

CONTENT**REVIEW ARTICLE****Bioreceptor Platform: A Macromolecular Bed for Drug Design***Sandip N. Badeliya and Dhrubo Jyoti Sen*.....812**ABSTRACT:**

Receptor based drug design now plays a major role in the drug discovery. It may be applied to drug design depends highly on the availability of the receptor information. Systematic identification of protein-drug interaction networks is crucial to correlate complex modes of drug action to clinical indications and is applied to drug design when receptor structure is identified or characterized by high-resolution X-ray crystallography, NMR spectroscopy techniques or electron cryomicroscopy. The X-ray structures of a receptor and ligand-receptor complex provide greater and also some useful information about the binding cavity. Since binding sites of the receptor are very stereospecific so ligand or the drug molecule is modified in silico to achieve a better fit of the drug molecule to the binding site. This type of ligand modification is carried out by using sophisticated molecular modeling softwares. Especially by combinatorial chemistry drug synthesis is carried out in highly efficient manner and in larger quantities also. Trial and error approach of the ancient time is now totally changed. The aim is to achieve a better and novel drug that bind to its particular receptor.

KEYWORDS: Receptor, Drug design, de novo drug design, molecular modeling, computer assisted drug design, docking.

Therapeutic Importance of Benzothiazole: Review*Gupta Akhilesh and Rawat Swati*.....821**ABSTRACT:**

Benzothiazole belongs to an important class of heterocyclic compounds and exhibits a wide range of biological properties and due to its potent and significant pharmacological activities. The present review deals with the various benzothiazole derivatives reported to focus their therapeutic importance.

KEYWORDS: Benzoheterocycles, Benzothiazole, Cyclization

 $10^{-15} \approx$ FEMTO Chemistry: New Frontier Exponent after NANO Chemistry*Priya R. Modiya, Palakben K. Parikh, Deepa R. Parmar, Dhrubo Jyoti Sen and Vidhi R. Patel*.....837**ABSTRACT:**

The study of chemical reactions on a very short time scale, often using pulsed lasers is femtochemistry. Etymology: From femtosecond + chemistry. Femto-(symbol f) is a prefix in the metric system denoting a factor of 10^{-15} or 0.000000000000001. Adopted by the 11th Conférence Générale des Poids et Mesures, it was added in 1964 to the SI. It is derived from the Danish word femten, meaning "fifteen". Example of use: a proton has a diameter of about 1.6 to 1.7 femtometres. The femtometre shares the unit symbol (fm) with the older non-SI unit fermi, to which it is equivalent. The fermi, named in honour of Enrico Fermi, is often encountered in nuclear physics.

KEYWORDS: Femto, Nano, Pump pulse, Probe plus

RESEARCH ARTICLE

Physicochemical and Preliminary Phytochemical Studies on the Fruit of *Terminalia chebula* Retz.

A.K. Meena, M.M. Rao, Kiran Sharma, Ajay Yadav, Uttam Singh and Amit.....844

ABSTRACT:

The present communication attempts to evaluate the physicochemical and preliminary phytochemical studies on the fruit of *Terminalia chebula* Retz. Combretaceae family. Haritaki is semi-deciduous tree grows up to 24 meter in height. *Terminalia Chebula* is found throughout India chiefly in deciduous forests, on dry slopes up to 900m especially in Tamil Nadu, widely distributed through the greater parts of India, from Ravi eastwards to West Bengal and Assam, Bihar, Orissa, Madhya Pradesh, Deccan, West coast and Western Ghats. The plant is also reported in Sri Lanka, Nepal and Burma. *Terminalia chebula* is traditionally used in the formulation for anti-diabetic, antimicrobial, laxative, anti-inflammatory, laxative, anti-fungal, cardiogenic, diuretic, hyperlipidemic activity. As there is no detailed standardisation work reported on fruit, the physicochemical parameters, preliminary phytochemical constants, toxic heavy metals, pesticide residue, and aflatoxin analysis are carried out. The study revealed specific identities for the particular crude drug which will be useful in identification and control to adulterations of the raw drug.

KEYWORDS: Extractive values, Ayurvedic drug, Toxic metals, physicochemical studies,

Synthesis and Biological Evaluation of Some Schiff's Bases of 2-Substituted- 1, 3, 4-Oxadiazole

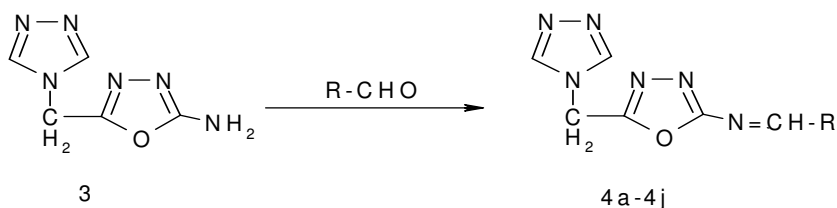
Kishore U. Kothule, Prashant Kesharwani, Rakesh R. Somani and Prabhakar Y. Shirodkar.....847

ABSTRACT:

The present research work is oriented towards the synthesis of coupled heterocyclic system and its subsequent conversion into Schiff's bases. Ethyl-5-N'-(1,2,4-triazolyl)-acetate **1** was converted in to its hydrazide by heating with hydrazine hydrate. Hydrazide was further cyclised to 2-amino-5-(N'-1,2,4-triazolomethyl)-1,3,4-oxadiazole **3**, which upon further treatment with various aromatic aldehydes under acidic condition afforded corresponding Schiff's bases **4a-4j**. All compounds were screened for anticonvulsant activity by MES method.

Graphical abstract:

Hitherto unreported Schiff's bases **4a-4j** of 1,2,4-triazolo substituted 1,3,4-oxadiazole amine **3** are prepared under acidic conditions. The newly synthesized compounds are characterized by spectral analyses. All the compounds are screened for anticonvulsant activity using MES method. **4d** exhibited promising anticonvulsant activity, whereas others have shown moderate activity.



KEYWORDS: Synthesis, 1,3,4-Oxadiazole, 1,2,4-Triazole, Schiff's bases, anti-convulsant.

Evaluation of Analytical Parameters of Some Medicinal Plants

Shaikh Asma Parween, Maqdoom Farooqui, Sayed U.K. Asema and Mazahar Farooqui.....850

ABSTRACT:

This study is aimed to determine the analytical parameters of nine plant extracts namely Black Night, Black Wood, Cyndon Daclyton, Caesal Piniaceae, Enicostema Axiuae, Five Leaved Cheast, Milk Hedge, Prickly Poppy and Wood Apple. The analytical parameters that were studied are total ash, Alcohol soluble extractive, water soluble extractive, ether soluble extractives, fatty acid, tannins, vitamin 'C', Acid value, peroxide value, saponification value and carbohydrate. Qualitative analysis was also performed and the elements that were determined are Nitrogen, Sulphur, Carbohydrate, Halogen and Vitamin 'C'.

Synthesis and Antimicrobial Screening of Some Novel Cinnoline Derivatives

T.V.Yuvaraj, S. Hurmath Unnissa, N.S.Surendiran, M.Azeez Ur rahman and V.Binumon.....853

ABSTRACT:

Cinnoline is a nitrogenous organic base obtained from certain complex diazo compounds. It is an isosteric, relative to either quinoline or iso quinoline. Cinnoline itself is toxic and shows antibacterial activity against *Escherichia coli*. None of its derivatives have been found in nature. Its condensed bicyclic aromatic heterocycle contains two nitrogen atoms. Sulphamido group is introduced into cinnoline nucleus to get compounds with enhanced potency. Pyrazolocinnolines are obtained by diazotization of sulphanilamide followed by coupling to form corresponding hydrazones which, on intramolecular cyclisation forms 3-acetyl-6- sulphamido-cinnolin-4-ones [CN-I]. Further, treatment with hydrazine hydrate yields the expected 3'-methyl-6-sulphamido-1'substituted-pyrazolo [4, 3-C] cinnoline derivatives. The compounds were characterized by analytical techniques like TLC, UV, IR, NMR Spectral studies. Screening for antimicrobial activity against bacterial organisms like *Escherichia coli*, *Klebsiella aurogeniosea*, *Micrococcus luteus*, *Bacillus cereus* and fungal organism like *Candida albicans* using Disc Diffusion Method were performed.

KEYWORDS: Cinnolines, sulphonamide, Isoniazid, UV, IR, NMR Spectroscopy and Antimicrobial screening.

HPLC Method Development and Validation for Simultaneous Estimation of Ibuprofen and Pseudoephedrine in Pharmaceutical Dosage Forms

U. Samba Moorthy, J. Sunil and M. Sanjith Nath.....859

ABSTRACT:

A Simple and Precise HPLC method was developed for the estimation of Ibuprofen and Pseudoephedrine in pure and pharmaceutical dosage forms. The quantification was carried out using a Xterra RP₁₈ column 4.6 mm X 100 mm i.d, 3.5 µm particle size in isocratic mode, with mobile phase compressing of buffer and acetonitrile in the ratio of 70:30 (v/v) pH 7.2. The flow rate was 1.5 mL/min and the detection was carried out by UV detector at 210 nm. The retention times were 6.620 and 10.255 min for Pseudoephedrine and Ibuprofen, respectively. The method produced linear response at the concentration range of 62-180 ppm for Ibuprofen and 12-36 ppm Pseudoephedrine. The percentage recovery was found to be 99.73 and 100.63% for Ibuprofen and Pseudoephedrine, respectively. The method was validated by evaluation of different parameters.

Visible Spectrophotometric Determination of Lamivudine in Tablet Dosage Form

Lakshmi Aswini G., Dhachinamoorthi D. and Prasada Rao CH.....862

ABSTRACT:

A simple visible spectrophotometric method has been developed for the estimation of Lamivudine in bulk and tablet dosage form. This method is based on the diazotization of Lamivudine with nitrous acid to form diazotized Lamivudine, followed by its coupling with β-naphthol to form a red coloured chromogen which shows maximum absorption at 553.0 nm and obeys Beer's law in the concentration range of 5-20 mcg/ml. This method was validated for accuracy, precision and ruggedness. Statistical analysis proves that the method is reproducible and selective for the estimation of said drug.

