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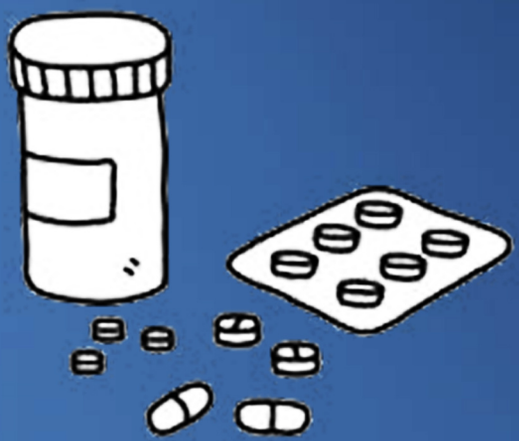

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Editors

Dr. P. K. Prakash Reddy
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1. MICROWAVE ASSISTED SYNTHESIS, QSAR AND MOLECULAR DOCKING STUDIES OF 2,4-THIAZOLIDINEDIONE DERIVATIVES

B. Geetha,, G. Swarnalatha* & *G.V. Subba Reddy*
Mahathi College of Pharmacy, CTM Cross Road, Madanapalli, Chittoor District, Andhra Pradesh, India. PIN - 517 319

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 anti-diabetic 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.

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

Mr Kalyan Bhargav, B., Mahima Chowdary. B and Maneesh Kumar Reddy. M
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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.

Keywords: Artemether, Lumefantrine; Area under curve; Simultaneous; Estimation

3. Factors leading to failure of first line Anti Retroviral Therapy (ART); a retrospective study in Indian teritiary care government settings

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Abstract:

Background

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 socio-demographic 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.

Conclusion

From our study we found that marital status, illiteracy, labour work, low income status, loss of follow up's, wrong diagnosis of type of HIV virus initially that lead to the wrong treatment, positive family history of HIV, recurrent stage 3, 4 infections, more no. of drug substitutions, zidovudine, stavudine based regimens, long time gap between diagnosis and ART initiation, long travel time to ART centre, more no. of drug related problems, more no. of recurrent opportunistic infections, more no. of hospitalisations, raised RFT's, LFT's, Lipid profile, lower adherence levels, low CD4 counts on long term use of ART were considered as factors that lead to first line ART failure.

Keywords: CD4 Count, Virologic failure, Immune system, ART failure, Opportunistic infections.

4. MOLECULAR DOCKING STUDY ON DIPEPTIDYL PEPTIDASE-4 INHIBITORS

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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.

Keywords: DPP IV; Docking; Type 2 diabetes; AutoDock.

5. ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE IN HYPERTENSIVE PATIENTS IN RURAL POPULATION OF GUNTUR DISTRICT IN SOUTH INDIA

Sushmitha. K., Bhavana Krishna. B., Mahima Chowdary. B and Maneesh Kumar Reddy. M
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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.

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

Umesh Yadav, haS Ramu K Tnahsar P,
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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 of society. 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.

Keywords: Doctor of Pharmacy, PharmD interns, Mentorship, Innovation, Collaboration

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

S.Natarajan, L. Jayaprakash, B. Omprakash, B. Pream KumarE. Maneesha, H. Sravani
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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 C_{18} (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 quality-control tool for routine quantitative analysis of vinpocetine in pure and pharmaceutical dosage forms.

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

Dr.P.Sivaram, M. Malathi, K Bhavana, K. Jyothi, P. Sumithra, K. Anitha
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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.

Keywords: Gelrite, Fluconazole, In Situ, Gelation.

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

Dr. V Sreedhar, Dr. P. Ramakrishna Reddy, Dr. L Reddenna, B. Hazeera4, K. Raja, K. Salma Begum, N. Sirisha*
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Abstract:

Background: 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.

Keywords: Daytime dysfunction, Diabetes mellitus, ESS, Glycaemic control, PSQI, Sleep quality

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

Bhavana Krishna, Mahima chowdary, Sushmitha K, Maneesh kumar reddy M and Rama rao Nadendla
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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.

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

G Gokul Nandha, S. Vaisnavi, A. Bharathi, S. Devi, S. Elsy Joy, V. Ganeshan
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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.

12. RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF RIVAROXABAN IN PHARMACEUTICAL DOSAGE FORMS

Y Swetha, A. Chakarabani, Y. Roopa, M. Shobha, J. Thejeswini, E. Prakash
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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, RP-HPLC method was developed for the determination of rivaroxaban in tablets (Xarelto® (10 mg)). Phenomenex Luna 5 µm C18 100 Å LC Column (250 x 4.6 mm) was used at 40 °C. 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.

Keywords: HPLC; Rivaroxaban; Validation; System suitability; Stability-indicating; Pharmaceutical dosage form

13. SPIRONOLACTONE INDUCED GYNECOMASTIA: A CASE REPORT

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Dr. Y. Vijaya Bhaskar Reddy, D. Sathish Kumar,
Dr.V.Ramana, Dr. S. Kusuma kumari
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Abstract: Gynaecomastia is generally caused by increased ratio of free circulating oestrogens/androgens or altered effects of these hormones on their correspondent intracellular receptors in the mammary tissue. The pathologies influencing the levels of circulating sexual hormones (i.e. testicular or adrenal neoplasias, hepatic cirrhosis, hyperthyroidism hypogonadism obesity, refeeding syndrome. The active principles known for most frequently causing gynecomastia are exogenous oestrogens, antiandrogens, 5 alpha reductase inhibitors, spironolactone and cimetidine. Medical history plays a fundamental role in the diagnosis of drug induced gynecomastia. A large variety of drugs have been implicated in its pathogenesis and they may induce gynecomastia by decreasing testosterone production ,increasing peripheral conversion of

testosterone to estradiol and displacing estradiol from sex hormone binding globulin. We present a case report of 41 old male patient affected by spironolactone induced gynecomastia and discuss its pathogenetic mechanism.

Keywords: Gynaecomastia, Spironolactone, Decreased Testosterone Production, Conversion of Testosterone to estradiol, Spironolactone induced Gynaecomastia, Drug induced Gynaecomastia.

14. A PRACTICAL APPROACH TO RP HPLC ANALYTICAL METHOD DEVELOPMENT

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Abstract: High performance liquid chromatography is one of the most widely used tools to identify and quantify potency in drug substances and drug products. Analytical method development and validation are two very critical processes performed before release of a method for use in Quality Control department. This article focuses on stepwise practical approach towards developing a RP HPLC assay method. The various contributing parameters and its effect on the performance of the RP HPLC analytical method being developed are described simply, such that a new chromatographer is able to develop a method with the understanding of the RP HPLC method development process and its parameters.

15. APPLICATION OF SIMULTANEOUS EQUATION METHOD FOR THE DETERMINATION OF AZITHROMYCIN AND CEFIXIME TRIHYDRATE IN TABLET FORMULATION

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Abstract: A simple, accurate, and precise uv-spectrophotometric method has been developed for the simultaneous estimation of azithromycin (AZI) and cefixime trihydrate (CEFI) in tablet formulation. The method was based on employing simultaneous equation method for the analysis of both drugs. AZI and CEFI have shown absorbance maxima at 222 and 289 nm in methanol, respectively. The linearity was obeyed in the concentration range of 10-50μg/ml for both drugs, with a significantly high correlation coefficient (r2 = 0.999). The limits of detection for AZI and CEFI were 0.81 and 1.52 μg/ml, respectively, and the limits of quantitation for AZI and CEFI were 2.40 and 4.60 μg/ml, respectively. The suitability of the developed

method for quantitative determination of drugs was proved by validation. The method was successfully used to analyze a tablet formulation.

Keywords: Azithromycin, Cefixime trihydrate, Simultaneous equation method, Uv-spectrophotometry, Validation.

