3.4.3 Research Papers Published

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Journal of Chemical and Pharmaceutical Research, 2017, 9(5):340-347

Research Article

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Synthesis Characterization and Biological Evaluation of Some Novel Schiff's Base and Amine Derivatives of Pyrazole

Nilesh M Thumar, Ankur A Kaneria, Milan Vadodaria and Kartik Ladva*

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ABSTRACT

A novel series of Schiff's base and amine derivatives of 5-amino-3-(methylthio)-N-(4-(3-oxomorpholino)phenyl)-1H-pyrazole-4-carboxamide have been synthesized by using different aromatic aldehydes and followed by reduction of Schiff's base with sodium borohydride in very good yield. The structures of the synthesized compounds have been characterized by using IR, ^1H NMR and Mass spectroscopy. All the prepared new NCEs were screened for anti-microbial activity and anti-fungal activity.

Keywords: Pyrazole; Schiff's base; Amine derivatives; Imine derivatives; Carboxamide derivatives; Antimicrobial activity

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Research Article

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Synthesis, Characterisation and Antimicrobial Activity Studies of Some New N-Substituted Piperidine Derivatives of 2-(4-chloro-4-(4 chlorophenyl)) Piperidine

AA Kaneria*, NM Thumar, KD Ladva and MS Vadodaria

Chemical Research Laboratory, Shree M&N Virani Science College, Rajkot, Gujarat, India

ABSTRACT

An efficient and convenient procedure has been developed for the synthesis of some new N-substituted piperidine derivatives like 2-((4-chloro-4-(4-chlorophenyl)piperidin-1-yl)(2-chlorophenyl)methyl)-5-aryl-1,3,4-oxadiazoles 5a-j and N'-arylidene-2-(2-chlorophenyl)-2-(4-(4-chlorophenyl)- 4-hydroxypiperidin-1-yl) acetohydrazides 6a-j. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: Piperidine; Oxadiazole; Acetohydrazide; Antimicrobial activity

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CORRELATION STUDY BETWEEN STRUCTURE AND ANTIBACTERIAL ACTIVITY OF SUBSTITUTED 1, 3, 4-OXADIAZOLE COMPOUNDS

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[3]M. D. Science College, Porbandar, (India).
[4]Alembic Pharmaceuticals Ltd., Baroda, (India).
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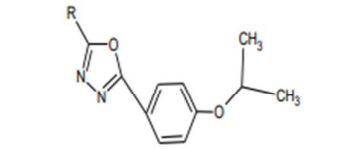
ABSTRACT

Correlation study between activity data of substituted 1, 3, 4-oxadiazole compounds and their structural property data set has been carried out with stepwise regression analysis (regression analysis estimates the relationships among variables through a statistical process). Repeated activity data has been eliminated wherever was possible, and finally it became possible to find out good correlation between activity data and physical descriptors depends on structure e.g. Heat of formation, Torsion energy, and LUMO[1], which is presented as QSAR equation $Y = 78.05 + 1035.59 * X_1 + 0.9949 * X_2 + 297.7474 * X_3$.

Keywords: 1, 3, 4-oxadiazole compounds, QSAR studies, physical descriptors, antibacterial activity data, regression analysis.

INTRODUCTION

In current era mankind are struggling to fight against new challenges in form of stubborn diseases like cancer, aids, liver cirrhosis ect. To overcome such challenges obviously it is require for chemists, pharmacists and scientists to go through number of aggressive chemical processes. QSAR studies helps to design novel drugs with improved biological activities with diminishing side-effects. QSAR technique is very useful to correlate the activity data and structure of the compounds through their physical properties. From liable QSAR equation



2-(4-ISOPROPOXYPHENYL)-5-(ARYL)-1,3,4-OXADIAZOLE
(SERIES CODE:- JJTABLE 2)

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ISSN: 2278-1862

Journal of Applicable Chemistry
2017, 6 (5): 983-990
(International Peer Reviewed Journal)

Synthesis, Characterization and Biological Evaluation of Novel Sulfonamides Containing N-((1-Alkyl-5-(Substituted Phenyl)-1*H*-Benzo[D]Imidazol-2-Yl) Methyl) Substituted Aryl/Alkyl Sulfonamide Derivatives

Naresh Kachhadiya, Kalpesh Menpara, Dharmesh Pansuriya, Jignesh Menpara and Kartik Ladva*

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ABSTRACT

A series of novel N-((1-alkyl-5-(substituted phenyl)-1H-benzo[d]imidazol-2-yl) methyl) substituted aryl/alkyl sulfonamide derivatives were synthesized for evaluation of their antimicrobial activity. The newly synthesized compounds were characterized by spectroscopic studies such as 1H NMR, Mass spectroscopy. All the synthesized compounds were screened for their in vitro antimicrobial activity. Some of the compounds showed good biological activity.

Keywords: Antimicrobial activity, 1-ethyl-5-(4-fluorophenyl)-1H-benzo[d]imidazol-2-yl) methanamine.

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Journal of Applicable Chemistry
2017, 6 (5): 896-903
(International Peer Reviewed Journal)

Synthesis, Characterization and Biological Evaluation of N-((1-ethyl-5-(substituted phenyl)-1H-indol-3-yl) methyl) Substituted Alkyl/Aryl Carboxamides Derivatives

Naresh Kachhadiya, Kalpesh Menpara, Dharmesh Pansuriya, Jignesh Menpara and Kartik Ladva*

*Chemical Research Laboratory, Shree M.&N Virani Science College, Saurashtra University, Rajkot, INDIA

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Accepted on 21st September 2017, Published online on 27th September 2017

ABSTRACT

A series of novel N-((1-ethyl-5-(substituted phenyl)-1H-indol-3-yl) methyl) substituted alkyl/aryl carboxamide derivatives were synthesized for evaluation of their antimicrobial activity. The newly synthesized compounds were characterized by spectroscopic studies such as 1H NMR, Mass spectroscopy. All the synthesized compounds were screened for their in vitro antimicrobial activity. Some of the compounds showed good biological activity.

Keywords: Antimicrobial activity, (1-ethyl-5-(substituted phenyl)-1*H*-indol-3-yl) methanamine.

INTRODUCTION

Indole has a benzene ring and pyrrole ring sharing one double bond. It is a heterocyclic system with 10 electrons from four double bonds and the lone pair from the nitrogen atom. Indole is an important

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ABSTRACT

A novel series of Schiff's base and amine derivatives of 5-amino-3-(methylthio)-N-(4-(3-oxomorpholino)phenyl)-1H-pyrazole-4-carboxamide have been synthesized by using different aromatic aldehydes and followed by reduction of Schiff's base with sodium borohydride in very good yield. The structures of the synthesized compounds have been characterized by using IR, ^1H NMR and Mass spectroscopy. All the prepared new NCEs were screened for anti-microbial activity and anti-fungal activity.

Keywords: Pyrazole; Schiff's base; Amine derivatives; Imine derivatives; Carboxamide derivatives; Antimicrobial activity

INTRODUCTION

Increasing resistance of microorganisms to currently available antimicrobial drugs is the major cause of morbidity and mortality throughout the world. Thus development of novel antimicrobial drugs is still in demand. The carboxamide derivatives of pyrazole are important biologically active heterocyclic compounds [1]. The compounds carrying Amino [–C–NH–] functional group and azomethine functional group –C=N– which are known as Amines and Schiff's bases respectively have gained importance in medicinal and pharmaceutical fields due to the most versatile organic synthetic intermediates and also showing a broad range of biological activities [2]. Pyrazole

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Research Article

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AA Kaneria*, NM Thumar, KD Ladva and MS Vadodaria

Chemical Research Laboratory, Shree M&N Virani Science College, Rajkot, Gujarat, India

ABSTRACT

An efficient and convenient procedure has been developed for the synthesis of some new N-substituted piperidine derivatives like 2-((4-chloro-4-(4-chlorophenyl)piperidin-1-yl)(2-chlorophenyl)methyl)-5-aryl-1,3,4-oxadiazoles 5a-j and N'-arylidene-2-(2-chlorophenyl)-2-(4-(4-chlorophenyl)- 4-hydroxypiperidin-1-yl) acetohydrazides 6a-j. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: Piperidine; Oxadiazole; Acetohydrazide; Antimicrobial activity

INTRODUCTION

In recent years research is concern on nitrogen containing heterocyclic compounds and their pharmaceutical importance [1,2]. Piperidine is a six membered heterocyclic compound containing five carbon and one nitrogen atom. The chemical nature of Piperidine is basic. The piperidine ring exhibits excellent structural attribute of many alkaloid, natural products and drug product [3]. Watson et al. reported that there were thousands of piperidine compounds mentioned in clinical and preclinical studies during a recent 10 year period [4]. Many of drugs having piperidine nucleus used as different therapeutic agents in recent scenario. Peroxitine (1) as antidepressant [5,6], methylphenidate (2), ethylphenidate (3) [7], pipradrol (4), desoxypipradrol (5) [8] as analeptics/nootropics (Stimulants) raloxifene (6) as SERM (selective estrogen receptor modulators) [9], minoxidil (7) as vasodilators [10]

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CORRELATION STUDY BETWEEN STRUCTURE AND ANTIBACTERIAL ACTIVITY OF SUBSTITUTED 1, 3, 4-OXADIAZOLE COMPOUNDS

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[1]Kamani Sc. and Prataprai Arts College, Amreli, Gujarat, (India).
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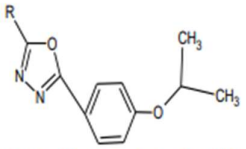
ABSTRACT

Correlation study between activity data of substituted 1, 3, 4-oxadiazole compounds and their structural property data set has been carried out with stepwise regression analysis (regression analysis estimates the relationships among variables through a statistical process). Repeated activity data has been eliminated wherever was possible, and finally it became possible to find out good correlation between activity data and physical descriptors depends on structure e.g. Heat of formation, Torsion energy, and LUMO[11], which is presented as QSAR equation $Y = 78.05 + 1035.59 * X_1 + 0.9949 * X_2 + 297.7474 * X_3$.

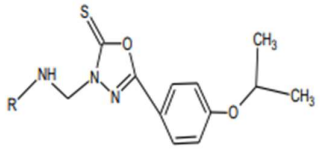
Keywords: 1, 3, 4-oxadiazole compounds, QSAR studies, physical descriptors, antibacterial activity data, regression analysis.

INTRODUCTION

In current era mankind are struggling to fight against new challenges in form of stubborn diseases like cancer, aids, liver cirrhosis ect. To overcome such challenges obviously it is require for chemists, pharmacists and scientists to go through number of aggressive chemical processes. QSAR studies helps to design novel drugs with improved biological activities with diminishing side-effects. QSAR technique is very useful to correlate the activity data and structure of the compounds through their physical properties. From liable QSAR equation one can predict activity of designed compound to be synthesized. With the help of such type of study we can avoid unnecessary labour, waste of chemicals, time, etc. Thus, this field supports the research in the era of "GREEN CHEMISTRY".



2-(4-ISOPROPOXYPHENYL)-5-(ARYL)-1,3,4-OXADIAZOLE
(SERIES CODE:- JJTABLE 2)



2-(4-ISOPROPOXYPHENYL)-3-N-(ARYL) AMINO METHYL-1,3,4-OXADIAZOLE-5(4H)-THIONE
(SERIES CODE:- JJTABLE 3)

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor:6.887
Volume 5 Issue XI November 2017- Available at www.ijraset.com

Synthesis of Some New 2-Amino/Methoxy-4-(3-Methoxy-4-((3-Methyl-4-(2,2,2-Trifluoroethoxy) Pyridin-2-Yl) Methoxy) Phenyl)-6-Arylnicotinonitrile Derivative and Its Biological Activity

Piyush A. Patel[1], Sandip P. Kakadiya[2], Vijay N. Bhadani[3], Heta D. Purohit[4], Parth V. Bhatt[5], Dipak M. Purohit[6]
[1,2,3,4,5,6]*Shree M. & N. Virani Science College, Saurastra University, Rajkot-360 005, India*

Abstract: ***A series of novel 2-Amino-3-cyanopyridine derivatives 2a-l and 2-Methoy-3-cyanopyridine derivatives 3a-l have been synthesized as potential antibacterial agents. The 2-Amino-3-cyanopyridine derivatives 2a-l have been synthesized by reaction of various Chalcones 1a-l with malononitrile and ammonium acetate in Ethanol. The 2-Methoy-3-cyanopyridine 3a-l were prepared by the reaction of Chalcone with malononitrile and sodium methoxide in Methanol. The structures of the new compounds were established on the basis of ^{1}H-NMR, Mass, IR and elemental analysis data. All the newly synthesized compounds were screened for their antibacterial activity against E. coli, S. thyphi (Gram-negative bacteria), S. aureus, M. luteus (Gram-positive bacteria) and antifungal activity against Candida albicans (Fungi).***

Keywords : 2-Amino-3-cyanopyridine, 2-Methoy-3-cyanopyridine, Antimicrobial activity.

I. INTRODUCTION

Heterocyclic rings containing nitrogen atom plays important roles as the scaffolds of bioactive substances.[1] The pyridine moiety is of great importance to chemists and biologists as it is found in a large variety of naturally occurring compounds, pharmaceuticals and functional materials [2]. Substituted 3-Cyanopyridines were found to have anti-tubercular [3], antimicrobial [4], anticancer [5], A2A adenosine receptor antagonist [6], anti-inflammatory [7], antihistaminic [8]. The importance of cyanopyridines in organic synthesis has increased over the past few decades because they are among the most versatile organic synthetic intermediates [9,10]. As a result, several methods describing the synthesis of functionalized pyridines are available in the literature [11,12].

Recently, vanillin containing aryl substitution reported as anticancer [13], antimitotic and apoptotic [14] and antimalarial [15] activities. Considering importance of vanillin and 3-cyanopyridines in medicinal chemistry, we prompted to incorporate these moieties in ongoing research program [16]. In this article, we have reported synthesis of 2-Amino-3-cyanopyridine **2a-l** and 2-Methoxy-3-cyanopyridine derivatives 3a-l and study of biological activities.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
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An Efficient and Facile Synthesis of 4-Aryl-2-Hydroxy-6-{[(3′-Difluoromethoxy)-5′-(3″-Methyl)-4″-(2‴, 2‴, 2‴-Trifluoroethoxy) Pyridin-2″-Yl] Methoxyphenyl}-1-6-Dihy Dropyrimidines.

Sandip P. Kakadiya[1], Heta D. Purohit[2], Nutan B. Vekariya[3], Piyush A. Patel[4], Asha K. Joshi[5], Dipak M. Purohit[6]
[1, 2, 3, 4, 5, 6] *Shree M.& N. Virani Science College, Chemistry Department, Kalawad Road,Rajkot-5,Gujarat,(INDIA)*

Abstract: ***Pyrimidine (1:3 Diazine) derivatives showed good biological and therapeutic activities, with a view of getting to synthesized 4-aryl-2-hydroxy-6-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2"-yl]methoxyphenyl}-1-6-dihydropyrimidines (3a-3k) by the cyclo condensation of (E)-3-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridine-2-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones with urea in presence of alcoholic KOH. All Synthesized compounds characterized by TLC, IR, [1]HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria (B.mega,B.Subtillis), Gram -ve bacteria(E.coli,P.fluorescens) and fungi (A.awamori).***

Keywords: ***4-Aryl-2-hydroxy-6-{[(3'-difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2"-yl]methoxyphenyl}-1,6-dihydropyrimidines,(E)-3-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy) pyridin-2"-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones,Aromatic Ketone,Urea(Heterocyclic Compounds)***

I. INTRODUCTION

A large number of substituted pyrimidine derivatives showed of biological and pharmacological activities such as, Antitubercular[1], Antidiabetic[2], Anticonvulsant[3] ,Fungicidal [4,] Insecticidal[5], Analgestic[6], Tranquilizing [7],Antibacterial [8],Diuretic[9]and Antihypertensive[10] etc. In view of getting to synthesized (3a-3k) pyrimidine derivatives.

Pyrimidine derivatives which occurs in natural products[11]. Like nucleic acid,vitamin-B and having remarkable pharmaceutical importance because of their broad spectrum of biological activities. Several analogues of nucleic acid have been used as a compound that interferes with the synthesis and function of nucleic acids, an example is fluorouracil which has been used in cancer treatment. Pyrimidine's are among those molecules that make like possible as being some of the building blockers of DNA and RNA.

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CODEN: HLEEAI
http://heteroletters.org

AN EFFICIENT AND FACILE SYNTHESIS OF 2-AMINO-4-ARYL-6-{[(3′-DIFLUOROMETHOXY)-5′-(3″-METHYL) -4″-(2‴,2‴,2‴-TRIFLUOROETHOXY)PYRIDIN-2″-YL]METHOXYPHENYL}-1-6-DIHYDROPYRIMIDINES AND ITS ANTIMICROBIAL EVALUATION

Sandip P. Kakadiya, DipakM.Purohit*

**Shree M.& N. Virani Science College, Chemistry Department, Kalawad Road,Rajkot-5,Gujarat,(INDIA)*
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(2) sandip.k.msc@gmail.com

ABSTRACT: Pyrimidine derivatives gave good biological activity and therapeutic activities, With a view of getting to synthesized 2-Amino-4-aryl-6-{[(3′-Difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-1-6-dihydropyrimidines(3a-3k) by the condensation of (E)-3-{[(3′-Difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones with guanidine hydro chloride in presence of alcoholic KOH. All Synthesized compounds characterized by TLC, IR, ^{1}HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria *(B.mega,B.Subtillis)*Gram –ve bacteria *(E.coli,P.fluorescens)* and fungi *(A.awamori)*.

KEYWORDS:
2-Amino-4-aryl-6-{[(3′-Difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-1-6-dihydropyrimidines,(E)-3-{[(3′-Difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones.

INTRODUCTION: Pyrimidine derivatives shows good biological and therapeutic activities such as Antitubercular[i],Antidiabetic[ii],Anticonvulsant[iii],Fungicidal[iv],Insecticidal[v], Analgestic[vi],


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Science [Chemistry]
Research Zone India
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ISSN 2319 - 8168

Synthesis and Biological evaluation of (z)-1"-[4'(DIBENZO[b,f][1,4] THIAZEPIN-11YL)AMINOPHENYL]-3"-ARYL-2-ENE-1"-ONES.

Abstract: Much interest has been focused on the synthesis of chalcones and it is a good synthon for various heterocyclic rings, with a view to synthesized compounds having better activity of 1"-[4'-(dibenzo[b,f][1,4]thiazepin-11-yl)amino phenyl]-3"-aryl-2-ene-1"-ones have been synthesized by the condensation of 4'-acetyl phenyl (dibenzo[b,f][1,4]thiazepine-11-yl)amine with aromatic aldehyde in presence of alkali. The latter was 4-acetylphenyl(dibenzo[b,f][1,4] thiazepine-11- yl) amine have been synthesized by the condensation of 11- chlorodibenzo[b,f][1,4] thiazepine with 4-aminoacetophenone. Synthesized compounds were characterized by elemental analysis such as 1H NMR, Mass and IR spectral study. Synthesized compounds were screened for their antimicrobial activity at 50 µg/ml concentration by cup-plate method.[1,2]

Keywords:Chalcones, Anti-microbial activity

Introduction:

The chemistry of chalcones have generated intensive scientific studies throughout the world especially interesting are their biological and industrial applications. Chalcones are coloured compounds because of the presence of the chromophore, auxochromes. They are known as benzalacetophenones or benzylidenes. S.V. Kostanecki and J.Tambor[3] gave the name chalcone. Chalcones gave insecticidal[4,5], anti-ulcer[6], anti-inflammatory[7-8], bactericidal[9-10], fungicidal[11-12], Anthelmintics[13], etc. activities.

Experimental:

Preparation of (z) 1"-[4'-(dibenzo [b,f][1,4]thiazepin-11-yl)amino phenyl]-3"- aryl-2-ene-1"-one:

Step-I: Synthesis of 4'-acetylphenyl (dibenzo[b,f][1,4] thiazepine-11-yl) amine.

A mixture of 11-chlorodibenzo[b,f][1,4] thiazepine (2.45g, 0.01M) 4-amino acetophenone (1.35g,0.01M)in methanol (25ml) and pyridine (2 ml) was refluxed on an oil bath at 130°C at 8 h. The content was cooled and poured into crushed ice-filtered and washed with water. The isolated product was crystallized from ethanol

*M.V.Gondaliya **D.M.Purohit

Science [Chemistry]
Research Zone India
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Materials and Methods:

All the melting points are determined in open

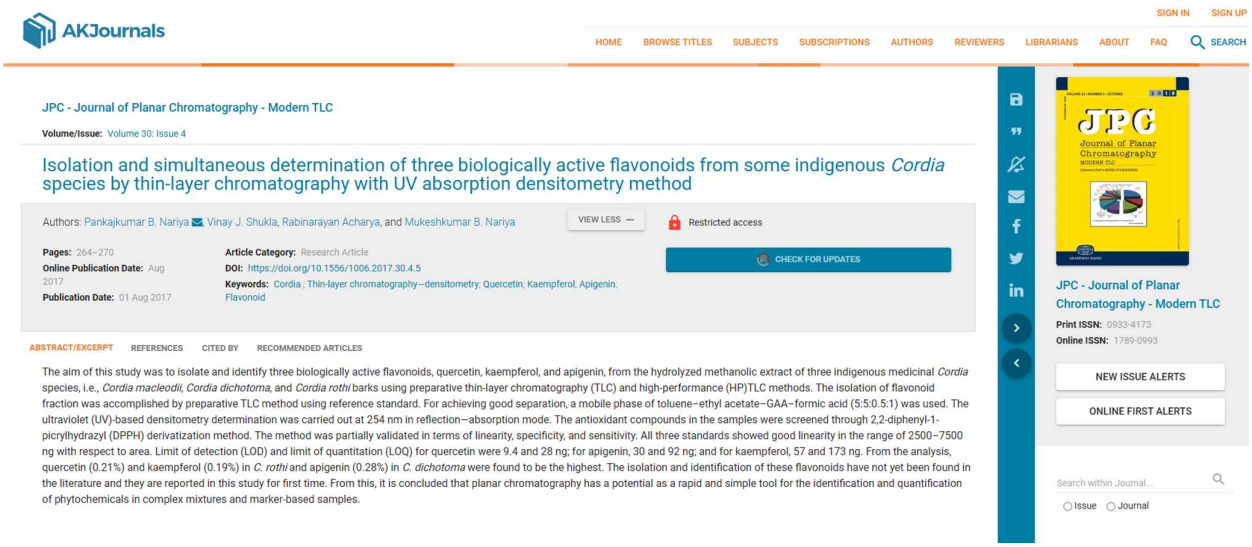
Experimental:

Preparation of (z) 1"-[4'-(dibenzo [b,f][1,4]thiazepin-11-yl)amino phenyl]-3"- aryl-2-ene-1"-one:

Step-I: Synthesis of 4'-acetylphenyl (dibenzo[b,f][1,4] thiazepine-11-yl) amine.

A mixture of 11-chlorodibenzo[b,f][1,4] thiazepine (2.45g, 0.01M) 4-amino acetophenone (1.35g,0.01M)in methanol (25ml) and pyridine (2 ml) was refluxed on an oil bath at 130°C at 8 h. The content was cooled and poured into crushed ice-filtered and washed with water. The isolated product was crystallized from ethanol.

