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Garlic, *Allium sativum* is among the oldest of all cultivated plants. It has been used as a medicinal agent for thousands of years. It is a remarkable plant, which has multiple beneficial effects such as antimicrobial, antithrombotic, hypolipidemic, antiarthritic, hypoglycemic and antitumoractivity, hypocholesterolaemic, antioxidant, pesticidal, antidepressant, neuroprotective, artery and heart protector, hair re-growth inducer, immune booster etc

**KEY WORDS:** Garlic, *Allium sativum*

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The analytical industry today is showing a serious shift in the paradigm worldwide with advancements in technological compatibility and integration. Traditional analytical approaches including HPLC (High-Performance Liquid Chromatograph), GC (Gas Chromatograph), UV (Ultraviolet) detection, etc., have become insufficient to effectively address the growing number of challenges in analyses of species- specificity and sensitivity. This has given rise to investigate and offer highly advanced hyphenated techniques that meet the needs of high-technology oriented applications. Hyphenation - linking together of "standard" analytical techniques - generally leads to enhanced analytical performance. The biggest advantage of hyphenated speciation techniques is the ability to detect species other than the pre-conceived compounds. The advancement of analytical techniques is thus bringing a new era of development which will serve as a rapid and unambiguous tool in the drug development process.

**KEY WORDS:** HTLC, OPLC, GC-MS, GC-IR, LC-MS, LC-MS/MS.

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**KEY WORDS:** Herbal abortifacients, Black Cohosh, Blue Cohosh, Penny Royal

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**KEY WORDS:** 2-aminobenzothiazole, mannich base, 1H-1,2,4-triazole, antimicrobial.

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**KEY WORDS:** Dye, Titanium oxide, Textile, Wastewater.

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**KEY WORDS:** Atomoxetine HCl, Spectrophotometry, Capsules, Method validation

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**KEY WORDS:** Antioxidant, PEGR (Phenolic Extract Ginger Rhizome), *Zingiber officinale* Roscoe.

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**KEY WORDS:** *Anacardium occidentale*, Diabetes, Alloxan.

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**KEY WORDS:** Reverse phase HPLC, Bumetanide, Forced degradation

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**KEY WORDS:** Cefditoren, resocinol, phloroglucinol, spectrophotometry

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**KEY WORDS:** Tranexamic acid, Ferric chloride, Potassium Ferricyanide, Spectrophotometric method

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**KEYWORDS:** Groundwater, P-hysicochemical parameters, Rajkot, India

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- **Selective Visible Spectrophotometric Estimation of Ambroxol Hydrochloride in Presence of Cetirizine Hydrochloride in Tablets.**  
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**KEY WORDS:** Ambroxol hydrochloride, Cetirizine hydrochloride, MBTH, Ferric nitrate.

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- **Development and Validation of RP-HPLC Method for Simultaneous Determination of Ceftriaxone Sodium and Sulbactam Sodium in Bulk and Pharmaceutical Formulation**  
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**KEY WORDS:** RP-HPLC, Ceftriaxone Sodium, Sulbactam sodium.

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**KEY WORDS:** Chalcones, pyrazolines, Heterocyclic compound, Anti-bacterial.

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Isatin (1H-indole-2, 3-Dione) is synthetically versatile molecule. **Erdman** and **Laurent** first obtained it in 1841 as a product from the oxidation of indigo by nitric acid and chromic acid. Isatin (Indole 2'3 dione), its 5-halo derivatives were reacted to form the Schiff's bases, Mannich bases and Friedal Craft Alkylation's to form C-C, C-N, C=N bonds. From the spectral studies it reveals that the isatin were undergoes reaction at C-3 and N-1 position. The structures of the synthesized derivatives were characterized from <sup>1</sup>H-NMR, IR spectral data and elemental analysis. The most of the compound synthesized were shown to possess biological activity.

**KEY WORDS:** Isatin, Schiff's Base, N-Benzoylation, Dimethyl formamide.

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**KEYWORDS:** Etoricoxib, Reverse phase HPLC, Tablets.

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*P.aeruginosa* using tetracycline as a standard. Antifungal activity of the compound has been studied against *C.albicans* and *A.niger* using clotrimazole as a standard. The synthesized compound has been found to possess significant antibacterial and antifungal activities as compared to the standard drugs used.