16. METHOD DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR DETERMINATION OF ZIDOVUDINE

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Abstract: This work describes a new, fully validated, simple, rapid, selective, and sensitive HPLC method with UV detection for the direct determination of zidovudine in pharmaceutical dosage forms, raw materials, spiked human serum, and drug dissolution studies without any time-consuming extraction or evaporation steps prior to drug assay. The mobile phase employed was methanol: acetonitrile (40:60v/v/v). The samples of 20 µL were injected onto a Zodiac100-5 C18) 250×4.6mm column. The flow rate was 1.0 mL min-1 . The retention times were 2.51 min Zidovudine at 2.51min. The samples were detected at 270 nm. The assay was linear in the concentration range 0.1-0.6 µgmL-1 (r = 0.995) with a slope of 188680; intercept of a 4018.33 and the limit of detection was limit of detection was

0.062 μg mL-1. It was successfully applied to the analysis of pharmaceutical preparations without any interference by the excipients and endogenous substances. Moreover, the method can be used for the determination of Zidovudine for monitoring its concentration for in vitro dissolution studies.

Keywords: Zidovudine, Method Development, Validation.

17. FORMULATION AND EVALUATION OF GEL CONTAINING FLUCONAZOLE-ANTIFUNGAL AGENT

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Abstract: Fluconazole is an imidazole derivative and used for the treatment of local and systemic fungal infection. The oral use of fluconazole is not much recommended as it has many side effects. Commercially fluconazole topical gel preparation are not available in the market, thus this formulation is made for better patient compliance and to reduce the dose of drug and to avoid the side effects like liver damage and kidney damage.. The gel was formulated by changing the polymer ratio. FT-IR study confirmed the purity of drug and revealed no interaction between the drug and excipients. Gel formulations were characterized for drug content, pH determination, viscosity measurement, in vitro diffusion, antifungal activity and skin irritation. Among the five formulations, F1 was selected as the best formulation as its % CDR after 4½ h was

97.846% and release rate of drug from F1 formulation is best fitted to Higuchi model. The viscosity of the F1 formulation was within the limits and F1 formulation did not show any skin irritation. Gel formulation F1 was found to be stable at 30 ±2°C and 65 ± 5 RH. It was found that at 40 ± 2°C and 75 ± 5 RH the gel formulation was not stable and %CDR was decreased. Efficient delivery of drug to skin application was found to be highly beneficial in localizing the drug to desired site in the skin and reduced side effects associated with conventional treatment.

Keywords: Fluconazole, Carbopol 934p, Topical Gel

18. SIMULTANEOUS ESTIMATION OF AZITHROMYCIN AND CEFIXIME IN A PHARMACEUTICAL INGREDIENTS SPECTROPHOTOMETRY

G Suresh, G. Vinod Kumar, M. Muthu pandian, P. Rajalakshmi, C. Divya
Mahathi College of Pharmacy, CTM Cross Road, Madanapalli, Chittoor District, Andhra Pradesh, India. PIN - 517 319.

Abstract: An analytical method for estimation of Methodology: A rapid, sensitive and specific uv Cefixime in tablet dosage form. The method was validated in terms of linearity, accuracy, precision, specificity and limit of quantitation. The optimum conditions for the analysis of the drug were established. The maximum wavelength (of Azithromycin and Cefixime were found to be 235 nm and 288nm respectively. The percentage recovery of Cefixime were 100.28-100.33 and 99.68-100.29 for Azithromycin and 2-10µg/ml for Cefixime 0.0143, r^2 = 0.9996 and y = 0.0917x + 0.02 accuracy, precision, LOD and LOQ. Outcome: The proposed method was successfully applied for the quantitative determination of tablet dosage form.

19. CYTOTOXIC AND ANTIRADICAL ACTIVITIES OF EXTRACTS OF RHIZOPORA APICULATA

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Abstract: The petroleum ether and methanol crude extracts of Rhizopora apiculata (L) (Rhizoporaceae) were screened for cytotoxicity by MTT bioassay and antioxidant activity using three different methods. The active constituents of the plant Rhizopora apiculata (L) were extracted using petroleum ether and methanol. Both extracts were tested for cytotoxicity by MTT assay at a concentration range of 18.75, 37.5, 100, 150 and 300μg/ml. The percentage cell viability shown in Pet ether extract for human cervical adenocarcinoma cell lines (HeLa), human osteosarcoma cell lines (MG 63) and Breast adenocarcinoma (MC 67) were in the range of 102-91%, 100-84% and 101-78% respectively shows that pet ether extract does not have considerable cytotoxic activity.On the other hand, Petroleum ether and methanol crude extracts of

Rhizopora apiculata (L) showed mild antioxidant activity with compared to ascorbic acid.

Keywords: Rhizopora apiculata, Breast adenocarcinoma, Human osteosarcoma cell lines Ascorbic acid.

20. DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ESTIMATION OF BREXPIPRAZOLE IN ITS BULK AND TABLET DOSAGE FORM USING QUALITY BY DESIGN APPROACH

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Abstract:

Background:

A new, sensitive, suitable, clear, accurate, and robust reversed-phase high-performance liquid chromatography (RP-HPLC) method for the determination of brexpiprazole in bulk drug and tablet formulation was developed and validated in this research. Surface methodology was used to optimize the data, with a three-level Box-Behnken design. Methanol concentration in the mobile phase, flow rate, and pH were chosen as the three variables. The separation was performed using an HPLC method with a UV detector and Openlab EZchrom program, as well as a Water spherisorb C18 column (100 mm × 4.6;

5m). Acetonitrile was pumped at a flow rate of 1.0 mL/min with a 10 mM phosphate buffer balanced to a pH of 2.50.05 by diluted OPA (65:35% v/v) and detected at 216 nm.

Result:

The developed RP-HPLC method yielded a suitable retention time for brexpiprazole of 4.22 min, which was optimized using the Design Expert-12 software. The linearity of the established method was verified with a correlation coefficient (r2) of 0.999 over the concentration range of 5.05–75.75 g/mL. For API and formulation, the percent assay was 99.46% and 100.91%, respectively. The percentage RSD for the method's precision was found to be less than 2.0%. The percentage recoveries were discovered to be between 99.38 and 101.07%. 0.64 μg/mL and 1.95 μg/mL were found to be the LOD and LOQ, respectively.

Conclusion:

The developed and validated RP-HPLC system takes less time and can be used in the industry for routine quality control/analysis of bulk drug and marketed brexpiprazole products.

21. ASSESSMENT OF SYMPTOMS AND QUALITY OF LIFE AMONG POST-MENOPAUSAL WOMEN IN RURAL AND URBAN ANANTAPURAMU

Dr. V Sreedhar, Dr. P. Ramakrishna Reddy, Dr. L Reddenna, G. Nagendra Prasad, B.Nishkala, P.N. Mounika, Shaguftha
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Abstract:

Introduction: Menopause is a biological event characterized by complexity of factors. On an average one third of the women's life consists of the post menopause years, and health care programmes for women do not address concerns beyond reproductive ages. This study aims to assess the symptoms and quality of life among post-menopausal women in urban vs rural Ananthapuramu.

Method: This is a community based cross-sectional study in Ananthapuramu rural and urban using a multi stage stratified random sampling strategy. Structured interview schedule was used for data collection and analysis was done using different statistics.

Results & Discussion: A total of 400 participants were included in the study. The present study findings show that the maximum quality of life score among post-menopausal woman was 22000. The quality-of-life score among postmenopausal women in urban area was 10995 the total score for rural area is 11,000 which is slightly higher than the urban area which indicates that the quality of life of postmenopausal women of rural area were found to be distressing than that of urban area.

Conclusion: The severity of symptoms was found more in urban women. The QOL in rural population where the symptoms experienced were less severe was average and better than the QOL in urban women having severe menopause symptoms and there is a need to address the menopause problem of post menopause women and establish health care centres for them.