Step-II: Synthesis of 1"-[4'-



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Volume/Issue: Volume 30: Issue 4

Isolation and simultaneous determination of three biologically active flavonoids from some indigenous *Cordia* species by thin-layer chromatography with UV absorption densitometry method

Authors: Pankajkumar B. Nariya, Vinay J. Shukla, Rabinarayan Acharya, and Mukeshkumar B. Nariya

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ABSTRACT/EXCERPT REFERENCES CITED BY RECOMMENDED ARTICLES

The aim of this study was to isolate and identify three biologically active flavonoids, quercetin, kaempferol, and apigenin, from the hydrolyzed methanolic extract of three indigenous medicinal *Cordia* species, i.e., *Cordia macleodii*, *Cordia dichotoma*, and *Cordia rothi* barks using preparative thin-layer chromatography (TLC) and high-performance (HP)TLC methods. The isolation of flavonoid fraction was accomplished by preparative TLC method using reference standard. For achieving good separation, a mobile phase of toluene–ethyl acetate–GAA–formic acid (5:5:0.5:1) was used. The ultraviolet (UV)-based densitometry determination was carried out at 254 nm in reflection–absorption mode. The antioxidant compounds in the samples were screened through 2,2-diphenyl-1-picrylhydrazyl (DPPH) derivatization method. The method was partially validated in terms of linearity, specificity, and sensitivity. All three standards showed good linearity in the range of 2500–7500 ng with respect to area. Limit of detection (LOD) and limit of quantitation (LOQ) for quercetin were 9.4 and 28 ng; for apigenin, 30 and 92 ng; and for kaempferol, 57 and 173 ng. From the analysis, quercetin (0.21%) and kaempferol (0.19%) in *C. rothi* and apigenin (0.28%) in *C. dichotoma* were found to be the highest. The isolation and identification of these flavonoids have not yet been found in the literature and they are reported in this study for first time. From this, it is concluded that planar chromatography has a potential as a rapid and simple tool for the identification and quantification of phytochemicals in complex mixtures and marker-based samples.

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SYNTHESIS OF NOVEL SUBSTITUTED 2*H*-THIAZOLO [3,2-a] PYRIMIDINES USING WATER AS GREEN SOLVENT AND THEIR ANTIMICROBIAL EVALUATION

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ABSTRACT

A novel series of *N*,5-bis(4-fluorophenyl)-3,5-dihydro-7-isopropyl-2*H*-thiazolo[3,2-*a*]pyrimidine -6-carboxamide has been prepared by reaction of *N*,4-bis(4-fluorophenyl)-1,2,3,4-tetrahydro-6-isopropyl-2-thioxopyrimidine-5-carboxamide with dibromoethane using basic catalysts TEA/ K_2CO_3, in the presence of TBAB/TEAB in water. We found water as an efficient and green solvent for the synthesis of novel thiazolo [3,2-a] pyrimidine scaffolds in good yields for biological interest. Among all compounds, **8c**, **8g**, **8i**, **8l** and **8o** shows good antimicrobial activity against bacterial strain compare to ciprofloxacin.

KEYWORDS: Thiazolo[3,2-*a*]pyrimidine, Pyrimidine, Alkylation Antimicrobial evaluation.

INTRODUCTION

The rapid development in new pharmacotherapies of bacterial drug resistance are growing into a

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Preparation of ionic liquids and synthesis of DHPM using ILS

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Abstract
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Abstract

Alkylimidazolium and N-alkylbenzimidazolium based ionic liquids having halide and tetrafluoroborate were synthesized and used to study catalytic efficiency for the Biginelli reaction under solvent-free conditions. Among all the ionic liquids, the1-Butyl-3-Metylimidazolium chloride found as most promising and efficient green solvent for the synthesis of Dihydropyrimidine 4. The process was simple and proceeded in excellent yields.

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Article

A Concise [3 + 3] Heteroaromatization Synthetic Strategy Afford Dicarboxamide Functionalized Novel Pyrazolo[1,5-*a*]Pyrimidines

Anilkumar S. Patel, Naval P. Kapuriya, Yogesh T. Naliapara

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Abstract

A concise and effective approach to dicarboxamide functionalized novel pyrazolo[1,5-*a*]pyrimidine has been developed. The method involves [3 + 3] hetroaromatization of oxoketene dithioacetals (**16a–x**) with 5-amino-*N*-cyclohexyl-3-(methylthio)-1*H*-pyrazole-4-carboxamide (**12**) in the presence of K_2CO_3. This method has advantages of excellent yields, operational simplicity, and avoidance of hazardous base like piperidine.

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Synthesis of Halogenated Chalcones, Pyrazolines and Microbial Evaluation of Derived Scaffolds

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The present projection associated with a series of "*1-(3-(4-((4-(2,2,2-trifluoroethoxy)-3-methylpyridin-2-yl) methylamino)phenyl)-4,5-dihydro-5-substituted pyrazolines)" (5a-f, 6a-f, 7a-f)* in an synthetically affordable route. The pyrazoline derivatives were synthesized by involving of series chalcones 4a–f reacts with hydrazine hydrate, catalyzed by acetic acid. All chalcones (4a–f) were synthesized by the condensation of substituted acetophenone (3) with several aryl aldehydes (3'a-f) using alkaline condition and methanol as a solvent. The structural confirmation of synthesized molecules has been made by spectral evaluation, such as Mass, IR, ^{1}H NMR and ^{13}C NMR. All the synthesized molecules were placed for in vitro antibacterial and antifungal activity.

Keywords: Pyrazolines, Antimicrobial Screening, Fluorinated Heterocycles

Introduction

Clinically approved biological activities of synthesized scaffold are the outcome of an organic compounds relation with the human anatomy after careful consideration of *in vitro* as well *in vivo* studies. Many are beneficial in the curing of precise illnesses and to lower its effects, on the other hand others may create several side effects as well as toxic effects. Activities showed by the organic molecules in biological entities are called the "biological activity spectrum of the substance". In last era, the continuous rising incidence of multi-drug resistant bacteria and encounter of novel bioactive agents against the kind of pathogens is essential for humans. Heterocycles has to be considering as a universal building block in biologically active molecules[1]. Recently formulated various chalcone and pyrazoles/pyrazolines motifs are the best heterocycles, mostly utilized as crucial lead for medicinal interests. Chalcones (1,3-diphenyl-propene-1-one) basically have its antibacterial, antioxidant agents, antitumor and many more[2-6]. Pyrazole also possess interesting pharmacological properties such as anti-inflammatory, anticancer, antibacterial, antiviral, antidiabetic, antimicrobial and antifungal activities[7, 8]. Pyrazole bearing an isoxazole substitution shows herbicidal and soil fungicidal activity[9-10]. Moreover, some FDA approved therapeutic drugs such as Lonazolac, Celecoxib, Remifenazone, Pyraclonil and Pyrazofurin contains pyrazole as core molecules[11]. Bearing in mind, vanillin and other aldehyde containing chalcones, and its pyrazolines are important in pharmaceutical chemistry. Our prime aim is to integrate these moieties. In this light, we will discuss the pharmacological spectrum of various synthesized various pyrazolines (5a-f, 6a-f, 7a-f) particularly fluorinated motif. All analogous were assessed for *in vitro* activity against anti-microbial study using various gram positive and gram negative strains.

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An Efficient and Facile Synthesis of 4-Aryl-2-Hydroxy-6-{[(3′-Difluoromethoxy)-5′-(3″-Methyl)-4″-(2‴, 2‴, 2‴-Trifluoroethoxy) Pyridin-2″-Yl] Methoxyphenyl}-1-6-Dihy Dropyrimidines.

Sandip P. Kakadiya[1], Heta D. Purohit[2], Nutan B. Vekariya[3], Piyush A. Patel[4], Asha K. Joshi[5], Dipak M. Purohit[6]
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Abstract: ***Pyrimidine (1:3 Diazine) derivatives showed good biological and therapeutic activities, with a view of getting to synthesized 4-aryl-2-hydroxy-6-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2"-yl]methoxyphenyl}-1-6-dihydropyrimidines (3a-3k) by the cyclo condensation of (E)-3-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridine-2-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones with urea in presence of alcoholic KOH. All Synthesized compounds characterized by TLC, IR, [1]HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria (B.mega,B.Subtillis), Gram -ve bacteria(E.coli,P.fluorescens) and fungi (A.awamori).***

Keywords: ***4-Aryl-2-hydroxy-6-{[(3'-difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2"-yl]methoxyphenyl}-1,6-dihydropyrimidines,(E)-3-{[(3'-Difluoromethoxy)-5'-(3"-methyl)-4"-(2‴,2‴,2‴-trifluoroethoxy) pyridin-2"-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones,Aromatic Ketone,Urea(Heterocyclic Compounds)***

I. INTRODUCTION

A large number of substituted pyrimidine derivatives showed of biological and pharmacological activities such as, Antitubercular[1], Antidiabetic[2], Anticonvulsant[3] ,Fungicidal [4,] Insecticidal[5], Analgestic[6], Tranquilizing [7],Antibacterial [8],Diuretic[9]and Antihypertensive[10] etc. In view of getting to synthesized (3a-3k) pyrimidine derivatives.

Pyrimidine derivatives which occurs in natural products[11]. Like nucleic acid,vitamin-B and having remarkable pharmaceutical importance because of their broad spectrum of biological activities. Several analogues of nucleic acid have been used as a compound that interferes with the synthesis and function of nucleic acids, an example is fluorouracil which has been used in cancer treatment. Pyrimidine's are among those molecules that make like possible as being some of the building blockers of DNA and RNA.

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Article

A Concise [3 + 3] Heteroaromatization Synthetic Strategy Afford Dicarboxamide Functionalized Novel Pyrazolo[1,5-*a*]Pyrimidines

Anilkumar S. Patel, Naval P. Kapuriya, Yogesh T. Naliapara

First published: 18 April 2017 | https://doi.org/10.1002/jhet.2860 | Citations: 3

Abstract

A concise and effective approach to dicarboxamide functionalized novel pyrazolo[1,5-*a*]pyrimidine has been developed. The method involves [3 + 3] hetroaromatization of oxoketene dithioacetals (**16a–x**) with 5-amino-*N*-cyclohexyl-3-(methylthio)-1*H*-pyrazole-4-carboxamide (**12**) in the presence of K_2CO_3. This method has advantages of excellent yields, operational simplicity, and avoidance of hazardous base like piperidine.

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ORIGINAL ARTICLE **OPEN ACCESS**

Anti-bacterial and Biogenic Silver Nanoparticles Synthesized using fungus *Aspergillus niger*

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ABSTRACT

The present study reports eco-friendly and cost effective biosynthesis of silver nanoparticles (Ag-NPs) with the help of cell-free filtrate of fungus Aspergillus niger. As a part of characterization, UV-Visible spectrum of aqueous medium showed a peak at 410 nm corresponding to surface plasmon resonance of silver nanoparticles. The spherical shaped silver nanoparticles formed were in the size range of 21.0 – 51.0 nm as observed by SEM-EDAX and TEM analysis. The role of protein as a capping and stabilizing agent was revealed by FTIR study. The XRD study confirmed crystalline silver nanoparticles corresponding to their 2θ values. The biosynthesized silver nanoparticles showed strong antibacterial action when tested via disc diffusion assay on pathogenic strains of Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli. The present work provides safe and biogenic silver nanoparticles with potent application as an antibacterial agent in bio-medicine.

Keywords: *Aspergillus niger, Biogenic silver nanoparticles, Characterization, Antibacterial activity*

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INTRODUCTION

Nano-biotechnology is a young and promising area which combines biological principles with physical and chemical procedures to generate nano-sized particles with specific functions. Nanoparticles synthesis

Original Research Paper

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Biochemistry

KEYWORDS: Metabolic Syndrome, Serum leptin, Obesity, Saurashtra region

ASSOCIATION OF SERUM LEPTIN LEVELS WITH METABOLIC SYNDROME (MetS) AND ITS COMPONENTS IN ADULT POPULATION OF SAURASHTRA, GUJARAT.

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Dipak V. Parmar	Associate Professor, Dept. of Biochemistry, MNVSC, Rajkot, Gujarat, India –360001

ABSTRACT

Background: Metabolic syndrome (MetS) is a common metabolic disorder resulting from the increasing prevalence of obesity; hyperleptinemia/leptin resistance is thought to be a cause of obesity. The present study is aimed to assess the association of serum leptin levels with MetS in the population of Saurashtra region, Gujarat.

Methods: In this cross-sectional observational study, 297 individuals aged between 20 to 80 years were included. The details of demographics, personal and family history of diseases, addiction/s etc. were collected from each participant. Blood samples were analyzed for lipid profile, fasting blood sugar and serum leptin levels.

Results: Serum leptin levels were found significantly high in the individuals with MetS and leptin level were positively correlated with BMI, WC, FBS, SBP and DBP. The ability of serum leptin levels to predict MetS was assessed by ROC curve; AUC were 0.737 and 0.769 in males and females respectively. Binary logistic regression analysis suggested the relative risk of developing MetS, independent of age, BMI and tobacco usage as OR 1.20 and 1.10 in males and females respectively.

Conclusion: Leptin level increases with increase in components of MetS and is found to be associated with MetS. Independent of age, BMI and tobacco usage, leptin levels are associated with abdominal obesity, high BP and high FBS which are known risk factors for cardiovascular diseases. Hence, leptin can be used as a biomarker for MetS and cardiovascular risk.

INTRODUCTION:

The obesity is a global health concern and has received a great deal of attention in past few decades. The metabolic syndrome (MetS) is a common metabolic disorder that results from the increasing

were excluded. Among them, 155 individuals were males and 142 were females. The research project was approved by the Institutional Ethics Committee on Human Research. Signed informed consent was obtained from each participant. The details of demographics,

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Clinical Evaluation of Sialic Acid In Head and Neck Squamous Cell Carcinoma Patients and Tobacco Chewers or Smokers with No Cancer

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Abstract

Sialic acid plays a significant role in cancer due to increased sialylation and sialyltransferase activity. Patients with cancer have been reported to have significant elevations of serum Total Sialic Acid (TSA) and Lipid Bound Sialic Acid (LBSA) levels as compared to control persons. The present study was carried out to evaluate sialic acid levels in control, non-cancer smokers or tobacco chewers and Head and Neck Squamous cell carcinoma (HNSCC) cancer patients. Blood samples were obtained from the histopathologically diagnosed HNSCC patients, healthy controls and those persons who were either smokers or tobacco chewers with no oral cancer. Serum TSA and LBSA were measured spectrophotometrically. Serum TSA and LBSA levels were significantly elevated in HNSCC patients compared to healthy control with P<0.0001. These levels were also significantly increased in individuals who were smokers or tobacco chewers with no cancer compared to healthy control (P<0.0001). Our results found significant elevation of serum sialic acid levels in HNSCC patients and in smokers and tobacco chewers with no cancer as compared to control individuals. These findings suggested role of tobacco in biochemical changes during the malignant transformation. These results also indicate that these parameters can be utilized in diagnosis of the HNSCC.

Keywords

Sialic acid; Head and neck squamous cell carcinoma; spectrophotometer

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Original Research Article

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Prevalence of High-Risk Human Papilloma Virus (HR-HPV) As a Risk Factor in HNSCC Patients of Saurashtra Region of Gujarat

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Corresponding Author: Ms. Minaxi Parmar

ABSTRACT

Background: In India HNSCC comprises the largest group of malignancies with an incidence rate as high as 30-40%.The present study was carried out to determine the prevalence of high-risk human papilloma virus (HR-HPV) as a risk factor in HNSCC patients of Saurashtra region of Gujarat.
Method: Newly diagnosed 200 HNSCC patients were selected for the study. Sociodemographic and clinical data were obtained through questionnaire. Detection of HPV-DNA was done from cancer tissues by PCR amplification method using GP5+/GP6+ primers, E6 and E7 primers for HPV 16 and HPV 18 genotypes.
Result: The prevalence of HPV high-risk (HR) types was 2% in HNSCC cancer cases. HPV 16 genotype was identified while HPV 18 was absent in all the patients. The risk factor of HPV-HR included younger age (<55 years) and early age at first sexual intercourse. The other risk factors like tobacco and alcohol were absent in these patients. The site of cancer was found to be base of tongue and tonsil.
Conclusion: The specific characteristics found in HPV positive HNSCC cases are in accord with distinctive characteristics of HPV positive HNSCC found worldwide. We can conclude that HR-HPV infection may be responsible for HPV-positive HNSCC. However, the prevalence of HPV among HNSCC is negligible which indicates that HPV is not an influential risk factor for oral cancer in this region.

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Bacterial Transformation: What? Why? How? and When?

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Authors' contributions

All the authors contributed equally for the work. Author SC designed the study, prepared the framework and drafted the manuscript. Author MD helped in the preparation of table for comparison, critical analysis. Author HR managed the literature search. All authors read and approved the final manuscript.

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Review Article

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ABSTRACT

Transformation is one of the few options for horizontal gene transfer. Though transformation is a natural process, yet only a handful of the organisms are able to perform it naturally. The process of bacterial transformation is also a step of pivotal importance in the field of genetic engineering. The rDNA which is an exogenous DNA, is required to be inserted and expressed in the suitable host. However, majority of the hosts are unable to take up exogenous DNA. Thus, it requires some artificial methods too. The induction of the ability to take up such DNA is called competence. Several methods are being tried since the inception of its concept, but none of them are found to be universal. Therefore, there is a constant requirement of newer methods having advantage and efficiency over the existing ones. The conventional method involves $CaCl_2$ treatment followed by heat shock for achieving transformation. There is also employment of device oriented high end methods like electroporation or ultrasound mediated transformation etc. The efficiency of such methods varied widely and is often specific to a host. Thus, this review is focused on the necessity of transformation and various options that are available to researchers for performing bacterial transformation. It also attempts to strike a comparative study of the existing techniques.

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Short Communication

Preparation of ionic liquids and synthesis of DHPM using ILS

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Abstract

*Alkylimidazolium and N-alkylbenzimidazolium based ionic liquids having halide and tetrafluoroborate were synthesized and used to study catalytic efficiency for the Biginelli reaction under solvent-free conditions. Among all the ionic liquids, the1-Butyl-3-Metylimidazolium chloride found as most promising and efficient green solvent for the synthesis of Dihydropyrimidine **4**. The process was simple and proceeded in excellent yields.*

Keywords: Ionic liquids, Green approach, DHPM synthesis, Biginelli reaction.

Introduction

Ionic liquids are organic salts mostly composed of organic cations and inorganic anions, having boiling point below 100^0C and exhibit in most cases relatively low viscosities[1]. The definition allows distinguishing them from a classical molten salt, which is generally a high-melting, highly viscous and very corrosive material.

stability can be targeted. Therefore, ILs is also known as "designer sol-vents" or "task-specific ionic liquids". Ionic liquids were synthesized byapplying the green chemistry principles whenever it was possible. Ionic liquids are safer than organic volatile solvents because they donot evaporate or burn easily. In addition, they possess a very key property; they are recyclable. These catalytic and green applications of ILs motivated us to prepare a series of ionic liquids and study their

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Roosting site selection by Indian House Crow (*Corvus splendens*)

Shabanam Saiyad, VC Soni and Bhupat Radadia

Abstract
Roosting is a typical bird behaviour where a group of individuals congregate in an area for a few hours effected by an environmental signals and return to the same site with the reappearance of these signals. Present study was planned to know the selection criteria for roosting sites in House crows (*Corvus splendens*). To test the roosting site characteristics seventeen parameters were assumed which had covered the broad aspects such as roost site characteristics, land use around sampling sites and anthropogenic pressure. Roost trees significantly tended to be taller by 25.39% more in tree height (t Stat=3.0182>t Crit, 0.01>P value) and 36.45% more in canopy height (t Stat=5.470>t Crit, 0.01>P-value) compare to non-roost trees. While comparing the distance from feeding sites with non-roost sites, the roost sites were observed to be selected near to feeding sites as nearest feeding sites were 1379.5m significantly nearer than non-roost sites (t Test=3.619>t Crit, 0.01>P value). The distance of nearest tree (average distance of trees from four direction) from the roost sites was 33.34±26m which was 100.67 m nearer than non-roost sites (t=4.356>t crit, 0.01> P-value). Larger trees with greater canopy, nearby human habitation which provide them shelter and safety along with anthropogenic feeding opportunities and moderate vegetation patches near the roosting places were the characteristics preferred for roosting purpose by house crows.

Keywords: Roosting Sites, Junagadh, Rajkot and House crow (*Corvus splendens*).

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Floroscope – A botanical collection and herbarium technique used in determining angeospermic diversity of Jambudia Vidi at Saurashtra region-Gujarat (India)

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ABSTRACT

Not until the sixteenth century did the botanists make any serious and systematic attempt to preserve, for future reference, the specimens they studied. The earliest herbarium was set up in 1545 in the University of Padua, Italy. Prior to this a few dries herbs, intended primarily for medical purposes, occasionally served as material for comparison. The usefulness of a herbarium has grown beyond it original parameters and it now serves the triple purpose of study, record and research. It is prepared and maintained with care and skill, so as to serve a long term use. A herbarium has been aptly defined as a collection of pressed, dried and preserved plant specimens, arranged according to some known system of classification. The purpose of making herbaria of Jambudia Vidi, Saurashtra region, Gujarat, (India) is manifold, such as: For comparison of description with actual specimens from the various regions; For comparison of new material; For display in the museums, both for professional and non-professional visitors; For keeping record of 'type' specimens, etc.

KEYWORDS

Floroscope;
Herbarium;
Botanical.

INTRODUCTION

Taxonomy is a word derived from two Greek words, *taxis* - meaning arrangement; as also, a division of ancient Greek army and *nomos* - meaning law. Plant taxonomy deals with those aspects of botany which are tive morphology or phylogenetic relationships. It has been therefore, defined as 'a study aiming at producing a system of classification which best reflects the totality of similarities and differences.[2] It encompasses two aims :

1. to identify all kinds of plants;

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Regeneration of plantlets from *in vitro* cultured seed of endangered *Aegle marmelos* (L.) Corr. Rutaceae

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ABSTRACT

A tissue - to - plant regeneration system was developed for *Aegle marmelos* (L.) Corr. (bael tree, family Rutaceae) achieved using seed from mature fruit. It is one of the most important tree with religious importance and several medicinal uses. This tree when normally propagated using seeds, exhibit morphological and biochemical variations within the population due to its heterozygous nature. Developing, *in vitro* technique for propagation from elite tree will help in preserving genotype qualities in raised population. In the present study, efforts were made to find out the suitable media composition for micropropagation of *Aegle marmelos* tree using hypocotyle and leaf primordia as explant material. All the experiments were carried out in Murashige and Skoog's (MS) media using different phytohormone concentrations to record callogenic and morphogenic responses. The regeneration studies indicated that the following combinations of hormones with MS media containing KIN with BAP (1.5:1.5 mg/L) and 2, 4-D with KIN (1:1 mg/L) is most suitable for shoot induction and calli formation. These calli later developed shoots when transferred to MS medium for root initiation. In the establishment stage, 10 individual phytohormone treatments (Auxin/Cytokinin) and 24 combination treatments (Auxin + Cytokinin) were used.

Keywords: Auxin, Bael, Cytokinin, MS medium, Rutaceae

INTRODUCTION

Aegle mermelos (L.) Corr., (Rutaceae) is an armed spiny popular medicinal plant in the Ayurvedic and Siddha systems of medicines used to treat a wide variety of ailments. In India, this plant is known as "Bael Tree". It is mostly found in tropical and subtropical region and in hilly tracts up to 1300 m elevation (Anonymous 2003, Raghu A V *et al.* 2007). *A. marmelos* is naturally distributed in India, Myanmar and Sri Lanka and widely cultivated in Southeast Asia

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CONDUCTING INFORMATION LITERACY PROGRAMMES FOR TEACHING, LEARNING AND RESEARCH: A CASE STUDY OF ATMIYA GROUP OF INSTITUTIONS, RAJKOT

Sheetal Tank
Librarian, Atmiya Institute of Technology and Science, Rajkot

Dr. Varsha Kanabar
Librarian, Shree M. & N. Virani Science College, Rajkot

ABSTRACT

This is a case study on the type of Information literacy programmes conducted at the college for teaching, learning and Research. The seven component model of Shapiro & Hughes, 1996 is being used for a holistic approach towards Information Literacy for various levels of readers. It also mentions about the cultural and Institutional factors we need to consider before conducting these programmes at our institute.

Key words: Information literacy Programme, Course integrated instruction, Librarian-faculty collaboration, Curriculum integrated information literacy.

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SOME RESULTS ON TOTAL CHROMATIC NUMBER OF A GRAPH

S.K. VAIDYA[1], RAKHIMOL V.ISAAC[2], §

ABSTRACT. A total coloring of a graph is a proper coloring in which no two adjacent or incident graph elements receive the same color. The total chromatic number of a graph is the smallest positive integer for which the graph admits a total coloring. In this paper, we derive some results on total chromatic number of a graph.

Keywords: total coloring, total chromatic number, splitting graph.

AMS Subject Classification: 05C15; 05C76.