KEYWORDS: Visible spectrophotometry; Lamivudine; β-naphthol; Validation.

Analytical Method Development and Validation of Cefixime and Dicloxacillin Tablet by RP-HPLC

Kathiravan S., Anbarasi B. and Mathankumar S.....865

ABSTRACT:

A simple and sensitive high-performance liquid chromatography method with ultraviolet (UV) detection has been developed and validated procedure was developed for simultaneous determination of Cefixime and Dicloxacillin in tablet dosage form by reverse phase C18 column (water symmetry C18 5µ, 250mm x 4.6mm). The mobile phase used as combination of Acetonitrile: Potassium dihydrogen Phosphate in the ratio of 60:40 (pH adjusted to 6.0 with potassium hydroxide). The detection of the combined dosage form was carried out at 220 nm and flow rate of 1.0 ml/min. The retention time for Cefixime and Dicloxacillin was found to be 2.027 and 3.249 min respectively, and

recoveries from combined dosage form were between 98% to 102%. Linearity obtained in the concentration ranges from 60, 80, 100, 120, 140% Cefixime and Dicloxacillin with correlation coefficient of 0.9991 and 0.9996 respectively. The method herein described was successfully applied for the evaluation of Cefixime and Dicloxacillin combined dosage form.

KEYWORDS: Cefixime, Dicloxacillin and HPLC.

Development and Validation of HPLC Method for the Estimation of Emtricitabine in Capsule Dosage Form

Bhavini N. Patel, Bhanubhai N. Suhagiaand Chaganbhai N. Patel.....869

ABSTRACT:

A simple, precise, rapid and accurate reverse phase HPLC method was developed for the estimation of emtricitabine in capsule dosage form. A Phenomenex (Torrance, CA) C8 column, 250× 4.6 mm id, column, at ambient temperature with mobile phase consisting of 0.03M potassium dihydrogen phosphate (pH 4.86±0.02): Acetonitrile: Methanol (40:20:40 v/v/v) was used. The flow rate was 1 mL/min and the effluent was monitored at 260 nm. The retention time was 2.95 min. The detector response was linear in the concentration of 8-60 µg/mL. The respective linear regression equation being $Y=27675x+41556$. The limit of detection and limit of quantification was 0.06 and 0.20µg/mL respectively. The percentage assay of emtricitabine was 100.53%. The method was validated by determining its accuracy, precision and system suitability. The results of the study showed that the proposed RP-HPLC method is simple, rapid, precise and accurate, which is useful for the routine determination of emtricitabine in bulk drug and in its pharmaceutical dosage form.

KEYWORDS: Emtricitabine, RP-HPLC

Efficient One Pot Green Synthesis of 2-Aryl/ Heteryl- Benzothiazoles as Anti-inflammatory Agents

Dipika Vyawahare and Anna Pratima Nikalje.....872

ABSTRACT:

In the present investigation rapid and efficient cyclo-condensation of 2-aminothiophenol with aldehydes under microwave irradiation in solvent free conditions in presence of catalyst zirconium oxy chloride was carried out to afford the corresponding 2-substituted benzothiazoles **3a**. This one pot, neat green synthesis is obtained in high purity, good yield of products and in short span of time in presence of ecofriendly catalyst under microwave irradiation. The structures of all the products are characterized by spectral analysis. All the synthesized products are screened for their anti-inflammatory activity and have shown promising anti-inflammatory activity.

KEYWORDS: Green synthesis, ecofriendly, benzothiazole, microwave irradiation, anti-inflammatory activity.

Phytochemical Screening and In-vitro Antioxidant Activity of *Cissus quadrangularis*

Anitha Jebamalai Raj and Sudarsanam Dorairaj.....876

ABSTRACT:

Cissus quadrangularis is a medicinal herb used in traditional medicine of India as fracture healing process, asthma, cardiac problems, tumor and skin diseases. *Cissus quadrangularis* stem extracted with five solvents (Petroleum ether, chloroform, ethylacetate, methanol and water). Antioxidant activity of methanol extract of *Cissus quadrangularis* stem was studied for its free radical scavenging property on *in-vitro* models: ABTS⁺ and Superoxide anion radical scavenging activity comparable with that of reference antioxidant butylated hydroxytoluene (BHT).The extract showed good dose dependent free radical scavenging property in ABTS⁺ and Superoxide anion radical scavenging assay. In general, the methanol extract exhibited good antioxidant activity in ABTS⁺ and Superoxide anion(81.49±0.03 µg/ml) and (71.19±0.03 µg/ml)but were significantly lower than the synthetic antioxidant (84.23±0.04 µg/ml) and (79.23±0.01 µg/ml).The IC₅₀ values of ABTS⁺ and Superoxide anion radical scavenging activity were found to be (179.6±0.03 µg/ml), (190±0.04 µg/ml) and that of the standard BHT was (150.0±0.02 µg/ml) and (173.3±0.06 µg/ml). Phytochemical Screening disclosed the presence of alkaloids, flavonoids, saponins, terpenoids, steroids, tannins, cardioglycosides, amino acids and proteins. The result suggests that the methanol extracts of *Cissus quadrangularis* stem have potent antioxidant activity against free radicals.

KEYWORDS: *Cissus quadrangularis*, Phytochemical Screening, Antioxidant activity.

Validated Stability-Indicating HPLC Method for the Determination of Pantoprazole in the Presence of Its Degradation Products

Effat Souri, Nazanin Shabani Ravari, Farhad Alvandifar, Arsalan Negahban Aghdami, Maliheh Barazandeh Tehrani and Massoud Amanlou.....879

ABSTRACT:

Pantoprazole is a gastric proton pump inhibitor which is used for treatment of gastric and duodenal ulcers. In this report the stress degradation of pantoprazole was studied and an HPLC method was developed for the determination of pantoprazole in the presence of its degradation products. Pantoprazole was relatively stable in basic conditions but unstable under acidic condition, oxidative condition, heat, and light. Separation of pantoprazole and its degradation products was achieved on a Nova-Pak C₁₈ column using a mixture of acetonitrile and KH₂PO₄ 10 mM (pH 7.4) (25:75) as mobile phase. UV detection was performed at 290 nm. The method was linear over the range of 1-50 µg/mL pantoprazole ($r^2 > 0.999$). The within-day and between-day precision values were also in the range of 0.7-3.1%. The proposed method was successfully used for the determination of pantoprazole in tablets and dissolution medium.

KEYWORDS: Pantoprazole, HPLC, Stability-Indicating, Stress Degradation

Simultaneous Estimation of Atorvastatin, Clopidogrel and Aspirin in Capsule Dosage forms using UV-Spectroscopy

Sunil Singh, Nitin Dubey and D.K. Jain.....885

ABSTRACT:

Atorvastatin [R-(R,R)]-2-(4-fluorophenyl)-β, δ-dihydroxy-5-(1-methylethyl)-3-phenyl-4-[(phenyl amino)carbonyl]-1H-pyrrole 1-heptanoic acid an Anti-hyperlipidemia and Clopidogrel (2-Chloro phenyl, 6-7 dihydro-4H thieno [3,2-c]pyridine-5-yl)acetic acid is an Anti-platelet drug and Aspirin (2-Acetoxy benzoic acid) an NSAIDs. This paper presents two methods i.e. first derivative spectrophotometry and multicomponent spectrophotometry for simultaneous estimation of these three drugs combination in pharmaceutical formulations. The first derivative amplitudes at 276, 226 and 222 nm were utilized for simultaneous estimations. The multicomponent amplitudes at 247, 220 and 235 nm were utilized. Proper selection of wavelength for estimations of one drug by other in derivative spectra and multicomponent lead to successful development of methods for simultaneous estimation. The results of analysis were validated statistically that included parameters such as precision, LOD, LOQ, recovery and robustness. Both methods were simple, economical, accurate, reproducible and precise.

KEYWORDS: Simultaneous determination; Derivative spectroscopy; Multicomponent method

Simultaneous Determination of Ramipril and Hydrochlorothiazide from their Binary Mixture

R. Sahu, Patel V. B. and Bapna M.....888

ABSTRACT:

Specific, accurate, precise and simple ratio spectra 1st derivative spectrophotometric method was developed for simultaneous determination of HCTZ and RMPL from their binary mixture. For ratio spectra derivative spectrophotometry, the amplitudes were measured at 210.6 for RMPL and the difference in amplitudes at 224.7 and 231 nm were measured for the determination of HCTZ. Commercial tablet formulations and laboratory prepared mixtures were successfully analyzed using the developed methods.

KEYWORDS: Ramipril, Hydrochlorothiazide, Ratio-spectra

Determination of Metoprolol Succinate and Atorvastatin Calcium in Capsules Using RP – HPLC

T. Neelima Rani, N.K. Durga Devi, A. Prameela Rani, B.R. Madhavi, P.S. Praveen and B.S. Mrudula.....892

ABSTRACT:

A rapid sensitive and specific RP-HPLC method involving UV detection was developed and validated for the simultaneous determination and quantification of metoprolol and atorvastatin. Chromatography was carried out on a Zorbax X – C18 (150 X 4.6mm, 5 µm) column using buffer and acetonitrile (50: 50) as mobile phase at a flow rate

of 1 ml/min and effluent was monitored at 280 nm. The assay was linear over 25 – 150 µg/ml for metoprolol and atorvastatin. The retention times of metoprolol and atorvastatin were found to be 5.265 and 6.856 min, respectively. The percentage recovery obtained was 100.8 and 100.61 % respectively.