Keywords: Menopause, Menopause symptoms; Post-menopausal woman; Quality of life; reproductive ages; Rural; Urban

22. SELECTED THIAZOLIDINEDIONES AS INHIBITORS OF PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR

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Abstract: Certain members of the thiazolidinedione (TZD) family of the peroxisome proliferator-activated receptor γ (PPARγ) agonists, such as troglitazone and ciglitazone, exhibit antitumor activities; however, the underlying mechanism remains inconclusive. Substantial evidence suggests that the antiproliferative effect of these TZD members in cancer cells is independent of PPARγ activation. To discern the role of PPARγ in the antitumor effects of TZDs, we have synthesized PPARγ-inactive TZD analogs which, although devoid of PPARγ activity, retain the ability to induce apoptosis with a potency equal to that of their parental TZDs in cancer cell lines with varying PPARγ expression status. Mechanistic studies from this and other laboratories have further suggested that troglitazone and ciglitazone mediate

antiproliferative effects through a complexity of PPARγ-independent mechanisms. Evidence indicates that troglitazone and ciglitazone block BH3 domain-mediated interactions between the anti apoptotic Bcl-2 (B-cell leukemia/lymphoma 2) members Bcl-2/Bcl-xL and proapoptotic Bcl-2 members. Moreover, these TZDs facilitate the degradation of cyclin D1 and caspase-8-related FADD-like IL-l-converting enzyme (FLICE)-inhibitory protein through proteasome-mediated proteolysis, and down-regulate the gene expression of prostate-specific antigen gene expression by inhibiting androgen activation of the androgen response elements in the promoter region. More importantly, dissociation of the effects of TZDs on apoptosis from their original pharmacological activity (i.e. PPARγ activation) provides a molecular basis for the exploitation of these compounds to develop different types of molecularly targeted anticancer agents. These TZD-derived novel therapeutic agents, alone or in combination with other anticancer drugs, have translational relevance in fostering effective strategies for cancer treatment.

23. PHARMACEUTICAL EVALUATION OF NEW FORMULATION OF TRETINOIN CREAM

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Abstract: The main aim of present work is to develop a new topical formulation Tretinoin cream (0.05%) a category of acne products which was prepared by using different concentrations of penetration enhancers by fusion method. All the formulations were evaluated for various physicochemical parameters such as solubility, loss on drying, stability, pH, and in vitro drug release as well as skin irritation test (DRAIZE PATCH TEST) on rabbits. Rabbits were differentiated into five groups each consisting of one. The five formulations containing different percentage of penetration enhancer was applied to the skin and erythema was noted. The Result of skin irritation test shows that F1and F2 formulations does not exhibit any kind if erythema upto 48 hours and F3 reveal light changes (Pink color) in skin color at 36 hours but F4, F5 shows significant changes in 18

and 6 hours of application in rabbit. The in vitro drug release revealed that drug release was increased with increasing of penetration enhancer but among the five formulations, third formulation was shows optimum level of drug release and physiochemical properties were within the specified limit as per standard specification. So the present study shows that the third formulation is the best formulation.

Keywords: Tretinoin, loss on drying, stability, pH, in vitro drug release and Draize patch test.

24. A REVIEW ON PELLETS-A DRUG DELIVERY SYSTEM

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Abstract: Multiparticulate drug delivery systems like pellets, granules, micro particles, minitablets etc., prove to be promising and highly flexible systems with ease of formulating with different drug release kinetics. These multiparticulate dosage forms are essential where drug-excipients or drug-drug physicochemical interactions are possible in a single-unit formulation. In present times, pelletization technologies are gaining much attention as they represent an efficient pathway for manufacture of oral drug delivery systems. Pelletization is an agglomeration process that converts fine powders or granules of bulk drugs and excipients into small, free flowing semi-spherical units. Pellets, being multiparticulate systems, are widely used due to the technological as well as therapeutic advantages over single-unit dosage forms. The present review focus on advantages,

disadvantages, formation of pellet growth, different pelletization techniques, characterization, marketed pellets products and also outlines recent developments in the pharmaceutical approaches that have been used to prepare pelletized dosage forms with different techniques like Hot Melt Extrusion-Spheronization, Freeze and Cryopelletization, Microtabletting technology. INTRODUCTION: Multiparticulate oral drug delivery systems have acquired a center stage in the arena of pharmaceutical research and development; thus provide greater opportunities in extending the first step of future pharmaceutical development.

25. BENZIMIDAZOLE: PHARMACOLOGICAL PROFILE

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Abstract: Benzimidazole is a bicyclic heterocyclic aromatic compound in which benzene fused to imidazole moiety. Benzimidazole holds a vital role in the field of medicinal chemistry which possesses wide variety of pharmacological activities like antibacterial, anti cancer, antifungal, antileishmanial, anti tubercular, anti viral and anti malarial respectively, hence the benzimidazole moiety attracting the medicinal chemist to synthesize the different benzimidazole derivatives with wide variety of pharmacological activities. The book chapter mainly discussed the anti cancer, anti HIV, antileishmanial and anti tubercular activites of recently synthesized benzimidazole derivatives.

Keywords: Benzimidazole, Anti Cancer, Anti HIV, Antileishmanial, Anti Tubercular

26. SIMULTANEOUS ESTIMATION OF CEFIXIME AND AZITHROMYCIN IN API'S AND PHARMACEUTICAL DOSAGE FORM BY RP-HPLC

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Abstract: A new combination of cefixime and azithromycin are used for the treatment of upper and lower respiratory tract infection. A simple, accurate, precise and reproducible RP-HPLC method has been developed for the simultaneous estimation of cefixime and azithromycin in pharmaceutical dosage form .The mobile phase consisted of 0.02M Potassium dihydrogen phosphate (KH 2 PO 4): Acetonitrile in the ratio of 65:35 (v/v). The method obeys Beer's law in the concentration range of 40-60 µg/ml (R 2 = 0.998) for cefixime and 50-70µg/ml (R 2 = 0.999) for azithromycin. The LOD and LOQ were found to be 1.06µg/ml and 3.21µg/ml for cefixime and 2.48µg/ml and 7.50µg/ml for azithromycin respectively. The recovery of cefixime and azithromycin were found to be 99.84% and 100.76% respectively showing

accuracy of the method. The method was validated statistically as per ICH guidelines. The method showed good reproducibility and recovery with % RSD less than 2. So, the proposed method was found to be simple, specific, precise, accuracy, linear, and robust.

27. CLINICAL EFFICACY AND SAFETY PROFILE OF LURASIDONE COMPARING WITH RISPERIDONE: RANDOMIZED, OPEN LABEL, CLINICAL STUDY

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Abstract: There are diverse studies which afford evidences that risperidone is as effective as second generation antipsychotics in treating positive symptoms and more effective in treatment of negative symptoms. This study is intended to find the clinical efficacy and safety profile of lurasidone comparing with risperidone, a drug in common use nowadays. Patients aged between 18 to 60yrs, Patients with new onset of symptoms who fulfil the ICD-10 criteria for a primary diagnosis of schizophrenia and Patients having a total PANSS score of ≥80 including a score ≥4 (moderate) on two or more of positive subscale at baseline. Patients with acute

exacerbation of schizophrenia who remained drug free for at least last 6 months also included. Demographic data of the patients were collected. Baseline investigations like BP, complete blood count, lipid profile, blood sugar, renal function test and liver function test were done. Severity of schizophrenia at baseline was assessed using positive and negative symptoms scale (PANSS). Patients were randomized by using computer generated random table in 1:1 ratio as group A and group B, with 25 patients in each group. The efficacy of group A and group B was analysed by applying rating scale Positive and negative syndrome scale (PANSS) at the end of 4 and 6 weeks. Adverse drug reactions were recorded and monitored by interviewing with patients, by physical examination and also by necessary lab investigations at the end of 6 weeks. Patients were insisted to maintain a diary to note any new occurrence of adverse drug reactions in between the follow up period. Suspected adverse drug reactions were documented in predesigned reporting form. In PANSS positive scale both groups had significant decrease in PANSS score both at week 4 and week 6 ($p<0.05$). Lurasidone is as equally efficacious as risperidone in reducing PANSS score, but produces less metabolic

syndrome and other adverse effects than risperidone.

Keywords: Efficacy lurasidone positive and negative syndrome scale risperidone suspected adverse drug reactions.