1. INTRODUCTION

We begin with simple, finite, connected and undirected graph $G = (V(G), E(G))$ with vertex set $V(G)$ and edge set $E(G)$. The elements of $V(G)$ and $E(G)$ are commonly called the graph elements. A coloring of a graph G is to assign colors (numbers) to the vertices or edges or both. A vertex coloring (edge coloring) is called proper if no two vertices (edges) receive the same color. Many variants of proper colorings are available in the literature such as a- coloring, b- coloring, list coloring, total coloring etc. The present work is focused on total coloring of graphs.

A function $\pi : V(G) \cup E(G) \to \mathbb{N}$ is called a *total coloring* if no two adjacent or incident graph elements are assigned the same color. The total chromatic number of G, denoted by $\chi_T(G)$, is the smallest positive integer k for which there exists a total coloring $\pi : V(G) \cup E(G) \to \{1, 2, \ldots, k\}$.

The concept of total coloring was introduced independently by Behzad [1] and Vizing [10] and they have also posed the following conjecture termed as Total Coloring Conjecture (TCC)

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STEGO: A Tool for Implementing Text-Audio-Video Steganography

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***Abstract*:** Steganography is the creative method of hiding any important information or data like passcode, data file, image; spreadsheets behind the original cover file. In this paper we proposed the text-audio-video cryptstego which is the combination audio steganography and video steganography using algorithm implemented using C#.Net tool and Libraries. The main goal of our research paper is to hide the important data file or any spreadsheet behind the audio, video, or image file and also one more method we have used is to store it as cipher text. Steganography can be used for hidden communication. We have explored the limits of steganography theory and practice. The implemented algorithm is 6LSB is used for image steganography. We made out the enhancement of the image steganography system using LSB approach to provide a means of secure communication. A proposed cryptstego-key has been applied to the system during embedment of the message into the cover image, it also provide the technique to hide plain text file or any other data behind bitmap image any audio file. So the proposed system secures the data transmission using proposed stego tool. This paper mainly focuses the idea of computer forensic technique and its use of audio-video steganography technique for providing better security in concern.

***Keywords*:** *Steganography, Data Extraction, Cipher, RSA Algorithm, LSB*
Subject: Computer Science: Information and Data Security

I. INTRODUCTION

text using different algorithm before passing it through the network, thus the existence of the message is unknown in

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RESEARCH ARTICLE

SOLID STATE FERMENTATION OF WHEAT STRAW FOR PRODUCTION OF MNP BY *P. CHRYSOPORIUM* MTCC 787.

***Nishant Junnarkar[1,2] and Neepa Pandhi[1].**

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Key words:-
Solid State Fermentation, Wheat Straw, *P. chrysosporium*, MnP

Abstract

Solid state fermentation of wheat straw was attempted with *P. chrysosporium* MTCC 787 for production of MnP at 39°C. Fermented residue was extracted with 0.2 M sodium tartarate buffer (pH 3) and was subjected to ammonium sulfate precipitation. Precipitates obtained were subjected to MnP assay, upon dialysis, using MBTH and DMAB as substrate. Optimum pH and temperature were reported to be pH 4.5 and 30°C respectively. Km and Vmax of MnP for MBTH were found to be 0.05 mM and 25 U/mg, respectively. Enzyme kinetics were also assessed against Reactive Black B (RBB), a widely used textile diazo dye, as substrate. Km and Vmax of MnP for RBB were reported as 0.2 mM and 7 U/mg, respectively. These findings suggest enormous potential of MnP of *P. chrysosporium* MTCC 787 for its application in treatment of RBB containing wastewater.

Introduction:-

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Research Article

DECOLORIZATION OF REACTIVE BLACK B BY *PAENIBACILLUS DENDRITIFORMIS* STRAIN CS_2a_4

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Key words:

Paenibacillus dendritiformis, azo dye, Reactive Black B, decolorization.

ABSTRACT

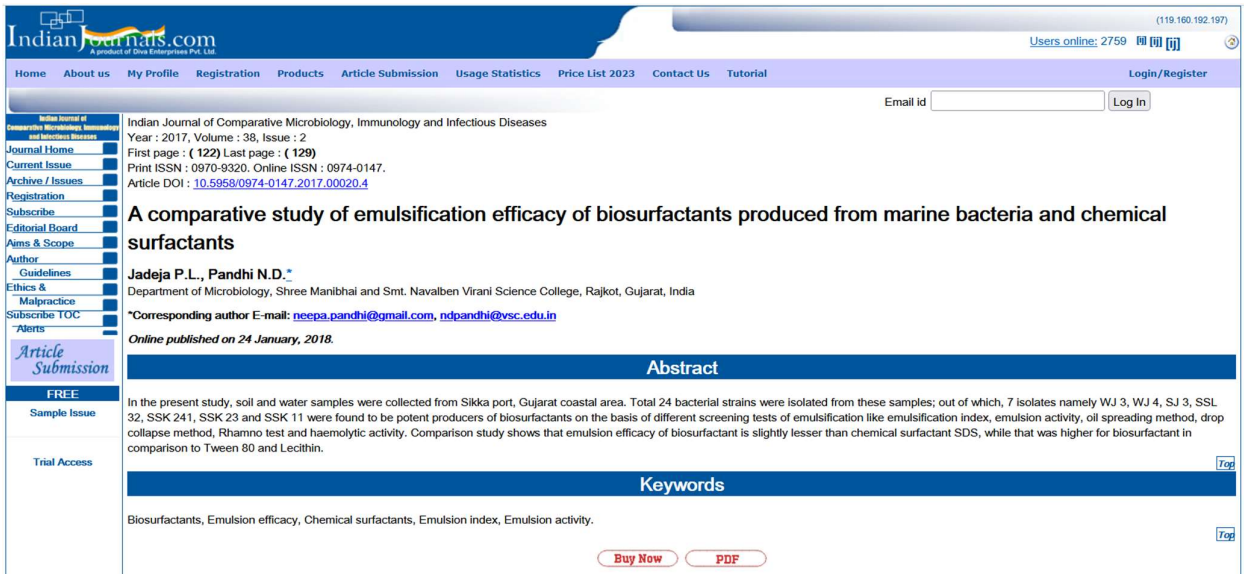
Azo dyes are one of the group of synthetic dyes extensively used in textile, paper, pharmaceutical, cosmetic and other industries. These pose environmental hazard if released untreated in environment. Reactive Black B (RBB) dye decolorizing bacterial strains were isolated from the samples collected from the vicinities of dye manufacturing industries. Amongst these, *Paenibacillusdendritiformis*strain CS_2a_4 was found to be the potent decolorizer and hence, medium composition and cultural conditions optimization was attempted to improve RBB decolorization by CS_2a_4 strain. Optimization of the cultural conditions and co-substrates concentration in decolorization medium, resulted in the reduction of decolorization period for RBB from 40h to 16h by the culture. CS_2a_4 could decolorize RBB upto 350 ppm efficiently (>80%) within 16-30h. Spectral analysis and TLC analysis of decolorized medium revealed the transformation of RBB dye into unknown intermediates.

INTRODUCTION

Synthetic dyes are extensively used in textile dyeing, paper printing, color photography, pharmaceutics, cosmetics and other industries (Almeida and Corso, 2014; Dellamtrice *et al*., 2017). The chemical classes of dyes employed more frequently on industrial scale are the azo, anthraquinone, sulfur, indigoid, triphenylmethyl (trityl), and phthalocyanine derivatives. Amongst these, azo dyes represent the largest and most versatile class of synthetic dyes (Keharia *et al*., 2004).

Several species of bacteria and fungi have been reported to decolorize and degrade textile dyes and have been employed in the treatment of dye bearing wastewaters.

Efforts to isolate bacterial cultures capable of degrading azo dyes started in the 1970s with reports of *Bacillus subtilis* (Horitsu *et al*.,1977), then *Aeromonashydrophila* (Idaka & Ogawa 1978) followed by *Bacillus cereus* (Wuhrmann*et al*., 1980). Numerous bacteria capable of dye decolorization, either in pure cultures or in consortia, have been reported (Banat *et al*., 1996; Rajaguru*et al*., 2000; Coughlin *et al*



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A comparative study of emulsification efficacy of biosurfactants produced from marine bacteria and chemical surfactants

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Online published on 24 January, 2018.

Abstract

In the present study, soil and water samples were collected from Sikka port, Gujarat coastal area. Total 24 bacterial strains were isolated from these samples; out of which, 7 isolates namely WJ 3, WJ 4, SJ 3, SSL 32, SSK 241, SSK 23 and SSK 11 were found to be potent producers of biosurfactants on the basis of different screening tests of emulsification like emulsification index, emulsion activity, oil spreading method, drop collapse method, Rhamno test and haemolytic activity. Comparison study shows that emulsion efficacy of biosurfactant is slightly lesser than chemical surfactant SDS, while that was higher for biosurfactant in comparison to Tween 80 and Lecithin.

Keywords

Biosurfactants, Emulsion efficacy, Chemical surfactants, Emulsion index, Emulsion activity.

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Original Research Article

Prevalence of High-Risk Human Papilloma Virus (HR-HPV) As a Risk Factor in HNSCC Patients of Saurashtra Region of Gujarat

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Corresponding Author: Ms. Minaxi Parmar

ABSTRACT

Background: In India HNSCC comprises the largest group of malignancies with an incidence rate as high as 30-40%.The present study was carried out to determine the prevalence of high-risk human papilloma virus (HR-HPV) as a risk factor in HNSCC patients of Saurashtra region of Gujarat.
Method: Newly diagnosed 200 HNSCC patients were selected for the study. Sociodemographic and clinical data were obtained through questionnaire. Detection of HPV-DNA was done from cancer tissues by PCR amplification method using GP5+/GP6+ primers, E6 and E7 primers for HPV 16 and HPV 18 genotypes.
Result: The prevalence of HPV high-risk (HR) types was 2% in HNSCC cancer cases. HPV 16 genotype was identified while HPV 18 was absent in all the patients. The risk factor of HPV-HR included younger age (<55 years) and early age at first sexual intercourse. The other risk factors like tobacco and alcohol were absent in these patients. The site of cancer was found to be base of tongue and tonsil.
Conclusion: The specific characteristics found in HPV positive HNSCC cases are in accord with distinctive characteristics of HPV positive HNSCC found worldwide. We can conclude that HR-HPV infection may be responsible for HPV-positive HNSCC. However, the prevalence of HPV among HNSCC is negligible which indicates that HPV is not an influential risk factor for oral cancer in this region.
Key Words: HR-HPV, Head and Neck squamous cell carcinoma, PCR.

INTRODUCTION

Head and neck squamous cell carcinoma (HNSCCs) represent the sixth

The major established etiological factors are smoking and alcohol. There appears 5-fold to 25-fold higher risk of

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Clinical Evaluation of Sialic Acid In Head and Neck Squamous Cell Carcinoma Patients and Tobacco Chewers or Smokers with No Cancer

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Abstract

Sialic acid plays a significant role in cancer due to increased sialylation and sialyltransferase activity. Patients with cancer have been reported to have significant elevations of serum Total Sialic Acid (TSA) and Lipid Bound Sialic Acid (LBSA) levels as compared to control persons. The present study was carried out to evaluate sialic acid levels in control, non-cancer smokers or tobacco chewers and Head and Neck Squamous cell carcinoma (HNSCC) cancer patients. Blood samples were obtained from the histopathologically diagnosed HNSCC patients, healthy controls and those persons who were either smokers or tobacco chewers with no oral cancer. Serum TSA and LBSA were measured spectrophotometrically. Serum TSA and LBSA levels were significantly elevated in HNSCC patients compared to healthy control with P<0.0001. These levels were also significantly increased in individuals who were smokers or tobacco chewers with no cancer compared to healthy control (P<0.0001). Our results found significant elevation of serum sialic acid levels in HNSCC patients and in smokers and tobacco chewers with no cancer as compared to control individuals. These findings suggested role of tobacco in biochemical changes during the malignant transformation. These results also indicate that these parameters can be utilized in diagnosis of the HNSCC.

Keywords

Sialic acid; Head and neck squamous cell carcinoma; spectrophotometer

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15 Aug 2017

BIOSORPTION OF REACTIVE BLACK B BY DRIED FUNGAL BIOMASS.

Nishant junnarkar and neepa pandhi.

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2 School of Life Sciences, Central University of Gujarat, Gandhinagar, Gujarat, India. 382030.

Abstract | Keywords | References | Cite This Article as | Corresponding Author

Biosorption of Reactive Black B (RBB) dye was attempted with dried biomass of P. chrysosporium MTCC 787, Aspergillus sp. WRF3 and Trichoderma sp. WG1. Effect of biosorbent dosage, pH and contact time on biosorption of RBB was assessed. All the three cultures were observed to have high potential for the removal of RBB even at low biosorbent dosage. Acidic pH was more suitable for biosorption of RBB from the solution and 7h contact time was needed for maximal removal of dye (>90%) from the dye solution at 3gL-1 biosorbent dosage. Thus, these cultures can be useful in biosorptive removal of RBB containing wastewaters.

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Der Pharma Chemica, 2018, 10(4): 57-61
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A Convenient Synthesis of Trisubstituted 1,3,5-triazine Derivatives and their Antimicrobial Screening

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ABSTRACT

A series of novel 1,3,5-triazine derivatives bearing various aryl amine, 2-amino pyrazine and 4-hydroxy coumarin moieties as substituents have been synthesized by an easy and conventional method using sequential nucleophilic substitution of chlorine atoms of cyanuric chloride. The reaction of cyanuric chloride with 4-hydroxy coumarin in acetone using alkaline medium at 0-5°C was afforded compound 3 in good yield. Followed by reaction 3 with 2-amino pyrazine and then various aromatic amines have afforded target compounds 6a-n in good yields. All the newly synthesized compounds were characterized by using spectroscopic analysis and then examined for their ability to inhibit the two Gram-positive bacteria (Bacillus subtilis and Staphylococcus aureus) Gram-negative bacteria (Escherichia coli and Pseudomonas aeruginosa) and one fungal species (Aspergillus niger) for biological interest.

Keywords: 1,3,5-Triazine, 4-Hydroxy coumarin, 2-Amino pyrazine, Trisubstituted triazines

INTRODUCTION

Coumarin derivatives have played a pivotal role in medicinal chemistry due their broad biological properties [1]. Among the various coumarin derivatives, 4-hydroxy coumarins are potential in therapeutic applications such as anticancer [2], antimalarial [3], antifungal [4], antiviral [5], anticoagulants [6]. They have yielded important results as antibiotics (Novobiocin) [7], anti-AIDS agents (Calanolides) [8] and antitumor drugs (Gelparvarin) [9]. Some of these drugs derived from 4-hydroxycoumarin have been thoroughly investigated [10]. Pyrazine derivatives possess a broad spectrum of biological activity and fulfill an important function in animal metabolism [11] and also other applications [12,13]. These compounds are also used as spasmolytic drug [14] in several countries, fluorescent brightener, efficient laser dye, standard for fluorometric

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Facile synthesis of highly functionalized novel pyrazolopyridones using oxoketene dithioacetal and their anti-HIV activity

Mahesh M. Savant[a], Kartik D. Ladva[b], and Archna B. Pandit[b]

[a]Department of Industrial Chemistry, Shree M. & N. Virani Science College, Rajkot, Gujarat, India; [b]Department of Chemistry, Shree M. & N. Virani Science College, Rajkot, Gujarat, India

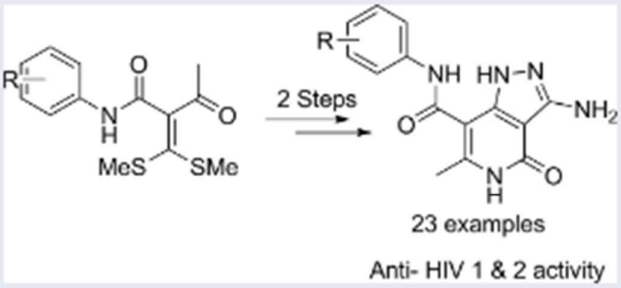
ABSTRACT

A series of novel 3-amino-4,5-dihydro-6-methyl-4-oxo-*N*-aryl-1*H*-pyrazolo[4,3-c]pyridine-7-carboxamide have been synthesized starting from various oxoketene dithioacetals. The cyclocondensation reaction of 2-(bis(methylthio)methylene)-3-oxo-*N*-arylbutanamide **2a–w** with cyanoacetamide using NaO*i*Pr as base under reflux condition afforded novel highly functionalized pyridone **3a–w** derivatives. Further, [3 + 2] cyclocondensation reaction of pyridones with hydrazine in the presence of alcohol was yielded pyrazolopyridones (23 nos) **4a–w** with excellent yields. All newly synthesized compounds were evaluated for *in vitro* anti-HIV activity using MTT method. Most of these compounds have showed moderate to potent activity against HIV-1 (III_B) and HIV-2 (ROD) strains with an IC_{50} ranging from >18 IC_{50} [μg/ml] to <100 IC_{50}[μg/ml]. Among them, compounds **4j** and **4v** were identified as the most promising compound for both types of HIV strains. (IC_{50} = 18 μg/ml). Three compounds **4l, 4m**, and **4p** have been found potent anti-HIV 1 and 2 activity against MT-4 cells.

ARTICLE HISTORY
Received 29 November 2017

KEYWORDS
Anti-HIV activity; highly functionalized pyrazolopyridone; ketene dithioacetals; MTT method

GRAPHICAL ABSTRACT



Introduction

The human immunodeficiency virus (HIV)—the etiologic agent of acquired immunodeficiency syndrome (AIDS)—is the fastest growing cause of death in women of reproductive

JOURNAL OF HETEROCYCLIC CHEMISTRY

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Article

An Efficient One-Pot Synthesis of Highly Substituted Pyridone Derivatives and Their Antimicrobial and Antifungal Activity

Archana B. Pandit, Mahesh M. Savant, Kartik D. Ladva

First published: 17 February 2018 | https://doi.org/10.1002/jhet.3128 | Citations: 9

Abstract

A series of carboxamide and cyano functionalized pyridone derivatives **4a–q** have been synthesized *via* one-pot synthesis of various aldehydes **1a–q**, acetoacetanilide **2**, and cyanoacetamide **3**. The reaction was simple and afforded pyridone derivatives in good yield, 89 to 93%. The novel pyridone derivatives were achieved by Hantzch one-pot synthesis. Moreover, the synthesized compounds were screened against Gram-positive and Gram-negative bacteria and fungi for their activity. Among them, compound **4c** shows highest inhibition at 4.25 mm against *Staphylococcus aureus* and 3.75 mm against *Escherichia coli* Gram-positive and Gram-negative bacteria, respectively.

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Synthesis and Biological Screening of N-(4-(6-Amino-5-cyano-4-aryl-pyridin-2-yl) phenyl) cyclopropane Carboxamide

P. M. Akbari[1], K. D. Ladva[2], V. R. Shah[3]
[1, 2, 3]*Department of Chemistry, Kamani Science College, Amreli-365601, Gujarat, India.*

Abstract: ***Cyanopyridine derivatives shows good biological and therapeutic activities and exhibit wide range of applications in the field of pharmaceutical and agriculture. Cyanopyridine derivatives like some new N-(4-(6-Amino-5-cyano-4-aryl-pyridin-2-yl)phenyl)cyclopropane carboxamide of type (2a-l) have been prepared by the condensation of such new chalcone derivatives N-(4-(3-Aryl- acryloyl)phenyl)cyclopropane carboxamide of type (1a-l) with Malononitrile in presence of Ammonium acetate. All the prepared compounds were characterized by their spectral (I.R., ^{1}H NMR. & Mass) data and screened for their antimicrobial activities.***

Keywords: Cyanopyridines, Chalcones, Malononitrile, Antimicrobial activities.

I. INTRODUCTION

Pyridine, nucleus has been extensively explored for their applications in the field of medicine, agriculture and industrial field. Most of pyridine derivatives are synthesized by manipulation of pyridine and its simple homologues in a manner similar to chemistry of the benzenoid chemistry. However the simple pyridine compounds are prepared by the cyclization of aliphatic raw materials. Cyanopyridine derivatives have involved considerable attention in view of their great therapeutic significance such as anticonvulsant, antiHIV, antiepileptic and antihypertensive agents.

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Volume 6 Issue IV, April 2018- Available at www.ijraset.com

Synthesis and Biological Evaluation of N-(4-(5-Aryl-4, 5-Dihydro-1H-Pyrazol-3-yl) Phenyl) Cyclopropane Carboxamide

P. M. Akbari[1], K. D. Ladva[2] and V. R. Shah[3]
[1, 2, 3] *Department of Chemistry, Kamani Science College, Amreli-365601 Gujarat, India.*

Abstract*: Different pyrazoline derivatives were synthesized by cyclization of substituted chalcones with Hydrazine hydrate. Some new N-(4-(3-Aryl-acryloyl)phenyl)cyclopropane carboxamide (1a-l) and N-(4-(5-Aryl-4,5-dihydro-1H-pyrazol-3-yl)phenyl)cyclopropane carboxamide (2a-l) were prepared. All the prepared compounds were characterized by their spectral (I.R., N.M.R., Mass) data and screened for their antimicrobial activities.

Keywords: Chalcones, Pyrazoline, Antimicrobial activities.

I. INTRODUCTION

The chemistry of chalcones containing an active keto-ethylenic linkage has been assumed important because of their versatility in the synthesis of many heterocyclic compounds. Pyrazoline derivatives have been found to contain wide range of therapeutic activity such as antidiabetic[7] ,antiimplantation[8] , antiallergic[9] , anticonvulsant[10-11] ,antineoplastic[12], antiinflammatory[13], antitumor[14],

WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
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SYNTHESIS AND BIOLOGICAL SCREENING OF 2-AMINO-6-ARYL-4-{[(3′-DIFLUOROMETHOXY)-5′-(3″-METHYL)-4″-(2‴,2‴,2‴-TRIFLUOROETHOXY)PYRIDIN-2″-YL]METHOXYPHENYL}-NICOTINONITRILES.

Sandip P. Kakadiya, Heta D. Purohit, Asha K. Joshi, Pankaj M. Akbari and Dipak M. Purohit*

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ABSTRACT

Cyanopyridine derivatives shows good biological and therapeutic activities, With a view of getting to synthesized 2-Amino-6-aryl-4-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy) pyridin-2″-yl]methoxyphenyl}-nicotinonitriles (3a-3k) by the condensation of (E)-3-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy) pyridine-2-yl] methoxy phenyl}-1-aryl-prop-2-ene-1-ones with malononitrile in presence of ammonium acetate. All Synthesized compounds characterized by TLC, IR, ^{1}HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria *(B.mega, B.Subtillis)* Gram -ve bacteria *(E.coli, P.fluorescens)* and fungi *(A.awamori).*

KEYWORDS: Chacones, Cyanopyridines, Malononitrile, Ammonium acetate (Heterocyclic Compounds).

INTRODUCTION

Pyridine nucleus has been extensively explored for their applications in the field of

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SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL PYRAZOLINE AND ISOXAZOLINE DERIVATIVES.

Piyush A. Patel, Sandip P. Kakadiya, Vijay N. Bhadani, Heta D. Purohit, Parth V. Bhatt, Dipak M. Purohit*

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ABSTRACT

A series of novel Pyrazoline **3a-l** and Isoxazoline **4a-l** derivatives have been synthesized as potential antibacterial agents. The Pyrazoline derivatives **3a-l** have been synthesized by reaction of various Chalcones **2a-l** with hydrazine hydrate in ethanol. The Isoxazolines **4a-l** were prepared by the reaction of various Chalcones **2a-l** with hydroxyl amine hydrochloride in presence of sodium acetate using ethanol as a solvent. The structures of the new synthesized compounds were established on the basis of ^{1}H-NMR, Mass spectra, IR and elemental analysis data. All the newly synthesized compounds were screened for their antibacterial activity against *E. coli*, *S. thyphi* (Gram-negative bacteria), *S. aureus*, *M. luteus* (Gram-positive bacteria) and antifungal activity against *Candida albicans (Fungi)*.

KEYWORDS: Pyrazoline, Isoxazoline, Antimicrobial activity.