**KEY WORDS:** Amide derivative, PABA, Self-Polymerization, Antibacterial, Antifungal.

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- **Phytochemical Investigation and Preliminary Pharmacological Screening of *Alstonia Scholaris* R. Br. As An Antipyretic**

*Ulhas S Surwase, Gazi H Shaikh, Shivanand M Patil, Shivraj G Hunsnalkar and Rajesh Y Chaudhary.....304*

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**ABSTRACT**

*Alstonia scholaris* R.Br. is reported to possess anthelmintic, anti-inflammatory, antidote, antiulcers, antimicrobial activity, while anti-pyretic activity is still not scientifically investigated. The animals were fevered by injection of Brewers yeast suspension (10mg/kg) subcutaneously in the back below the nape of the neck. The petroleum ether, chloroform and methanolic extracts were fed to fevered rats. Methanolic extract showed significantly decrease in elevated temperature; while petroleum ether and chloroform extract did not show significant activity as compared to standard drug (Paracetamol) The methanolic extract was subjected to thin layer chromatography and to column chromatography to separate the constituents and the separated 4 constituents were subjected to evaluation of antipyretic activity. It was observed that constituent 1, 2 and 4 did not show significant decrease in elevated body temperature while constituent 3 significantly reduced elevated body temperature as compared to standard drug.

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- **HPTLC estimation of Paracetamol, Diclofenac Sodium and Chlorzoxazone in Tablet dosage form**

*Smita J Pawar, Amol P Kale, Manoj P Amrutkar, Jyotsna J Jagade, Nikhil S Pore and Ashok V Bhosale.....306*

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**ABSTRACT**

A simple, rapid, reliable and accurate HPTLC method has been developed for the quantitative determination of Paracetamol, Diclofenac Sodium and Chlorzoxazone in tablets. The drugs were extracted from (CIP-ZOX). Various aliquots of this sample solution were spotted automatically by means of Camag (Muttens; Switzerland) Linomat V sample applicator on Merck HPTLC plates (0.2mm thickness) precoated with silica gel 60 F<sub>254</sub> on aluminium sheet as stationary phase prewashed with methanol using Chloroform: Methanol: Ammonia (20:5:0.2v/v/v) as mobile phase. The spots were scanned at  $\lambda=254\text{nm}$  using Camag TLC scanner 3. The R<sub>f</sub> values of Paracetamol, Diclofenac Sodium and Chlorzoxazone were found to be 0.53, 0.27, and 0.68 respectively. Calibration curves were linear in range of 1000-5000ng per spot. The limit of detection (LOD) and quantitation (LOQ) for Paracetamol, Diclofenac sodium and Chlorzoxazone were found to be 100, 100, 500 and 300, 300, 1500ng per spot respectively. The suitability of this method for quantitative determination of compounds was proved by validation in accordance with requirements of pharmaceutical regulatory standards. The proposed method is valid, simple, sensitive and accurate. Therefore this method can be applied for routine analysis of these drugs in tablet formulation.

**KEY WORDS:** Paracetamol, Diclofenac sodium, Chlorzoxazone, HPTLC, Pharmaceutical dosage form

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- **Synthesis and Evaluation of Some New Substituted 1, 4-Dihydropyridine Derivatives and Their Anti-inflammatory Activity**

*SR Pattan, NS Dighe, SV Hiremath, AN Merkar, VM Gaware, DS Musmade and PM Gaikwad.....310*

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**ABSTRACT** A new series of substituted 1, 4-Dihydropyridine derivatives were synthesized and the structures of these compounds were established on the basis of spectral and elemental analysis. All the compounds were evaluated for anti-inflammatory activity by paw edema, xylene induced ear edema and cotton wool granuloma methods. Compounds C<sub>4</sub>, C<sub>5</sub>, C<sub>6</sub>, C<sub>7</sub> and C<sub>9</sub> have been found to exhibit excellent anti-inflammatory activity.