KEYWORDS: Metoprolol succinate, Atorvastatin calcium, HPLC, Combinational dosage form

Spectrophotometric Determination of Atorvastatin in Pharmaceutical Formulations

R. Vijayalakshmi, S. Bhargavi, S. Archana and M.D. Dhanaraju.....895

ABSTRACT:

Rapid, simple and sensitive spectrophotometric methods (A&B) have been developed for the determination of Atorvastatin (ATN) in pharmaceutical bulk and tablet dosage form. Method A is based on the reaction of ATN with 3-methyl-2-benzothiazolinone hydrazone and ferric chloride to form green colored chromogen. Method B is based on the formation of wine red colored chromogen with 1,2-naphthaquinone-4-sulphonate and NaOH. The absorbances of the chromogens were measured at their respective wavelengths of maximum absorbance against the corresponding reagent blank. The proposed methods have been successfully applied to the analysis of the bulk drug and its tablet dosage form. The methods have been statistically evaluated and were found to be precise and accurate.

KEYWORDS: Atorvastatin, 3-methyl-2-benzothiazolinone hydrazone, ferric chloride, 1, 2-naphthaquinone-4-sulphonate, sodium hydroxide.

Quantitative Estimation of Piperine in Ayurvedic Formulations by HPTLC

Ujjwal S. Yeotkar, Mahendra Nimbhorkar, Tushar A. Deshmukh and Vijay R. Patil.....898

ABSTRACT:

Churna are important group of formulation used by Ayurvedic physicians to treat various types of disease. Trikatu and Pimpali churna, as per Ayurvedic literature is used for the treatment of respiratory disorders. In the present study, an attempt has been made to develop a HPTLC method of quantitative estimation of marker compound, piperine in laboratory prepared authentic formulation and a marketed formulation of Trikatu and Pimpali churna. The stationary phase used was precoated silica gel G₆₀ F₂₅₄ plates. The mobile phase containing n- Hexane-ethyl acetate, (5:5 v/v), was used to separate the spot of Piperine. Plates were developed to a distance of 8 cm at room temperature. Spectrodensitometric scanning was performed by TLC scanner III (CAMAG) in absorbance mode at the wavelength of 339nm. The R_f values of piperine was 0.44± 0.02. The method was validated in terms of Linearity, Accuracy and Precision. The linearity curve found to be linear in between 200–900 ng/spot. The limit of Detection (LOD) and limit of Quantification (LOQ) were found to be 1 ng and 3 ng respectively. The mean results from % Recovery was found to be, laboratory formulation contain 85.13% and 83.47% while the commercial formulation shows 96.65%, and 90.32% respectively. The proposed method can be used to determine Piperine from Ayurvedic formulations.

KEYWORDS: Piperine, HPTLC, ayurvedic formulations, validation.

Simultaneous Spectrophotometric Estimation of Ezetimibe and Simvastatin in Bulk and Its Combined Dosage Form

K.R. Sireesha, K. Prakash, Poluri Koteswari and K. Shanta kumara.....903

ABSTRACT:

Two simple, sensitive, accurate, precise, rapid and economical methods were developed for the estimation of Ezetimibe and Simvastatin in solid dosage form. First method is based on simultaneous equations and second method is based on absorbance ratio method. Ezetimibe has absorbance maxima at 231.2 nm and Simvastatin has Absorbance maxima at 246.2 nm in methanol. The linearity was obtained in the concentration range 2-10 µg/ml for both Ezetimibe and Simvastatin. In the first method the concentration of the drugs were determined by using simultaneous equations and in second method, concentration of the drugs were determined by using ratio of absorbance at isoabsorptive point and at λ-max of one of the drug. The proposed method was statistically validated and found that it is simple, accurate, precise and suitable for the routine analysis of pharmaceutical formulations.

KEYWORDS: Simultaneous Equations, Absorbance Ratio, Iso-absorptive Point, validation.

Design, Synthesis and Evaluation of Novel Phenothiazines as Antipsychotic Agents.

Ganesh Bhawal, Meenakshi Deodhar, Ashok Bhosale and Deepak Lande.....906

ABSTRACT:

The present work relates to novel phenothiazines derivatives as antipsychotic agents. The introduction of the Chlorpromazine (a Phenothiazine class drug) in 1952 was positive advance in the treatment of psychosis. Phenothiazines constitute one of the most active classes of compounds possessing diversified biological applications and are the most commonly used class of antipsychotic agents. Phenothiazines mainly act by antagonism of the D₂ receptors and are thus useful for the treatment of the positive symptoms and have very little effect on negative symptoms or cognitive deficits

In addition, blockade of dopamine D₂ receptors leads to an increase in prolactin secretion and associated neuroendocrine disorders including gynecomastia, amenorrhea, and sexual dysfunction. The antipsychotic efficacy of typical neuroleptics is related to the D₂ receptor blockade. D₂ receptor is one of the G protein coupled receptors family that also includes the D₃ and D₄ receptor subtypes. And it was found that the D₄ receptor density is elevated in schizophrenia.

About six fold increases in the D₄ receptor subtype have been reported in schizophrenic brains, compared with normals. Autoradiographic analyses with the D₄ selective ligand ³H-NGD 94-1 show D₄ sites to be dense in rat and human hippocampus, hypothalamus, and neocortex, among other brain regions, and to be absent in the striatum. These findings suggested that a D₄-specific compound might treat schizophrenia as effectively as Clozapine but without the D₂ antagonist-mediated EPS or the Clozapine constellation of side effects.

We undertook a plan of building pyrazoline ring fused with the nucleus of phenothiazine. The preliminary pharmacological screening of the synthesized compounds revealed that out of the 12 compounds synthesized 6 compound (**3a,3c,3d,3f,3j,3l**) displayed significant activity.

KEYWORDS: Phenothiazine, Hydrazine hydrate, Pyrazoline, Antipsychotic activity.

Flame Retarding and Thermal Degradation Study of Intumescent Coated Cotton

Krishan Kumar and J.B. Dahiya.....911

ABSTRACT:

The effect of intumescent on the thermal degradation and flammability of cotton fabric has been studied in this investigation. The intumescent formulation containing ammonium polyphosphate, melamine, pentaerythritol and metal salts was used for coating the cotton fabric to make it flame retarded. The Thermal analysis (TG and DSC) in nitrogen atmosphere was carried out to study the thermal behaviour of coated cotton. Char yield of cotton fabric at 600 °C in nitrogen atmosphere was found increased from 12.8% to 25.4% on coating. The limiting oxygen index value for cotton fabric was found increased from 18.0% to 28.0% on coating with intumescent formulation (40 % w/w of cotton). The increase in char yield and LOI value justified the flame retarding behavior of coated cotton fabric.

KEYWORDS: Flame-retardant, Cotton, Intumescent, Thermal degradation, Char yield, Limiting oxygen index.

Assessment of Drinking Water Quality of Latur Region, Maharashtra, India

Dawle Jairaj K. and Suryawanshi V.B.....916

ABSTRACT:

Drinking water (bore well) samples from 20 different villages from Nilanga Taluka of Latur (west) region have been analyzed for various water quality constituents during March 2007 – April 2008. Parameters such as pH, conductivity D.O., B.O.D., C.O.D., Cl⁻, SO₄⁻², NO₃⁻, SiO₃⁻², PO₄⁻³, CO₃⁻², HCO₃⁻, F⁻, Ca²⁺, Mg²⁺, Na⁺, Al³⁺, Fe²⁺ of bore well water have been analyzed quantitatively.

Physico-Chemical Characterization of the Effluents and Nearby Ground Waters of Dr. Shivajirao Patil-Nilangekar Co-Operative Sugar Factory Ltd. Ambulga-Zari, Ta. Nilanga, Dist. Latur, (Maharashtra)

Dawle Jairaj K.....919

ABSTRACT:

The physico- chemical analysis of the effluents of Dr. Shivajirao Patil Nilangekar Co-operative sugar factory Ltd. Ambulga-Zari, Ta. Nilanga, Dist. Latur and nearby dug well and bore well waters of pre- and post monsoon seasons of 2007 and 2008 have been carried out in the present investigation. The methods employed for the analysis are as per the standard methods recommended by APHA, WHO, ICMR, IS, IS 3307-1977. The water samples during pre monsoon and post seasons from the various sites were collected and analytical estimations were done. The values are compared with the standard limits. The study reveals that the physico-chemical parameters are permissible limits with some slight variations in some parameters.

KEYWORDS: Physico-chemical, Sugat factory Dug well-bore well water, Effluents

Simultaneous Determination of Levofloxacin and Ornidazole by Ratiospectra Derivative Spectrophotometry and High Performance Liquid Chromatography

Parag R. Patel, Vandana B. Patel and Mayank Bapna.....922

ABSTRACT:

Rapid, precise, accurate and specific ratiospectra derivative spectrophotometry and high-performance liquid chromatography procedures were described for the simultaneous determination of levofloxacin and ornidazole in their combined dosage forms. For the first method of ratiospectra derivative spectrophotometry the signals were measured at 302 nm for ornidazole and 292.8 nm for levofloxacin as a mixture. The second method is based on high performance liquid chromatography (HPLC) on Princeton RP-C₁₈ column (5 μ , 150x4.6mm) using 0.1% v/v triethylamine-acetonitrile (80:20, v/v) (pH 6.0). Detection was carried out using a UV detector at 295 nm. The retention time for levofloxacin and ornidazole were found to be 2.8 min and 4.4 min respectively. Both the methods showed good linearity in the range of 1 to 20 μ g/mL and 5 to 5000ng/ml for ratiospectra derivative spectroscopy and HPLC respectively.

Pharmaceutical formulations containing both drugs were successfully assayed using the developed methods.

KEYWORDS: Levofloxacin, Ornidazole, Ratiospectra derivative spectrophotometry, High-performance liquid chromatography, Pharmaceutical formulations.

Development and Validation of Spectrophotometric Methods for Estimation of Granisetron Hydrochloride in Pure and it's Pharmaceutical Dosage Forms

Balap Aishwarya R., Prasad Deepshikha V., Khidse Anuja S., Jadhav Shailaja B., Joshi S.V. and Chaudhari Praveen D.928

ABSTRACT:

Three simple, precise and economical UV methods have been developed for the determination of Granisetron hydrochloride in pure and it's pharmaceutical dosage forms. Granisetron hydrochloride has the absorbance maxima at 302 nm (Method A) in phosphate buffer (pH 7.0). The quantitative determination of the drug was carried out using the first order derivative, values measured at 241.5 nm (Method B) and Area under Curve (AUC) for analysis in the wavelength range of 299-305 nm (Method C). Calibration graph constructed at 302 nm was linear in concentration range of 2-10 μ g/ml with correlation coefficient 0.9994. The proposed methods were successfully applied for the determination of Granisetron hydrochloride in commercial tablet preparation. Results of the analysis were validated statistically and by recovery studies and were found to be satisfactory.