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SYNTHESIS AND BIOLOGICAL SCREENING OF 2-AMINO-6-ARYL-4-{[(3′-DIFLUOROMETHOXY)-5′-(3″-METHYL)-4″-(2‴,2‴,2‴-TRIFLUOROETHOXY)PYRIDIN-2″-YL]METHOXYPHENYL}-4H-PYRAN-3-CARBONITRILES

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ABSTRACT: Cyanopyran derivatives shows good biological and therapeutic activities, With a view of getting to synthesized 2-amino-6-aryl-4-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-4H-pyran-3-carbonitriles(3a-3k) by the condensation of (E)-3-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridine-2″-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones with malononitrile in pyridine. All Synthesized compounds characterized by TLC, IR, ^{1}HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria,*(B.mega,B.Subtillis)*Gram -ve bacteria *(E.coli,P.fluorescens)* and fungi *(A.awamori)*.

KEYWORDS:
2-amino-6-aryl-4-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-4H-pyran-3-carbonitriles,(E)-3-{[(3′-Difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy)pyridin-2″-yl]methoxyphenyl}-1-aryl-prop-2-ene-1-ones,Malononitrile,Pyridine.(Heterocyclic Compounds)

INTRODUCTION: Heterocyclic compounds such as pyran derivatives continue to be a rich source of innovative chemistry because a number of versatile applications in various fields viz. pharmaceuticals, dyes, agrochemicals and sweet smelling substances.insecticide possess this ring

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
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Synthesis and Biological Screening of N-{4'-[5"-(ARYL)-1"-H-PYRAZOL-3"-yl] PHENYL}-DIBENZO [b,f][1,4] THIAZEPIN-11-AMINE.

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[2]*ShriM. & N. Virani Science College – Kalawad Road, Rajkot-360005 (GUJ) INDIA*

Abstract: ***Pyrazoline derivatives shows broad spectrum of pharmacological activity with a view of getting to synthesized and evaluated biological screening of N-[4'-(5"-aryl-1"-H-pyrazol-3"-yl)phenyl]dibenzo[b,f][1,4]thiazepin-11-amine(5a-5j).The compound(5a-5j) have been synthesized by the condensation of 1"-[4'-diabenzo[b,f][1,4] thiazepin-11-yl)aminophenyl]-3"-aryl-2-ene-l"-ones with hydrazine hydrate. The constitutions of the synthesized products were supported by IR, ^{1}H NMR and mass spectral data. The products were screened for their antimicrobial activity at 50 µg concentration by cup-plate method.***

Keywords: yrazolines., Anti-microbial activity

I. INTRODUCTION

Nitrogen containing five membered heterocycles, pyrazolines have proved to be the most useful frame work for therapeutic activities, pyrazolines have attracted attention of medical chemistry for both with regard to heterocyclic chemistry and the pharamacological activities and therapeutic activity, which have been studied extensively for their industrial applications. Pyrazolines gave antidiabetic[1], tranquilizer[2], analgesic[3-4], bactericidal[5-6], cardiovascular[7], antitumor[8], antineoplastic[9].

II. MATERIALS AND METHODS

All the melting points were determined in open glass capillary tubes and are uncorrected. IR spectra recorded on SHIMADZU-FT-IR-8400 Spectrophotometer; 4000-400 cm^{-1} (KBr disc). ^{1}HNMR spectra were recorded on a BRUKER spectrometer (400MHz) instrument using TMS as an internal standard. Mass spectra were recorded on waters QDA spectrophotometer. All the compounds gave satisfactory elemental analysis.

III. EXPERIMENTAL

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Synthesis and Biological Screening of 1-{3-[4'-(Dibenzo [B, F] [1, 4] Thiazepin-11"-Yl) Amino] Phenyl}-5-Aryl-1h-Pyrazol-1-Yl-Ethanones

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[1]*Shri JSB & KMB Arts, Shri ANS Science and Shri NFS Commerce College – Kholwad (Surat)*
[2]*ShriM.&N.Virani Science College – Kalawad Road, Rajkot-360005 (GUJ) INDIA*

Abstract: ***Acetyl pyrazoline derivatives procuring shows better therapeutic activity looking at their versatile therapeutic importance and with an aim to getting to synthesize some new pyrazolines. The synthesis of 1-{3-[4'-(diabenzo[b, f][1,4] thiazepin-11"-yl)amino]phenyl}-5-aryl-1-H-pyrazol-1-yl-ethanone have been synthesis by the cyclo condensation of chalcones(5a-5j)with hydrazine hydrate and glacial acetic acid. The constitution of the products has been characterized by elemental analyses IR, ^{1}H NMR and Mass spectral study. The products were screened for their antimicrobial activity against Gram +ve bacteria Gram negative bacteria and fungi at 50 µg concentration by cup-plate method.***
Keywords: Pyrazolines, Anti-microbial activity

I. INTRODUCTION

Pyrazolines containing five membered heterocycles, pyrazolines possess good therapeutic activities. which have been studied extensively for their industrial applications. Pyrazolines gave Anticonvalsant[1-2], Fungicidal[3], Herbicidal[4], Insecticidal[5], Analgesic[6-7], etc activities.

II. MATERIALS AND METHODS

All the melting points are determined in open capillary tubes and are uncorrected. IR spectra recorded on SHIMADZU-FT-IR-8400 Spectrophotometer; 4000-400 cm^{-}(KBr disc). 1H NMR spectra were recorded on a BRUKER spectrometer (400MHz) instrument

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SYNTHESIS, ANTIBACTERIAL AND ANTIFUNGAL ACTIVITY OF 2-{1'-ARYL-1'-[4''-(3'''- CHLOROPHENYL) PIPERAZIN-YL]-METHYL}-CYCLOHEXANONE HYDROCHLORIDE

Rakesh P. N. Roshan[1], D. M. Purohit[2] and Sandip K. Matariya[3]*

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ABSTRACT

2-{1'-Aryl-1'-[4''-(3'''-chlorophenyl) piperazin-yl]-methyl}-cyclohexanone hydrochloride (4a-4l) have been synthesized. The products have been assayed for their antibacterial and antifungal activity against Gram+ve, Gram-ve bacteria and fungi. All the products were assigned with IR, ^{1}HNMR, Mass Spectra, TLC, and elemental analysis. Some of the products showed moderate activity, compare with known standard drugs.

KEYWORDS: 2-{1'-Aryl-1'-[4''-(3'''-chlorophenyl) piperazin-yl]-methyl}-cyclohexanone drugs.

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SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF 2-{1'-ARYL-1'-[4''-(2'''-HYDROXY ETHOXY ETHYL) PIPERAZIN-YL]-METHYL}-CYCLOHEXANONE HYDROCHLORIDE

Rakesh P. N. Roshan[1], D. M. Purohit[2] and Sandip K. Matariya[1]*

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ABSTRACT

2-{1'-Aryl-1'-[4''-(2''-hydroxyethoxy ethyl)piperazin-yl]-methyl}-cyclohexanone hydrochloride (4a-4l) have been synthesized. The products have been assayed for their antimicrobial activity against Gram+ve, Gram-ve bacteria and fungi. All the products were assigned with IR, 1HNMR, Mass Spectra, TLC, and elemental analysis. Some of the products showed moderate activity, compare with known standard drugs.

KEYWORDS: 2-{1'-Aryl-1'-[4''-(2''-hydroxyethoxy ethyl)piperazin-yl]-methyl}-cyclohexanone drugs.

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Synthesis, Antibacterial and Antifungal Activity of 2-{1'-Aryl-1'-[4''-(2''', 3'''-Dichlorophenyl) Piperazin-Yl]-Methyl}-Cyclohexanone Hydrochloride

Rakesh P.N.Roshan[1], D.M.Purohit[2], Sandip K.Matariya[3]
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Abstract: ***2-{1'-Aryl-1'-[4''-(2''',3'''-dichlorophenyl)piperazin-yl]-methyl}-cyclohexanone hydrochloride (4a-4l)have been synthesized. The products have been assayed for their antibacterial and antifungal activity against Gram+ve, Gram-ve bacteria and fungi. All the products were assigned with IR, [1]HNMR, Mass Spectra, TLC, and elemental analysis. Some of the products showed moderate activity, compare with known standard drugs.***

I. INTRODUCTION

Piperazine derivatives showed a vital role largely due to the wide ranging of therapeutic activities. Taking into consideration diverse biodynamic activities such as analagesic[1], antibacterial[2], antidiabetic[3], antifungal[4], antialcer[5, 6], antihistaminic[7], anthlminitic[8], antiinflammatory[9], antimicrobial[10]etc.The Mannich bases (4a-4l) have been synthesized by the condensation of 4-(2,3'-dichlorophenyl) piperazine hydrochloride, cyclohexanone with aromatic aldehyde in the presence of hydrochloric acid. All the products (4a-4l)were assigned with IR, [1]HNMR, Mass Spectra, TLC and Elemental analysis. The physical data recorded in Table no: I. antibacterial and anti-fungal activity recorded in Table no: II and comparable antibacterial and anti-fungal activity compared with known standard drugs represented in Table no: III

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CHEMISTRY & BIOLOGY INTERFACE
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Etidronic acid catalyzed simple, facile and generalized synthetic protocol for preparation of 2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylates

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**Email: pratikambasana@gmail.com, patelanil32@gmail.com*
Received 20 June 2018; Accepted 4 September 2018

Abstract: A facile and efficient cyclo-condensation reaction of substituted ortho-phenylenediamines with an aldehyde or carboxylic acid using etidronic acid to furnish hitherto unreported Methyl 4-methyl-2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylatederivatives was described. A new and efficient protocol was developed as a homogenous catalyst for the synthesis of benzimidazoles under conventional and microwave irradiated reaction atmosphere. This methodology has the advantage of excellent yields with short reaction time and highly robust & practical reaction arrangement.

Keywords: Homogenous catalyst, bisphosphonate, microwave assisted organic synthesis (MAOS), benzimidazoles, and fused heterocycles.

1. Introduction

Research in synthetic organic chemistry has observed ever continuing search for newer of TIE-2 and VEGFR-2 tyrosine kinase receptors[4], antitumor agents[5], gamma-aminobutyric acid (GABA) agonists[6], and 5-HT3 antagonists[7]. The scaffold is

Folia Med (Plovdiv). 2018 Dec 1;60(4):594-600. doi: 10.2478/folmed-2018-0026.

Triterpenoid and Fatty Acid Contents from the Stem Bark of Cordia dichotoma (Forst f.)

Pankajkumar B Nariya [1], Vinay J Shukla [2], R N Acharya [2], Mukeshkumar B Nariya [3], Jayesh M Dhalani [3], Anilkumar S Patel [1], Pratik A Ambasana [1]

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PMID: 31188773 DOI: 10.2478/folmed-2018-0026

Abstract

Aim: To isolate and determine the chemical constituents of the stem bark of Cordia dichotoma (Forst f.), a plant used for medicinal purpose in folk medicine.

Materials and methods: Petroleum ether extract of the stem bark was used for this study. Saponification process was performed to separate fatty acid and unsaponifiable matter.

Results: One triterpenoids, α-amyrin was isolated from the bark by using isocratic elution. The chemical compounds isolated, for the first time, were analyzed by GC/MS, IR, and UV. The chemical composition of the fatty acids methyl esters (FAMEs) in bark of Cordia dichotoma were also analyzed by gas chromatography-mass spectrometry. After methyl-esterification, 17 components were identified in the bark. The derivatization conditions were investigated in order to validate this method.

Conclusion: The present analysis revealed that Cordia dichotoma stem bark contains 17 fatty acid. The principal themes of the review highlight the development and application of chromatographic techniques for the separation, isolation and detection of the compounds.

Keywords: Cordia dichotoma; GC-MS; fatty acid methyl ester; tri-terpenoids; α-Amyrin.

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Journal of Scientific & Industrial Research
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An Approach to Identify Sterol Entities from *Abrus Precatorius*'s Seeds by GC-MS

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Sterols are most important compounds in living organisms and it is found in unsaponifiable fraction of plant. The objective of this investigation was to identify the chemical constituents of the seeds of *Abrus Precatorius*. A plant used for medicinal purpose in folklore. Petroleum ether extract of the seeds was used for this study. Saponifiable fraction and unsaponifiable fractions were separated. Compounds extracted in di-ethyl ether and separated using column chromatography. Stigmasterol, gamma sitosterol, campesterol were identified from the seeds by using gradient elution. The eluted chemical compounds were analysed by GC-MS. The present analysis revealed that seeds of *Abrus Precatorius* contain three sterols compound. Principal themes of the study were to highlight the development and application of chromatographic techniques for the detection of the sterols compounds by single injection which will be used for natural product and pharmaceutical industries.

Keywords: *Abrus Precatorius,* GC-MS, Stigmasterol, Campesterol, Gamma Sitosterol

Introduction

The plant sterols are most important compound for

Seeds are toxic because of the presence of abrin[8]. The present paper describes a simple, fast method based

JOURNAL OF HETEROCYCLIC CHEMISTRY

Article

An Efficient One-Pot Synthesis of Highly Substituted Pyridone Derivatives and Their Antimicrobial and Antifungal Activity

Archana B. Pandit, Mahesh M. Savant, Kartik D. Ladva

First published: 17 February 2018 | https://doi.org/10.1002/jhet.3128 | Citations: 9

Abstract

A series of carboxamide and cyano functionalized pyridone derivatives **4a**–**q** have been synthesized *via* one-pot synthesis of various aldehydes **1a**–**q**, acetoacetanilide **2**, and cyanoacetamide **3**. The reaction was simple and afforded pyridone derivatives in good yield, 89 to 93%. The novel pyridone derivatives were achieved by Hantzch one-pot synthesis. Moreover, the synthesized compounds were screened against Gram-positive and Gram-negative bacteria and fungi for their activity. Among them, compound **4c** shows highest inhibition at 4.25 mm against *Staphylococcus aureus* and 3.75 mm against *Escherichia coli* Gram-positive and Gram-negative bacteria, respectively.

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Facile synthesis of highly functionalized novel pyrazolopyridones using oxoketene dithioacetal and their anti-HIV activity

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ABSTRACT

A series of novel 3-amino-4,5-dihydro-6-methyl-4-oxo-*N*-aryl-1*H*-pyrazolo[4,3-c]pyridine-7-carboxamide have been synthesized starting from various oxoketene dithioacetals. The cyclocondensation reaction of 2-(bis(methylthio)methylene)-3-oxo-*N*-arylbutanamide **2a–w** with cyanoacetamide using NaO*i*Pr as base under reflux condition afforded novel highly functionalized pyridone **3a–w** derivatives. Further, [3 + 2] cyclocondensation reaction of pyridones with hydrazine in the presence of alcohol was yielded pyrazolopyridones (23 nos) **4a–w** with excellent yields. All newly synthesized compounds were evaluated for *in vitro* anti-HIV activity using MTT method. Most of these compounds have showed moderate to potent activity against HIV-1 (III_B) and HIV-2 (ROD) strains with an IC_{50} ranging from >18 IC_{50} [µg/ml] to <100 IC_{50}[µg/ml]. Among them, compounds **4j** and **4v** were identified as the most promising compound for both types of HIV strains. (IC_{50} = 18 µg/ml). Three compounds **4l, 4m**, and **4p** have been found potent anti-HIV 1 and 2 activity against MT-4 cells.

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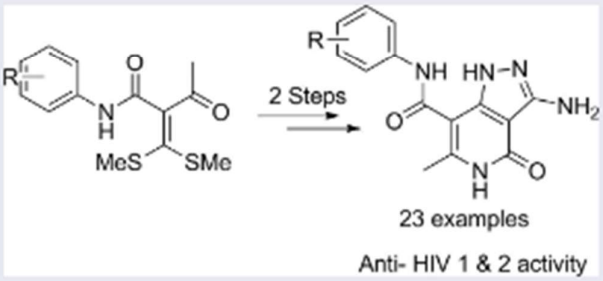
Received 29 November 2017

KEYWORDS
Anti-HIV activity; highly functionalized pyrazolopyridone; ketene dithioacetals; MTT method

GRAPHICAL ABSTRACT



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Folia Med (Plovdiv). 2018 Dec 1;60(4):594-600. doi: 10.2478/folmed-2018-0026.

Triterpenoid and Fatty Acid Contents from the Stem Bark of Cordia dichotoma (Forst f.)

Pankajkumar B Nariya [1], Vinay J Shukla [2], R N Acharya [2], Mukeshkumar B Nariya [3], Jayesh M Dhalani [3], Anilkumar S Patel [1], Pratik A Ambasana [1]

Affiliations + expand

PMID: 31188773 DOI: 10.2478/folmed-2018-0026

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Abstract

Aim: To isolate and determine the chemical constituents of the stem bark of Cordia dichotoma (Forst f.), a plant used for medicinal purpose in folk medicine.

Materials and methods: Petroleum ether extract of the stem bark was used for this study. Saponification process was performed to separate fatty acid and unsaponifiable matter.

Results: One triterpenoids, α-amyrin was isolated from the bark by using isocratic elution. The chemical compounds isolated, for the first time, were analyzed by GC/MS, IR, and UV. The chemical composition of the fatty acids methyl esters (FAMEs) in bark of Cordia dichotoma were also analyzed by gas chromatography-mass spectrometry. After methyl-esterification, 17 components were identified in the bark. The derivatization conditions were investigated in order to validate this method.

Conclusion: The present analysis revealed that Cordia dichotoma stem bark contains 17 fatty acid. The principal themes of the review highlight the development and application of chromatographic techniques for the separation, isolation and detection of the compounds.

Keywords: Cordia dichotoma; GC-MS; fatty acid methyl ester; tri-terpenoids; α-Amyrin.

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CHEMISTRY & BIOLOGY INTERFACE
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Etidronic acid catalyzed simple, facile and generalized synthetic protocol for preparation of 2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylates

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Received 20 June 2018; Accepted 4 September 2018

Abstract: A facile and efficient cyclo-condensation reaction of substituted ortho-phenylenediamines with an aldehyde or carboxylic acid using etidronic acid to furnish hitherto unreported Methyl 4-methyl-2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylatederivatives was described. A new and efficient protocol was developed as a homogenous catalyst for the synthesis of benzimidazoles under conventional and microwave irradiated reaction atmosphere. This methodology has the advantage of excellent yields with short reaction time and highly robust & practical reaction arrangement.

Keywords: Homogenous catalyst, bisphosphonate, microwave assisted organic synthesis (MAOS), benzimidazoles, and fused heterocycles.

JOURNAL OF HETEROCYCLIC CHEMISTRY

Article

An Efficient One-Pot Synthesis of Highly Substituted Pyridone Derivatives and Their Antimicrobial and Antifungal Activity

Archana B. Pandit, Mahesh M. Savant, Kartik D. Ladva

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Abstract

A series of carboxamide and cyano functionalized pyridone derivatives **4a–q** have been synthesized *via* one-pot synthesis of various aldehydes **1a–q**, acetoacetanilide **2**, and cyanoacetamide **3**. The reaction was simple and afforded pyridone derivatives in good yield, 89 to 93%. The novel pyridone derivatives were achieved by Hantzch one-pot synthesis. Moreover, the synthesized compounds were screened against Gram-positive and Gram-negative bacteria and fungi for their activity. Among them, compound **4c** shows highest inhibition at 4.25 mm against *Staphylococcus aureus* and 3.75 mm against *Escherichia coli* Gram-positive and Gram-negative bacteria, respectively.

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ABSTRACT

Design, Synthesis, Characterization and Antimicrobial screening of 4-((4-((6-methylbenzo[d]thiazol-2-yl)amino)-6-(phenylamino)-1,3,5-triazin-2-yl)oxy)-2H-chromen-2- one derivatives

Archana B. Pandit and Kartik D. Ladva

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DOI : http://dx.doi.org/10.29055/jccs/665

ABSTRACT

We have described an easy and conventional method for the synthesis of novel 4-hydroxy coumarin, 2-amino-6-methyl benzothiazole and arylamino bearing 1,3,5-triazine derivatives with good to high yields. The reaction of cyanuric chlorides with coumarin afforded the intermediates under basic condition. Followed by reaction with benzothiazole derivative and different amines under developed reaction conditions yielded the desired trisubstituted 1,3,5-triazines 6a-n. Among the synthesized compounds, some compounds were screened against Gram positive and Gram negative bacteria and fungi and examined zone of inhibition. Out of them, compound 6h has found significant against four microorganisms up to the inhibition of 1.75 to 5.75 mm.

Keywords :Cyanuric chloride, Benzothiazole, 4-Hydroxy coumarin, antimicrobial screening.

Back

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Facile synthesis of highly functionalized novel pyrazolopyridones using oxoketene dithioacetal and their anti-HIV activity

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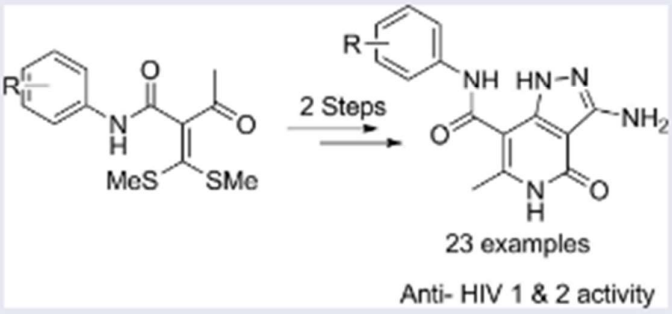
ABSTRACT

A series of novel 3-amino-4,5-dihydro-6-methyl-4-oxo-*N*-aryl-1*H*-pyrazolo[4,3-c]pyridine-7-carboxamide have been synthesized starting from various oxoketene dithioacetals. The cyclocondensation reaction of 2-(bis(methylthio)methylene)-3-oxo-*N*-arylbutanamide **2a–w** with cyanoacetamide using NaO*i*Pr as base under reflux condition afforded novel highly functionalized pyridone **3a–w** derivatives. Further, [3 + 2] cyclocondensation reaction of pyridones with hydrazine in the presence of alcohol was yielded pyrazolopyridones (23 nos) **4a–w** with excellent yields. All newly synthesized compounds were evaluated for *in vitro* anti-HIV activity using MTT method. Most of these compounds have showed moderate to potent activity against HIV-1 (III_B) and HIV-2 (ROD) strains with an IC_{50} ranging from >18 IC_{50} [μg/ml] to <100 IC_{50}[μg/ml]. Among them, compounds **4j** and **4v** were identified as the most promising compound for both types of HIV strains. (IC_{50} = 18 μg/ml). Three compounds **4l, 4m**, and **4p** have been found potent anti-HIV 1 and 2 activity against MT-4 cells.

GRAPHICAL ABSTRACT



ARTICLE HISTORY
Received 29 November 2017

KEYWORDS
Anti-HIV activity; highly functionalized pyrazolopyridone; ketene dithioacetals; MTT method

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A Convenient Synthesis of Trisubstituted 1,3,5-triazine Derivatives and their Antimicrobial Screening

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ABSTRACT

A series of novel 1,3,5-triazine derivatives bearing various aryl amine, 2-amino pyrazine and 4-hydroxy coumarin moieties as substituents have been synthesized by an easy and conventional method using sequential nucleophilic substitution of chlorine atoms of cyanuric chloride. The reaction of cyanuric chloride with 4-hydroxy coumarin in acetone using alkaline medium at 0-5°C was afforded compound 3 in good yield. Followed by reaction 3 with 2-amino pyrazine and then various aromatic amines have afforded target compounds 6a-n in good yields. All the newly synthesized compounds were characterized by using spectroscopic analysis and then examined for their ability to inhibit the two Gram-positive bacteria (Bacillus subtilis and Staphylococcus aureus) Gram-negative bacteria (Escherichia coli and Pseudomonas aeruginosa) and one fungal species (Aspergillus niger) for biological interest.