28. SIMULTANEOUS UV SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF AZITHROMYCIN AND CEFEXIME IN COMBINED DOSAGE FORM

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Abstract: A UV SPECTROSCOPY method was developed and validated for quantitative determination of Azithromycin and Cefexime in pure and tablet dosage forms. Simple, accurate and reproducible spectrophotometric methods have been developed for the simultaneous estimation of Azithromycin and Cefexime in pharmaceutical tablet dosage forms. The method involved the determination using the Simultaneous equation method, the sampling wavelengths selected are 275 nm and 240 nm over the concentration ranges of 2.5-12.5µg/ml and 2-10 µg/ml for Azithromycin and Cefexime respectively. The results of the analysis were validated statistically and recovery studies were carried out as per ICH guidelines.

Keywords: Azithromycin, Cefexime, UV Spectrophotometer, Methanol.

29. DEVELOPMENT, OPTIMIZATION AND EVALUATION OF PULSATILE DRUG DELIVERY CAPSULES LOADED WITH CARVEDILOL BY APPLYING QUALITY BY DESIGN

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Abstract:

Objective: The purpose of this research is to find the best way for designing carvedilol pulsatile drug delivery system capsules.

Methods: The research paves the way to improve the method of preparing carvedilol pulsatile drug delivery by adjusting critical material attributes (CMA) such as coating polymer concentration, critical process parameters (CPP) such as inlet temperature and atomizing air pressure, and their impact on critical quality attributes (CQA) like particle size (PS in nm), entrapment efficiency in percentage (% EE) and amount of drug delivered in percent (%ADR) at 12 h in the carvedilol pulsatile pellets filled capsules by applying the Box-Behnken design. By varying the polymer concentration and

process parameters, nearly 15 formulations were created.

Results: Based on the influence of CMA, CPP on CQA, the formulation CP13 was determined to be the most optimized formulation among the 15 formulations. The optimized levels of CMA were found to be-1 level of coating polymer concentration and CPP was found to be-1 level of inlet temperature, 0 level of atomizing air pressure and it optimized CQA like PS was found to be 1017.5±8.4 nm, % EE was found to be 96.8±2.8 %, % ADR at 12 h was found to be 88.4±3.4 %. Carvedilol Pulsatile drug delivery system was designed by using optimized fluidized bed coater in order to decrease the usage of attributes, decrease the productivity cost and enhance the usage of specific attributes at fixed concentration for further manufacturing scale.

Conclusion: By the current results it was concluded that the optimized CMA and CPP that shown in the results are the suitable attributes for the best formulation of carvedilol pulsatile drug delivery system capsules.

Keywords: Carvedilol, pulsatile, Particle size, Capsules, Pharmacokinetic

30. REMOVAL OF LEAD FROM AQUEOUS SOLUTIONS USING AGERATUM CONYZOIDES LEAVES POWDER WITH THE EMPHASIS ON THE AFFECTIVE FACTORS

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Abstract: The biosorptive potentials of Ageratum conyzoides leaves powder as biosorbents, were evaluated, for the first time for Pb(II) removal from aqueous solutions. The influence of biosorbent size (53-152 μm), agitation times (1-180min), pH from 2 to 8, initial concentrations of lead in aqueous solution with (50-200 mg/L), Ageratum conyzoides leaves powder dose (0.25-3.0g), temperatures (283-323 K), were investigated. The maximum sorption capacities of Pb(II) ions onto Ageratum conyzoides leaf powder was (89.1697 %).The kinetic data modeling resulted in good correlations with the pseudo-second (R 2 = 0.9965) order.Thermodynamic parameters indicated the spontaneity and endothermic nature of lead

biosorption on Ageratum conyzoides leaf powder biomass and the sorption capacities were in good agreement with the uptake capacity of Langmuir mode.

31. RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF STAVUDINE BY DOE APPROACH

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Abstract: QbD is a concept first outlined by Juran in various publications. Experimental design (DoE), as a tool of QbD, can be defined as the strategy for setting up experiments in such a manner that the information required is obtained as efficiently and precisely as possible. In this paper, as per our objective RP-HPLC method was developed for analysis of stavudine by implementing DoE approach (RSM and 3 level factorial design) on analytical reversed phase column (Thermo BDS HYPERSIL; C18 150 X 4.6 mm , 5µm). Based on the results obtained from these studies, suitable mobile phase with appropriate composition and pH was selected and utilized for method development using DoE approach. The mobile phase used was potassium phosphate buffer: methanol (90:10 v/v). The flow rate was set at 1 mL/min and UV detection was

carried out at 267 nm. The retention time for Stavudine was found to be 9.567 min. The lower solvent consumption along with the short analytical run time of 10 min provided a cost effective and environment-friendly chromatographic procedure. The measured signal was shown to be precise, accurate and linear over the concentration range tested (10-50 μg/ml) with a correlation coefficient of 0.993. Thus, the proposed methodology is rapid, selective, requires a simple sample preparation procedure and represents a good procedure for analysis of Stavudine.

Keywords: QbD, RSM, RP-HPLC, Stavudine.

32. SYNTHESIS OF COUMARIN DERIVATIVES AND EVALUATION OF *IN-SILICO* ANTI PROLIFERATIVE ACTIVITY BY MOLECULAR DOCKING STUDY

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Abstract: Coumarin belongs to a group as benzopyrones, which consists of a benzene ring joined to a pyrone nucleus. Several methods are available for the preparation of 7-hydroxy 4-methyl coumarins derivatives and have been well documented in the literature. In the present study, the eight new coumarin derivatives are synthesized and characterized by IR and 1H NMR spectra. The newly synthesized coumarin derivatives were subjected to *in-silico* anti proliferative activity by molecular docking study method. The result of present investigation showed that the compounds (HW1) (HW4) and (HW7) exhibited good *in-silico* anti proliferative activity. However all the remaining synthesized coumarin derivatives show

significant *in-silico* activity when compared with reference compound pyrazolo[1,5- a]pyrimidine.

Keywords: Coumarins, Synthesis, Molecular Docking, *In silico*, Anti Proliferative

33. REVIEW ON MEDICINAL PLANTS UNVEILING HEPATOPROTECTIVE ACTIVITY

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Abstract: Medicinal plants have remained as a godsend for the current scientific advancements in terms of providing dealing with diseases. The current review provides the data regarding the medicinal plants which have been reported for hepatoprotective activity and which are to be reported for treating many disorders of humankind. The review covers the recent and updated data of medicinal plants to treat all kinds of hepatic disorders which are studied by inducing different methods. As the main metabolic center of human body liver plays a major role in disintegrating the drugs and also considered as the main center which can be affected easily due to toxicity and with the other disorders that can be elicited due to excess use of therapeutic drugs or due to misuse of drugs.

Keywords: Medicinal plants, Hepatoprotective, Phytoconstituents

34. A CASE CONTROL STUDY ON FACTORS INFLUENCING SUICIDE ATTEMPTS

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Abstract:

Aim: We aim to study psychosocial, socio-demographic and personality related factors associated with suicide attempts.

Methods: From 1st September 2018 to 28th February 2019, we conducted a hospital-based case control study in Department of Psychiatry, Government General Hospital, Guntur, India. One hundred forty-five cases and one hundred forty five age and sex matched controls were selected for study. Eysenck Personality Questionnaire, Modified kuppuswamy scale, Presumptive Stressful Life Event Scale, Suicide Intent Scale were used. Statistical analysis was done using computerized software.

Results: Majority (n=69, 47.58%) of the suicide attempters were between 21-30 years of

age. The number of suicide attempters are more in rural areas than in urban areas and it is statistically significant with an Odds Ratio 2.39. The risk of suicide attempts is more in people who are uneducated (OR – 1.51). It was observed that being an alcoholic will increases the risk of suicide attempt (OR1.73). The average of PSLES score of individuals is more in case group (166.8) than control group (111.386). Having a family history of suicide attempts will increase the risk of suicide attempt (OR -2.28).

Conclusion: Residing in rural areas, alcoholism, having no support from family members and having more stress full life events emerged as predominant risk factors for attempting suicide.

Keywords: Suicide attempt, Socio-demographic factors, Personality traits, Stressful life events, Suicide intent, Psychiatric illnesses.