KEYWORDS: Granisetron hydrochloride, Absorbance maxima, Derivative spectrophotometry, Area under curve.

Development of Quality Control Parameters for Herbal Formulation, Pippali churna

Gupta Vishvnath and Jain U.K..... 932

ABSTRACT:

The proper and meaningful utilization of our medical traditional heritage can only be achieved if each and every formulation mentioned in our indigenous system of medicines would be scientifically evaluated and their desired efficacy may be maintained. *Pippali churna* is a traditional herbal formulation, which is widely used in cough, hiccough relieving, hepatoprotective and insecticidal etc. It is one of famous ayurvedic formulation containing only

one ingredient such as *pippali*. It is observed that the consistency and content varies from one manufactures to another, which affect its therapeutic activity. Hence, it is needed to develop a protocol for the evaluation of *Pippali churna*. In the present study three batches of different marketed polyherbal formulation, *Pippali churna* were procured from the local market and they were evaluated as per Indian Pharmacopoeia and WHO guidelines on the following parameters viz. organoleptic characteristics, extractive value, physical characteristics, moisture content, loss on drying, phytochemical evaluation etc. The result of the present study revealed that all three batches of *Pippali churna* were found in close proximity. This study on *Pippali churna* was precise, reproducible and may be considered as a protocol for its evaluation.

KEYWORDS: *Pippali churna*, Herbal formulation, protocol, quality control

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A Validated UV Spectrophotometric Method for Estimation of Escitalopram Oxalate in Bulk and Pharmaceutical Dosage Forms

Suneetha A. and Syama Sundar B......935

ABSTRACT:

A simple, sensitive, precise, accurate and economical spectrophotometric method of analysis for escitalopram oxalate both as a bulk drug and in tablet dosage forms was developed and validated. The method employed methanol as solvent and the drug shows maximum absorbance at 239 nm with molar absorptivity of 0.1742×10^5 L/mol.cm. The linear regression analysis data for the calibration plot showed good linear relationship with $r^2 = 0.9999$ in the concentration range of 5-25 $\mu\text{g/ml}$. Results of analysis were validated statistically and by recovery studies.

KEYWORDS: Escitalopram oxalate, U.V spectrophotometry, tablets.

Inhibition of Corrosion of Copper by 4-Amino-3-Phenyl-5-Mercapto-1, 2, 4-Triazole in 3.5% Sodium Chloride Solution.

M. Yadav, Sushil Kumar, Abu Nasar and Sunil Kumar938

ABSTRACT:

In the present investigation 4-amino-3-phenyl-5-mercapto-1, 2, 4-triazole has been synthesized and studied as inhibitor for the corrosion of copper in 3.5 % NaCl solution. The inhibition efficiency of the compound have been evaluated by weight loss and electrochemical methods (Impedance spectroscopy and polarization curves). The surface study was done by using SEM techniques. The inhibitor appears to inhibit corrosion process through formation of protective film which was found to consist of Cu(I)-inhibitor complex, cuprous chloride, CuCl or CuCl_2^- complex ion or both on the surface.

KEYWORDS: Copper; Corrosion inhibition; 3.5% NaCl solution

Fast LC Method for Determination of Cefditoren Pivoxil and Its Related Impurities in Bulk and Pharmaceutical Formulations

R. Narendra Kumar, G. Nageswara Rao and P.Y. Naidu.....943

ABSTRACT:

A Fast LC method has been developed and subsequently validated for the determination of Cefditoren pivoxil and its related impurities in bulk and pharmaceutical formulation. Separation was achieved in Gradient mode using Hypersil BDS, C18, 100 x 4.6 mm, 3 μm column with mobile phase A containing Ammonium formate buffer (pH adjusted to 6.0 ± 0.05 with formic acid solution) and mobile phase B containing Methanol and Acetonitrile (40:60 v/v) at different time intervals as eluent at a flow rate 1.2ml/min. UV detection was performed at 230nm. The method is simple, rapid, and selective and stability indicating. The described method is linear over a range of 200.34 $\mu\text{g/mL}$ to 1520.56 $\mu\text{g/mL}$. The method precision for the determination of assay was below 2.0% RSD. The Percentage recoveries of Active Pharmaceutical Ingredient (API) from dosage form is 99.2. LOD and LOQ of all related impurities of Cefditoren pivoxil was established and ranged from 0.0431 $\mu\text{g/ml}$ - 0.1843 $\mu\text{g/ml}$ for LOD and

0.1292 μ g/ml - 0.6014 μ g/ml for LOQ .The method is useful in the quality control of bulk manufacturing and also in pharmaceutical formulations.

Monitoring the Cadmium Sulfide Thin Films by Double-Exposure Holographic Interferometry Technique

S.A. Gangawane, S.D. Kamat, V.P. Malekar and V.J. Fulari.....950

ABSTRACT:

Here, the Double Exposure Holographic Interferometry (DEHI) technique is used to study the surface deformation on stainless steel substrate, when CdS is deposited on it. In the electrodeposition method at different concentrations, CdSO₄ is used as cadmium source, while Na₂S₂O₃ is used as a sulphur source and ethylene diamine tetra acetic acid (EDTA) is used as a complexing agent. The electro deposition of CdS thin films is carried out by varying the time of deposition. The deposition potential of the compound was studied by cyclic voltammetry. The structural, surface morphological and optical properties of the deposited films have been studied using X-ray diffraction (XRD), scanning electron microscope (SEM) and optical absorption technique respectively. The DEHI technique is used to determine, thickness of thin film and stress to substrate of electrodeposited CdS thin films for various deposition time and at various concentrations.

KEYWORDS: DEHI technique; Thin Films; Electrodeposition; CdS; XRD; SEM

Synthesis and Biological Evaluation of New Pyridine Derivatives

Yogesh Jadhav, Kushal Dawane, Vrushali Patil, A.S. Bobade, S.V. Athlekar and Abhay Chowdhary.....955

ABSTRACT:

The 3-Hydroxy pyridine on reaction with ethylchloro acetate in presence of K₂CO₃ followed by the reaction with hydrazine hydrate resulted in the formation of 3-pyridoxy acetyl hydrazide (**III**), which on further the reaction with CS₂ and KOH cyclized to give (**IV**) which on reaction with different acid chloride form **2-(3-pyridoxymethyl)-5-(4-substitutedphenyl)-1,3,4-triazole**. These structures are determined by the elemental analysis and spectral data (IR, 1H-NMR). These new derivatives are evaluated for *in vitro* antimicrobial activity against *Staphylococcus aureus* (ATCC 3750), *Salmonella typhi* (NCTC 786), *Candida albicans* (ATCC 10231) and *Aspergillus niger* (ATCC 16404).

KEYWORDS: 3-Hydroxy pyridine, 1,3,4-Oxadiazole, Anti-bacterial, Anti-fungal.

New UV-Visible Spectrophotometric Methods for the Determination of Tadalafil in Bulk and Pharmaceutical Formulation

G.V.H. Raju, S. Ganapathy, D.G. Sankar and P.Y. Naidu.....958

ABSTRACT:

A simple, sensitive and reproducible UV-Visible spectrophotometric methods (Method A to Method C) are developed for the determination of Tadalafil (TADL) in pure and dosage forms. Method A is based on the formation of colored species on treatment of Tadalafil (TADL) with Folin- Ciocalteu reagent in presence of 4% NaOH Solution. Method B is based on the formation of colored species on treatment of Tadalafil (TADL) with Sodium nitroprusside and Hydroxyl amine .Method C represents UV Spectrophotometric determination of Tadalafil (TADL) and its dosage forms in pH 2.9Buffer : Acetonitrile (40:60v/v) at 285nm.

Development and Validation of a HPLC method for Simultaneous Analysis of Aspirin and Atorvastatin Calcium as the Bulk Drugs and in the capsule Dosage Form

R.K. Nanda, S.E. Potawale, V.V. Bhagwat, S.C.Hamane and R. S. Deshmukh.....961

ABSTRACT:

A simple, precise, accurate and rapid HPLC method has been developed, and validated for the determination of Aspirin, Atorvastatin Calcium simultaneously, in combined dosage form. Acetonitrile: 0.02 M Phosphate buffer with pH 6.1 (50 %: 50 % v/v) is used as the mobile phase, pH adjusted with Sodium Hydroxide (1% aqueous). Mobile phase was delivered at the flow rate of 1.0 ml/min., 239 nm is the detection wavelength for this study. The applicability of the method for simultaneous determination of Aspirin, Atorvastatin Calcium was verified by the

determination of these compounds in marketed capsules. Results of the analysis were validated statistically, and by recovery studies. Linearity for Aspirin And Atorvastatin Calcium was in the range of 5-35 µg/ml and 1-7 µg/ml, respectively and reproducibility was found to be satisfactory. The % assay (Mean ± S.D.) was found to be 99.33± 0.501 and 101.4± 0.18 for Aspirin and Atorvastatin Calcium respectively. The recovery and RSD values are within the limits given in ICH guide lines. Method development indicates the suitability of proposed method for the routine determination of these compounds in capsule dosage form. The proposed method can be successfully used to determine the drug contents of marketed formulation.