Keywords: 1,3,5-Triazine, 4-Hydroxy coumarin, 2-Amino pyrazine, Trisubstituted triazines

INTRODUCTION

Coumarin derivatives have played a pivotal role in medicinal chemistry due their broad biological properties [1]. Among the various coumarin derivatives, 4-hydroxy coumarins are potential in therapeutic applications such as anticancer [2], antimalarial [3], antifungal [4], antiviral [5], anticoagulants [6]. They have yielded important results as antibiotics (Novobiocin) [7], anti-AIDS agents (Calanolides) [8] and antitumor drugs (Gelparvarin) [9]. Some of these drugs derived from 4-hydroxycoumarin have been thoroughly investigated [10]. Pyrazine derivatives possess a broad spectrum of biological activity and fulfill an important function in animal metabolism [11] and also other applications [12,13]. These

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Etidronic acid catalyzed simple, facile and generalized synthetic protocol for preparation of 2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylates

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Abstract: A facile and efficient cyclo-condensation reaction of substituted ortho-phenylenediamines with an aldehyde or carboxylic acid using etidronic acid to furnish hitherto unreported Methyl 4-methyl-2-substituted-1*H*-benzo[*d*]imidazole-6-carboxylatederivatives was described. A new and efficient protocol was developed as a homogenous catalyst for the synthesis of benzimidazoles under conventional and microwave irradiated reaction atmosphere. This methodology has the advantage of excellent yields with short reaction time and highly robust & practical reaction arrangement.

Keywords: Homogenous catalyst, bisphosphonate, microwave assisted organic synthesis (MAOS), benzimidazoles, and fused heterocycles.

1. Introduction

of TIE-2 and VEGFR-2 tyrosine kinase

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A Comparative Study on Phyto-Constitutional Profiling of *Carica papaya* Leaves

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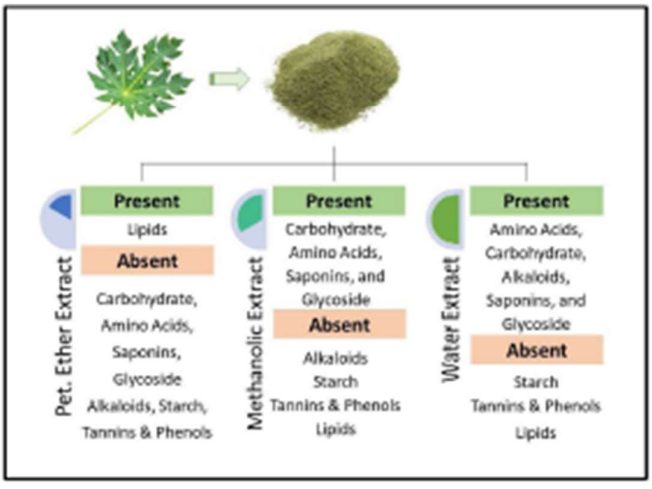
Accepted on 11th June, 2018

ABSTRACT

Carica papaya (Linn) plant is nature's own basket of various phyto-nutrients, and its leaves are used as the most effective supplement in the treatment of dengue fever. It possesses unparallel activity to increase platelet counts in the body, and hence finds its place as a marketed drug under multiple brand names like Caripill, Caripaya, CPL Tablet, Caripap, etc. for the treatment of dengue fever. This versatile potency of the plant led us to investigate phyto-constitutional profiling of C. papaya leaves. We have evaluated 3 most abundant yet unlike solvents viz. water, methanol, and petroleum ether for extraction to estimate maximum possible phyto-constituents. The report comprises an exhaustive phyto-constitutional profiling of C. papaya leaves in 9 diverse chemical classes with more than 24 chemical tests, supporting the presence of carbohydrate, amino acids, alkaloids, saponins, and glycosides as major chemical constituents.

Graphical Abstract



Keywords: *Carica papaya*, Phytochemical analysis, Phytonutrients, Phyto-constitutes, Extract.

Folia Med (Plovdiv). 2018 Dec 1;60(4):594-600. doi: 10.2478/folmed-2018-0026.

Triterpenoid and Fatty Acid Contents from the Stem Bark of Cordia dichotoma (Forst f.)

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Affiliations + expand

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Abstract

Aim: To isolate and determine the chemical constituents of the stem bark of Cordia dichotoma (Forst f.), a plant used for medicinal purpose in folk medicine.

Materials and methods: Petroleum ether extract of the stem bark was used for this study. Saponification process was performed to separate fatty acid and unsaponifiable matter.

Results: One triterpenoids, α-amyrin was isolated from the bark by using isocratic elution. The chemical compounds isolated, for the first time, were analyzed by GC/MS, IR, and UV. The chemical composition of the fatty acids methyl esters (FAMEs) in bark of Cordia dichotoma were also analyzed by gas chromatography-mass spectrometry. After methyl-esterification, 17 components were identified in the bark. The derivatization conditions were investigated in order to validate this method.

Conclusion: The present analysis revealed that Cordia dichotoma stem bark contains 17 fatty acid. The principal themes of the review highlight the development and application of chromatographic techniques for the separation, isolation and detection of the compounds.

Keywords: Cordia dichotoma; GC-MS; fatty acid methyl ester; tri-terpenoids; α-Amyrin.

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Original Article

Metabolic Syndrome among Adults of Surendranagar District of Saurashtra, Gujarat: A Cross-Sectional Study

Chaitanya Gopalrao Chinawale, Dipak V. Parmar[1], Parth Kavathia[2], Twinkle Rangnani[2], Jainy Thakkar[2], Girija Kartha[3]
Department of Physiology, [2]MBBS Students and [3]Department of Community Medicine, C U Shah Medical College, Surendranagar, [1]Department of Biochemistry, M&N Virani Science College, Rajkot, Gujarat, India

Abstract

Background: The metabolic syndrome (MetS) is a complex disorder and a major health concern in developing countries. Data on MetS in Indian population show multiplicity. There are no published reports about the prevalence of MetS in population of Saurashtra region, Gujarat. The aim of this study is to assess the prevalence of MetS and its components in adult population of this region. **Methods:** This cross-sectional observational study was carried out among 473 participants who attended free health checkup camps. Demographics, personal details along with anthropometric, clinical, and biochemical data were recorded. The MetS was diagnosed as per the definition provided by Joint Interim Statement 2009. **Results:** The overall prevalence of MetS among studied population was found to be 41.01% (females 44.21% and males 37.91%). Abdominal obesity (66.38%), low high-density lipoprotein-cholesterol (64.69%), and high blood pressure (40.59%) appeared as the most prevalent components. MetS showed a significant association with age, body mass index, total cholesterol, habit of chewing tobacco, and history of hypertension and hyperglycemia. **Conclusion:** The high prevalence of MetS shows that population of Saurashtra is at an increased risk of cardiovascular disease (CVD) and diabetes. This highlights the need for extensive diabetes and CVD prevention and control program in this region.

Keywords: Abdominal obesity, dyslipidemia, metabolic syndrome, Saurashtra

Introduction

The metabolic syndrome (MetS) is a global health issue, characterized by clustering of various interlinked risk factors such as abdominal obesity, hypertension, hyperglycemia, dyslipidemia, pro-inflammatory state, and a prothrombotic state.[1] Degree and prevalence of MetS vary with ethnicity, genetic susceptibility, and geographic location.[2] Data on MetS in Indian population also show multiplicity may be either due to difference in the defining criteria of MetS or the ethnic and cultural complexity of different regions.[2] Marked shift in lifestyle, affluence in urbanization, and oil- and sugar-rich dietary habits have pushed ethnic Gujarati people to the forefront as contributors to cardiovascular disease (CVD) risk factors.[4] There are no published reports available about prevalence of MetS in population of Saurashtra region, Gujarat. Hence, the study was planned to evaluate the prevalence of MetS and its components in adult population of Saurashtra and to find its association with various anthropometric and biochemical indicators.

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Methods

Study design

A cross-sectional observational study was conducted in the field practice area of a Medical College of Surendranagar district of Saurashtra, Gujarat, after approval from the Institutional Ethics Committee on Human Research. A total 534 participants were screened through the free health checkup camps arranged at four different places of field practice area. All individuals ranging in age from 20 to 80 years were included in the study. Participants with self-reported pregnancy state, individuals using steroids, antibiotics, or needing hospitalization and those who refused to give written consent were excluded from

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Increased accumulation of phenolic metabolites in groundnut (*Arachis hypogaea* L.) genotypes contribute to defense against *Sclerotium rolfsii* infection

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ABSTRACT

Fungal infections cause several metabolic changes to the plants, which can affect its physiology and survival in various ways. In the present study, we have analysed various phenolic compounds and activity of oxidative enzymes in healthy and *Sclerotium rolfsii*-infected groundnut genotypes. Increased phenolics content and higher activity of oxidative enzymes was observed in the tolerant genotype (CS 19, GG 16) followed by susceptible genotype (GG 20, TG 37A). Among the phenolic compounds tested, chlorogenic acid content has increased greatly in leaf, stem and root of infected tolerant genotypes compared to the respective controls. *In vitro* growth of *S. rolfsii* showed significant inhibition at concentrations 500 and 1000 µg/mL of phenolic compounds in the radial growth inhibition assay. These results have strongly suggested that, higher accumulation of chlorogenic acid could be an important factor in imparting resistance and protecting groundnut against *S. rolfsii* infection in tolerant genotypes.

ARTICLE HISTORY
Received 16 September 2017
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KEYWORDS
Chlorogenic acid; oxidative enzymes; stem rot

Introduction

Groundnut (*Arachis hypogaea* L.) is one of the most important oilseed crops cultivated throughout tropical, subtropical and warm temperate regions. India is among the largest producers of groundnut with average annual production of 8.64 million tones and with average yield of 1.26 tons per hectare (Madhusudhana 2013; Ranjana et al. 2017). Stem rot

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SYNTHESIS AND BIOLOGICAL SCREENING OF 2-AMINO-6-ARYL-4-{[(3′-DIFLUOROMETHOXY)-5′-(3″-METHYL)-4″-(2‴,2‴,2‴-TRIFLUOROETHOXY)PYRIDIN-2″-YL]METHOXYPHENYL}-NICOTINONITRILES.

Sandip P. Kakadiya, Heta D. Purohit, Asha K. Joshi, Pankaj M. Akbari and Dipak M. Purohit*

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ABSTRACT

Cyanopyridine derivatives shows good biological and therapeutic activities, With a view of getting to synthesized 2-Amino-6-aryl-4-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy) pyridin-2″-yl]methoxyphenyl}-nicotinonitriles (3a-3k) by the condensation of (E)-3-{[(3′-difluoromethoxy)-5′-(3″-methyl)-4″-(2‴,2‴,2‴-trifluoroethoxy) pyridine-2-yl] methoxy phenyl}-1-aryl-prop-2-ene-1-ones with malononitrile in presence of ammonium acetate. All Synthesized compounds characterized by TLC, IR, ^{1}HNMR, Mass spectra and Physical constants. All the synthesized compounds screened for their antimicrobial activity against Gram +ve bacteria *(B.mega, B.Subtillis)* Gram -ve bacteria *(E.coli, P.fluorescens)* and fungi *(A.awamori).*

KEYWORDS: Chacones, Cyanopyridines, Malononitrile, Ammonium acetate (Heterocyclic Compounds).

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Eco-friendly process for preparation of biodiesel from WFO over MTSA-Si catalyst: An innovative approach for the utilization of side product

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Abstract

Present work aimed for the synthesis of a promising MTSA-Si catalyst and its application for biodiesel preparation using WFO. It has been illustrated from the experimental results, the most favorable reaction conditions for the biodiesel preparation using WFO are (i) 1:10 oil to methanol molar ratio, (ii) 5% MTSA-Si catalyst (*w/w*), (iii) 130°C reaction temperature and (iv) 10h reaction time, for the 98.22% yield of biodiesel. The side product raw glycerin was further transformed into the triglycerides over MTSA-Si catalyzed lauric acid esterification. The fuel properties of biodiesel were estimated and correlated fuel standards.

Journal of Applied Horticulture, 20(2): 103-111, 2018

Some natural extracts from plants as low-cost alternatives for synthetic PGRs in rose micropropagation

Urmi Chauhan, Anil Kumar Singh, Divyesh Godani, Satish Handa, Praveen S. Gupta, Shivani Patel and Preetam Joshi*

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Abstract

Effect of various plant extracts during *in vitro* culture of rose (*Rosa hybrida* L. *cv.* bush rose), with the objective of replacing synthetic Plant Growth regulators (PGRs) to reduce the production cost, was studied. Test extracts included sweet lime juice, orange juice, sweet corn extract, tomato fruit extract and coconut water. Significant increase in shoot multiplication (15.41±1.12 shoots/explant), shoot length (3.66±0.08 cm), fresh weight (7.48±0.71 g) and dry weight (1.68±0.075 g) was observed when coconut water (@10 % v/v) was used in the standard MS medium. Addition of tomato fruit extract in the MS medium did not show any noteworthy effect on growth in rose micropropagules. Total chlorophyll and other biomolecules varied with the change in the type and concentration of plant extract. Highest accumulation of biomolecules was recorded on coconut water (@ 10 % v/v) supplemented MS medium followed by sweet corn extract and orange juice. Although tomato fruit extract (@10 % v/v) enhanced the total chlorophyll biosynthesis but at the same time depressed the accumulation of other biomolecules. Treatment of plant extract was given in two different ways; a) incorporation in the medium prior to autoclaving (PrA) and b) post-autoclaving addition of filter sterilized extract (PoA). No significant changes were noted in growth when mode of application was changed. To know the physiological pandemonium in the cells, peroxidase and IAA-oxidase activity was noted. No abnormal changes in the activity of these enzymes were recorded in the propagules grown on different plant extracts. The total cost of synthetic 6-benzylaminopurine (BA) can be reduced upto 98 % by replacing it with natural plant extract.

Key words: Rose micropropagation, Synthetic PGRs, natural plant extract, 6-benzylaminopurine, growth, low-cost alternatives

Introduction

Rose is a woody perennial shrub which is native to China but due to its high demand and economic importance, is now grown all over the world. The genus Rosa belongs to family Rosaceae which during past two decade (Singh and Pal, 2015).

There are several factors which add to the production cost of tissue culture grown plantlets. Foremost of these is the cost of chemicals and glassware (which are often very expensive) used in

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An analytical study of Cryptography and Steganography technique for robust Security and integrity of the data

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***Abstract*:** As we all know the data security is the biggest concern for all the domains and it has very deep impact on the data and its security. Here in this paper we have tried to carry out the analytical study of the different cryptography and steganography technique which is used to maintain the integrity of the data. Any type of cover object can be taken that may be text, image or video to embed the secret information. In this paper a brief analysis of different image stegnography techniques and their comparison is done.

***Keywords*:** Steganography, Embedding, LZW, Stego-Key, PSNR

1. INTRODUCTION

The rise of internet plays an important role in information technology. Nowadays use of internet has been increasing day by day. Providing security has also become important issue due to the use of internet. Cryptography and Steganography are the ways to provide the security to the information. Cryptography is used to encrypt the message so that it is protected from any third parties. Steganography is a method that is used to hide information in a cover so that nobody can guess it. The cover can be any image, text, audio or video. Steganography defines from Greek word 'Stegnos' means secret and 'Graphy' means

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COMMUNICATION

Triethanolamine-catalyzed expeditious and greener synthesis of 2-amino-4*H*-chromenes

Anilkumar S. Patel, Satishkumar D. Tala, Pankajkumar B. Nariya, Kartik D. Ladva, Naval P. Kapuriya

First published: 23 October 2018 | https://doi.org/10.1002/jccs.201800203 | Citations: 3

Funding information University Grants Commission (UGC) of India

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Abstract

Triethanolamine (TEOA), an inexpensive and eco-friendly base, was used to efficiently catalyze the three-component condensation reaction of heterocyclic/aromatic aldehyde, (α/β)-naphthol, and malononitrile in water to give the corresponding substituted 2-amino-4*H*-chromene derivatives with excellent yields.

REFERENCES

JOURNAL OF THE CHINESE CHEMICAL SOCIETY

Volume 66, Issue 3
March 2019
Pages 247-252

References Related Information

Recommended

Synthesis and characterization of the novel diamine-functionalized Fe_3O_4@SiO_2 nanocatalyst and its application for one-pot three-component synthesis of chromenes

Ali Maleki, Reza Ghalavand, Razieh Firouzi Haji

Applied Organometallic Chemistry

Microwave Accelerated Synthesis of 2-Amino-4*H*-Chromenes Catalyzed by WELFSA: A Green Protocol

Kamanna, Kantharaju, Santosh. Y. Khatavi

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CHEMISTRY & BIOLOGY INTERFACE
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Synthesis, Characterization & Biological evaluation of some novel 7,8-dihydropyrrolo[1,2-a]pyrimidin-4(6H)-one derivatives

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Received 1 August 2019, Accepted 31 October 2019

Abstract: An efficient and convenient procedure has been developed for the synthesis of some novel 7,8-dihydropyrrolo[1,2-a]pyrimidin-4(6H)-one derivatives like 2-((aryl/alkylamino)methyl)-7,8-dihydropyrrolo[1,2-a]pyrimidin-4(6H)-one and 2-(aryloxymethyl)-7,8-dihydropyrrolo[1,2-a] pyrimidin-4(6H)-one. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and Mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: 7,8-dihydropyrrolo[1,2-a]pyrimidin-4(6H)-one, pyrrolo[1,2-a]pyrimidine, pyrimidine, Antimicrobial activity

Introduction:

The heterocyclic compounds play a major role in drug synthesis. The heterocyclic compounds have usually a stable ring structure which does

important component of nucleic acids at their current use in the chemotherapy of AIDS [3].

Bicyclic pyrimidones derivatives have been identified as powerful HIV integrase inhibitors

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Synthesis, characterization & biological evaluation of some novel 6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-imidazo[2,1-b]thiazole derivatives

Pankaj C. Butani,[1]* Bhagvanji M. Bheshdadia,[1] Kartik D. Ladva[2]

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Abstract: An efficient and convenient procedure has been developed for the synthesis of some novel imidazo[2,1-b]thiazole derivatives like 6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-N-arylimidazo[2,1-b] thiazole-2-carboxamide having 57-71% yield and aryl-6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)imidazo[2,1-b]thiazole-2-carboxylate having 56-74% yield. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and Mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: Antimicrobial activity, Imidazo[2,1-b]thiazole, imidazole, thiazole

Introduction:

Heterocyclic compounds are an important class in pharmaceutical chemistry. A wide variety therefore in the last few decade the research in this field has generated various patents with various therapeutic applications [3]. The chemical structure of imidazo[2.1-b]thiazole is

Journal of Applicable Chemistry
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Synthesis and Antimicrobial Activity of 2-{[(4'-Arylidine-5'oxo-2' phenyl) Imidazolyl]-1'-Yl}-3-Keto-1,5-Dimethyl-2-Phenyl Pyrazole

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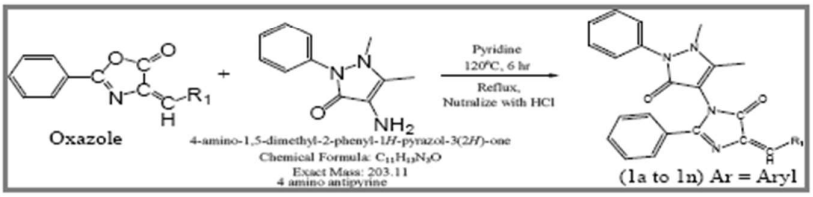
Accepted on 16th January, 2019

ABSTRACT

5-Oxo-imidazoline derivatives exhibited good therapeutic activity, with a view of getting to synthesis 2-{[(4'-arylidine-5'oxo-2'phenyl) imidazolyl]-1'-yl}-3-keto-1,5-dimethyl-2-phenyl pyrazole (1a–1n) have been synthesized, all the synthesized compounds were characterized by TLC, IR, ^{1}H NMR, Mass spectral data. All the synthesized compounds (1a–1n) were screened for their antimicrobial activity at 40 µg concentration.

Graphical Abstract



Keywords: 5-Oxo-imidazolines, Antimicrobial activities.

INTRODUCTION

5-Oxo-imidazoline derivatives shows good therapeutic activities like bacterial [1-4], anticonvulsant [5-7], potent CNS depressant activity [8, 9] sedative and hyonotic [10], hypotensive[11, 12] Local anesthetic[13], antineoplastic [14], antihistamine[15], antipyretic and analgesic[16, 17], anti-inflammatory [18, 19] etc. 2-{[(4'-arylidine-5'oxo-2'phenyl) imidazolyl]-1'-yl}-3-keto-1,5-dimethyl-2-phenyl pyrazole (1a–1n) have been synthesized by the condensation of 4-amino-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one with different azalctones or oxazolones in presence of pyridine.

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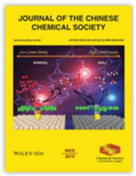

Volume 66, Issue 3
March 2019
Pages 247-252

COMMUNICATION

Triethanolamine-catalyzed expeditious and greener synthesis of 2-amino-4*H*-chromenes

Anilkumar S. Patel, Satishkumar D. Tala, Pankajkumar B. Nariya, Kartik D. Ladva, Naval P. Kapuriya

First published: 23 October 2018 | https://doi.org/10.1002/jccs.201800203 | Citations: 3

Funding information University Grants Commission (UGC) of India

Abstract

Triethanolamine (TEOA), an inexpensive and eco-friendly base, was used to efficiently catalyze the three-component condensation reaction of heterocyclic/aromatic aldehyde, (α/β)-naphthol, and malononitrile in water to give the corresponding substituted 2-amino-4*H*-chromene derivatives with excellent yields.

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INNOVARE ACADEMIC SCIENCES
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Research Article

ISOLATION AND IDENTIFICATION OF NON-POLAR CHEMICAL ENTITY FROM *LEPTADENIA RETICULATA* AERIAL PARTS

JAYESH DHALANI[1], GAURANG DUBAL[1], ANILKUMAR PATEL[2], PANKAJKUMAR NARIYA[2]*

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Received: 23 July 2018, Revised and Accepted: 18 October 2018

ABSTRACT

Objective: *Leptadenia reticulata* is the medicinal plant having many biological activities. It is necessary to find out which types of phytochemical constituents are present in the plant. The objective of this investigation was to isolate and identify the non-polar chemical entity of the areal parts of *L. reticulata* a plant used for medicinal purpose in folklore.

Methods: Petroleum ether extract of the stem bark was used for this study. Non-polar solvent was used to extract non-polar chemical entity from areal parts of *leptadeniareticulata*. Through the saponification process, saponifiable and unsaponifiable matter was separated. Phytochemical constituents were separated using column chromatography. Separated fractions were analyzed on gas chromatography and mass spectrometry (GC-MS) and nuclear magnetic resonance spectroscopy (NMR).

Results: Hentriacontane compound was isolated and confirmed from GC-MS and NMR whereas phytol, Lupeol, β-amyrin, Campesterol, Stigmasterol, gamma-sitosterol identified through GC and mass spectroscopy.

Conclusion: The present study showed that *L. reticulata* areal parts three sterols chemical entity Campesterol, Stigmasterol, gamma-sitosterol and phytol (diterpene alcohol), lupeol (triterpenoid), beta-amyrin (triterpene), and hentriacontane (alkane hydrocarbon). Core determination of the experiment was the development efficient method to isolate or identify the non-polar chemical entity through chromatographic technique.

Keywords: *Leptadenia reticulata*, Jivanti, Hentriacontane, Triterpenoid, Sterol.

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ASIAN JOURNAL OF CHEMISTRY
https://doi.org/10.14233/ajchem.2019.21860

Synthesis of Substituted 4-(4-((3-Nitro-2-oxo-2*H*-chromene-4-yl)amino)phenyl)morpholine-3-one Coumarin Derivatives

YOGESH J. SANGHANI[1,*], SURESH B. KORADIYA[2] and ANILKUMAR S. PATEL[2]

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Received: 30 November 2018; *Accepted*: 24 January 2019; *Published online*: 21 May 2019; AJC-19396

A series of novel 4-(4-amino phenyl) morpholine-3-one substituted coumarin derivatives have been prepared by chloramine coupling reaction and were identified. The novel synthetic route involves nucleophilic substitution reaction of 4-chloro-3-nitro-2*H*-chromene-2-one with 4-(4-amino phenyl)morpholine-3-one. Due to the presence of nitro group in coumarin derivatives make substitution reaction easy and convenient at low temperature. Using DMF as solvent and K_2CO_3 as base various substituted 4-(4-((3-nitro-2-oxo-2*H*-chromen-4-yl)amino)phenyl)morpholine-3-one derivatives (YS-1 to YS-10) can be obtain in good yield and high purity. Structural characterization of all synthesized compound was done by NMR, Mass and IR spectra.

Keywords: 4-Chloro-3-nitro-2*H*-chromene-2-one, 4-(4-Amino phenyl)morpholine-3-one, 4-Hydroxy coumarin.

