reproducibility. Recovery ranged from 99.1 to 100.01. Thus, the proposed method proved to be easy, low cost, and accurate, and therefore, an useful alternative to quantify acyclovir in nanoparticles. Derivative UVspectrophotometry is an analytical technique of enormous implication commonly in obtaining mutually qualitative and quantitative in order from spectra that are of unresolved bands, with respect to qualitative and quantitative analysis, it uses first or higher derivatives of absorbance .Derivative spectroscopy uses first or higher derivatives of absorbance with respect to wavelength for qualitative analysis and for quantification. The concept of derivatizing spectral data was first introduced in the 1950s, when it was shown to have many advantages. However, the technique received little attention primarily because of the complexity of generating derivative spectra using early UV-Visible spectrophotometers. The introduction of microcomputers in the late 1970s made it generally practicable to use mathematical methods to generate derivative spectra quickly, easily and reproducibly. This significantly increased the use of the derivative technique. In this application note we review briefly the mathematics and generation methods of derivative spectroscopy. We illustrate the features and applications using computer-generated examples.

A REVIEW ON POST COVID DIABETES

Karpe C.E., Assistant Professor, DJPS College of Pharmacy

Abstract:

The raging COVID-19 pandemic is in its third year of global impact. The SARS CoV 2 virus has a high rate of spread, protean manifestations, and a high morbidity and mortality in individuals with predisposing risk factors. The pathophysiologic mechanisms involve a heightened systemic inflammatory state, cardiometabolic derangements, and varying degrees of glucose intolerance. The latter can be evident as significant hyperglycemia leading to new-onset diabetes or worsening of preexisting disease. Unfortunately, the clinical course beyond the acute phase of the illness may persist in the form of a variety of symptoms that together form the socalled “Long COVID” or “Post-COVID Syndrome”. It is thought that a chronic, low-grade inflammatory and immunologic state persists during this phase, which may last for weeks or months. Although numerous insights have been gained into COVID-related hyperglycemia and diabetes, its prediction, course, and management remain to be fully elucidated.

EVALUATION OF PRELIMINARY PHYTOCHEMICAL AND ANTIMICROBIAL ACTIVITY OF CARICA PAPAYA LEAF AND SEED EXTRACT.

Mr. Hanuman S. Kolse , Assistant Professor, DJPS College of Pharmacy

Abstract:

The Carica papaya plant materials such as leaf, fruit (and seed) were collected and allowed to drying in dark place and ground in electric chopper. The powdered plant materials were filled separately in the thimble and extracted successively using a soxhlet extractor with distilled water, acetone, chloroform and ethanal. All the extracts were subjected to systematic phytochemical screening for the presence of phytochemical contituents. This indicates the presence carbohydrates, protein, vitamin C, tannin, alkaloids, flavanoids, steroids and saponin. Antimicrobial activities of all the extract were determined by well diffusion method. In this observation, the leaf of Carica papaya exhibits significant inhibitory activity against all test pathogens, in all plant material, ethanol extracts showed maximum activity.

DETERMINATION OF ANTI DIABETIC ACTIVITY AND BIOCHEMICAL PARAMETERS OF MURRAYA KOENIGII WHOLE PLANT IN DIABETIC INDUCED RATS

Miss. Shinde J.B.. Assistant Professor, DJPS College of Pharmacy

Abstract:

The present study was carried out to evaluate the antidiabetic effect and histological parameters of Murraya Koenigii in Alloxan induced diabetic albino rats. The experimental rats weighed 200-250g were induced for diabetes with single dose of alloxan (120mg/kg body weight). Oral administration of chloroform extracts of Murraya leaf (250 and 500mg/kg body weight) for 30 days resulted in significant decrease of blood glucose from 296.62±20.12 to 80.22 ± 03.63 and decrease in the activities of enzymes of liver. To study the histology of Murraya Koenigii in Alloxan induced albino rats, sampling and staining of pancreas, spleen, liver and kidney tissues of diabetic and normal rats showed that strong antigenesity in betacells of the islets in control. Degenerative and necrotic changes and shrunken tissues in islets of langerhans were observed in diabetic induced group. Majority of the cells are protected from light degeneration when treated with 25 and 50 ml/kg/bw of Murraya and moderate antigenesity was noted in beta-cells of the islets of langerhans of the pancreatic tissue. Diabetic rats treated with murraya (25 ml/kg/bw) showed an improvement in the spleen histology and treated with Murraya (50 ml/kg/bw) shows a result similar to that of non- diabetic control. The results showed not only significant anti-hyperglycemic effect of Murraya extracts in experimental model of diabetes mellitus but also indicated a dose dependant activity of the extracts.

FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING TRIGONELLA FOENUM-GRAECUM

Tengse K.A., Assistant Professor, DJPS College of Pharmacy

Abstract:

Hair dandruff is not a life threatening problem yet it often threatens your mental peace, you do not wish to be embarrassed by the white flaky dandruff powder all over shoulder. “Dandruff” is the mild form of seborrheic dermatitis is an inflammatory condition that is characterized by flaking and shedding of dead scalp at an abnormally high rate. Natural herbs are good solution for dandruff and “Fenugreek” i.e. Trigonella foenum-graecum is a natural herb which helps in killing a type of fungus i.e. Malassezia furfur and bacteria i.e. Staphylococcus which causes dandruff. Many scientist have confirmed that fenugreek contain a large amount of lecithin which is a natural emollient and give power to hair. A study shows the antifungal activity of fenugreek germinated seed extract at concentration of 0.35g/ml[1 ml of extract and 3 ml of water(1:4)]was found to be more effective in declining growth of dandruff causing fungus Malassezia furfur. Concluding that, the use of fenugreek seed extract was functional in inhibiting the growth of microorganism. Hence, the anti-dandruff shampoo containing Trigonella foenumgraecum L. seed extract is found to be effective in treatment of dandruff.

SYNTHESIS INVITRO ANTI INFLAMMATORY ACTIVITY AND MOLECULAR STUDY OF SOME NOVEL 2- SUSBTITUTEDS BENZIMIDAZOLE DERIVATIVES

Nemane Shraddha Tukaram, Assistant Professor, DJPS College of Pharmacy

Abstract:

In this work, a series of benzimidazoles derivatives HW1-HW7 were synthesized and in vitro, in silico anti-inflammatory activity study was performed. All the synthesized compounds showed moderate to good anti-inflammatory activity in in vitro, in silico assay respectively. For the comparison diclofenac sodium is used as the standard compound for both in vitro, in silico study. It was found to be compound HW6 and HW5 shows very good anti-inflammatory activity (1.0 μg/ml and 1.2μg/ml) when compares with diclofenac sodium (0.5 μg/ml). Similarly in silico study of compound HW5 shows maximum binding energy of - 10.36kcal/mol.

EVALUATION AND ANTI OBESITY ACTIVITY OF TERMINALIA CHEBULA FRUITS EXTRACT OF HIGH FAT INDUCED RATS YELLU

Khose Mahadeo Vitthalrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

This study was done to investigate the anti-hyperlipidemic activity of Terminalia bellerica against high fat diet induced hyperlipidemia and obesity. Terminalia bellerica commonly known as Baheda, one of the most common plants being used in India since early times in many disorders one of the ingredients in many herbal formulations like Triphala, etc., used for cardiac disorders. The ethanolic extract of the fruits of Terminalia bellerica 250 mg/kg and 500 mg/kg body weight was administered p.o. for 20 days to test anti-hyperlipidemic activity. The parameters for evaluation of anti-hyperlipidemic activity are the physical parameters and the biochemical estimations. The physical parameters were gross examination of heart, heart weight and body weight ratio, liver weight, atherogenic index and basal metabolic index. In biochemical estimations, various cardiac enzymes like lactate dehydrogenase, and the lipid profile were measured. The results of present study show that alcoholic extract of Terminalia bellerica (500 mg/Kg) has significant reduction in various lipid levels as well as the elevated physical parameters like heart weight, body weight ratio, body weight gain and BMI against high fat diet induced hyperlipidemia and obesity compared to clinically used drugs, Atorvastatin (10 mg/kg) and Orlistat (pure drug 10 mg/kg).