**KEYWORDS:** 1, 4-Dihydropyridine, anti-inflammatory, CHN analysis

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- Validated HPTLC Method for the Quantitation of Andrographolide from Raw Material and Pharmaceutical Dosage Form

Bhope S.G., Kuber V.V., Patil M.J., Ghosh V.K.....314

**ABSTRACT**

This paper describes a new, simple, precise, and accurate HPTLC method for quantitation of andrographolide in kalmegh extract and its pharmaceutical dosage form. Chromatographic separation of the drugs was performed on aluminum plates precoated with silica gel 60 F254 as the stationary phase and the solvent system consisted of toluene: ethyl acetate: formic acid : methanol 50:30:05:2.5 (v/v/v/v). Densitometric evaluation of the separated zones was performed at 226 nm. The andrographolide was satisfactorily resolved with  $R_F$  values of  $0.34 \pm 0.03$  in both plant extract and pharmaceutical dosage form. The accuracy and reliability of the method was assessed by evaluation of linearity (100–800 ng spot<sup>-1</sup>), precision (method precision RSD 1.52% and system precision RSD 1.38%), accuracy ( $97.34 \pm 1.47$ ) and specificity in accordance with ICH guidelines.

**KEY WORDS:** High Performance Thin Layer Chromatography, Andrographolide, Validation, *Andrographis paniculata*.

- Analgesic and Anti-Oxidant Activities of Certain (E)-3 Arylidene Flavanones Synthesized by One Pot Method

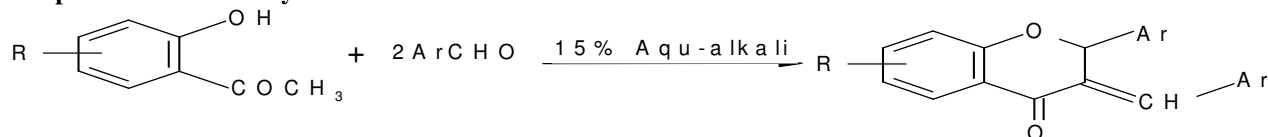
Lincy Joseph and Mathew George.....318

**ABSTRACT**

Objective of the study was to synthesize (E)-3-arylidene flavanones by one pot method and to screen synthesized compounds for their analgesic and anti-oxidant activities.

A set of four (E)-3 arylidene flavanones were synthesized by simple base catalysed condensation of appropriate aryl aldehydes and 2'-hydroxy acetophenone. Analgesic activity screened by hot plate method and anti-oxidant activity evaluated by spectrophotometrically using 2,2-diphenyl-1-picrylhydrazyl (DPPH).

Results indicated that only compound I,II, and III were showed remarkable analgesic activity while compound IV didn't exhibited analgesic activity at all, but compound IV exhibited maximum anti-oxidant activity. Due to structural similarity with those of natural flavanones, all the synthesized compounds were expected to exhibit analgesic activity, but only three were found to exhibit analgesic action. But all exhibited anti-oxidant activity.

**Graphical Abstract of Synthesis:**

**KEY WORDS:** 2'-hydroxy acetophenone, Aromatic aldehyde, Curcumin, Analgesic, anti-oxidant.

- New Method for Spectrophotometric Estimation of New Anti Epileptic Drugs in Solid Dosage Form

MOHAN A and GHOSH SK.....322

**ABSTRACT**

The present paper describes a simple, sensitive, accurate and reproducible method for spectrophotometric estimation of some new antiepileptic drugs like Oxcarbazepine and Lamotrigine in bulk and solid dosage forms. Oxcarbazepine and Lamotrigine are antiepileptic and mood stabilizing drugs used primarily in the treatment of epilepsy and bipolar disorder. Oxcarbazepine is a structural derivative of Carbamazepine, adding extra oxygen to the dibenzepine ring whereas Lamotrigine is a diamine with dichlorodiphenyl groups. A visible double beam spectrophotometer with a

matched pair of 1 centimeter quartz cell was used for experimental purposes and analytical reagent grade acetonitrile in distilled water was used as a solvent. Oxcarbazepine showed maximum absorbance at a wavelength of 257 nm and obeyed Beer's law in the concentration range of 2-50 mcg/ml. Previously reported spectrophotometric method as observed in literature survey gives a method based on the formation of a coloured complex. The present communication, a simple spectrophotometric method is developed for the estimation of Oxcarbazepine in its solid dosage form using distilled water as a solvent.

Lamotrigine showed maximum absorbance at a wavelength of 304 nm and obeyed Beer's law in the concentration range of 10-50 mcg/ml. Previously reported spectrophotometric method as observed in literature survey gives a method which uses methanol as a solvent which might not be suitable for oral dosage form. The present communication using distilled water as a solvent is therefore more convenient, accurate and reproducible.

The results of the analysis were validated statistically and by recovery studies.