35. SIMULTANEOUS UV SPECTROPHOTOMETRIC METHODS FOR ESTIMATION OF METFORMIN HCL AND GLIMEPIRIDE IN BULK AND TABLET DOSAGE FORM

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Abstract: Simple, precise, economical, fast and reliable two UV methods have been developed for the simultaneous estimation of Metformin HCl and Glimepiride in bulk and pharmaceutical dosage form. Method A is Absorbance maxima method, which is based on measurement of absorption at maximum wavelength of 236 nm and 228 nm for Metformin HCl and Glimepiride respectively. Method B is area under curve (AUC), in the wavelength range of 217-247 nm for Metformin HCl and 213-239 nm for Glimepiride. Linearity for detector response was observed in the concentration range of 5- 25µg/ml for Metformin HCl and 5-25 µg/ml for Glimepiride. The accuracy of the methods was

assessed by recovery studies and was found to be 100.23 % and 99.67 % for Metformin HCl and Glimepiride respectively. The developed method was validated with respect to linearity, accuracy (recovery), precision and specificity. The results were validated statistically as per ICH Q2 R1 guideline and were found to be satisfactory. The proposed methods were successfully applied for the determination of for Metformin HCl and Glimepiride in commercial pharmaceutical dosage form.

Keywords: Metformin HCl, Glimepiride, Simultaneous estimation, Accuracy, Absorbance maxima method, Area under curve

36. SPECTROPHOTOMETRIC METHODS FOR SIMULTANEOUS ESTIMATION OF NIMESULIDE AND DROTAVERINE

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Abstract: Three simple spectrophotometric methods have been developed for simultaneous estimation of nimesulide and drotaverine from tablet dosage form. Method-I involves, formation of Q-absorbance equation at 349 nm (isoabsorptive point) and 298.5 nm (max of nimesulide); Method-II simultaneous equation method involves the measurement of absorbances at two wavelengths 298.5 nm (max of nimesulide) and 245 nm (max of drotaverine) in ethanol (95%) and Method-III multicomponent mode of analysis involves the measurement of absorbances at two wavelengths 298.5 nm (max of nimesulide) and 362.5 nm (max of drotaverine); The linearity lies between 5-30 g/ml for both nimesulide and drotaverine for all the three methods. The accuracy and precision of the methods were determined and validated stastically. All the

methods showed good reproducibility and recovery with % RSD less than 1. All method were found to be rapid, specific, precise and accurate and can be successfully applied for the routine analysis of nimesulide and drotaverine in bulk and combined dosage form. Key Words: Nimesulide, drotaverine, Q-Absorbance ratio method, Multicomponent mode of analysis, Simultaneous equation method.

37. PRESCRIBING PATTERN IN GERIATRICS WITH CARDIO VASCULAR DISEASES USING BEERS CRITERIA

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Abstract:

Aim: Cardiovascular disease (CVD) is a major health problem throughout the world and a common cause of premature morbidity and mortality. CVD is a general category of diseases that affects the heart and the circulatory system. The main aim of the study is to assess the prescribing pattern in geriatrics with cardiovascular diseases using beers criteria.

Study Design: Prospective observational study.

Results and Discussion: Total 132 patients, 12 dropouts due to lack of information. Out of 120 patients 69 Patients are identified as Male Patients and 51 Patients are Female. In 120 sample size Maximum No of Cases were found

with Ischemic Heart disease (30.8%) Followed by myocardial infarction (24%) coronary artery disease (20%) congestive heart failure (13.3%) Unstable Angina (11.6%). In 120 Sample Size, Male Patients are Suffering More with Complications Compared to Female Patients.

Conclusion: In this Study with Assessing the Prescribing Pattern in Geriatrics with Cardio Vascular Diseases It was found that major complications seen in Male and Female Patients are Ischemic heart Disease with Left ventricular dysfunction Myocardial Infarction, Coronary Artery Disease, Angina, Congestive Cardiac Failure.

Keywords: Beers Criteria Cardiovascular Disease Geriatrics Prescribing Pattern.

38. COVID-19 INFECTION: THE PERSPECTIVES ON AGE-DEPENDENT DIFFERENCE IN IMMUNE RESPONSES AND IMMUNOLOGICAL STRATEGIES TO REDUCE VIRAL BURDEN

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Abstract: Covid-19 is caused by the novel strain of Corona virus named as SARS-CoV-2 because of its homology with SARS infection and it is first detailed in Wuhan, China in December 2019. From that point forward, it has spread globally, already contaminating a large number of individuals worldwide and has been proclaimed as a pandemic by the WHO (World Health Organization) on March 2020. SARSCoV-2 causes acute respiratory infection with fluctuating seriousness in various age groups, wherein geriatric patents in general will have serious disease. In children it is moderately spread till-date. A few contrasts in the pathogenesis of Covid-19 among pediatric and geriatric patients

have been proposed to clarify these differences. Severe Covid-19 disease is associated with high and persistent viral burdens in the elderly patients. Children have strong innate immune response because of trained immunity (secondary to live-vaccines and frequent viral infections), leading to presumably early control of infection at the site of entry and also the risk factors associated with children were very less as compared to elderly individuals. The expression of primary target receptor for SARS-CoV-2, i.e. angiotensin converting enzyme-2 (ACE-2), decreases with age which has lung defensive effects and the severity of the disease can be explained by the presence of enzyme called Furin. Henceforth, this review will highlight the clinical.

39. ASSESSMENT OF ADVERSE DRUG REACTIONS AND DRUG-DRUG INTERACTIONS IN POLYPHARMACY AMONG GERIATRICS IN A TERTIARY CARE HOSPITAL

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Abstract: Abstract: Polypharmacy is defined as the use of multiple medications by a single patient which is commonly observed among geriatric patients. The use of multiple medications has been shown to predispose patients to adverse drug reactions, drug-drug interactions and medication non compliance particularly in geriatric population. It is a Prospective Observational Study was conducted in a Tertiary care Hospital for a period of 6 months. The Patients who meet the inclusion criteria are recruited. The demographic details and baseline characteristics like age, gender, Social history, are taken. Data obtained from their case sheets and through direct patient interview. Assessment and evaluation of adverse drug reactions and drug-drug interactions

is performed by using WHO causality assessment scale, stockley's drug interactions, Medscape and their frequencies are studied. In Our Study, Out of 287 Patients 72 ADRs and 22 drug interactions were observed. In those mostly Metformin and ceftriaxone causing ADRs in elderly patients .Out of 22 drug interactions the most prescribed Combinations Drugs Glimipride With Ranitidine, and Furosemide with metformin causes Hypoglycemia. In these Mild Drug interactions were 9 Moderate Drug interactions were 5 and Severe Druginteractions were 7. Increasing age and polypharmacy were identified as the predictors of ADRs and Drug-drug interactions. The clinical pharmacist must remain attention in assessing, monitoring and preventing of Adverse Drug Reactions and Drug-drug interactions and making appropriate dosage or therapy adjustments.

Keywords: Adverse drug reaction, Drug interactions, Polypharmacy

40. COMPARISON OF METFORMIN AND METFORMIN WITH OTHER ORAL HYPOGLYCEMIC AGENTS COMBINATION EFFECTS ON WEIGHT IN TYPE-2 DIABETES MELLITUS PATIENTS

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Abstract: We assessed the efficacy and safety of oral antidiabetic drugs (OADs) as an add-on treatment in patients with type 2 diabetes uncontrolled on metformin. PubMed, the Cochrane Library, and Embase were searched from inception to October 20, 2017. Pairwise and network meta-analyses were conducted using Stata 14.1 software. Odds ratios (ORs) and weighted mean differences (WMDs) were used to evaluate outcomes. Sixty-eight trials including 36,746 patients were analyzed. No significant differences in the risk of major adverse cardiovascular events (MACEs) and all-cause mortality were observed among any class of OADs when combined with metformin. All classes of OADs as add-ons to

metformin improved glucose control, while sodium-glucose co-transporter-2 (SGLT-2) inhibitors showed greater fasting plasma glucose (FPG) reductions {WMD, − 1.49 [95% confidence interval (CI) − 1.69 to − 1.28] mmol/l} and 2 h postprandial glucose (2 h PPG) reductions [WMD, − 3.07 (95% CI − 4.12 to − 2.03) mmol/l]. Thiazolidinediones and sulfonylureas were associated with weight gain [WMD, 2.53 (95% CI 1.95–3.10) kg and 2.00 (95% CI 1.63–2.36) kg, respectively] when added to metformin. Sulfonylureas [WMD, 6.52 (95% CI 4.07–10.45)] were associated with the highest ORs of hypoglycemia. Our results suggest that the seven classes of OADs were not associated with any increased risk of MACEs or all-cause mortality when combined with metformin. Most OADs were associated with similarly large reductions in HbA1c levels when added to metformin, while SGLT-2 inhibitors might be the best option for reducing body weight, FPG, and 2-h PPG.