KEYWORDS: RP-HPLC; validation; Aspirin; Atorvastatin

Synthesis and Cytotoxic Activity of New Indole Derivatives

Radhika C., Venkatesham Akena, Venkateshwar Rao J., Sarangapani M.....965

ABSTRACT:

Some new (Naphthalen-1-yloxy/ 2-yloxy) - acetic acid (2-oxo-1, 2-dihydro-indole-3-ylidene)-hydrazides (4 and 5) have been synthesized by condensing naphthyl-1-oxy/2-oxy acetic acid hydrazides with different isatins. Their chemical structures have been confirmed by IR, NMR, and Mass spectroscopy and by elemental analysis. Investigation of cytotoxic activity was done by MTT assay method using HeLa and MCF cell lines. The compounds with 6-Bromo substitution (4e, 5e) have shown the prominent cytotoxic activity among the synthesized compounds.

KEYWORDS: Synthesis/Indoles/cytotoxicity

Spectrophotometric Methods for Simultaneous Estimation of Drotaverine Hydrochloride and Aceclofenac in Their Combined Tablet Dosage Form

J. R. Jain, B.V. Bhimani, R.S. Chauhan and S.A. Shah.....969

ABSTRACT:

Two simple spectrophotometric methods have been developed for simultaneous estimation of Drotaverine hydrochloride and Aceclofenac from tablet dosage form. Method I is an Absorbance correction method in which absorbance is measured at two wavelengths, 360 nm at which Aceclofenac has no absorbance and 276 nm at which both the drugs have considerable absorbance. Method II is First order derivative method which involves two zero crossing points, 249 nm (for measurement of Drotaverine hydrochloride) and 306.5 nm (for measurement of Aceclofenac). Both the methods were found linear between the range of 10-40µg/ml for Aceclofenac and 8-32 µg/ml for Drotaverine hydrochloride. The accuracy and precision were determined and found to comply with ICH guidelines. Both the methods showed good reproducibility and recovery with % RSD in the desired range. The methods were found to be rapid, specific, precise and accurate and can be successfully applied for the routine analysis of Drotaverine hydrochloride and Aceclofenac in their combined tablet dosage form.

KEYWORDS: Drotaverine hydrochloride, Aceclofenac, Absorbance correction method, First order derivative method.

Complexation Behavior of Benzene-1,2-Diylldimethaniminedibenzoic Acid Towards Divalent Metal Ions

I.E. Otuokere, E.N. Orjiako, G.U.Okafor and A.J. Chinweuba.....973

ABSTRACT:

New Schiff base ligand (benzene-1,2-diylldimethaniminedibenzoic acid) was prepared via condensation of *o*-phthaldehyde and 2-aminobenzoic acid in 1:2 ratio. Metal complexes were prepared and characterized using elemental analyses, IR, molar conductance, electronic spectra, ¹H NMR and ¹³CNMR. From the elemental analyses and spectra data, the complexes were proposed to have the general formulae [M(L₂)] (where M = Co(II), Ni(II), Cu(II) and Zn(II)). The molar conductance data revealed that all the metal chelates were non-electrolytes. IR spectra suggested coordination to the metal ions in a bi-negative tetradentate manner with NOON donor sites of the azomethine-N and carboxylate-O. The ¹H NMR spectral data indicate that the two carboxylate protons are also displaced during complexation. Formula determination using method of continuous variation gave metal:ligand ratio of 1:1. Based on spectra studies, a tetrahedral geometry have been proposed for the complexes

KEYWORDS: Schiff base; Transition metal complexes; Spectroscopy; Molar conductance.

Pharmacognostic and Preliminary Phytochemical Screening of *Cichorium intybus* Linn Seed

Tauseef Shaikh, Atar Mujum, Khan Wasimuzzama and Rukhsana A Rub.....977

ABSTRACT:

Cichorium intybus a member of Asteraceae family, is a perennial herb cultivated throughout India. It is commonly known as Chicory. It has been reported to have antifungal, antibacterial, hypoglycemic and hepatoprotective activity in various traditional systems of medicine. It is also found to have antineoplastic, antioxidant, analgesic and sedative activity. As the Pharmacognostic and Phytochemical data on the seeds of *Cichorium intybus* have not been reported previously, various pharmacognostic parameters like, examination of macroscopical, microscopical characters, ash values, extractive values, foreign organic matter and LOD were studied with the aim of establishing monograph for this species. Phytochemical screening included qualitative chemical examination and Thin layer chromatography of the detected phytoconstituents. Microscopical characters showed the presence of parenchyma, single layered tangentially elongated epidermis, well defined endosperm and papus. Powder characteristic also showed the presence of epidermal cells, papus and endosperm. The total ash, water soluble ash and acid insoluble ash were found to be 9.2%w/w, 1.1%w/w, 1.4%w/w respectively. The moisture content was found to be 7 w/w. Water, Alcohol and Chloroform soluble extractive values were found to be 12.2%w/w, 13.4%w/w, 1.2%w/w respectively. Preliminary phytochemical investigation of aqueous and methanolic extract of seeds of cichorium intybus revealed the presence of Carbohydrates, Alkaloids, Tannins and Flavonoids which were further confirmed by thin layer chromatography with the Rf values as 0.94, 0.75 and 0.78 for carbohydrates, alkaloids, flavonoids and 0.81 and 0.90 for tannins and flavonoids respectively.

KEYWORDS: *Cichorium intybus*, Chicory, Phytochemical investigation, Pharmacognostic evaluations, Rf value.

Role of Bio-Metal Zn (II) in Anticancer Behaviour of Tamoxifen

Jyotsna Shukla, Brijesh Singh and K.S. Pitre.....981

ABSTRACT:

Physicochemical, microbial and Pharmacological studies on Zn (II) - Tamoxifen complex have been done in solid and aqueous phase. On the basis of elemental analysis, polarographic studies, amperometric titrations and IR spectral studies the probable formula of the complex has been worked out to be 1:1 Zn (II) - Tamoxifen. The metal ligand interaction has been studied using polarographic method at $25 \pm 1^\circ\text{C}$ and at ionic strength of $\mu = 1.0$ [KCl].

Microbial studies on the complex were done against various pathogenic bacteria viz. *Pseudomonas mangiferae*, *Staphylococcus aureus*, *Salmonella typhi* and *Vibrio colarae* and fungi i.e. *Trichothesium* and *Chrysosporium* sp. using Raper's method. The results indicated increased toxicity of the metal drug complex against bacteria and fungi, under study.

Mouse Sarcoma Cell line - 180 and Balb/C mice were used for the anticancer screening of solid complex in-vitro and in-vivo respectively the result of pharmacological studies with the Metal: Drug complex revealed that the complex more potent as compared to the pure drug regards to its anticancer activity. As such tamoxifen complex may be recommended to the therapeutic experts for its possible use as more potent anticancer drug.

KEYWORDS: Tamoxifen, Anticancer activity, Zinc Complex, microbial and Balb/C mice

Simultaneous RP-HPLC Determination of Drotaverine Hydrochloride and Mefenamic Acid in Their Combined Tablet Dosage Form

R.S. Sakhare, A.B. Roge, R.L. Bakal, A.D. Dewani, M.D. Kshirsagar and A.V. Chandewar.....986

ABSTRACT:

A simple, precise, accurate, rapid and reproducible reverse phase high performance liquid chromatographic procedure was developed for simultaneous determination of Drotaverine HCL and Mefenamic Acid in tablet dosage form at a single wavelength. The mobile phase used was a combination of Methanol: Acetonitrile: KH_2PO_4 Buffer (10 mM): (40: 40: 20) pH 3.5. The detection of the combined dosage form was carried out at 240 nm and flow rate was set to 1ml/min. Linearity was obtained in the concentration range of 3 to 30 $\mu\text{g/ml}$ of Drotaverine HCL and 6 to

33 µg/ml of Mefenamic Acid with correlation coefficients of 0.9998 and 0.9999, respectively. The results of the analysis were validated statistically and recovery studies confirmed the accuracy of the proposed method.

KEYWORDS: Drotaverine HCL, Mefenamic Acid , RP-HPLC, Simultaneous estimation.

Effect of Ammonium Compounds as Additives on the Dissolution Rate of Limestone Samples Sourced From Tirunelveli District, Tamil Nadu, India

S. Vijaya Chitra.....990

ABSTRACT:

Sulphur dioxide (SO₂) represents one of the most important air pollution generators. The rate of CaCO₃ dissolution in slurry scrubbers for flue gas desulphurization affects SO₂ absorption, CaSO₃ / CaSO₄ scaling and ultimate CaCO₃ utilization. Limestone is the low cost naturally occurring chemical which is the preferred reagent in many conventional WFGD systems. However, under normal system operating conditions, the limestone dissolves slowly. Therefore, in order to increase the alkalinity of the limestone slurry used in conventional WFGD systems and hence increase the system's SO₂ removal efficiency, the use of ammonium compounds as the possible additives has been examined in this study. Under normal operating conditions, once the slurry containing the dissolved limestone is sprayed into the SO₂ absorber, the dissolved limestone is quickly depleted making the slurry ineffective in removing more SO₂ and requiring a high rate of slurry recycle. As a result, high capital and operating costs are required when low cost limestone is employed as the reagent in WFGD systems. Increasing the limestone dissolution rate in WFGD systems allows courser limestone particles; lower limestone stoichiometry and lower slurry recycle rates to be employed, thereby saving capital and operating costs. Marginal grade limestone samples collected from Tirunelveli district, Tamil Nadu have been taken up for this particular study under conditions similar to those encountered in wet FGD processes.

KEYWORDS: Limestone, local source, dissolution, Desulphurization, Industry

Development and Validation of Method for Simultaneous Estimation of Lamivudine, Zidovudine and Nevirapine

Jadhav S.D., Bhatia M.S., Thamake S.L. and Pishawikar S.A.....995

ABSTRACT:

Lamivudine (LMV), Zidovudine (ZDV) and Nevirapine (NVR) are used in combination for treatment of HIV I. The present work deals with method development for simultaneous estimation of these drugs in tablet dosage form by UV spectrophotometry. A new simple, accurate and sensitive method for simultaneous estimation of lamivudine, zidovudine and nevirapine from tablet formulation has been developed. The method employs combination of zero order and first order derivative spectroscopy. Estimation of nevirapine was done in zero order derivative mode at 310 nm where zidovudine and lamivudine do not show any interference. Estimation of zidovudine was done in first order derivative mode at 270 nm where lamivudine and nevirapine shows zero crossing points. Estimation of lamivudine is done in zero order derivative mode at 271 nm by correcting the absorbance interferences due to zidovudine and nevirapine. Absorbance interferences of zidovudine and nevirapine calculated from their absorptivities. The results of analysis validated statistically and recovery studies showed satisfactory results. Thus the method is accurate and reproducible and can be employed for routine analysis of these drugs from tablet dosage forms.