EVALUATION OF ANTI ULCER ACTIVITY OF ANACARDIUM OCCIDENTALE LEAVES EXTRACT IN ALBINO RAT

Pentewar Ram Shankarao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Anacardium occidentale(AO) has been used to treat peptic ulcer disease in Ethiopian folk medicine, but its efficacy has not been validated. The present study was therefore carried out to evaluate the anti-ulcer activity of 80% methanol leaf extract of AO in rats. The effect of AO extract on gastric ulcer in rats in pylorus ligation-induced and ethanol-induced models was studied using single dosing (100, 200, 400 mg/kg) and repeated dosing (200 mg/kg for 10 and 20 days) approaches. Ranitidine (50 mg/kg) and sucralfate (100 mg/kg) were used as the standard drugs. Depending on the model, outcome measures were volume and pH of gastric fluid, total acidity, ulcer score, percent inhibition of ulcer score, ulcer index as well as percent inhibition of ulcer index. Data were analyzed using one-way analysis of variance followed by Tukey's post hoc test, and P< 0.05) differences were observed in the TP, TF, inhibition of linoleic acid oxidation and DPPH· scavenging activity of different bark extracts. Nevertheless, minute variation was observed in reducing power. All the bark extracts exhibited wide range of total phenolic, 7.8–16.5 gallic acid equivalents and total flavonoid contents, 1.59–4.93 catechin equivalents. Reducing power at 10 mg/mL extract concentration ranged from 1.34 to 1.87. Different bark extracts inhibited oxidation of linoleic acid by 44–90% while DPPH radical scavenging activity ranged from 49% to 87%. Extraction efficacy of components with antioxidative properties was lowering in the following order: ethanol > methanol > acetone. Good correlation was observed between TP and DPPH scavenging activity among the extracts. A. nilotica bark had the highest amounts of TP, ranging from 9.2 to 16.5 g/100 g, while the highest AA as measurement by inhibition of linoleic acid oxidation is offered by bark from E. jambolana Lam. The same tree showed the highest DPPH scavenging activity and reducing power. The correlation among the results of different antioxidant assays although revealed a strong relationship between some of the assays, however, a number of different methods may be necessary to adequately assess the in vitro antioxidant activity of a specific plant material.

FORMULATION AND EVALUATION OF BUCCAL PATCHES CONTAINING METOPROLOL TARTRATE.

Pulgamwar Gajanand Venkatrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

The aim of study was to prepare and characterize buccoadhesive tablets of Metoprolol tartrate using different Mucoadhesive polymers such as Carbopol 934, Sodium alginate and HPMC K4M in combination. Ten formulations were prepared with varying concentrations of polymers using combination of two polymers in each formulation. Formulations F1 to F5 were composed of Sodium alginate and HPMC K4M mixture in drug: polymer mixture ratios of 1:0.75 to 1:1.75 where as formulations F6 to F10 were composed of carbopol 934 and HPMC K4M mixture in same drug: polymer mixture ratios. The prepared tablets were evaluated for physicochemical parameters such as hardness, thickness uniformity, weight variation, surface pH, Ex-vivo residence time and moisture absorption studies. The prepared tablets were also evaluated for bioadhesive strength and in vitro drug release. In vitro bioadhesive strength and in vitro release studies showed that formulation F8 containing 1:1.25 ratio of drug and polymer combination showed optimum bioadhesive and exhibited optimum drug release (77.33±0.23). FTIR results showed no evidence of interaction between the drug and polymers. FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING RAMBUTAN LEAVES EXTRACT Suryakar Vijaykumar Bapurao, Assistant Professor, DJPS College of Pharmacy Abstract: Rambutan (Nephelium lappaceum Linn.) can be found widely in Malaysia, belongs to the family Sapindaceae. The leaves of rambutan are traditionally used for hair care and many people experience a noticeable change in their hair quality in just a few weeks. However, there is no study has been reported in herbal shampoo preparation containing rambutan leaves extract. The present study was aimed to formulate an herbal shampoo containing rambutan leaves extract and to evaluate its physicochemical properties. The herbal shampoo was formulated by incorporating the methanolic extract of rambutan leaves. Several tests such as visual inspection, pH, percentage of solid contents, foam ability and stability studies were performed to determine the physicochemical properties of the formulated herbal shampoo. The conditioning performance was evaluated by

administering a blind test to 11 volunteers. The majority of the volunteers rated that the tresses washed with formulated shampoo was found to be 2.18 ± 0.40. The results clearly indicate that the formulated shampoo is having a satisfactory conditioning performance level. All the ingredients used to formulate shampoo are safer and the physicochemical evaluation showed ideal results, but further research is required to improve its quality and identify the constituents that are responsible for the performance.

FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING OLIVE LEAVES EXTRACT

Lad Susihlkumar Udhavrao, Assistant Professor, DJPS College of Pharmacy

Abstract:

The study aimed at formulating a herbal shampoo containing olive leaves extract and evaluating its physiochemical properties. Olive leaves extract in shampoo is commercially available in Palestine, but because the R&D departments do not get sufficient attention neither in the private nor in the public sector, most of those products are a reproduction of what has been produced in developed countries. Moreover, there are still few data available on their stability in literature. The herbal shampoo was formulated by incorporating the ethanolic extract of olive leaves standardized for Oleuropein, which has antioxidant, anti-inflammatory and hair protectant properties. Several tests such as visual inspection, pH, percentage of the active ingredient and foam ability were conducted. Stability studies were also performed to determine the physiochemical properties of the formulated herbal shampoo. Three formulas (F1, F2 and F3) containing the same concentration of olive leave extract (1.0% w/w) were prepared. All ingredients used to formulate the shampoo were found to be safe and the physiochemical evaluation showed ideal results. Stability studies showed a stable homogenous appearance during six months of storage at different temperatures (4-8 oC, 40 oC and at ambient temperature). However, formula 3 gave optimum stage.

MICROWAVE ASSISTED SYNTHESIS, QSAR AND MOLECULAR DOCKING STUDIES OF 2,4-THIAZOLIDINEDIONE DERIVATIVES

Dahiphale Vijay Bagirao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Synthetic organic chemistry involves selection and optimization of lead, synthesis and characterization of work for practical purposes. A series of new thiazolidinedione derivatives have been designed and synthesized through microwave-assisted technique. The synthesized compounds were screened by Insilco methods like molecular docking, QSAR studies in order to explore the antidiabetic activity, synthetic assessability of compounds against the peroxisome proliferator-activated the receptor (PPARγ). Compounds which showed higher glide score than standard (Pioglitazone) were synthesized using the microwave. Compounds were characterized with the help of FTInfrared spectroscopy, Proton NMR, C-13 NMR spectroscopic studies and Lc-Ms. Keywords: Anti-diabetic activity, Peroxisome proliferator-activated receptor (PPARγ), 2, 4-thiazolidinedione derivatives, pioglitazone, Molecular Docking.

SIMULTANEOUS ESTIMATION AND VALIDATION OF ARTEMETHER AND LUMEFANTRINE BY UV SPECTROPHOTOMETRY IN TABLET

Choure Hanumant Vachistha, Assistant Professor, DJPS College of Pharmacy

Abstract:

A UV spectrophotometric method has been developed for the simultaneous determination of Artemether and Lumefantrine. The spectroscopic method for estimation of Artemether and Lumefantrine employed Area under curve method for analysis using Ethanol as solvent. Artemether has absorbance maxima 253.2 nm and Lumefantrine has absorbance maxima 235.2 nm and both these drugs obey Beer's law in concentration range of 4.24 -67.84 μg/ml for Artemether and 4.68 -28.08 μg/ml for Lumefantrine. The recovery studies ascertained the accuracy of the purposed method and the results were validated as per ICH guidelines. The results were found satisfactory and reproducible. The method was applied successfully for the estimation of Artemether and Lumefantrine in tablet dosage form without the interference of common excipients.