INTRODUCTION

In the large family of heterocyclic chemistry, coumarin and its derivatives have significant role due to their distinct applications, abundant availability in nature and various routes

We have designed a series of compounds incorporating coumarin and morpholine moeities in the structure in compounds have been synthesized *via* simple steps. A series of novel 4-(4-amino phenyl)morpholine-3-one substituted coumarin

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Research Article

ISOLATION AND IDENTIFICATION OF NON-POLAR CHEMICAL ENTITY FROM *LEPTADENIA RETICULATA* AERIAL PARTS

JAYESH DHALANI[1], GAURANG DUBAL[1], ANILKUMAR PATEL[2], PANKAJKUMAR NARIYA[2]*

[1]Department of Chemistry, School of Science, RK University, Rajkot, Gujarat, India. [2]Department of Chemistry, Shree M. & N. Virani Science College, Rajkot, Gujarat, India. Email: pankaj.nariya@gmail.com

Received: 23 July 2018, Revised and Accepted: 18 October 2018

ABSTRACT

Objective: *Leptadenia reticulata* is the medicinal plant having many biological activities. It is necessary to find out which types of phytochemical constituents are present in the plant. The objective of this investigation was to isolate and identify the non-polar chemical entity of the areal parts of *L. reticulata* a plant used for medicinal purpose in folklore.

Methods: Petroleum ether extract of the stem bark was used for this study. Non-polar solvent was used to extract non-polar chemical entity from areal parts of *leptadeniareticulata*. Through the saponification process, saponifiable and unsaponifiable matter was separated. Phytochemical constituents were separated using column chromatography. Separated fractions were analyzed on gas chromatography and mass spectrometry (GC-MS) and nuclear magnetic resonance spectroscopy (NMR).

Results: Hentriacontane compound was isolated and confirmed from GC-MS and NMR whereas phytol, Lupeol, β-amyrin, Campesterol, Stigmasterol, gamma-sitosterol identified through GC and mass spectroscopy.

Conclusion: The present study showed that *L. reticulata* areal parts three sterols chemical entity Campesterol, Stigmasterol, gamma-sitosterol and phytol (diterpene alcohol), lupeol (triterpenoid), beta-amyrin (triterpene), and hentriacontane (alkane hydrocarbon). Core determination of the experiment was the development efficient method to isolate or identify the non-polar chemical entity through chromatographic technique.

Keywords: *Leptadenia reticulata*, Jivanti, Hentriacontane, Triterpenoid, Sterol.

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2019, 8 (1): 107-111
(International Peer Reviewed Journal)

Synthesis and Antimicrobial Activity of 2-{[(4'-Arylidine-5'oxo-2' phenyl) Imidazolyl]-1'-Yl}-3-Keto-1,5-Dimethyl-2-Phenyl Pyrazole

G. V.Vagadiya[1,2], D. M.Purohit[2] and S. B.Koradiya,[1,3]*

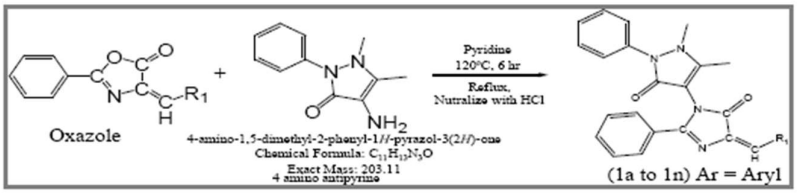
1. Faculty of Doctoral Studies and Research, RK University, Rajkot-5, Gujarat, INDIA
2. Shree M. and N. Virani Science College, Kalawad Road, Rajkot-5, Gujarat, INDIA
3. Department of Chemistry, Atmiya University, Rajkot-5, Gujarat, INDIA
Email: govindvsoni@gmail.com

Accepted on 16th January, 2019

ABSTRACT

5-Oxo-imidazoline derivatives exhibited good therapeutic activity, with a view of getting to synthesis 2-{[(4'-arylidine-5'oxo-2'phenyl) imidazolyl]-1'-yl}-3-keto-1,5-dimethyl-2-phenyl pyrazole (1a–1n) have been synthesized, all the synthesized compounds were characterized by TLC, IR, ^{1}H NMR, Mass spectral data. All the synthesized compounds (1a–1n) were screened for their antimicrobial activity at 40 µg concentration.

Graphical Abstract



Keywords: 5-Oxo-imidazolines, Antimicrobial activities.

INTRODUCTION

Journal of Applicable Chemistry
2019, 8 (2): 680-684
(International Peer Reviewed Journal)

Synthesis and Antimicrobial Activity of 2-{[(4'-Arylidine-5'-Oxo-2'-Phenyl) Imidazolyl]-1'-Yl}-3-(4-Hydroxyphenyl) Propanoic Acids

G. V. Vagadiya[1,2]*, D. M. Purohit[2] and S. B. Koradiya[3]

1. R K University, Faculty of Doctoral Studies & Research, Rajkot, Gujarat, INDIA
2. Shri Manibhai Virani & Smt. Navalben Virani Science College, Rajkot-5, Gujarat, INDIA
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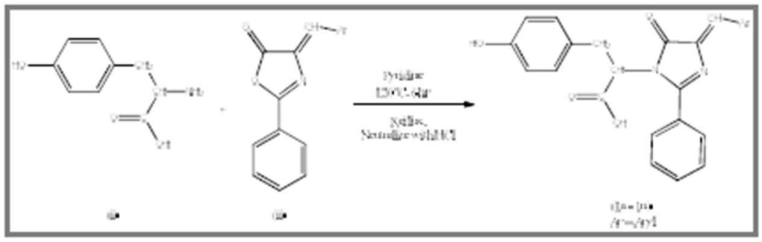
Email: govindvsoni@gmail.com

Accepted on 14th March, 2019

ABSTRACT

Derivatives of 5-oxo-imidazoline exhibited good therapeutic activity, with a view of getting to synthesis 2-{[(4'-arylidine-5'-oxo-2'-phenyl)imidazolyl]-1'-yl}-3-(4-hydroxyphenyl) propanoic acids (1a–1n) have been synthesized, all the derivatives were undergone characterized by IR, ^{1}H NMR and Mass spectral characterization methods. All the synthesized compounds (1a–1n) were evaluated for their antimicrobial activity at 40 µg concentration.

Graphical Abstract



Keywords: 5-Oxo-imidazolines, Antimicrobial activities, Characterization, Reflux.

INTRODUCTION

Derivatives of 5-Oxo-imidazoline exhibited good therapeutic activities like antibacterial [1-4],

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RESEARCH ARTICLE

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CODEN (USA): IJPSPP

Isolation, Identification and Characterization of Degradation Impurity of Atorvastatin in Fixed Dose Combination of Atorvastatin and Ezetimibe

Rajesh Desai[1*], Suresh Koradia[2]

[1]*School of Science, RK University, Rajkot, Gujarat, India*
[2]*Shree M. & N. Virani Science College, Rajkot, Gujarat, India*

ABSTRACT

The objective of this study is to isolation and characterization of unknown degradation product of Atorvastatin calcium in combination formulation product with Ezetimibe by using modern techniques of separation and characterization. An unknown impurity is generating during a forced degradation study of Atorvastatin and Ezetimibe fixed-dose combination tablets. By using the gradient reversed-phase high-pressure liquid chromatographic method, unknown degradation impurity was detected and quantified in the range of 0.05% to 0.2% of Atorvastatin. The impurity was enriched by extreme oxidation degradation of Atorvastatin and isolated through preparative HPLC. The structure of the impurity was characterized by mass and NMR spectrum.

Keywords: Atorvastatin calcium, Ezetimibe, HPLC, Mass, NMR, Degradation.

DOI: 10.25004/IJPSDR.2019.110506 **Int. J. Pharm. Sci. Drug Res. 2019; 11(5): 187-193**

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Synthesis of Substituted 4-(4-((3-Nitro-2-oxo-2*H*-chromene-4-yl)amino)phenyl)morpholine-3-one Coumarin Derivatives

YOGESH J. SANGHANI[1,*], SURESH B. KORADIYA[2] and ANILKUMAR S. PATEL[2]

[1]Department of Chemistry, School of Science, R K University, Rajkot-360020, India
[2]Department of Chemistry, Shree M. & N. Virani Science College, Rajkot-360005, India

*Corresponding author: E-mail: yogeshsanghani481@gmail.com

Received: 30 November 2018; *Accepted*: 24 January 2019; *Published online*: 21 May 2019; AJC-19396

A series of novel 4-(4-amino phenyl) morpholine-3-one substituted coumarin derivatives have been prepared by chloramine coupling reaction and were identified. The novel synthetic route involves nucleophilic substitution reaction of 4-chloro-3-nitro-2*H*-chromene-2-one with 4-(4-amino phenyl)morpholine-3-one. Due to the presence of nitro group in coumarin derivatives make substitution reaction easy and convenient at low temperature. Using DMF as solvent and K_2CO_3 as base various substituted 4-(4-((3-nitro-2-oxo-2*H*-chromen-4-yl)amino)phenyl)morpholine-3-one derivatives (YS-1 to YS-10) can be obtain in good yield and high purity. Structural characterization of all synthesized compound was done by NMR, Mass and IR spectra.

Keywords: 4-Chloro-3-nitro-2*H*-chromene-2-one, 4-(4-Amino phenyl)morpholine-3-one, 4-Hydroxy coumarin.

INTRODUCTION

In the large family of heterocyclic chemistry, coumarin and its derivatives have significant role due to their distinct

We have designed a series of compounds incorporating coumarin and morpholine moeities in the structure in compounds have been synthesized *via* simple steps. A series of novel

ISSN: 2320-5407 Int. J. Adv. Res. 7(10), 251-255

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Article DOI: 10.21474/IJAR01/9828
DOI URL: http://dx.doi.org/10.21474/IJAR01/9828
ISSN NO. 2320-5407

RESEARCH ARTICLE

COMPARISON OF ANTI-MITOTIC AND CYTOTOXIC POTENTIAL OF *PIPER CHABA* (CHAVAK) AGAINST VINCRISTINE BY USING GERMINATION INHIBITION AND *ALLIUM CEPA* ROOT TIP ASSAY.

Mayur P. Parmar and Dipak V. Parmar.
Department of Biochemistry, Shri Manibhai Virani and Smt. Navalben Virani Science College, Rajkot, Gujarat, India.

Manuscript Info

Manuscript History
Received: 06 August 2019
Final Accepted: 08 September 2019
Published: October 2019

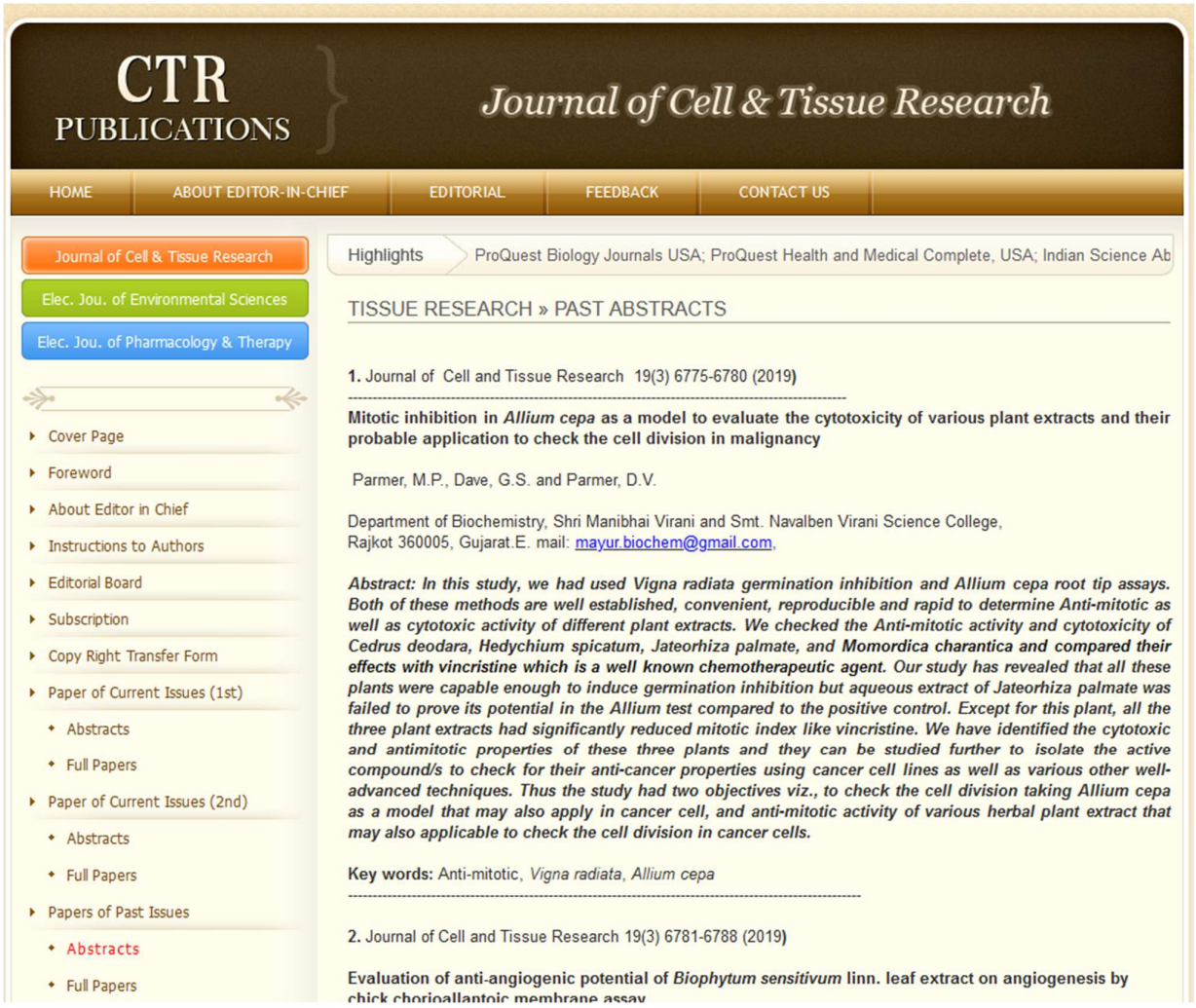
Key words:-
Cytotoxicity, Mitotic index, Cancer, Piper chaba.

Abstract

In the present study, we used *Vigna radiata* germination inhibition and *Allium cepa* root tip assay to demonstrate the Anti-mitotic and cytotoxic potential of *Piper chaba* (Chavak) aqueous extract. We compared the effectiveness of the extract with known anti-cancer drugs, vincristine. We observed nearly complete germination inhibition by the plant extract in the *Vigna radiata* assay. Furthermore, mitotic indices were significantly reduced compared to control. Our study revealed very effective antimitotic as well as cytotoxic activity of the *Piper chaba* aqueous extract like the vincristine.

Introduction:-

Recent reports are suggesting alarming conditions about the life-threatening disease which is undoubted; Cancer. Around 15 percent of deaths worldwide are attributed to cancer. Worldwide, Cancer causes about one-fifth of the deaths in the United States each year. By 2020, about nine hundred thousand Indians are expected to affect by the



CTR PUBLICATIONS

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TISSUE RESEARCH » PAST ABSTRACTS

1. Journal of Cell and Tissue Research 19(3) 6775-6780 (2019)

Mitotic inhibition in *Allium cepa* as a model to evaluate the cytotoxicity of various plant extracts and their probable application to check the cell division in malignancy

Parmer, M.P., Dave, G.S. and Parmer, D.V.

Department of Biochemistry, Shri Manibhai Virani and Smt. Navalben Virani Science College, Rajkot 360005, Gujarat.E. mail: mayur.biochem@gmail.com,

***Abstract:** In this study, we had used Vigna radiata germination inhibition and Allium cepa root tip assays. Both of these methods are well established, convenient, reproducible and rapid to determine Anti-mitotic as well as cytotoxic activity of different plant extracts. We checked the Anti-mitotic activity and cytotoxicity of Cedrus deodara, Hedychium spicatum, Jateorhiza palmate, and Momordica charantica and compared their effects with vincristine which is a well known chemotherapeutic agent. Our study has revealed that all these plants were capable enough to induce germination inhibition but aqueous extract of Jateorhiza palmate was failed to prove its potential in the Allium test compared to the positive control. Except for this plant, all the three plant extracts had significantly reduced mitotic index like vincristine. We have identified the cytotoxic and antimitotic properties of these three plants and they can be studied further to isolate the active compound/s to check for their anti-cancer properties using cancer cell lines as well as various other well-advanced techniques. Thus the study had two objectives viz., to check the cell division taking Allium cepa as a model that may also apply in cancer cell, and anti-mitotic activity of various herbal plant extract that may also applicable to check the cell division in cancer cells.*

Key words: Anti-mitotic, *Vigna radiata*, *Allium cepa*

2. Journal of Cell and Tissue Research 19(3) 6781-6788 (2019)

Evaluation of anti-angiogenic potential of *Biophytum sensitivum* linn. leaf extract on angiogenesis by chick chorioallantoic membrane assay

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ISSN NO. 2320-5407

RESEARCH ARTICLE

OPTIMIZATION OF PROCESS PARAMETERS FOR ENHANCED THERMOSTABLE LIPASE PRODUCTION BY BACILLUS SUBTILIS SHVSC04.

Leena Ambasana[1] and Dr. Neepa Pandhi[2].

1. Assistant Professor, Department of Biotechnology,Shri Manibhai Virani and Smt. Navalben Virani Science College (Autonomous), Saurashtra University Rajkot, 360005, Gujarat, India.
2. Associate Professor and Head, Department of Microbiology, Shri Manibhai Virani and Smt. Navalben Virani Science College (Autonomous), Saurashtra University Rajkot, 360005, Gujarat, India.

Manuscript Info

Manuscript History
Received: 05 September 2019
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Abstract

Thermophilic lipases are stable at higher temperatures, which enhance their demand in industrial applications. In the present study, thermostable lipase was produced from bacterial strain *Bacillus subtilis* SHVSC04 (MN565992) isolated from Tuva Timba hot spring, Gujarat, India. Isolate displayed maximum growth in basal medium augmented with 3% sucrose, 3% yeast extract and 2 % salt at pH 7 and 50°C in 48 h. Whereas, isolate produced maximum lipase in tributyrin agar medium with pH 7, enriched with 3% sucrose, 3% yeast extract and incubated at 50°C in 72 h. Tributyrin (2%) was found to be the best substrate for lipase production in submerged conditions. The amount of lipase was increased by 1.5 fold upon optimization of different environmental and nutritional parameters. The enzyme retained 84% activity at 60°C and 70% of activity at 70°C for 1h. The present findings advocate that hot springs in Gujarat are a substantial source of thermostable bacteria producing enzymes of industrial importance.

Introduction:-

Lipases (triacylglycerol acyl hydrolases, E. C. 3.1.1.3) are important group of enzymes, which can catalyze both hydrolysis and ester synthesis. In aqueous environment it hydrolyzes triacylglycerols and release fatty acids and

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DOI URL: http://dx.doi.org/10.21474/IJAR01/10012
ISSN NO. 2320-5407

RESEARCH ARTICLE

ALLEVIATION OF IMPACTS OF SALT STRESS ON THE GROWTH PARAMETERS OF GROUNDNUT (ARACHIS HYPOGAEA L.) EMPLOYING HALOTOLERANT PGPR.

Shweta Bhatt[1], Dr.Ragini Raghav[1] and Dr. Neepa Pandhi[2].

1. Department of Biotechnology, Shree M. & N. Virani Science College, Rajkot 360005, Gujarat, India.
2. Department of Microbiology, Shree M. & N. Virani Science College, Rajkot 360005, Gujarat, India.

Manuscript Info

Manuscript History
Received: 08 September 2019
Final Accepted: 10 October 2019
Published: November 2019

Key words:-
Groundnut; salinity; PGPR; PGP traits; plant growth.

Abstract

Bacteria surrounding plant roots and providing a stimulatory effect to the plants are termed Plant growth promoting rhizobacteria (PGPR). They are highly beneficial microorganisms which can be utilized to enhance plant responses against biotic and abiotic stresses. The present study involves the isolation of thirty five isolates from the rhizosphere of groundnut plants from Jodia (or Jodiya) Gujarat. The isolates were screened for salinity tolerance and observed that all were able to grow upto 6% NaCl and twenty two isolates had shown growth upto 12% NaCl concentration. All the isolates were further screened for Plant growth promoting traits out of which PGPR J9 exhibited all traits including hydrogen cyanide, ammonia, siderophore, chitinase, indole acetic acid production, phosphate solubilization and nitrogen fixation positive. The isolate J9 was further used for pot experiment and showed augmentation in growth of physical parameters (shoot length, root length, dry weight, wet weight, number of leaves, number of stems, leaf area) of plant under salt stress and without salt stress (100mM) with reference to controls. Thus this isolate may reduce the use of chemical fertilizer and give input in enhancing the growth of plant in salt stress.

Introduction:-

In the present era, the crop production has been affected by global climate change leads to various environmental

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Research Article | Biological Sciences | Open Access | MCI Approved
UGC Approved Journal

Isolation, Screening and Optimization of Lipase Producing Fungal Strains from Agricultural Soil

Chitra Bhattacharya[1,3], Bhawana Pandey[2], Ashis Kumar Sarkar[3]*
Assistant Professor[1] & PhD Scholar[3], Assistant Professor[2], Assistant Professor[3]*
Department of Microbiology, Shri Manibhai Virani & Smt. Navalben Virani Science College, Rajkot Gujarat[1]
Dept. of Microbiology & Biotechnology, Bhilai Mahila Mahavidyalaya, Bhilai, Chhattisgarh[2]
Department of Biological and Chemical Sciences, MATS University, Raipur, Chhattisgarh[3]*

Received: 14 Jan 2019 / Accepted: 20 Mar 2019 / Published online: 1 Apr 2019
Corresponding Author Email: cbbhattacharya@vsc.edu.in

Abstract

Potent fungal lipase producers have been isolated from paddy field of agricultural soil was studied in submerged batch fermentation. Total 14 fungal isolates were obtained by using serial dilution technique. Preliminary qualitative screening was done by using Tributyrin agar medium for the secretion of lipase from fungal isolates. Six fungal isolates out of the 14 isolates were shown clear holo zone in TBA plates after 3-7 days of incubation. Quantitative screening was done for the production lipase; shake-flask culture method has been used. In present investigation for the modification of culture condition and nutrient source it have been optimized by involving various parameters such as pH, time course, inoculum volume, agitation rate as well as various substrates were evaluated in this study. Lipase was detected in culture filtrate by using filtration technique. From the results, revealed that the isolated fungal cultures are alkaline in nature as because of the medium pH of 8.0 and temperature range of 35°C when incubated up to 96 hours in 3 ml of inoculum volume and 150 rpm agitation rate were optimum for maximizing lipase production under submerged fermentation by fungal isolates i.e. mostly of belongs to genera *Aspergillus* sp. Under Submerged fermentation the mineral growth medium (MGM) contained (in g/L) NaH_2PO_4: 12.0, KH_2PO_4: 2.0, $MgSO_4.7H_2O$: 0.3 and $CaCl_2$: 0.25. Ammonium Sulphate at 1% and mustard oil - 2% were used as carbon and nitrogen source respectively. Highest Lipase activity were obtained from CAK7 (*Aspergillus tamarii*) and CAK9 (*Aspergillus niger*). Maximum lipase activity 88.74 U/ml obtained by *Aspergillus niger* sp. followed a logarithmic pattern on the 4th day of fermentation. By using Statistical approach (OFAT) revealed that the culture conditions significantly ($p<0.05$) influenced lipase production by these fungal isolates. In this investigation results obtained for the production of extracellular lipase under submerged fermentation mustard oil could be used as a substrate inducer would be economically cost effective and beneficial for industrial applications.