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- **Dissolution Enhancement of Ezetimibe by Solid Dispersion**  
*Aaisha N Sagri, Rukhsana A Rub, Anita S Kulkarni, Indrajeet Gonjari Dhananjay S Saindane and Umair I Shaikh*.....325
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#### ABSTRACT

The aim of this study was to increase the aqueous solubility of Ezetimibe (EZE) by solid dispersions with polyethylene glycol 6000 (PEG 6000) and polyvinylpyrrolidone K-30 (PVP K30). Amorphous solid dispersions were prepared by freeze drying technique. The interaction of EZE with the hydrophilic polymers was evaluated by differential scanning calorimetry (DSC), powder x-ray diffractometry (PXRD) Fourier transformation-infrared spectroscopy (FTIR), Scanning electron microscopy (SEM). PXRD and DSC analysis confirmed the amorphous state of freeze dried formulations with respect to the plain drug. The influence of type of polymer, the ratio of drug to polymer on the solubility and dissolution rate of the drug were also evaluated. The solubility and dissolution rates of EZE were significantly increased by solid dispersions as well as their physical mixtures. The improvement of solubility using polymers was in the following order: PVP K30 > PEG 6000.

**KEY WORDS:** Ezetimibe; PEG -6000; PVP K-30; Solid dispersion.

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- **Chances of Reduction in Cardiovascular Risk by Arjunarishta in Induced Diabetic Conditions**  
*Tiwari Preeti and Patel RK*.....332
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The objective of the study was to evaluate the chances of reduction in cardiovascular risk factors associated with diabetic conditions. Both type of Arjunarishta-T and Arjunarishta-M, were prepared by traditional and modern methods, respectively, and evaluated on fasting blood sugar, blood glutathione levels and serum biochemical parameters in alloxan induced diabetes. Both the Arjunarishta preparations were able to maintain the tested parameters near to normal level significantly.

**KEY WORDS:** Cardiovascular risk, Antidiabetic, Arjunarishta, Glutathione.

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- **Simultaneous Spectrophotometric Estimation of Levofloxacin Hemihydrate and Ornidazole in Pharmaceutical Tablet Dosage Form**  
*SS Merukar, PS Mhaskar, SR Bavaskar, KB Burade and PN Dhabale.....336*

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#### ABSTRACT

Two sensitive, simple, rapid, accurate and precise methods for simultaneous estimation of Levofloxacin hemihydrate (LEVO) and Ornidazole (ONZ) in two component solid dosage forms have been developed. The methods employ the application of simultaneous equation and the absorbance ratio (Q-analysis). All these methods utilize 0.1M HCl as a solvent. LEVO shows maximum absorbance at a wavelength of 293 nm and ONZ at 277 nm, where the linearity ranges for LEVO and ONZ were 2-14 µg/ml and 4-36 µg/ml, respectively. Determination of ratio of absorbance at 293 nm. The maximum absorption of LEVO and isobestic wavelength 270 nm, the linearity ranges for LEVO and ONZ were 2-20 µg/ml and 4-40 µg/ml, respectively. The procedures were successfully applied for the simultaneous determination of both drugs in laboratory prepared mixtures and in commercial tablet preparation. The accuracy of the methods was assessed by recovery studies and was found to be 99.73% ± 0.0050 and 99.09% ± 0.0191 for LEVO and ONZ respectively by the simultaneous equation method, and 99.72% ± 0.0166 and 99.67% ± 0.00626 for LEVO and ONZ respectively the graphical absorbance ratio method.

**KEYWORDS:** Combined tablet dosage form, Levofloxacin hemihydrate, Ornidazole, Simultaneous estimation.

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- **Comparative Estimation of Curcumin Content from Marketed Herbal Anti Rheumatic Tablets Formulation**  
*MD Wandhare, UA Deokate, SS Khadabadi, SP Hadke and HA Sawarkar.....340*

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#### ABSTRACT

A rapid and sensitive high-performance thin-layer chromatographic (HPLC) method was developed and validated for the quantitative estimation of Curcumin in formulation containing Curcuma longa extracts. Simple extraction method was used for isolation of curcumin from formulation sample. The isolated samples were chromatographed by using RP-HPLC Method on HiQ Sil C18 W 4.6 mm × 250 mm i.d. column and detected by UV at 420 nm. The linearity range for Curcumin was 0.4-2.4 mcg/ml with average recovery of 97.57 ± 0.5137. The limit of detection and limit of quantification was found to be 3.0196 and 9.1503 for curcumin respectively. The developed method was successfully applied for the assay of market formulations containing Curcuma longa extracts.