KEYWORDS: Lamivudine, Zidovudine, Nevirapine, Absorbance interferences.

Development and Validation of A HPTLC Method for Simultaneous Densitometric Analysis of Cefixime and Potassium Clavulanate as the Bulk Drugs and in the Tablet Dosage Form

R.K. Nanda, V.V. Bhagwat, S.E. Potawale and S.C. Hamane.....998

ABSTRACT:

A new simple high performance thin layer chromatographic (HPTLC) method for simultaneous determination of Cefixime and Potassium Clavulanate combined tablet dosage form has been developed and validated. The separation was carried out on Merck aluminum plates precoated with silica gel 60 F₂₅₄, using Acetone: Water: Acetic acid 8:

0.8: 1.2 (v/v/v) as mobile phase. The separated spots were stained with Iodine vapors and scanned at 410 nm. The retention factor for Cefixime and Potassium Clavulanate were found to be 0.23 ± 0.01 and 0.68 ± 0.01 . The method was validated with respect to linearity, accuracy, precision, robustness, in accordance with ICH guidelines. The calibration curve was found to be linear over a range of 0.5–3.0 μg per spot for Cefixime and 0.310–1.870 μg per spot for Potassium Clavulanate. The method has been successfully applied for the analysis of drugs in pharmaceutical formulation. The % assay (Mean \pm S.D.) was found to be 100.29 ± 0.9933 for Cefixime and 100.95 ± 1.005 for Potassium Clavulanate.

KEYWORDS: Cefixime, Potassium Clavulanate, HPTLC, tablet dosage form.

New UV-Visible Spectrophotometric Methods for the Determination of Aripiprazole in Bulk and Pharmaceutical Formulation

G.V.H. Raju, S. Ganapathy, D.G. Sankar and P.Y. Naidu.....1002

ABSTRACT:

A simple, sensitive and reproducible UV-Visible spectrophotometric methods (Method A to Method F) are developed for the determination of Aripiprazole (ARIP) in pure and dosage forms. Method A is based on the formation of colored species on treatment of Aripiprazole (ARIP) with 3-Methyl-2-benzo thiazolinone hydrazone (MBTH) and Ceric Ammonium Sulphate (CAS). Method B is based on the formation of colored species on treatment of Aripiprazole (ARIP) with FeCl_3 and 1,10 PTL. Method C is based on the formation of colored species on treatment of Aripiprazole (ARIP) with Folin- Ciocalteu reagent in presence of 4% NaOH Solution. Method D is based on the formation of colored species on treatment of Aripiprazole (ARIP) with DCQC (2,6-dichloroquinone N-chlorimide ,Gibbs Reagent). Method E is based on the formation of colored species on treatment of Aripiprazole (ARIP) with NQS (1,2-napthaquinone-4-sulphonic acid). Method F represents UV Spectrophotometric determination of Aripiprazole (ARIP) and its dosage forms in pH 3.0 Buffer : Acetonitrile (62:38v/v) at 250nm

Nanoclay as Thermal Barrier in Coating Intumescent Formulations for Flame Retardant Cotton Fabric

J. B. Dahiya and Krishan Kumar.....1007

ABSTRACT:

Industrial growths during the last century have led to the use of cellulose for everyday household and office items (e.g. furniture, fabrics, automotive parts, housings for electronic equipment etc). But high flammability of such materials means that their occurrence could create a fire risk and hazard. Therefore, required fire safety standard needs the materials to be flame retarded. In the present study, the intumescent formulation containing ammonium polyphosphate, melamine, pentaerythritol and nanoclay was used for coating the cotton fabric to make it flame retarded. Thermal analysis in nitrogen atmosphere was carried out to study the thermal behaviour of coated fabric. Limiting oxygen index (LOI) study was also carried out to evaluate the flammability behaviour of the cotton fabric. Char yield of cotton fabric was found increased from 12.8 to 27.4 % on coating with Intumescent containing nanoclay at 600°C in nitrogen atmosphere. The LOI value for cotton fabric increased from 18 to 22.1 % on coating with intumescent–nanoclay formulation.

KEYWORDS: Nanoclay, Flame-retardant, Cotton, Intumescent, Thermal degradation, Char yield.

Synthesis and Characterization of Ter-Butyl Chloride and Its Derivatives (Ter-Butyl Zinc Chloride and Ter-Butyl Lead Chloride) By Using TLC, FTIR, UV/VIS and GC/MS Techniques.

Bushra Khan, Umbreen Ashraf, Anam Tariq, Mamoona and Rehmana.....1011

ABSTRACT:

The aim of this study was to synthesize and characterize a precursor (ter-butyl chloride) and organometallic compounds (ter-butyl zinc chloride and ter-butyl lead chloride) by various analytical techniques like TLC, UV/VIS spectroscopy, FTIR and GC/MS. The qualitative analysis of compounds was carried out by TLC and UV/VIS spectroscopy. The spectrum obtained by FTIR spectroscopy showed different pattern of frequencies with respect to the absorption of energy. Gas chromatography was used to separate the components of compound and Mass spectroscopy was used to determine the structure and molecular weight of the compounds.

KEYWORDS: ter-butyl chloride, ter-butyl zinc chloride, ter-butyl lead chloride, GC/MS, FTIR, UV/VIS.

Effect of Variation of Concentration and pH on the Cyclic Voltammetric Behaviour of 4-Methyl-3-Vinyl Quinoline-2(1H)-One at Glassy Carbon Electrode

Lalitha P and Sivakamasundari S.....1015

ABSTRACT:

The electro-chemical characteristics of carbonyl compounds are historically of interest. The present paper is aimed at carrying out a methodical cyclic voltammetric investigation of the peak potential values of 4-methyl -3- vinyl quinoline-2(1H) one(MVQ) in tetrahydrofuran (THF) with tetra butyl ammonium bromide (TBAB) as supporting electrolyte at glassy carbon electrode (GCE) with varying scan rate, concentration and pH. All the voltammograms showed only irreversible diffusion controlled reduction. Peak potentials vary linearly with the pH at all scan rates and concentrations.

KEYWORDS: cyclic voltammetry, electro-reduction, quinolone

Analysis of Pesticide Residues in Ground and Surface Water of Bijapur District, Karnataka.

U.S. Pujari, S.C. Hiremath, A.S. Pujari, K.G. Pujari, M.I. Kumbar and M.S. Yadawe.....1020

ABSTRACT:

Water samples were analysed for pesticide residues employing multi residue analysis by gas chromatography mass spectrometric method (GC-MS) method and GC-MS on the selected ion mode. The column used was SPB-608 and helium was used as the carrier gas. The HP gas chromatograph equipped with nitrogen phosphorous detector with mega bore column of polysiloxane was used. Among the organochlorines, HCH and DDT were not detected in almost all samples. All the water samples showed the presence of residues with one or other group of residues. Residues of the pesticides exceeded the permissible values in some samples. The aim of this study was to establish a systematic analytical method for the rapid and sensitive probe in monitoring of pesticide residues in water samples of Bijapur ground and surface water.

KEYWORDS: HPLC, Pesticide residues, Bijapur district

Synthesis, Characterization and Electrochemical Behavior of Transition Metal (II) Complexes from 2, 6-Diphenyl-Piperidin-4-Thiosemicarbazone and their Antimicrobial Studies

A. Jamal Abdul Nasser, A. Pasupathy, R. Surendra Kumar and A. Idhayadhulla.....1022

ABSTRACT:

2,6-diphenyl-piperidin-4-thiosemicarbazone (DPPTSC) ligand and their metal (Co^{II} , Ni^{II} , Cu^{II} , Cd^{II}) complexes have been synthesized and characterized by IR, ^1H NMR, elemental analysis, molar conductance, magnetic susceptibility measurements. The electrochemical property was studied by cyclic voltammeter. All the metal complexes are $[\text{ML}_2\text{Cl}_2]$ type, where $\text{M} = \text{Co}$, Ni , Cu , Cd and $\text{L} = \text{DPPTSC}$ act as a bidentate ligand in all the complexes. Distorted octahedral geometry for Cu complex and octahedral geometries for all other complexes are proposed. The newly synthesized metal complexes have been screened at *in vitro* for their antimicrobial activity against five bacterial strains and five fungal strains, all the complexes and ligand CPPTSC possess strong inhibitory action against bacteria and fungi, the antimicrobial activities of the complexes are stronger than those of ligand CPPTSC itself.

KEYWORDS: 2, 6-Diphenyl-piperidin-4-thiosemicarbazone, Transition metal (II) complexes, Spectral study, Electrochemical behavior, Antibacterial activity.

Structure Activity Relationship Studies of Synthesized Diamides on CNS Depression and Sleeping Time Potentiation Effect

Nidhi J. Kapadiya and Dhruvo Jyoti Sen.....1027

ABSTRACT:

Evaluation of structure activity relationship studies of synthesized diamides on CNS depression and sleeping time potentiation effect through intraperitoneally administration of various doses of test compounds in mg/kg dose in group of male albino mice using propylene glycol as an inert vehicle. The loss of righting reflex and regaining of it was noted for each compounds to determine the sleeping time, injecting drug (diazepam/pentobarbitone) solution to mice, compound + drug solution in the mice and only compound solution to another mice and observed it's sleeping time potentiation and by plotting the histogram sleeping time has been observed. It has been found that all the test compounds do not have sleep inducing property. Sleeping time potentiation effect was studied for the test compounds by using diazepam as benzodiazepine series and pentobarbitone as barbiturate series which show good sleep inducing property. The amide groups of compounds block the GABA receptor and chloride channel and shows longer duration of sleep inducing property due to the presence of two amide linkages on male albino mice. Maximum activity was shown by Compound-93 (b) due to the presence of two free -CONH₂ linkages and also show more lipid solubility which block GABA receptor long time produce their effect for longer period of time. All the compounds exhibited significant CNS depression activity in combination with standard drug diazepam and pentobarbitone.