Keywords
Lipase, Agricultural Soil, *Aspergillus* sp., Optimization Parameters, Submerged fermentation

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2019, 8 (2): 680-684
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Synthesis and Antimicrobial Activity of 2-{[(4'-Arylidine-5'-Oxo-2'-Phenyl) Imidazolyl]-1'-Yl}-3-(4-Hydroxyphenyl) Propanoic Acids

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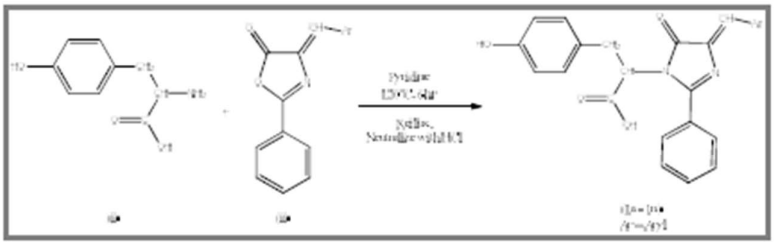
ABSTRACT

Derivatives of 5-oxo-imidazoline exhibited good therapeutic activity, with a view of getting to synthesis 2-{[(4'-arylidine-5'-oxo-2'-phenyl)imidazolyl]-1'-yl}-3-(4-hydroxyphenyl) propanoic acids (1a–1n) have been synthesized, all the derivatives were undergone characterized by IR, ^{1}H NMR and Mass spectral characterization methods. All the synthesized compounds (1a–1n) were evaluated for their antimicrobial activity at 40 µg concentration.

Graphical Abstract



Keywords: 5-Oxo-imidazolines, Antimicrobial activities, Characterization, Reflux.

INTRODUCTION

Research Journal of Chemical Sciences ISSN 2231-606X
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Synthesis of carboxamide and sulfonamide bearing novel pyrazolopyridones

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Abstract

The reaction of pyridones with hydrazine hydrate to furnished pyrazolopyridones 1a-l followed by reaction with p-Toluenesulfonyl chloride in basic condition affords 2a-l in high yields with short reaction time. The pyridone derivatives were prepared by the reaction of ketene dithioacetals (KDTA) with cyanoacetamide usingsodium isopropoxide as an effective base. The reactions were carried out with range of solvent and found i-Propyl alcohol as suitable solvent. We have demonstrated the process of highly functionalized pyrazolopyridones in high yields.

Keywords: Highly functionalized pyrazolopyridone, Sulfonamide and carboxamide, Ketene dithioacetal, Excellent yield.

Introduction

Pyrazole derivatives have extensive interest due to the wide

and ^{13}C NMR (100 MHz) spectra on a Bruker AVANCE II spectrometer. Mass spectra were determined using an Agilent technology GCMS5977A. IR spectroscopic study was

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DOI URL: http://dx.doi.org/10.21474/IJAR01/10012
ISSN NO. 2320-5407

RESEARCH ARTICLE

ALLEVIATION OF IMPACTS OF SALT STRESS ON THE GROWTH PARAMETERS OF GROUNDNUT (ARACHIS HYPOGAEA L.) EMPLOYING HALOTOLERANT PGPR.

Shweta Bhatt[1], Dr.Ragini Raghav[1] and Dr. Neepa Pandhi[2].

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Manuscript Info

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Key words:-
Groundnut; salinity; PGPR; PGP traits; plant growth.

Abstract

Bacteria surrounding plant roots and providing a stimulatory effect to the plants are termed Plant growth promoting rhizobacteria (PGPR). They are highly beneficial microorganisms which can be utilized to enhance plant responses against biotic and abiotic stresses. The present study involves the isolation of thirty five isolates from the rhizosphere of groundnut plants from Jodia (or Jodiya) Gujarat. The isolates were screened for salinity tolerance and observed that all were able to grow upto 6% NaCl and twenty two isolates had shown growth upto 12% NaCl concentration. All the isolates were further screened for Plant growth promoting traits out of which PGPR J9 exhibited all traits including hydrogen cyanide, ammonia, siderophore, chitinase, indole acetic acid production, phosphate solubilization and nitrogen fixation positive. The isolate J9 was further used for pot experiment and showed augmentation in growth of physical parameters (shoot length, root length, dry weight, wet weight, number of leaves, number of stems, leaf area) of plant under salt stress and without salt stress (100mM) with reference to controls. Thus this isolate may reduce the use of chemical fertilizer and give input in enhancing the growth of plant in salt stress.

Introduction:-

In the present era, the crop production has been affected by global climate change leads to various environmental

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ISSN NO. 2320-5407

RESEARCH ARTICLE

OPTIMIZATION OF PROCESS PARAMETERS FOR ENHANCED THERMOSTABLE LIPASE PRODUCTION BY BACILLUS SUBTILIS SHVSC04.

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Manuscript Info

Manuscript History
Received: 05 September 2019
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Abstract

Thermophilic lipases are stable at higher temperatures, which enhance their demand in industrial applications. In the present study, thermostable lipase was produced from bacterial strain *Bacillus subtilis* SHVSC04 (MN565992) isolated from Tuva Timba hot spring, Gujarat, India. Isolate displayed maximum growth in basal medium augmented with 3% sucrose, 3% yeast extract and 2 % salt at pH 7 and 50°C in 48 h. Whereas, isolate produced maximum lipase in tributyrin agar medium with pH 7, enriched with 3% sucrose, 3% yeast extract and incubated at 50°C in 72 h. Tributyrin (2%) was found to be the best substrate for lipase production in submerged conditions. The amount of lipase was increased by 1.5 fold upon optimization of different environmental and nutritional parameters. The enzyme retained 84% activity at 60°C and 70% of activity at 70°C for 1h. The present findings advocate that hot springs in Gujarat are a substantial source of thermostable bacteria producing enzymes of industrial importance.

Introduction:-

Lipases (triacylglycerol acyl hydrolases, E. C. 3.1.1.3) are important group of enzymes, which can catalyze both hydrolysis and ester synthesis. In aqueous environment it hydrolyzes triacylglycerols and release fatty acids and

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Secret sharing approach based on steganography for data security

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Professor, Department of Statistics, Saurashtra University, Rajkot

Steganography is the art of hiding the fact that communication is taking place, by hiding information in other information. Many different carrier file formats can be used, but digital images are the most popular because of their frequency on the internet. For hiding secret information in images, there exists a large variety of steganography techniques some are more complex than others and all of them have respective strong and weak points. Different applications may require absolute invisibility of the secret information, while others require a large secret message to be hidden. This project report intends to give an overview of image steganography, its uses and techniques. It also attempts to identify the requirements of a good steganography algorithm and briefly reflects on which steganographic techniques are more suitable for which applications.

I. Introduction

One of the reasons that intruders can be successful is the most of the information they acquire from a system

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Solid phase synthesis of novel 1,3,4-oxadiazole derivatives and evaluation of their antimicrobial activity

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ABSTRACT

A series of 5-(N-Aryl/Arylalkyl)-2-(3-Chclorophenyl)-1,3,4-oxadiazole have been synthesized. The constitution of the products has been delineated by elemental analysis and spectral analyses. All the synthesized compounds were screened for their antibacterial activity against Staphylococcus aureus MTCC-96, Escherichia coli MTCC-443, B. subtilis MTCC-441, P. aeruginosa MTCC-1688, and antifungal activity against Aspergillus niger MTCC-282 and Penicillium SP.at different concentration and compared with standards drugs. The minimum inhibition concentration (MIC) of the compounds was studied by micro broth dilution method.

Keywords: Aminoazole, 1,3,4-oxadiazole, in vitro antimicrobial assay, s-methylthioamide

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Research Article

SYNTHESIS, CHARACTERIZATION & BIOLOGICAL EVALUATION OF SOME NOVEL PYRIDO[1,2-A] PYRIMIDIN-4-ONE DERIVATIVES

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ABSTRACT

Pyrido[1,2-a]pyrimidin-4-one and their derivatives are found to be key intermediates in the synthesis of medicinally active compounds. Therefore an efficient and convenient procedure has been developed for the synthesis of some novel pyrido[1,2-a]pyrimidin-4-one derivatives like aryl-N-(2-(2-methyl-4-oxo-8-(trifluoromethyl)-4H-pyrido[1,2-a]pyrimidin-3-yl)ethyl) carboxamide and alkyl-N-(2-(2-methyl-4-oxo-8-(trifluoromethyl)-4H-pyrido[1,2-a]pyrimidin-3-yl)ethyl)carboxamide. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and Mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: Pyrido[1,2-a]pyrimidin-4-one, Pyridine, Pyrimidine, Antimicrobial activity

1. INTRODUCTION

The organic chemistry and the development of heterocycles initiated accompany since isolated from plants and microorganisms. Nowadays, the majority of long and significant history extending from the days of their invention as key ingredient of nucleic acid to their current use in the chemotherapy [3]. 7,8-dihydropyrrolo[1,2-a]pyrimidin-4(6H)-one exhibit anti

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Synthesis, Spectral Studies and Antimicrobial Activity of 3-(2'-n-butyl-4'-chloro-1-H- imidazol-5'-yl)-1-aryl prop-2-ene-1-ones

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Abstract: ***3-(2'-n-butyl-4'-chloro-1-H- imidazol-5'-yl)-1-aryl prop-2-ene-1-ones. (1a-1j) have been synthesized. The products have been assayed for their antimicrobial activity against Gram +ve bacteria and Gram –ve bacteria and fungi. The products have been characterised by IR, [1]HNMR, Mass Spectra and TLC.***
Keywords: Chalcones, antimicrobial assay

I. INTRODUCTION

Chalcones derivatives have been found to possess wide range of therapeutic activities as Anti-inflammatory [1-2], Antiallergic [3], Antitumor [4-5], Antispasmodic [6], Antiulcer [7-8], Anthelmintic [9-10], Anticancer [11-12], Antiviral and Anti-tubercular [13], Anti HIV [14], Bactericidal [15-16], Cardiovascular [17], Fungicidal [18-20], Insecticidal [21-23], Herbicidal [24] activity etc. 3-(2'-n-butyl-4'-chloro-1-H- imidazol-5'-yl)-1-aryl prop-2-ene-1-ones. **(1a-1i)** have been synthesized by condensation of 2-(n-butyl)-4-chloro-5-carboxaldo-1H-imidazole

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SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF 5-(2'-n-BUTYL-4'-CHLORO-1-H-IMIDAZOL-5'-YL)-3-ARYL ISOXAZOLES

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ABSTRACT

5-(2'-n-butyl-4'-chloro-1-H-imidazol-5'-yl)-3-aryl isoxazoles. (2a-2j) have been synthesized. The products have been assayed for their antimicrobial activity against Gram +ve bacteria and Gram –ve bacteria and fungi. The products have been characterised by IR, ^{1}HNMR, Mass Spectra and TLC.

KEYWORDS: Isoxazoles, Anti-microbial activity: (Heterocyclic Compounds).

INTRODUCTION

Isoxazoles derivatives have been found to possess wide range of therapeutic activities as Antibacterial,[1-2] Anticonvulsant,[3-4] Anti-

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Folia Medica 62(2): 308-13
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Original Article

Evaluation of Non-polar Composition in *Plumbago Zeylanica* Leaves by Gas Chromatography and Mass Spectrometry

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Abstract

Background: *Plumbago zeylanica* plant belongs to *Plumbaginaceae*. The plant is reported for many pharmacological activities.

Aim: The objective of the study was to identify fatty acids and non-polar chemical compounds in *Plumbago zeylanica* leaves.

Materials and methods: Petroleum ether extract was prepared using soxhlet apparatus. Saponifiable and unsaponifiable matter was separated with saponification process. To identify fatty acids in saponifiable matter further esterification was performed. Gas chromatography and mass spectrometry analysis was performed of both saponifiable and unsaponifiable fractions. All the fatty acid methyl esters and non-polar chemical compounds were identified using NIST library data.

Results: A total of 14 compounds were identified with comparison of NIST data. From that, 8 fatty acid methyl esters and 6 non-polar chemical compounds were identified. Here we have analyzed fatty acids and non-polar chemical compounds by the same GC-MS method.

Conclusions: The present analysis showed that *Plumbago Zeylanica* leaves contain 8 fatty acids and 6 non-polar chemical compounds. Principal determination of the research was development of efficient method to identify non-polar compound from plant by single injection using chromatographic technique.

Keywords

fatty acid, GC-MS, plumbaginaceae, plumbagin, sterol

INTRODUCTION

tective, antimalarial, antifungal, anti-atherosclerotic, central nervous system stimulatory, anti-hyperglycemic, and

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Synthesis, Spectral Analysis and Antibacterial Screening of Tetracyclic Thiazepine Based Pyrazole Derivatives

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Abstract

A series of tetracyclic thiazepine based pyrazoles (8a-j) have been synthesized and evaluated for antibacterial and antifungal activities. The newly synthesized compounds have been characterized by IR, ^{1}H & ^{13}C NMR, mass and elemental analyses. Compounds 8b (2-OCH_3) and 8o (4-OCH_3) have shown promising antibacterial, and 8g (3-NO_2), 8f (2-NO_2) and 8d (3,4-diOCH_3) exhibited excellent an antifungal activity against standard drugs.

Keywords

Thiazepine, Pyrazole, Cyclization, Antimicrobial activity.

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QUICK SEARCH

Journal Archived In:

Asian Journal of Chemistry; Vol. 32, No. 11 (2020), 2860-2864
ASIAN JOURNAL OF CHEMISTRY
https://doi.org/10.14233/ajchem.2020.22867

Synthesis of Diverse Fused Tetracyclic Thiazepine-Chalcone Derivatives by Claisen-Schmidt Condensation Reaction and their Antimicrobial Activity

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To develop antimicrobial agent, a series of thiazepine-chalcones was synthesized by Claisen-Schmidt condensation between the couplings of aryl ketone in three steps protocol and different aromatic aldehydes under strong base catalyst at room temperature. The characterization of final products were carried out by IR, ^{1}H & ^{13}C NMR and elemental analysis. The synthesized compounds were also evaluated for their antibacterial and antifungal activities using specific Gram positive and Gram-negative bacterial strains using cup plate method.

Keywords: Claisen-Schmidt condensation, Tetracyclic, Thiazepine, Antimicrobial activity.

INTRODUCTION

sulfur and nitrogen heteroatoms, due to which they possess a

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Synthesis, Characterization and *In vitro* Antimicrobial Evaluation of Pyrazole Based Oxothiazolidine Hybrids

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Abstract

In this work, pyrazole based oxothiazolidine hybrids, 4-[4-[[2-(1-phenyl-3-[substituted]phenyl-1*H*-pyrazol-4-yl)-4-oxo-thiazolidin-3-yl]-phenyl]-morpholin-3-one (11a-l) were synthesized using molecular hybridization approach through Vilsmeier-Haack reaction. The titled compounds **11a-l** were characterized by elemental analysis, IR, ^{1}H NMR and mass spectral studies. The antibacterial activity of **11a-l** was evaluated *in vitro* by agar cup plate method against *B. cocous, B. subtilis, E. coli* and *P. vulgaris*. The antifungal activity of compounds **11a-l** was evaluated *in vitro* by agar based disk diffusion method against *A. niger*. The results of antibacterial and antifungal evaluation were reported in terms of zone of inhibition measured in mm. The synthesized compounds **11a-l** exhibited moderate to good antibacterial and antifungal potential. Compound 4-[4-[[2-(1-phenyl-3-[2-methoxyphenyl]-phenyl-1*H*-pyrazol-4-yl)-4-oxo-thiazolidin-3-yl]-phenyl]-morpholin-3-one (**11h**) emerged as a most potent antimicrobial agent displaying zone of inhibition 21, 20, 21, 24 and 20 mm against *B. cocous, B. subtilis, E. coli, P. vulgaris* and *A. niger*, respectively.

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QUICK SEARCH

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Eco. Env. & Cons. 26 (February Suppl. Issue) : 2020; pp. (S199-S212)

ISSN 0971–765X

Improved salt tolerance and growth parameters of groundnut (*Arachis hypogaea* L.) employing Halotolerant *Bacillus* cereus SVSCD1 isolated from Saurashtra Region, Gujarat

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(Received 27 September, 2019; accepted 27 November, 2019)

ABSTRACT

Plant growth promoting rhizobacteria (PGPR) are used to augment plant growth and productivity of the plants under abiotic and biotic stress conditions. The present study focuses on analyzing the role of halotolerant rhizospheric bacteria isolated from groundnut plant for enhancing the plant growth under salinity stress. A total of 32 isolates were isolated from rhizospheric soils from Dholara and Junagadh, Saurashtra Region of Gujarat (India). All the isolates showed salt tolerance up to 6% sodium chloride and were screened in vitro for the plant growth promoting traits. Only D3 isolate displayed all PGP activities positive and was selected for further analysis. A substantial increase in all the growth parameters was recorded with PGPR D3 in salt stress conditions using autoclave and non-autoclaved soil. The plant showed a significant increase in root length, shoot length, fresh weight, dry weight, number of leaves and biochemical parameters(Chl a,b) in presence of PGPR D3 under salt stress (100mM). Hence D3 can be used as an alternative to chemical fertilizer and use for the enhancement of plant growth under salt stress.

Key words : Groundnut, Salt stress, PGPR, Saline soil, PGP traits

Introduction

Soil salinity is a major problem worldwide in coastal regions dedicated to agriculture. Elevated

imbalance, ion toxicity and high oxidative stress in plants. These factors result in nutritional deficiency in plants which limits and deteriorates plant growth (Dodd and Pérez-Alfocea, 2012; Shrivastava and

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The Novel Coronavirus Pandemic 2020: The Origin, Transmission, Virion Properties and Diagnosis of COVID-19

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[1]Department of Biotechnology, [2]Department of Microbiology,[3]Department of Biotechnology & Microbiology
[1,2]Shree M. & N. Virani Science College, Rajkot, Gujarat, India, [3]Atmiya University, Rajkot, Gujarat, India

Abstract : COVID-19 caused by severe acute respiratory syndrome coronavirus- 2 (SARS-CoV-2) has affected human population at an alarming rate. Presently according to the World Health Organization, there are a reported 79 million cases worldwide, including over ~1.3 million deaths, since its discovery and outbreak in China, in December 2019. This is the third pandemic within 18 years by Coronaviruses, which are members of the family *Coronaviridae*. The first being severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 followed by the Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012. The aim of this review article is to provide amalgamated information about the pandemic by elaborating on the history and the origin of Coronavirus. Furthermore, we have discussed transmission, symptoms, virion properties and diagnostics of COVID-19 available till date.

Keywords: COVID-19, SARS-CoV-2, Coronavirus, Lateral flow assay, RT-PCR

INTRODUCTION

The **C**oronavirus **D**isease 20**19** (COVID-19) has notoriously affected the lives of nearly 79 million people in 200 countries across

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ISSN 0971–765X

Improved salt tolerance and growth parameters of groundnut *(Arachis hypogæa* L.) employing Halotolerant *Bacillus* cereus SVSCD1 isolated from Saurashtra Region, Gujarat

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(Received 27 September, 2019; accepted 27 November, 2019)

ABSTRACT

Plant growth promoting rhizobacteria (PGPR) are used to augment plant growth and productivity of the plants under abiotic and biotic stress conditions. The present study focuses on analyzing the role of halotolerant rhizospheric bacteria isolated from groundnut plant for enhancing the plant growth under salinity stress. A total of 32 isolates were isolated from rhizospheric soils from Dholara and Junagadh, Saurashtra Region of Gujarat (India). All the isolates showed salt tolerance up to 6% sodium chloride and were screened in vitro for the plant growth promoting traits. Only D3 isolate displayed all PGP activities positive and was selected for further analysis. A substantial increase in all the growth parameters was recorded with PGPR D3 in salt stress conditions using autoclave and non-autoclaved soil. The plant showed a significant increase in root length, shoot length, fresh weight, dry weight, number of leaves and biochemical parameters(Chl a,b) in presence of PGPR D3 under salt stress (100mM). Hence D3 can be used as an alternative to chemical fertilizer and use for the enhancement of plant growth under salt stress.

Key words : Groundnut, Salt stress, PGPR, Saline soil, PGP traits

Introduction

Soil salinity is a major problem worldwide in

imbalance, ion toxicity and high oxidative stress in plants. These factors result in nutritional deficiency in plants which limits and deteriorates plant growth

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Improved salt tolerance and growth parameters of groundnut *(Arachis hypogaea* L.) employing Halotolerant *Bacillus* cereus SVSCD1 isolated from Saurashtra Region, Gujarat

Shweta Bhatt[1]*, and Neepa Pandhi[2] and Ragini Raghav[1]

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Plant growth promoting rhizobacteria (PGPR) are used to augment plant growth and productivity of the plants under abiotic and biotic stress conditions. The present study focuses on analyzing the role of halotolerant rhizospheric bacteria isolated from groundnut plant for enhancing the plant growth under salinity stress. A total of 32 isolates were isolated from rhizospheric soils from Dholara and Junagadh, Saurashtra Region of Gujarat (India). All the isolates showed salt tolerance up to 6% sodium chloride and were screened in vitro for the plant growth promoting traits. Only D3 isolate displayed all PGP activities positive and was selected for further analysis. A substantial increase in all the growth parameters was recorded with PGPR D3 in salt stress conditions using autoclave and non-autoclaved soil. The plant showed a significant increase in root length, shoot length, fresh weight, dry weight, number of leaves and biochemical parameters(Chl a,b) in presence of PGPR D3 under salt stress (100mM). Hence D3 can be used as an alternative to chemical fertilizer and use for the enhancement of plant growth under salt stress.

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Future Journal of Pharmaceutical Sciences

RESEARCH Open Access

In vitro antimitotic and cytotoxic potential of plant extracts: a comparative study of *Mucuna pruriens*, *Asteracantha longifolia* and *Sphaeranthus indicus*

Praveen Suresh Gupta[1*] and Shivani Patel[2]

Abstract

Background: Plants have been used in alternative and traditional medicines for the cure of different types of diseases since ancient time. Secondary metabolites from natural sources play a crucial role in the treatment of various ailments. The present study carried out to investigate the phytochemical, antimitotic and cytotoxic activity of methanolic (95%) extracts of *Mucuna pruriens* seeds, *Asteracantha longifolia* seeds and *Sphaeranthus indicus* stems.

Result: Phytochemical analysis was performed using qualitative test to confirm the presence of phytochemical such as flavonoids, terpenoids, amino acids, cardiac glycosides, saponins, steroids, tannins, phenols and carbohydrates. The antimitotic activity was screened by using *Allium cepa* root meristematic cells. Methotrexate (0.1 mg/mL) was used as a standard. The data was analyzed by using software GraphPad Prism, Version 6.0 (GraphPad Software Inc., San Diego, CA) with one-way ANOVA. A statistical difference of $p < 0.05$ was considered significant in all cases. p value of *M. pruriens* seeds, *A. longifolia* seeds and *S. indicus* stems calculated $p = 0.0001$ for all plant extracts. Cytotoxic potential of all three plant extracts have been studied on breast cancer cell line MCF7 and lung cancer cell line A549. *M. pruriens* showed mild cytotoxicity with IC_{50} values 36.74 µg/mL on MCF7 and 39.42 µg/mL on A549 cell line. *A. longifolia* showed better activity on MCF7 with IC_{50} of 12.32 µg/mL and the *S. indicus* showed the least activity on MCF7 with IC_{50} of 185.56 µg/mL. The *A. longifolia* showed better activity on A549 with IC_{50} of 16.53 µg/mL.

Conclusion: *A. longifolia* has significant amount of nearly all phytochemicals as compared to other two plant extracts. It is found that all three plant extracts showed antimitotic activity having p value less than 0.05. The cytotoxicity assay revealed that all plant extracts displayed inhibition of MCF7 and A549 cells lines. *A. longifolia* showed better activity against MCF7 while *M. pruriens* possessed mild cytotoxic effect against both MCF7 and A549 cell lines.

Keywords: Phytochemical, Antimitotic, Anticancer, Medicinal plants

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Analytics for Medical data Using Different Comparative learning Techniques

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Abstract

The results of the present investigation with regard to the Data Mining learning models for five medical data sets viz., Bayes Network, Naïve Bayes, J48, Decision stump, Ripper, K-NN, Bagging and Dagging are presented and discussed. Different DM techniques are applied for analysing and testing the medical data and their potential benefits for diagnosis and learning are discussed. Uncertainty is present in most medical applications due to the vague logical rules and their imprecision and hence a good method called the rule representation from the decision tree method is used as it's also easily understandable. An exact representation of the relationship between symptoms and diagnosis is given by the integration of fuzzy set and DM methods. In conclusion, early prediction of the diseases can be done looking at the results to increase the survival rates of the patients.