**KEYWORDS:** RP-HPLC, Curcuma longa extracts, Curcumin.

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- **Active Principles Determination by GC/MS in Delonix Elata and Clerodendrum Phlomidis**  
*D Kilimozhi, V Parthasarathy and R Manavalan.....344*

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#### ABSTRACT

The present work was carried out to analyse the active constituents present in the ethanolic extract of *Delonix elata* (L.) Gamble (Family: Caesalpinaceae) and *Clerodendrum phlomidis* L. (Family: Verbenaceae) by using gas chromatography-mass spectrometry (GC-MS). Thirty two compounds were identified in ethanolic extract of *Delonix elata* and twenty three compounds were identified in ethanolic extract of *Clerodendrum phlomidis*. The prevailing compound in *Delonix elata* was identified as Hexadecenoic acid, Z-11- (22.37%) and the prevailing compound in *Clerodendrum phlomidis* was identified as n-Hexadecanoic acid (28.7%). The identity and quantity of the measured active principles was correlated with the therapeutic effects of the studied herbs.

**KEYWORDS:** *Delonix elata*, *Clerodendrum phlomidis*, GC-MS, Hexadecenoic acid, Z-11-, n-Hexadecanoic acid.

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- **Synthesis and In Vitro Antibacterial Activity Studies of Some Substituted Aryloxy-4-Thiazolidinones**  
*T Srinivas rao, BS Vikram and HG Akamma.....349*

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**ABSTRACT**

The results have shown that the Aryloxy-4-thiazolidinone derivatives are found to be effective anti-bacterial agents. The synthesized compounds were elucidated by spectral data. By analysis of IR, NMR and MASS spectral data the compounds reveals the successful information of Aryloxy-4-thiazolidinone derivatives. The synthesized compounds were screened for their anti-bacterial activities by using standard as ampicilin and are found to be effective chemotherapeutic agent. The synthesis of Thiazolidinones by the described methods resulted in the products with good yield.

**KEYWORDS:** Aryl oxy ethyl acetate, Schiff bases, Aryl oxy acethydrazide, ethyl chloroacetate, phenol.

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- **Simultaneous Spectrophotometric Estimation of Rosiglitazone Maleate and Gliclazide in Pharmaceutical Tablet Dosage Form**  
*VK Goyal, AS Kulkarni and PN Dhabale.....353*

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**ABSTRACT**

Two sensitive, simple, rapid, accurate and precise UV spectrophotometric methods for simultaneous estimation of Rosiglitazone Maleate (RSGN) and Gliclazide (GLZ) in two component solid dosage forms have been developed. These methods employ the application of simultaneous equation and the absorbance ratio (Q-analysis). A Shimadzu 1700 U.V visible spectrophotometer with 1cm matched quartz cells, and 0.1 N NaOH as solvent were employed in the both methods. Simultaneous equation method involves the formation and solving of simultaneous equations at two wavelengths 245 nm ( $\lambda_{\max}$  of RSGN) and 226 nm ( $\lambda_{\max}$  of GLZ). Q analysis method is based on the determination of absorbance ratio at two selected wavelengths, one being the isoabsorptive point for the two drugs (235 nm) and other being the absorption maxima of RSGN. Both developed methods obeyed the Beer's law in the concentration range of 4-32  $\mu\text{g/ml}$  for RSGN and 5-40  $\mu\text{g/ml}$  for GLZ. The precision and accuracy of method were confirmed by repeatability and by recovery studies. Both methods were validated statistically. The method shows good repeatability and recovery with % RSD is less than 2. The method can be successfully employed for the simultaneous estimation of RSGN and GLZ in laboratory prepared mixtures and in commercial tablet preparation

**KEYWORDS:** Rosiglitzone, Gliclazide, U.V., Simultaneous estimation.

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- **Microwave Assisted Synthesis and Antibacterial Activity of Some Bicyclic Pyrrolidines**  
*M. Srinivas, Y. Rajendra Prasad and S. Chandrashekarana .....357*

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**ABSTRACT**

An improved method for the synthesis of bicyclic pyrrolidines utilizing microwave-assisted synthesis is described. The synthesis involves microwave irradiation of an amine, aldehyde and maleimide in one pot fashion to give the desired product. The synthesized compounds were evaluated for their antibacterial activity against ciprofloxacin.

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