KEYWORDS: Depression, righting reflex method, potentiation of sleeping time, diazepam, pentobarbitone.

Application of Topological Descriptor: QSAR Study of Chalcone Derivatives

Sudhanshu Dhar Dwivedi, Arpan Bharadwaj and Amit Shrivastava.....1030

ABSTRACT:

A set of chalcone derivatives were tested for their antimalarial activities. Quantitative structure activity relationship (QSAR) analysis was applied to forty-two of the abovementioned derivatives using a combination of various topological descriptors. A multiple linear regression (MLR) procedure was used to model the relationships between molecular descriptors and the antimalarial activity of the chalcone derivatives. The stepwise regression method was used to derive the most significant models as a calibration model for predicting the antimalarial activity of this class of molecules. The best QSAR models were further validated by the calculation of statistical parameters for the established theoretical models. High agreement between experimental and predicted activity values, obtained in the validation procedure, indicated the good quality of the derived QSAR models.

KEYWORDS: QSAR; chalcone derivatives; multiple linear regressions; statistical parameters.

Extraction of Chromium (VI) From Aqueous Acid Solutions by Tribenzylamine

A.V.L.N.S.H. Hariharan and J. Sucharitha.....1035

ABSTRACT:

The extraction of chromium (VI) from hydrochloric, sulphuric, and phosphoric acid solutions with Tri benzylamine (TBA) in chloroform has been studied. The extractions from hydrochloric and sulphuric acid solutions are nearly quantitative and are partial from phosphoric acid solutions. The optimum conditions for extraction were established from the study of the effect of several variables like- concentration of amine, metal ion, acidity, foreign ions etc. The extracted species are identified. The method has been applied for the recovery and determination of chromium in real as well as synthetic samples.

KEYWORDS: Solvent extraction -Chromium (VI) - Tri benzylamine [TBA] - Toxic metal – industrial effluents.

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Spectrophotometric determination of Nadolol in Bulk and Pharmaceutical Formulations

K. Kiranmai, V.D. Sundar, M.D. Dhanaraju and R. Vijayalakshmi.....1038

ABSTRACT:

Rapid, simple and sensitive spectrophotometric method has been developed for the determination of Nadolol in pharmaceutical bulk and tablet dosage forms. Method is based on the reaction of Nadolol with Sodium Nitropruside, Hydroxyl amine and sodium carbonate, to form light green colored chromogen. The colored species has absorption maximum at 440 nm and obeys Beer's law in the concentration range of 0.1-0.3 mg/ml. The optimum experimental

parameters for the experiment have been studied. The proposed methods have been successfully applied to the analysis of the bulk drug and its tablet dosage form. Statistical analysis of the results has been carried out revealing high accuracy and good precision.

KEYWORDS: Nadolol, Sodium Nitropruside, Hydroxyl amine HCl, Na₂CO₃.

Simultaneous Estimation of Aspirin and Atorvastatin Calcium in Capsule Dosage Form by Spectrophotometric Method

R.K. Nanda, S.E. Potawale, V.V. Bhagwat, S.C.Hamane and R. S. Deshmukh.....1041

ABSTRACT:

A simple, precise and economical procedure for the simultaneous estimation of Aspirin and Atorvastatin Calcium in capsule formulation has been developed. The first method employs simultaneous equations (Method I) which involve absorbance measurement at 225.5 nm (λ max of Aspirin) and 246.0 (λ max of Atorvastatin Calcium). Second method involves absorbance ratio (Method II), which uses the ratio of absorbances measured at two selected wavelengths, one at isoabsorptive point (232.5 nm) and other being the max of one of the two compounds. Third method involves measurement of area under curve (AUC). For this method wavelength ranges were chosen between 223.5-227.5 nm and 244-248 nm for Aspirin and Atorvastatin Calcium respectively. Results of analysis for methods were tested and validated for various parameters according to ICH guidelines, hence can be adopted for the routine analysis of Aspirin and Atorvastatin Calcium in tablet dosage form.

KEYWORDS: Aspirin, Atorvastatin Calcium, simultaneous equation method, absorbance ratio method, area under curve method.

Effect of Benzaldehyde on the Properties of Zinc- Nickel Alloy Electrodeposits from EDTA Bath

K. Juliet Gnana Sundari, C. Joseph Kennady and S. Rajendran.....1044

ABSTRACT:

Zinc alloy coatings are considered as good substitutes for cadmium coating because cadmium is toxic in nature. Electrodeposition of Zinc- nickel alloy on mild steel is carried out from the electrolytic bath solution containing zinc oxide, sodium hydroxide and Nickel sulphate with EDTA as complexing agent. Plating process parameters such as current density, temperature and bath composition are optimized using galvanostatic electrolysis. The deposit obtained is uniform and semi bright. Zinc- nickel alloy is also electrodeposited from the bath solution containing various concentration of benzaldehyde. The deposits are uniform and bright the composition of nickel in the electrodeposits is studied by atomic absorption spectroscopy. Surface morphology of the deposit is studied by scanning electron microscopy and thickness of the deposit is determined by x-ray diffraction studies. Corrosion resistance measurement is done by tafel and impedance studies. It is observed that current efficiency and corrosion resistance of the zinc nickel alloy deposited specimen with benzaldehyde are greater than the deposited specimen without benzaldehyde.

KEYWORDS: Zinc – nickel alloy, EDTA, electrodeposition, corrosion study

Simultaneous UV-Spectrophotometric Method for Estimation of Atenolol and Losartan Potassium in Tablet Dosage Form.

Rupali Kirtawade, Pallavi Salve, Chhotaram Seervi, Kiran Patil, Anita Kulkarni and Pandurang Dhabale.....1050

ABSTRACT:

Two simple, accurate, precise, reproducible and economical procedures for simultaneous estimation of Atenolol (AT) and Losartan Potassium (LP) in tablet dosage form have been developed. First method based on solving of simultaneous equation using 226 nm (λ max of AT) and 208 nm (λ max of LP) as two analytical wavelengths for both drugs in Methanol solvent. Second method based on an equation of area calculation of curve at two wavelength region (231 to 221 nm and 213 to 203 nm). Linearity was observed in the concentration range of 6-36 μ g/ml for AT and 2-16 μ g/ml for LP. The results of analysis have been validated statistically and by recovery study.

KEYWORDS: Atenolol, Losartan Potassium, λ_{max} , Simultaneous estimation method; Area Under Curve (AUC)

A Study on Tri Calcium Phosphate Solubilisation Efficiency of Soil Microbes

K. Natarajan, S. Tamilarasi, R. Sathish, C. Amudhadevi and T. Regupathi.....1054

ABSTRACT:

Different soil microbes were analyzed for their phosphate solubilizing capacity. The characterization of the microbes which exhibits phosphate solubilisation in preliminary screening reveals that the isolated strains were *Pseudomonas aeruginosa*, *Pseudomonas fluorescens*, *Bacillus subtilis*, *Bacillus cereus* and *E. coli*. General parameters for determining phosphate solubilisation in PVK broth such as pH changes, estimation of phosphorus release in media and the phosphatase enzyme activity were performed. Investigation results showed high potency of the microbes to solubilize TCP. From the above tested organisms *Pseudomonas* possess high efficiency to solubilize TCP followed by *Bacillus* and *E.coli* on tested all parameters. Biofertilizer was developed and nursery experiments were conducted with paddy crop. Parameters such as Germination of seed, Color of the crop and Height were analyzed. Biofertilizer treated crop displayed comparatively good results with non treated and chemical fertilizer treated crop. In conclusion *Pseudomonas* and *Bacillus* strains showed good phosphate solubilisation and can be utilized in biofertilizers.

KEYWORDS: Phosphate solubilization, PVK broth, *Pseudomonas*, *Bacillus*

Validated Reverse Phase HPLC Method for the Determination of Acetic acid Content in Hard Gelatin Capsule Shells from animal origin

Vandana and Alok Kumar Chaudhary.....1058

ABSTRACT:

A simple, rapid, specific, accurate and economic reverse phase HPLC method was developed and validated for determination of acetic acid content in hard gelatin capsule shells from animal origin. Acetic acid is a commonly used excipient in gelatin processing technology. Being a Class III solvent as per ICH guidelines it has a permissible daily intake limit. A reverse-phase HPLC method was developed on a 250 mm x 4.0 mm, 5 μ m L1 column using UV detection at 205 nm. An *ortho*-phosphoric acid buffer pH 3.8 and Methanol were used as gradient components for elution. The proposed method was able to analyze acetic acid content directly without any reaction and was simple and sensitive.

KEYWORDS: Acetic acid, Gelatin shells, HPLC and Residual solvent.

Simultaneous Estimation of Nitazoxanide and Ofloxacin by RP-HPLC Method

Jayalakshmi B., Ramesh J., Navin Kumar M. and Vijayamirtharaj R.....1062

ABSTRACT:

The present paper deals with the development of RP-HPLC method for the determination of Nitazoxanide and Ofloxacin in bulk and in formulation using UV detector. Selected mobile phase was a combination of 0.005M tetra butyl ammonium hydrogen sulphate and acetonitrile in the ratio of 45:55 and the wavelength selected was 240nm. The flow rate 1.0ml / min, and the injection volume was 20 μ l. The separation was performed at ambient temperature. Retention time of Nitazoxanide and Ofloxacin was found to be 6.051 and 2.106. Linearity of the method was found to be 400 to 600 mcg/ml and 160 to 240 mcg/ml for Nitazoxanide and Ofloxacin respectively. Accuracy of the method was determined through recovery studies by adding known quantities of standard drug to the pre analyzed test solution and was found to be 99.08-99.81% and 100.18-100.65% for Nitazoxanide and Ofloxacin respectively. This method was validated according to ICH guidelines.