FACTORS LEADING TO FAILURE OF FIRST LINE ANTI RETROVIRAL THERAPY (ART); A RETROSPECTIVE STUDY IN INDIAN TERITIARY CARE GOVERNMENT SETTINGS

Hange Dipak Dagdu, Assistant Professor, DJPS College of Pharmacy

Abstract:

HIV is a lenti virus that causes HIV infection in humans in which progressive failure of immune system allows life threatening opportunistic infections and cancers to thrive. So it is important to study the factors that lead to failure of first line ART. Aims and Objectives: To find out the factors leading to failure of first line ART like sociodemographic factors, clinical factors, immunological factors, virological factors etc.To assess the CD4 count in subjects using first line and second line ART. To assess the viral load in subjects who failed first line ART. Methodology: Retrospective cohort observational study was conducted to assess the factors leading to the failure of first line ART. HIV patients who met inclusion criteria were informed consented and included in the study and relevant data was collected in a prior designed data collection form. Results: In our study we found that controls were more among 30-40 yrs age. Males and females were equally distributed in cases and controls. Widowed females were found more among cases. Illiterates were found more among cases than controls. Cases children were more HIV seropositives than controls. Cases were more in WHO stage-4 clinical staging than controls. Cases had more number of drug substitutions, drug related adverse effects, low medication adherence, more number of LFUS and hospitalisations than controls. Cases were more in number who travels more than 60 minutes and more time gap between diagnosis and time of ART initiation and cases had raised RFTS, LFTS, and lipid profile at time of treatment failure. Cases had more serious opportunistic infections than controls.

MOLECULAR DOCKING STUDY ON DIPEPTIDYL PEPTIDASE-4 INHIBITORS

Alure Bhalchandra Shivajirao, Assistant Professor, DJPS College of Pharmacy

Abstract:

Dipeptidyl peptidase (DPP)-IV inhibitors are a new approach to the treatment of type-2 diabetes. DPP-IV is a member of a family of serine peptidases that includes quiescent cell proline dipeptidase (QPP), DPP8, and DPP9. DPP-IV is a key regulator of incretin hormones, but the functions of other family members are unknown. To determine the importance of selective DPP-IV inhibition for the treatment of diabetes, we conducted molecular docking studies on clinical inhibitors of DPP-IV. ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE IN HYPERTENSIVE PATIENTS IN RURAL POPULATION OF GUNTUR DISTRICT IN SOUTH INDIA Mande Snatosh Venketesh, Assistant Professor, DJPS College of Pharmacy Abstract: Background: Hypertension is considered as one of the leading causes of death and disability, and its prevalence is rapidly increasing in developing countries. Adequate treatment of high blood pressure lowers the cardiovascular risk and other complications like vascular disease, and chronic kidney disease. However, the major problem for controlling hypertension is compliance with treatment. Aim and Objectives: To study and assess the quality of life in patients suffering from hypertension. Methodology: A prospective observational cohort study was conducted for a period of 6 months in a rural area of Guntur. A total of 300 hypertensive patients who are newly diagnosed or suffering from hypertension since 3 years were recruited. Blood pressure was measured by using a sphygmomanometer and other demographics were collected. Health related quality of life was assessed by using 36-item short form (SF-36) and respective scores were calculated. Results: By using SF-36 questionnaire Physical health (49.4) was the component mostly effected in hypertensive patients followed by Vitality (61.75), emotional aspects (69.06), pain (67.3), social functioning (78.54), appear to be least affected. Conclusion: Proper treatment and awareness about hypertension is necessary to improve patient's quality of life. Good compliance not only improves the clinical outcomes, it is also having a great impact on improving quality of life and reducing health care costs which are due to complication and co-morbidities of hypertension.

NEED OF INNOVATION IN DOCTOR OF PHARMACY EDUCATION IN INDIA: STRATEGIES FOR A HIGHER DESTINY

Jadhav Arti sanjay, Assistant Professor, DJPS College of Pharmacy

Abstract:

A Doctor of Pharmacy (PharmD; Neo-Latin Pharmaciae Doctor) is an expert doctorate degree in pharmacy. In certain countries, it is a first professional degree and necessary for licensing to exercise the pharmacy career or to transform into a clinical drug specialist. The Clinical pharmacy has emerged as one of the newest branches of pharmacy in 21st Century. The clinical Pharmacists role in patient care is expanding, and the profession must prepare its graduates for direct patient care. In India there is accelerated work load on doctors who are unable to appear over usual healthcare services, hence here is an opportunity for PharmDs to explore their clinical knowledge which may improve the overall health care ofsociety. Therefore, PharmD student should be trained to fabricate, disseminate, and apply new knowledge to determine cutting-edge research within the pharmaceutical, social, and clinical sciences; collaborate with other health professionals and to strengthen the quality of life through improved health for the people of our society and also because the global community. This article focuses on the possibility of innovative or imaginative ecosystems and trademark organization, as the rapidly developing pharmaceutical sector endeavors to turn into a global centre of unique medication examination and assembling, PharmD graduates with the proper training and knowledge have significant potential to power the clinical pharmacy growth in India.

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR QUANTITATIVE ESTIMATION OF VINPOCETINE IN PURE AND PHARMACEUTICAL DOSAGE FORMS

Zagade Krusha Arnokrau, Assistant Professor, DJPS College of Pharmacy

Abstract:

A simple, precise, specific, and accurate reversed phase high performance liquid chromatographic (RP-HPLC) method was developed and validated for determination of vinpocetine in pure and pharmaceutical dosage forms. The different analytical performance parameters such as linearity, accuracy, specificity, precision, and sensitivity (limit of detection and limit of quantitation) were determined according to International Conference on Harmonization ICH Q2 (R1) guidelines. RP-HPLC was conducted on Zorbax C18 (150 mm length × 4.6 mm ID, 5 μm) column. The mobile phase was consisting of buffer (containing 1.54% w/v ammonium acetate solution) and acetonitrile in the ratio (40 : 60, v/v), and the flow rate was maintained at 1.0 mLmin−1 . Vinpocetine was monitored using Agilent 1200 series equipped with photo diode array detector (λ = 280 nm). Linearity was observed in concentration range of 160–240 μgmL−1 , and correlation coefficient was found excellent (R 2 = 0.999). All the system suitability parameters were found within the range. The proposed method is rapid, cost-effective and can be used as a qualitycontrol tool for routine quantitative analysis of vinpocetine in pure and pharmaceutical dosage forms.

FORMULATION AND EVALUATION OF OPHTHALMIC DELIVERY OF FLUCONAZOLE FROM ION ACTIVATED IN SITU GELLING SYSTEM

Mule Geetanjali Trambkeshwar, Lecturer, DJPS College of Pharmacy

Abstract:

Fungal keratitis is a sight threating ocular infection that most frequently occur as a infection of candida species. The present work describes the formulation and evaluation of an ophthalmic delivery system of an antifungal agent, fluconazole, based on the concept of ion-activated in situ gelation. ocular in situ gels can increase the drug residence time thus increasing the bioavailability. Gelrite was used as the gelling agent in combination with HPMC E-50(Hydroxy Propyl methyl Cellulose) that acted as a viscosity-enhancing agent. Formulations were evaluated for physical parameter like clarity, pH, drug content, rheological studies, sterility test, in vitro drug release studies. the formulations were therapeutically efficacious, stable and provide sustained release of drug over a period of 8 Hrs. These results demonstrate that developed system is a best alternative to conventional ophthalmic drops.

ASSESSMENT OF INDIVIDUAL SLEEP DISTURBANCES IN TYPE-2 DIABETES MELLITUS: AN INTERVENTIONAL STUDY

Shaikh Bilal Shaikh Shakil, Lecturer, DJPS College of Pharmacy

Abstract:

Diabetes mellitus is a widespread disease, associated with rapid social and cultural changes, such as aging of population, urbanization, dietary changes, reduced physical activity, and unhealthy behaviours, leading to lower quality of life and decreased survival of affected individuals. This study aims to evaluate the sleep quality in patients with type 2 diabetes mellitus (T2DM), and to assess the relevance of other factors to sleep quality. Methods: A cross-sectional study was carried out at the Government general hospital, Ananthapuramu, during the period from December 2020 to May, 2021. A total of 384 patients with T2DM were recruited. Data were collected using the Pittsburgh sleep quality index (PSQI) and ESS to assess the sleep quality with a cutoff point of PSQI ≥ 8. Participants' demographic background data were also recorded. Statistical analysis was conducted by using graph pad prism. Results & Discussion: Using Scale scores with cutoff point global PSQI ≥ 8 for sleep evaluationin our study, we found that 77.6% of T2DM patients suffer from poorsleep quality.Our study found that poor sleep quality was higher in employed diabeticpatients, as compared to unemployed patients.This study showed that diabetic patients on insulin treatment were 2.17times more likely to complain of poor sleep quality compared to patients receiving OHA only. Conclusions: Effectiveness of patient counselling by clinical pharmacist which improves the sleep quality. Thus patients reporting with sleep difficulties should be screened for diabetes. Type 2 diabetes patients with poor glycaemic control should be assessed for sleep disorders and if present it should be corrected to achieve optimum control of blood sugar levels.

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IMPACT OF MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS IN RURAL POPULATION OF GUNTUR DISTRICT IN SOUTH INDIA

Pitale Yogesh Rangnath, Lecturer, DJPS College of Pharmacy

Abstract:

Aim and Objectives: To study and assess the impact of medication adherence in patients suffering from hypertension. Methodology: A prospective observational cohort study was conducted for a period of 6 months in a rural area of Guntur. A total of 300 hypertensive patients who were newly diagnosed or suffering from hypertension since 3 years were recruited. Blood pressure was measured by using a sphygmomanometer and other demographics were collected. Medication adherence was assessed using the HILL-BONE compliance to high blood pressure therapy scale (HILL-BONE CHBPTS). Results: Hill-Bone scores were analyzed in the aspects of medication compliance, salt usage, and appointment keeping and observed a modest improvement in all aspects with an average of 8.49. Conclusion: Proper treatment and awareness about medication and their usage will improve medication adherence. Good medication adherence not only improves the clinical outcomes, it is also having a great impact on improving the quality of life and reducing health care costs which are due to complications and co-morbidities of hypertension. Clinical pharmacists play a vital role in improving the adherence by providing periodic counselling, which in turn helps to reduce the burden of illness.

FORMULATION AND EVALUATION OF OPHTHALMIC DELIVERY OF FLUCONAZOLE FROM ION ACTIVATED IN SITU GELLING SYSTEM

Giram Mayuri sanjay, Lecturer, DJPS College of Pharmacy

Abstract:

Fungal keratitis is a sight threating ocular infection that most frequently occur as a infection of candida species. The present work describes the formulation and evaluation of an ophthalmic delivery system of an antifungal agent, fluconazole, based on the concept of ion-activated in situ gelation. ocular in situ gels can increase the drug residence time thus increasing the bioavailability. Gelrite was used as the gelling agent in combination with HPMC E-50(Hydroxy Propyl methyl Cellulose) that acted as a viscosity-enhancing agent. Formulations were valuated for physical parameter like clarity, pH, drug content, rheological studies, sterility test, in vitro drug release studies. the formulations were therapeutically efficacious, stable and provide sustained release of drug over a period of 8 Hrs. These results demonstrate that developed system is a best alternative to conventional ophthalmic drops.

RP-HPLC method development and validation for estimation of rivaroxaban in pharmaceutical dosage forms

Amle Balasheb Babasaheb, Lecturer, DJPS College of Pharmacy

Abstract:

Rivaroxaban, an anti-clotting medication, acts at a crucial point in the blood-clotting process and stops the formation of blood clots. In this study, RPHPLC method was developed for the determination of rivaroxaban in tablets (Xarelto® (10 mg)). Phenomena Luna 5 µm C18 100 Å LC Column (250 x 4.6 mm) was used at 40 ºC. Isocratic elution was performed with ACN:Water (55:45 v/v) mixture. The flow rate was 1.2 mL min-1 and UV detection was at 249 nm. Internal standard (Caffeine) and rivaroxaban were eluted within 2.21 and 3.37 minutes, respectively. The developed method was validated according to the ICH guidelines and found to be linear within the range 0.005 - 40.0 µg mL-1. The method was accurate, precise, robust and rapid. Thus, it was applied successfully for the quality control assay of rivaroxaban in tablet dosage form.