41. DOCUMENTATION OF ACTIVITIES OF PHARM D STUDENTS IN INDIAN HOSPITALS

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Abstract: As the practice of pharmacy evolves, requiring more clinically oriented healthcare providers, Doctor of Pharmacy (PharmD) programs expand their training to more ospital sites to expose students to the provision of safe, effective, and economic drug therapy to patients. The need for this form of patient care becomes is essential in managing chronic illness like diabetes, hypertension, and other cardiovascular disorders. In all these conditions, the diseases are usually lifelong and with a number of co-morbidities, making polypharmacy part and parcel of the overall treatment strategy. The main objective is to maximize the clinical effects of medicines, i.e., using the most effective treatment for each type of patient: minimizing the risk of treatment-induced adverse events, i.e., monitoring the therapy course and the patient's compliance

with therapy trying to provide the best treatment alternative for the greatest number of patients.

42. A STUDY ON IDENTIFICATION OF RISK FACTORS IN DEVELOPING POLY CYSTIC OVARIAN SYNDROME AMONG TEENAGERS AND MINIMIZING THEM BY LIFE STYLE MODIFICATIONS THROUGH ADVANCED PATIENT COUNSELLING BY DOCTOR OF PHARMACY

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Abstract: Poly-Cystic Ovary Syndrome (PCOS) is characterized by multiple small ovarian cysts, obesity, hypertension, diabetes, insulin resistance, and Hirsutism. The Study Aims to assess the role of Doctor Of Pharmacy in identification of risk factors in developing poly cystic ovarian syndrome among teenagers and minimizing them by life style modifications through advanced Patient counseling.The Main Objective of the present study is to prevent the following: To prevent the complications of PCOS who are suffering with PCOS in early of their age. To prevent the occurrence of PCOS to early females who are nearer for its occurrence. To

minimize the symptoms and to improve the quality of life of females suffering with PCOS. Study Design: It is a observational and interventional study. Study Period: The Present study was conducted for a period of 6 months from January 2nd 2017 to July 31st 2017.Study site : The Present study was conducted in BAHUDHA WOMENS HOSTEL affiliated to Annamacharya college of Pharmacy, Rajampet, Kadapa, Andhra Pradesh, India. In The Present Study Out of total 600 women 530 enrolled to participate in the present study. After the collection of information by PCOS self assessment forms the scoring is given as 271 with scoring >5 with percentile 51.1320 are with Chance for getting PCOS, 159 with scoring > 10with percentile 30.01 are with high Chance for getting PCOS, 100 with scoring <5with percentile 18.8679 are Unpredictable to PCOS. The present study concludes that Doctor of Pharmacy is very helpful in assessing the risk factors responsible in developing PCOS and also minimizing them by life style modifications through advanced patient counseling.

43. COMPARATIVE STUDIES ON MYDRIATIC EFFECT OF TROPICAMIDE 0.8% AND PHENYLEPHRIN 5.0% IN TEENAGERS & GERIATRIC PEOPLE

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Abstract: Prospective study on the comparison of mydiriatic effect of Tropicamide 0.8% and Phenylephrine 5% in teenagers and geriatric people was carried out in suthrama Eye Hospital madanapalle, India. The main objective of this study was to compare the mydriatic effect of a combination of drug in teenagers and geriatric people. It also evaluated the ADR's produced and the efficacy of the drug in two age groups. In this study population majority of the subjects were female in group A and male in group B. Among the whole population under study in group A and B no one has reported with any case of congenital anomalies. A number of ADR's are reported but no serious adverse events had occurred. The study was carried out in 100 eyes ie. 50 subjects whom are divided into 2 groups based on age. The comparison of mydriatic effect was done in each

group after instilling one drop of a combination of 0.08% Tropicamide and 0.5% Phenynilephrine. The pupillary size where measured before and after administration of drug and the results were compared. The results showed that there is a large difference in the normal pupil size between teenagers and geriatric people. After dilation the difference in pupil size was statistically significant among the two groups. The study concludes that the pupillary dilation produced by administering 0.8% Tropicamide and 5% Phenylephrine produces higher mydriatic effect in teenagers than geriatric people.

Keywords: Mydriatic Effect, Teenagers, Geriatric

44. FORMULATION AND EVALUATION OF SUSTAINED RELEASE MATRIX TABLETS OF OSELTAMIVIR PHOSPHATE

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Abstract: Oseltamivir phosphate is an antiviral medication that blocks the actions of influenza virus types A and B in your body. The main aim of present work is to formulate and evaluate the sustained release matrix tablets of oseltamivir phosphate. In this study, we designed and evaluated sustain release matrix tablets of OP. A simple UV Visible Spectrophotometric method has been employed for the estimation of OP at 222nm and Beer's law is obeyed in the concentration range of 2-10µg/ml. OP has bitter taste so, betacyclodextrin is used with O.P[1:2] to form inclusion complexes by kneading method. Preformulation studies were carried out. FT-IR spectroscopy confirmed the absence of any drug/polymers/excipients interactions. Total 20 formulations were prepared by direct

compression technique, using polymers such as Hydroxy propyl methyl cellulose (HPMC K100M), Carbopol 934P, Xanthan gum and guar gum in different combinations with other standard excipients like PVPK30, MCC, Magnesium stearate and Talc. Tablets were evaluated for physical characterization viz. hardness, friability, Drug content, thickness and weight variation. Further tablets were evaluated in-vitro drug release for 12 hr. Among all formulations F19 which contains Xanthan gum and Guar gum found to be the optimised formulation because Drug content was 99% and drug release was found to be 79.88±0.12%.The obtained data from drug release was fitted into different kinetic models and the optimised formulation follows zero order and non fickian diffusion transport.

Keywords: Oseltamivir phosphate (OP), Betacyclodextrin, Inclusion complex, HPMC K100M, Carbopol934P, Xanthan gum and Guar gum.

45. FORMULATION AND EVALUATION OF FLOATING TABLETS ON RANITIDINE HYDROCHLORIDE

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Abstract: The present study is carried out with an aim to prepare and evaluate the floating tablets of Ranitidine Hydrochloride. The floating tablets were based on effervescent approach using sodium bicarbonate a gas generating agent. The FTIR studies show that there is no incompatibility between polymers and excipients used in the formulation. The tablets were prepared by Direct compression method. The effect of polymers such as HPMC K4M, Chitosan, Guar gum and Carbopol 934 on drug release profile was evaluated. The effect of HPMC K4M, Chitosan, Guar gum & Carbopol 934 on floating properties were also investigated. The result of In vitro dissolution study showed that the drug release profile could be controlled by increasing the concentration of HPMC and Chitosan. The formulation containing HPMC K4M and Chitosan showed 85.42±0.42 drug release at the end of 8

hours. Hence, Floating drug delivery system of Ranitidine Hydrochloride is prepared to increase the bioavailability of the drug and prolonged therapeutic effect.

Keywords: Floating drug delivery system, HPMC, Chitosan, Ranitidine Hydrochloride, Controlled release.

46. RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS ESTIMATION OF CLARITHROMYCIN AND PARACETAMOL

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Abstract: The present work describes a simple, rapid, and reproducible reverse phase high performance liquid chromatography (RP-HPLC) method for the simultaneous estimation of clarithromycin (CLA) and paracetamol (PCM). C18 column (Kromasil ODS, 5 μm, 250 × 4.6 mm) and a mobile phase containing phosphate buffer (0.05 M) along with 1-octane sulphonic acid sodium salt monohydrate (0.005 M) adjusted to pH 3.2: acetonitrile (50 : 50 v/v) mixture was used for the separation and quantification. The flow rate was 1.0 mL/min and the eluents were detected by UV detector at 205 nm. The retention times were found to be 2.21 and 3.73 mins, respectively. The developed method was validated

according to ICH guidelines Q2 (R1) and found to be linear within the range of 75–175 μg/mL for both drugs. The developed method was applied successfully for assay of clarithromycin and paracetamol in their combined in-house developed dosage forms and *in vitro* dissolution studies.

47. COUMARIN MODULATES THE PHARMACOLOGICAL ACTIVITY VIA STRUCTURAL MODIFICATION

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Abstract: Coumarin, a well known naturally occurring heterocyclic compound, isolated from various plant sources. Plant and plant derived products were gaining focus for identifying potent drugs for life threatening diseases like cancer, diabetes and heart diseases. Coumarins and coumarin derivatives possess many pharmacological activities such as antibacterial, anti oxidant, analgesic, anti ulcer, anticonvulsant, anti hyper lipidemic, anti parkinson's, anti inflammatory, and anti cancer. The availability of coumarins was very high, particularly in oils like cinnamon bark, cassia leaf and lavender. In our paper we described the role of structural modification of coumarin in developing a novel drug candidate for various diseases.

Keywords: Coumarin Structural Activity Relationship Pharmacological Activities.

48. EVALUATION OF MANIHOT ESCULENTA TUBER STARCH AS TABLET BINDER

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Abstract: The purpose of the present study was to investigate the efficacy of Manihot esculents tuber starch as a disintegrant to paracetamol tablets at a concentration of 2-10%. The prepared tablets were evaluated for weight variation, thickness, hardness, uniformity, disintegration time and drug dissolution rate. The prepared tablets showed high disintegration and dissolution rate, because of its high swelling factor and low viscosity. The formulated tablet showed less disintegration time using extracted starch used as disintegrant. Dissolution studies showed the drug release from the prepared tablets containing 7.5-10%w/w was 80-90% in 1 hr. From the above results the extracted starch formulations showed good disintegrant and dissolution properties.

Keywords: Manihot Esculenta , Disintegration And Dissolution Rate.

49. FORMULATION AND EVALUATION OF FLUCONAZOLE OPHTHALMIC GEL BY ION GELATION METHOD

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Abstract: Developed the novel antibacterial drugs with improved efficacy by using different polymers. the formulation and evaluation of an ophthalmic delivery system of an antibacterial agent Fluconazole, based on the concept of ion gelation. In present study Carbopol, 934 and Chitosan were used as polymers. Carbopol 934 was used as a pH sensitive polymer and chitosan as a drug carrier. The prepared formulations were evaluated for pH, clarity, viscosity, drug content, gel strength, *in vitro* drug release, antibacterial activity, isotonicity test and stability. The formulations were therapeutically efficacious, sterile, and stable and provided sustained release of the drug over a period of time.

50. SIMULTANEOUS ESTIMATION OF MULTICOMPONENT FORMULATIONS BY UV-VISIBLE SPECTROSCOPY: AN OVERVIEW

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Abstract: UV-visible spectroscopy, a simple, rapid, precise and highly accurate method for quantitative estimation is in great use now a day. The basic principle behind this technique is that the amount of light absorbed is proportional to the concentration of analyte. Simultaneous equation is applicable for the estimation of those drugs where the spectra of drugs overlap properly whereas multi-component analysis can be applied on any degree of spectral overlap provided that two or more spectra are not similar exactly. Quantitative estimation is necessary before introduction of any drug into the market as either concentration is more in formulation can cause toxicity problem or if concentration is found less, then formulation may not be effective in prescribed dose.

51. EVALUATION AND PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL ACTIVITY OF FICUS DALHOUSIAE MIQ

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Abstract: The aim of the present study was to isolate the Extract from the leaves of Ficus dalhousiae Miq and subse-quently evaluates their antibacterial and antifungal activity. The crude various extracts of the plant n-Hexane, Chloroform, Ethyl acetate, Methanol extract was obtained by using continuous soxhlation technique using soxhlet apparatus. The antibacterial activity of plant extract were carried using cup plate method against three bacterial species Staphylococcus aures, Bacillus subtilis, Escherichia coli using agar diffusion method. Those are compared with standard reference drug Ciprofloxacin. This study confirmed that bark extracts have more active constituents compare to leaf extracts. by pharmacological evaluation of Ficus dalhousea Miq. Various extracts, most of

them are capable of showing moderate antibacterial activity.
Keywords: Ficus Dalhousiae Miq, Agar Diffusion Method, Anti Bacterial.

52. EVALUATION OF PHARMACOLOGICAL ACTIVITY OF CHADRAPRABHA VATI ON SERUM OF ALBINO WISTAR STRAIN RATS

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Abstract: The current study is to develop the acute and sub-acute toxicity profile of some ayurvedic Bhasma and understand the side effects due to the presence of heavy metals. Chandra prabhavati pill were weighed, powdery and suspended in water had made into liquid formulation. The animals were classified and treated with the doses of Chandra prabhavati (50and five hundred mg/kg) in rat. The dose was calculated by extrapolating the equivalent human dose (1 and ten times) and was administered orally between ten and eleven after median daily for twenty eight days, during alylin a very volume not exceeding one ml/100 g rat weight. Blood was collected on seven, fourteen and twenty eight days, later they were sacrificed for histopathological studies.

Keywords: Bhasma, chadraprabhavati, detoxification

53. DEVELOPMENT AND VALIDATION OF NEW ANALYTICAL METHODS FOR THE ESTIMATION OF RUFINAMIDE IN BULK AND PHARMACEUTICAL DOSAGE FORMS

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Abstract: Development of methods to achieve the final goal of ensuring the quantity of drug substances and drug products is not a trivial undertaking. The capabilities of the three methods were complementary to each other. Hence they can be regarded as simple, specific and sensitive methods for the estimation of Rufinamide in bulk and pharmaceutical dosage forms. A very few analytical methods appeared in the literature for the determination of Rufinamide, which includes HPLC, UV-Vis Spectrophotometric methods and LC-MS / MS methods has been reported for Rufinamide. In view of the above fact, some simple analytical methods were planned to develop with sensitivity, accuracy, precision and economical. The present investigation, simple, sensitive, precise and accurate RP-HPLC method

was developed for the quantitative estimation of Rufinamide in its bulk and pharmaceutical dosage forms. The results are expressed in Table: 5.11 – 5.28. The RP-HPLC method was more sensitive, accurate and precise compared to the Spectrophotometric methods. This method can be used for the routine determination of Rufinamide in bulk drug and in pharmaceutical dosage forms.

54. IN-VITRO ANTIOXIDANT ACTIVITY OF KEDROSTIS FOETIDISSIMA (JACQ) COGN

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Abstract: The present study is to evaluate a systemic record of the relative antioxidant activity of *Kedrostis foetidissima*. The ethanolic extract of *Kedrostis foetidissima* was screened for their free radical, hydroxyl radical, superoxide and nitric oxide scavenging activity. Total antioxidant activities of ethanolic extract were compared with standard antioxidants ascorbic acid, copper sulphate 2, 6- di-ter-butyl-p-hydroxytoluene (BHT). Results indicate the ethanolic extract exhibited antioxidant potential of *in-vitro* screening methods. The results indicate that ethanolic extract showed moderate activity against standard drugs

Keywords: *Kedrostis foetidissima*, *in-vitro* antioxidant activity, DPHH, free radical scavenging activity.