KEYWORDS: Nitazoxanide, Ofloxacin and RP-HPLC.

Synthesis of Thiophene Compounds of Pharmacological Interest

Hitesh K. Barot, Gali Vidyasagar, Sutariya Bhavin and Shah Jignesh.....1065

ABSTRACT:

An attempt was made to synthesize new substituted thiophenes as anti-inflammatory agent, adapting Gewald reaction. A new series of compounds were synthesized from 2-amino-N-(3-chloro-4-fluorophenyl)thiophene-3-carboxamide and the required aryl aldehydes to yield seven new Schiff bases. The structures of new compounds were established on the basis of spectral and elemental analysis. The title compound were screened for anti-inflammatory, anti-bacterial and anti-oxidant activity by serum albumin protein denaturation method, agar diffusion method and ferric ion reduction method respectively. Most of the compounds have shown promising activity.

KEYWORDS: Gewald reaction, thiophene, anti-inflammatory activity, anti-bacterial activity.

Simultaneous Estimation of Montelukast Sodium and Levocetirizine Hydrochloride by RP-HPLC Method

Ramesh J, Jayalakshmi B, Vijayamirtharaj R and Arul Prakasam K.C.....1069

ABSTRACT:

The present paper deals with the development of RP-HPLC method for the determination of montelukast sodium and levocetirizine hydrochloride in bulk and in formulation using UV detector. Selected mobile phase was a combination of acetonitrile, methanol, and water (40:40:20) and the wavelength selected was 232 nm. The flow rate was kept at 1ml/min, and the injection volume was 20µl. The separation was performed at ambient temperature. Retention time of montelukast sodium was 11.81 min and for levocetirizine hydrochloride was 6.01 min. Linearity of the method was found to be 0.030 to 0.060 mg / ml for montelukast sodium and 0.030 to 0.060 mg / ml for levocetirizine hydrochloride with the regression coefficient of 0.991 and 0.994 for montelukast sodium and levocetirizine hydrochloride respectively. This method was validated according to ICH guidelines.

KEYWORDS: Montelukast, Levocetirizine and RP-HPLC

Electrochemical Synthesis of Organozinc and Their Coordination Compounds

Harpreet Kaur, J.S. Banait and Baljit Singh.....1073*

ABSTRACT:

Organozinc and organozinc halides have been synthesized by electrolyzing the solutions of alkyl/aryl halides (cyclopentadiene, bromoethane, 1-bromopropane, 1-chlorobutane and chlorobenzene) in acetonitrile at sacrificial zinc anode. These organozinc halides do not form coordination compounds when refluxed with ligands such as 1,10-phenanthroline and 2,2'-bipyridyl. However, coordination compounds of these organozinc compounds have been synthesized by electrolyzing the solution of the above substrate in the presence of ligands in acetonitrile at sacrificial zinc anode. All these products have been characterized by infrared spectral data, elemental analysis and various physical properties. Current efficiencies of all these systems are quite high.

KEYWORDS: Electrosynthesis, H-type cell, organozinc halides, coordination compounds, current efficiencies.

Ultra-Violet Spectrophotometric Method for Estimation of Azelnidipine from Bulk Drug and Pharmaceutical Formulation

Rele R.V. and Patil S.P.....1077

ABSTRACT:

A simple, rapid sensitive and precise UV spectrophotometric method has been developed for the estimation of azelnidipine from bulk drug and pharmaceutical formulation. In this method azelnidipine showed maximum absorbance at about 254 nm in methanol. Beer's law was followed in the concentration range of 1 to 20 µg/ml. Regression equation was found to be $y = 0.0478x + 0.0013$ and coefficient of correlation was 0.9999. The proposed method is sensitive, accurate, reproducible and useful for the estimation of azelnidipine from bulk drug and pharmaceutical formulation.

KEYWORDS: Azelnidipine UV-spectrophotometer Methanol

Synthesis of Some Novel Substituted Isoxazoline Based Chalcones and Their *In-Vitro* Antimicrobial Activity
Beena K.P., Rajesh P. and Nathiya S......1080

ABSTRACT:

In the present communication, a series of some new isoxazoline based chalcones were prepared by the conventional Claisen-Schmidt condensation¹ method under mild reaction conditions. All the synthesized products were characterized by the spectroscopic and analytical measurements. Furthermore, all the synthesized compounds were screened for their antimicrobial activity.

KEYWORDS: Isoxazoline chalcones, synthesis, antimicrobial activity.

New Analytical Methods for the Assay of Flupentixol in Bulk Samples and Pharmaceutical Formulations
Saumindra P. Das, Pradyusa Samantray, Baidhar Sahoo and Swoyam P. Rout.....1083

ABSTRACT:

Novel visible spectrophotometric methods having better sensitivity, selectivity, precision and accuracy have been developed for the determination of Flupentixol (FLU), an antipsychotic drug by exploring its various analytically useful functional groups.

KEYWORDS: FLU, Spectrophotometric methods.

Estimation of Clopidogrel in Bulk and Pharmaceutical Formulations
Jane J, Jasminkumar M.V. and Prasanth D......1086

ABSTRACT:

Four simple, sensitive, rapid and accurate methods have been developed for the estimation of Clopidogrel in bulk and pharmaceutical dosage forms. Method I was a HPLC method involving an isocratic elution of Clopidogrel in a column of *Phenomenex C18*, 250 X 4.6, 5 μ , using a mobile phase composition of acetonitrile and ammonium acetate buffer (85:15, v/v). The flow rate was 1.0 ml/min and the analyte monitored at 223 nm. Method II was based on the simultaneous estimation of Clopidogrel and Aspirin developed by determining the isoabsorptive point of both drugs by UV Spectroscopic. Method III was a colorimetric method based on the formation of red colored complex between Clopidogrel and vanillin in presence of concentrated sulphuric acid, which showed absorption maxima at 517nm for the routine analysis. In UV method IV clopidogrel showed linearity between 5-40 μ g/ml at 235 nm. The proposed methods are optimized and validated as per the International Conference on Harmonization (ICH) guidelines.

KEYWORDS: Clopidogrel, HPLC, simultaneous UV, colorimetry

Stability Indicating Fast LC Method for the Estimation of Impurities in Cephalexin Oral Suspension
Paluru Rudra Mohan Reddy, J Sreeramulu, Petla Y. Naidu and A. Rajasekhara Reddy.....1090

ABSTRACT:

A fast, stability-indicating reversed phase liquid chromatographic method has been developed and subsequently validated for the estimation of impurities of Cephalexin. The developed method utilizes the chemistry of sub 2- μ m C-18 column and mobile phase consisting of Potassium dihydrogen phosphate buffer – acetonitrile with gradient elution, at a flow rate of 1.0 mL per minute. The detection was carried out at 254 nm. As there are no simple Fast LC methods reported for the estimation of Impurities/degradants of Cephalexin in Pharmaceutical formulations, the current method was developed and validated. The method was validated in terms of accuracy, precision, linearity, limit of detection, limit of quantification, ruggedness and robustness. This method has been successfully applied to pharmaceutical formulation and no interference from the excipients used the powder for suspension was found. As the proposed method could effectively separate the drug from its degradants/impurities, it can be employed as stability-indicating method for the determination of instability of the drug in bulk and pharmaceutical formulations.

KEYWORDS: Liquid chromatography; Drug product; Degradants; stability indicating;

Vitamin and Metal Analyses of Ethanol Extract of *Eugenia uniflora* Pulp.

Onwudiwe, N. N., Njoku, O. U. and Joshua, P. E.....1095

ABSTRACT:

Some antioxidant vitamins and metals were analysed using ethanol extract sample of *Eugenia uniflora* pulp. In the vitamin and metal analysis, *E. uniflora* fruit pulp had higher level of vitamin C compared with β -carotene and vitamin E. The results of the metal analysis also showed higher level of calcium compared with iron, magnesium, zinc and chromium.

KEYWORDS: *Eugenia uniflora*, Vitamin, Metal, Ethanol.

An improved synthesis of finasteride from 4-androsten-3,17-dione

Nguyen Hai Nam and Ngo Anh Ngoc.....1099

ABSTRACT:

An improved synthesis of 3-oxo-4-aza-5 α -androst-1-ene-17 β -(N-tert-butylcarboxamide), commonly known as finasteride (1), a drug widely used for the treatment of benign prostatic hyperplasia (BPH), has been implemented via seven steps in an overall yield of 20.01% starting from 4-androsten-3,17-dione (AD). Conditions of several steps have been improved to be less expensive and more commercially viable compared to reported synthesis in literature.

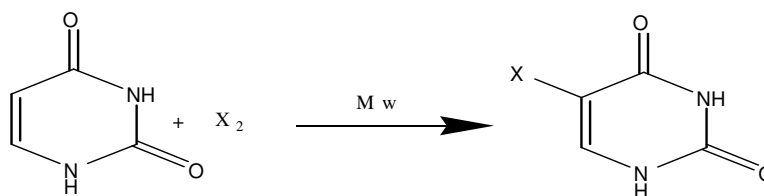
KEYWORDS: Finasteride, benign prostatic hyperplasia, androst-4-en-3,17-dione, synthesis.

Conventional and Microwave-assisted Synthesis of 5-Halogeno-(X) 2, 4-(1H, 3H) Pyrimidinedione and Their Biological Evaluation

Shahana Ehsan and Bushra Khan.....1103

ABSTRACT:

A series of 5-halogeno-substituted 2, 4-(1H, 3H)Pyrimidinedione compounds have been synthesized by an effective, rapid microwave assisted method. The structures of compounds have been elucidated with UV, FTIR, GC-Mass spectrometer, solubility and melting points of compounds were determined. The antibacterial, antifungal and antiviral screening against *B.subtilis*, *S.aureus*, *E.coli*, *A.nigar*, *A.flavus* and ND virus revealed their significant activities.



Where, X = F, Cl, Br, I

KEYWORDS: Pyrimidinedione, Halogenation, Superoxol, Microwave.

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