55. RP-HPLC METHOD FOR THE DETERMINATION AND QUANTIFICATION OF ARTESUNATE

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Abstract: A simple, rapid and cost-effective reverse phase high-performance liquid chromatographic (RP-HPLC) method was developed for the quantification of artesunate. C18 Promosil (ODS, 150 × 4.6 mm, 5 μm) column was used as stationary phase to separate the drug. Mobile phase comprised of ethanol: water (65:35) having pH 4.5 was run isocratically at a flow rate of 1 mL/min at 27°C. The method was validated according to ICH guidelines for linearity, precision, accuracy, robustness, specificity, limit of detection (LOD) and limit of quantification (LOQ). The method was found accurate, precise and robust with an average retention time of 4.509 min and 0.5357 %RSD. Good linearity was observed in the concentration range of 2–10 mg/ml with regression coefficient R2 value of 0.9995 and slope value of 369,928. Conclusively, as per ICH norms, the developed

method was successfully validated and used for the quantification of artesunate in fast dissolving tablets (FDTs).

56. PHARMACOLOGICAL STUDIES OF ANTI-DIARRHOEAL ACTIVITY OF MALACHRA CAPITATA (L.) IN EXPERIMENTAL ANIMALS

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Abstract: The purpose of the present study was to evaluate scientifically the anti-diarrhoeal effects of aqueous extract of roots of Malachra capitata Linn (AMC) was studied against castor oil-induced-diarrhoea model in rats. Antidiarrhoeal activity of aqueous extract of Malachra capitata was investigated in this study using castor oil-induced-diarrhoea, enteropooling and Small intestinal transit models in rats. The weight and volume of intestinal content induced by castor oil were studied by enteropooling method. Standard drug diphenoxylate (5 ml/kg, p.o) was significant reductions in fecal output and frequency of droppings whereas AMC at the doses of 200 and 400 mg/kg p.o was significant reductions in fecal output and frequency and consistency of diarrhoea and enteropooling. The gastrointestinal transit rate was expressed as the percentage of the longest

distance travelled by the charcoal divided by the total length of the small intestine. AMC at the doses of 200 and 400 mg/kg significantly inhibited ($P<0.001$) the castor oil induced charcoal meal transit. The AMC showed marked reduction in the number of diarrhoea stools and the reduction in the weight and volume of the intestinal contents, as well as a modest reduction in intestinal transit. The results obtained establish the efficacy and substantiate the folklore claim as an anti- diarrheal agent. Further studies are needed to completely understand the mechanism of anti-diarrhoeal action of Malachra capitata.

Keywords: Antidiarrhoeal Activity, Malachra capitata, Traditional medicine, Castor Oil- induced diarrhoea, Enteropooling Method, Small intestinal transit.

57. APPLICATION OF SIMULTANEOUS EQUATION METHOD FOR THE DETERMINATION OF AZITHROMYCIN AND CEFIXIME TRIHYDRATE IN TABLET FORMULATION

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Abstract: A simple, accurate, and precise uv-spectrophotometric method has been developed for the simultaneous estimation of azithromycin (AZI) and cefixime trihydrate (CEFI) in tablet formulation. The method was based on employing simultaneous equation method for the analysis of both drugs. AZI and CEFI have shown absorbance maxima at 222 and 289 nm in methanol, respectively. The linearity was obeyed in the concentration range of 10-50μg/ml for both drugs, with a significantly high correlation coefficient (r^2 = 0.999). The limits of detection for AZI and CEFI were 0.81 and 1.52 μg/ml, respectively, and the limits of quantitation for AZI and CEFI were 2.40 and 4.60 μg/ml, respectively. The suitability of the developed

method for quantitative determination of drugs was proved by validation. The method was successfully used to analyze a tablet formulation.

Keywords: Azithromycin, Cefixime trihydrate, Simultaneous equation method, Uv-spectrophotometry, Validation.

58. IMPORTANCE OF RP-HPLC IN ANALYTICAL METHOD DEVELOPMENT: A REVIEW

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Abstract: Chromatography, although primarily a separation technique, is mostly employed in chemical analysis in which High-performance liquid chromatography (HPLC) is an extremely versatile technique where analytes are separated by passage through a column packed with micrometer-sized particles. Now a day reversed-phase chromatography is the most commonly used separation technique in HPLC. The reasons for this include the simplicity, versatility, and scope of the reversed-phase method as it is able to handle compounds of a diverse polarity and molecular mass. Reversed phase chromatography has found both analytical and preparative applications in the area of biochemical separation and purification. Molecules that possess some degree of hydrophobic character, such as proteins, peptides and nucleic

acids, can be separated by reversed phase chromatography with excellent recovery and resolution. This review covers the importance of RP-HPLC in analytical method development and their strategies along with brief knowledge of critical chromatographic parameters need to be optimized for an efficient method development.

59. NEW SIMPLE SPECTROPHOTOMETRIC METHOD FOR THE SIMULTANEOUS ESTIMATION OF PARACETAMOL AND FLUPIRTINE MALEATE IN PURE AND PHARMACEUTICAL DOSAGE FORM

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Abstract: A new, simple, precise, accurate, reproducible, and efficient Vierordt's method or simultaneous equation method was developed and validated for simultaneous estimation of paracetamol and flupirtine maleate in pure and pharmaceutical dosage form. The method was based on the measurement of absorbance at two wavelengths 245 nm and 344.5 nm, of paracetamol and flupiritine maleate in 0.1 N HCl correspondingly. Calibration curves of paracetamol and flupiritine maleate were found to be linear in the concentration ranges of 5–15 μg/mL and 1.53–4.61 μg/mL, respectively, with their correlation coefficient values (R^2) 0.999.

LOD and LOQ were 185.90 ng/mL and 563.38 ng/mL for paracetamol and 78.89 ng/mL and 239.06 ng/mL for flupiritine maleate. In the precision study, the % RSD value was found within limits (%). The percentage recovery at various concentration levels varied from 99.18 to 100.02% for paracetamol and 98.47 to 100.09% for flupiritine maleate confirming that the projected method is accurate. It could be concluded from the results obtained in the present investigation that this method for simultaneous estimation of paracetamol and flupirtine maleate in pure and tablet dosage form is simple, accurate, precise, and economical. The proposed method can be applied successfully for the simultaneous estimation of paracetamol and flupiritine maleate in pure and pharmaceutical dosage form.

60. ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF ORGANIC EXTRACTS FROM CLEOME SPINOSA JAQC.

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Abstract: Due to the use of Cleome spinosa Jacq. (Cleomaceae) in traditional medicine against inflammatory and infectious processes, this study evaluated the in vitro antimicrobial potential and phytochemical composition of extracts from its roots and leaves. From leaves (L) and roots (R) of C. spinosa different extracts were obtained (cyclohexane: ChL and ChR; chloroform: CL and CR; ethyl acetate: EAL and EAR, methanol: ML and MR). The antimicrobial activity was evaluated by the broth microdilution method to obtain the minimum inhibitory (MIC) and microbicidal (MMC) concentrations against 17 species, including bacteria and yeasts. Additionally, antimicrobial and combinatory effects with oxacillin were assessed against eight clinical

isolates of Staphylococcus aureus. All C. spinosa extracts showed a broad spectrum of antimicrobial activity, as they have inhibited all tested bacteria and yeasts. This activity seems to be related to the phytochemicals (flavonoid, terpenoids and saponins) detected into the extracts of C. spinosa. ChL and CL extracts were the most actives, with MIC less than 1 mg/mL against S. aureus, Bacillus subtilis, and Micrococcus luteus. It is important to note that these concentrations are much lower than their 50% hemolysis concentration (HC50) values. Strong correlations were found between the average MIC against S. aureus and their phenolic ($r = -0.89$) and flavonoid content ($r = -0.87$), reinforcing the possible role of these metabolite classes on the antimicrobial activity of C. spinosa derived extracts. Moreover, CL and CR showed the best inhibitory activity against S. aureus clinical isolates, they also showed synergistic action with oxacillin against all these strains (at least at one combined proportion). These results encourage the identification of active substances which could be used as lead(s) molecules in the development of new antimicrobial drugs.

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