Keywords: Fuzzy logic, machine learning, Data Mining,

Ensembles

Introduction

GIS SCIENCE JOURNAL ISSN NO : 1869-9391

Novel method in detecting outliers in medical database

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Abstract:
In this paper, we used two models of outlier detection techniques in which the first model talks about Application of Data Mining Techniques for Outlier Mining in Medical Databases and the second model throws light on Outlier Mining in Medical Databases by UsingStatistical Methods. Both the models emphasizes on detecting the outliers in the medical databases by the way of mining through the entire database. First model makes use of the statistical analysis tools for the work and takes care of complicated issues in terms of patient symptoms, diagnoses and behaviors and hence they are said to be the most promising arenas of outlier determination. In second model outliers of 5 datasets; them being leverage, R-standard, R-student, DFFITS, Cook's D and covariance ratio are taken care off and explained.

Keyword: Data Mining, Outliers detection, Statistical analysis, Medical Databases

Introduction:
The finding of outliers for high dimensional datasets is a challenging data mining task. Different perspectives can be used to define the notion of outliers.Distance based, density based and distribution based methods are the common outlier detection techniques. Outlier detection can be defined as the search of objects that do not follow valid rules for major section of data in databases. Its identification as being an the existing approaches to the problem of outlier detection in the literature have been based on density estimation methods, and in particular, on nearest-neighbour methods.On a general note, the outlier detection performance largely depends on the precise choice of the sampling distribution of the artificial examples. Datasets available at repositories help in judging the effectiveness of our approach and its results show the superiority of our methods over others.

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Original Article

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Conclusions: The results indicate that the extract is rich in non-polar compounds. In this study, GC-MS method is at the central focus for identification of these phytoconstituents. The current method can be used for direct analysis of non-polar entities of plant material.

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Synthesis and antimicrobial activity of 5-(2'-n-butyl-4'-chloro-1'-H-imidazol-5'-yl)-3-aryl-4,5-dihydro-{1-H/1-acetyl/1-phenyl}-pyrazoles

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ABSTRACT

5-(2'-n-butyl-4'-chloro 1'-H-imidazol- 5'-yl)-3-aryl-4, 5-dihydro-1-H-pyrazoles. **(2a-2j)**; 1-[5'-(2''-n-butyl-4''- chloro-1''-H-imidazol-5''-yl)-3'-Aryl-4', 5'-dihydro-1'-H-pyrazol-1-yl]-ethanones. **(3a-3j)**; 5-(2'-n-butyl-4'-chloro-1'-H-imidazol-5'-yl)-3-Aryl-1-phenyl-4, 5-dihydro-1-H-pyrazoles. **(4a-4j)** have been synthesized. The products have been assayed for their antimicrobial activity against Gram +ve bacteria and Gram –ve bacteria and antifungal activity. The products have been characterised by IR, ^{1}HNMR, Mass Spectra and TLC.

Keywords: Simple Pyrazoles, Acetyl Pyrazoles, Phenyl Pyrazoles, Antimicrobial activity

1. INTRODUCTION

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Ameliorative effects of Triphala on mucosal damage in rat model of ulcerative colitis

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In Ayurvedic practice, Triphala is widely used in gastric problems including constipation, large intestinal inflammation and colitis. The present research was planned to assess the ameliorative effects of Triphala formulations in reducing the magnitude and severity of ulcerative colitis. Triphala formulations prepared by mixing three fruits, *Haritaki* (*Terminalia chebula*), *Bibhitaki* (*Terminalia belerica*) and *Amlaki* (*Emblica officinalis*) in different ratios i.e., 1:1:1 (Triphala equal) and 1:2:4 (Triphala unequal) as per classical references. Wistar albino rats were administered with two ml of acetic acid (4% v/v) in intra-colonic lumen for induction of colitis. The efficacy of Triphala was measured on various parameters namely, *in vivo* fluid absorption in tied-off colon, ulcer score and colonic mucosal parameters. The degree of alteration in colonic fluid transport was significantly reversed by Triphala equal, Triphala unequal and sulphasalzine as standard drug. Triphala formulations significantly attenuated the nitric oxide (NO), myeloperoxidase (MPO) and lipid peroxidation (malondialdehyde MDA) levels in mucosa of rat colon. Pre-treatment with Triphala unequal formulation attenuated the severity of the colonic macroscopic damage score, histologic injury and counteracted the depletion of glutathione and superoxide dismutase activity hence, reduced the oxidative stress in colonic mucosa. Triphala unequal formulation has better protective effects. Outcomes of the present study reveal the usefulness of Triphala formulations in attenuating the colonic inflammation in experimental-induced ulcerative colitis.

Keywords: Acetic acid, Antioxidant property, Colonic fluid absorption, Triphala, Ulcerative colitis

IPC Code: Int Cl.[21]: A61K 8/97, A61K 9/00, A61K 36/00, A61K 38/00, A61K 39/395, A61K 45/06, A61P 39/06

Ulcerative colitis is an inflammatory bowel disease (IBD), limited to colon characterized by inflammation and mucosal disruption. It is a chronic and relapsing disorder, pathogenesis of IBD remains unclear even suggest the multi-target approach of Triphala[4]. As per *Charaka*, Triphala is *Tridoshik rasayana*, having balancing effect on the three *Doshas*, a constitutional components human body[5]. It is widely practiced for

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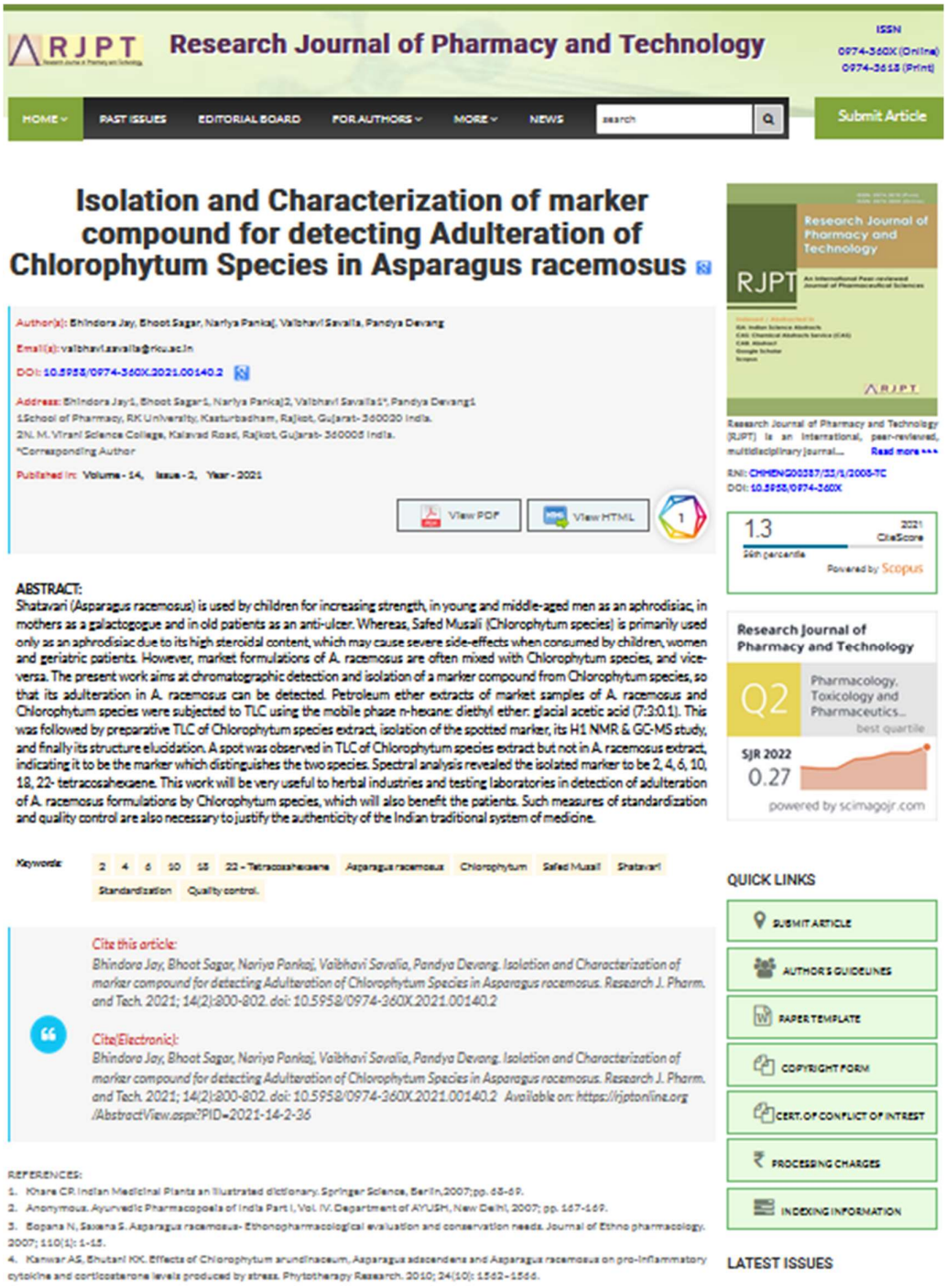

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Isolation and Characterization of marker compound for detecting Adulteration of Chlorophytum Species in Asparagus racemosus

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DOI: 10.5958/0974-360X.2021.00140.2

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ABSTRACT:
Shatavari (Asparagus racemosus) is used by children for increasing strength, in young and middle-aged men as an aphrodisiac, in mothers as a galactogogue and in old patients as an anti-ulcer. Whereas, Safed Musali (Chlorophytum species) is primarily used only as an aphrodisiac due to its high steroidal content, which may cause severe side-effects when consumed by children, women and geriatric patients. However, market formulations of A. racemosus are often mixed with Chlorophytum species, and vice-versa. The present work aims at chromatographic detection and isolation of a marker compound from Chlorophytum species, so that its adulteration in A. racemosus can be detected. Petroleum ether extracts of market samples of A. racemosus and Chlorophytum species were subjected to TLC using the mobile phase n-hexane: diethyl ether: glacial acetic acid (7:3:0.1). This was followed by preparative TLC of Chlorophytum species extract, isolation of the spotted marker, its H1 NMR & GC-MS study, and finally its structure elucidation. A spot was observed in TLC of Chlorophytum species extract but not in A. racemosus extract, indicating it to be the marker which distinguishes the two species. Spectral analysis revealed the isolated marker to be 2, 4, 6, 10, 18, 22- tetracosahexaene. This work will be very useful to herbal industries and testing laboratories in detection of adulteration of A. racemosus formulations by Chlorophytum species, which will also benefit the patients. Such measures of standardization and quality control are also necessary to justify the authenticity of the Indian traditional system of medicine.

Keywords: 2 | 4 | 6 | 10 | 18 | 22 – Tetracosahexaene | Asparagus racemosus | Chlorophytum | Safed Musali | Shatavari | Standardization | Quality control.

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Original Article

Steroid and Fatty Acid Contents from the Leaves of *Carica Papaya*

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Abstract

Aim: To extract and identify the non-polar entities from the leaves of *Carica papaya*, a plant used for medicinal purpose as folk medicine.

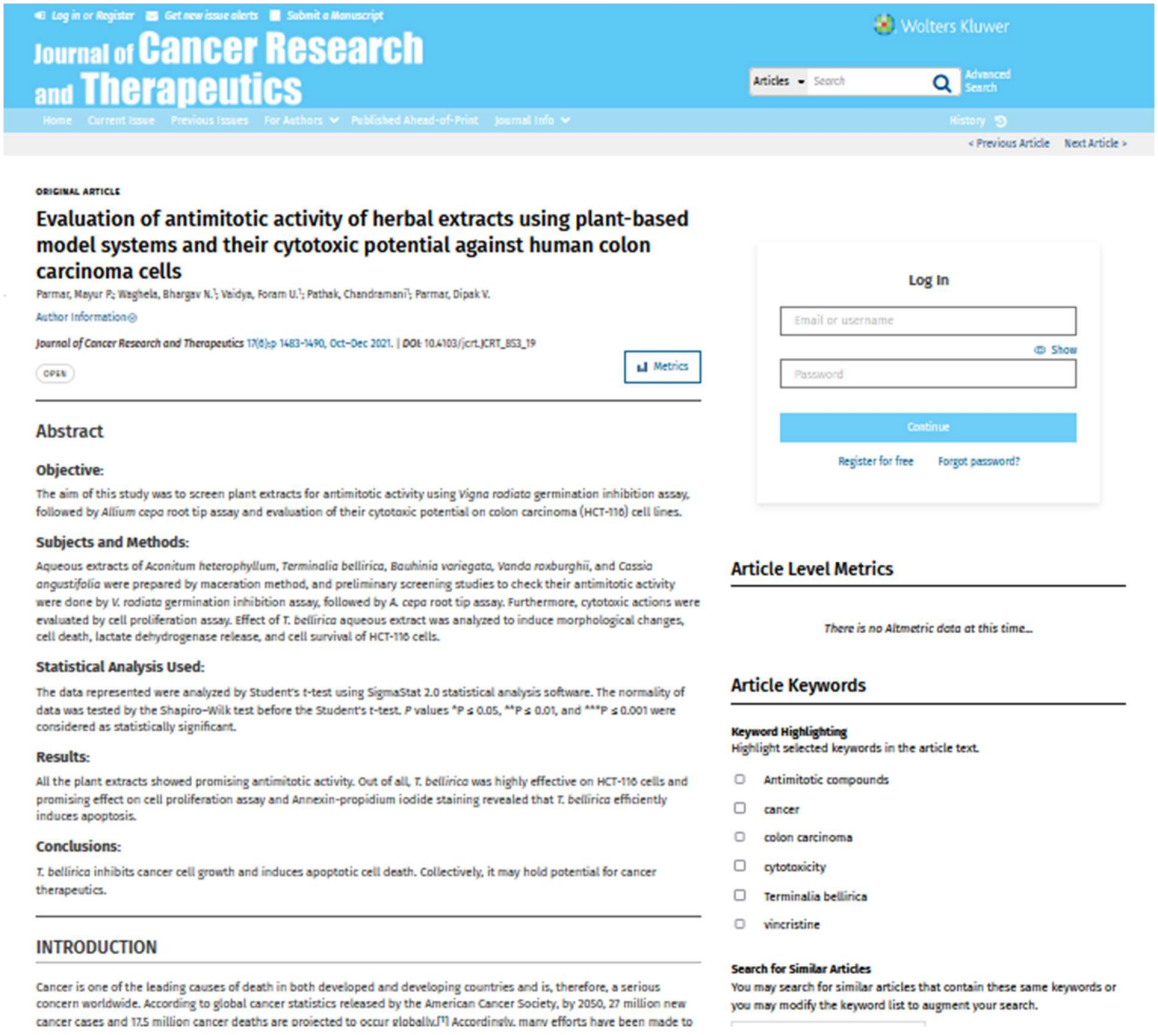
Materials and methods: Petroleum ether extract of the *Carica papaya* leaves was used for this study. Saponification process and methylation process was performed to separate fatty acids and unsaponifiable matters. Phytochemical constituents were separated using chemical process and separated fractions were analyzed by thin layer chromatography (TLC) and gas chromatography coupled with mass spectroscopy (GC-MS).

Results: The chemical composition of the steroids, triterpenoids and fatty acid methyl esters (FAMEs) in leaves of *Carica papaya*, which were analyzed by gas chromatography coupled with mass spectroscopy (GC-MS). A total of 15 fatty acid components were identified in saponifiable matter, from unsaponifiable portion 2 steroids (campesterol, β- or γ-sitosterol), 1 triterpene (squalene), and 1 diterpene (phytol) were identified.

Conclusions: The results indicate that the extract is rich in non-polar compounds. In this study, GC-MS method is at the central focus for identification of these phytoconstituents. The current method can be used for direct analysis of non-polar entities of plant material.

Keywords

campesterol, *Carica papaya*, fatty acid methyl ester, GC-MS, steroid, squalene, phytol, β- or γ-sitosterol



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Journal of Cancer Research and Therapeutics

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ORIGINAL ARTICLE

Evaluation of antimitotic activity of herbal extracts using plant-based model systems and their cytotoxic potential against human colon carcinoma cells

Parmar, Mayur P.; Waghela, Bhargav N.[1]; Vaidya, Foram U.[1]; Pathak, Chandramani[1]; Parmar, Dipak V.

Author Information

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Metrics

Abstract

Objective:

The aim of this study was to screen plant extracts for antimitotic activity using *Vigna radiata* germination inhibition assay, followed by *Allium cepa* root tip assay and evaluation of their cytotoxic potential on colon carcinoma (HCT-116) cell lines.

Subjects and Methods:

Aqueous extracts of *Aconitum heterophyllum*, *Terminalia bellirica*, *Bauhinia variegata*, *Vanda roxburghii*, and *Cassia angustifolia* were prepared by maceration method, and preliminary screening studies to check their antimitotic activity were done by *V. radiata* germination inhibition assay, followed by *A. cepa* root tip assay. Furthermore, cytotoxic actions were evaluated by cell proliferation assay. Effect of *T. bellirica* aqueous extract was analyzed to induce morphological changes, cell death, lactate dehydrogenase release, and cell survival of HCT-116 cells.

Statistical Analysis Used:

The data represented were analyzed by Student's *t*-test using SigmaStat 2.0 statistical analysis software. The normality of data was tested by the Shapiro–Wilk test before the Student's *t*-test. *P* values $^{*}P \leq 0.05$, $^{**}P \leq 0.01$, and $^{***}P \leq 0.001$ were considered as statistically significant.

Results:

All the plant extracts showed promising antimitotic activity. Out of all, *T. bellirica* was highly effective on HCT-116 cells and promising effect on cell proliferation assay and Annexin-propidium iodide staining revealed that *T. bellirica* efficiently induces apoptosis.

Conclusions:

T. bellirica inhibits cancer cell growth and induces apoptotic cell death. Collectively, it may hold potential for cancer therapeutics.

INTRODUCTION

Cancer is one of the leading causes of death in both developed and developing countries and is, therefore, a serious concern worldwide. According to global cancer statistics released by the American Cancer Society, by 2050, 27 million new cancer cases and 17.5 million cancer deaths are projected to occur globally.[1] Accordingly, many efforts have been made to

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Synthesis and Antimicrobial Activity of 2-{[(4'-Arylidine-5'oxo-2' phenyl) Imidazolyl]-1'-Yl}-3-Keto-1,5-Dimethyl-2-Phenyl Pyrazole

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CERTIFICATE

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Synthesis, spectral studies and antimicrobial activity of 2-amino-4-(2'-n-butyl-4'-chloro-1'-h-imidazol-5'-yl)-6-aryl-4-h-pyran-3-carbonitriles

Authors

Joshi A K, Dodia N M, Purohit D M

Abstract

The study focuses on the synthesis, spectral studies and antimicrobial activity of 2-Amino-4-(2'-n-butyl-4'-chloro-1'-H-imidazol-5'-yl)-6-aryl-4-H-pyran-3-carbonitriles derivatives against Gram +ve bacteria, Gram –ve bacteria and fungi. The products have been characterized by IR, 1H NMR, Mass Spectra and TLC.

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Exploration of Saurashtra Soil PGPR Strain and its Attributes in Crop Productivity by Pot Plant Study

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ABSTRACT

The impact of rhizobacteria with PGPR trait in current agriculture practices is expanding its horizons at large in research and practices. The urge of improvised crop productivity and disease management for economically important myriad crops like cereal plant, and angiosperms, monocots, dicots need to address in versatile manner with integrated approach. The need of a potent trait of PGPR rhizobacteria and its real time application in field trials is more challenging and to address the same, the present research study has been carried out. The present study encompassing the one phase of the project is to isolate the Rhizobial trait from the soil sample followed by the screening of the potent traits. Total 4 potent rhizobacterial isolates have been screened among 41 bacterial isolates from different sites of the Saurashtra region. Qualitative and quantitative characterization of growth promotion factors such as HCN production, ammonia production, IAA production, and siderophore production of the isolates (KS2, KC8, KC9, and KC11 showed) were carried out. Among 21 isolates the 4 isolates KS2, KC8, KC9, and KC11showed the highest growth parameter production and have been stated as PGPR traits. Employing One way ANOVA a statistical design, the shoot and root length effect has been studied in detail with the individual strains KS2, KC8, KC9, and KC11 along with control. The study is quite encouraging with improved root length 10.54±0.33 cm and shoot length 27.20 ± 0.8 cm respectively. The future prospect of this study can be highlighted in long-term with further analysis on consortial development and its field trial applications.

Research Article

Polymeric Nanoparticles and Nanoemulsion based Remediation of Leaf Curl Viral Disease in Chili (*Capsicum annuum*)

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Abstract

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Research Article

Assessment of anti-quorum sensing potential of selected medicinal plant extracts using *Chromobacterium violaceum*

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RESEARCH ARTICLE

Dharmesh Sherathia [1]
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Synergetic effect of indigenous PGPR consortium on growth and yield of cultivated wheat (*Triticum aestivum*) in the Saurashtra region of India

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ABSTRACT
This study was carried out to create a microbial consortium from native species of wheat rhizosphere co-inoculated with exotic *Azotobacter chromococcum* to understand their effects on wheat (*Triticum aestivum* L.) growth and crop yield. Seven bioactive bacterial strains were isolated from three district of the semi-arid region of Saurashtra (21.867°N, 70.8120°E), Gujarat, India. The results of the study showed that the PGPR consortium with or without *Azotobacter chroococcum* had a significant impact on wheat yield and quality parameters in relation to the control. Microbial consortia of identified strains *Pseudomonas putida*, *Pseudomonas aeruginosa*, *Acinetobacter sp*., and *Erwinia sp* give the significant result in terms of tillers number (32.5%, 9.5%), shoot height (8.4%, 5.2%), dry shoot weight (38.6%, 4.11%), flower cone number (34%, 16%) at 60 days after showing (DAS). This consortium significantly impacts 1000 seeds weight (31.44%, 25.6%), spikelets spike-1 (29.26%, 14.6%), spike plant-1 (14.79%, 13%) grain yield (24.4%, 11.28%) yield parameters of wheat.

Key words: Rhizobacteria, wheat, consortium, *Pseudomonas*

Agricultural Communication

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Characterization of Potential Plant Growth Promoting Rhizobacteria Excerpted from Wheat, *Triticum aestivum* Rhizosphere of Saurashtra Region

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ABSTRACT

In last several decades the properties of soil are damaged due to modern agricultural practices. Synthetic fertilizers damaged the natural microbial flora of soil which was maintaining the fertility of the soil. In present study we were characterization the plant growth promoting rhizobacteria isolated from the rhizospheric area of wheat (*Triticum aestivum L.*) of Saurastra region of Gujarat, India. All the isolates were screened for plant growth promoting trait to utilize them for the sustainable agriculture. Total thirty-four organisms were purified from the three different ecological region (Dhandhusar, Gir-gadhada, Gingani) of Saurashtra region. Among the 34 bacterial isolates twenty-eight were able to produce indole-3- acetic acid in tryptophan supplemented medium; twenty were able to solubilize inorganic phosphate and zinc in vitro. PE-1was found to produce high amount of IAA i.e. 46.01 µg/ml, JG-13 solubilizes maximum inorganic phosphate (635 µgml−1) followed by GG-12 (603 µgml−1), JZ-8 gives 25mm zone on ZnO2 medium around colony. Present study indicates the potentiality of PGPR that can be utilize as a biofertilizer for better enhancement of productivity and health of wheat crop.

KEY WORDS: RHIZOBACTERIA, WHEAT, IAA, PHOSPHATE.

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Indian J.Sci.Res. 13 (2): 13-21, 2023 Original Research Article

ISOLATION AND IDENTIFICATION OF PGPR TRAITS FROM SOIL SAMPLES OF THE SAURASHTRA REGION

SHIVANI PATEL[a], AMISHA PARMAR[b], JENSI NANDANIYA[c], SALONI MAKADIYA[d], NEEPA PANDHI[e] AND CHITRA BHATTACHARYA[f]

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ABSTRACT

Plant growth-promoting rhizobacteria (PGPR) is an eco-friendly and potent microorganism that can serve as both a nitrogen fixer and a biocontrol agent. Hence it can be used as a substitute for chemical fertilizers and pesticides. So, in the present investigation, total 9 rhizospheric soil samples (2 from Veraval, 1 sample from Khijadiya, 1 from Rajkot, and 3 samples from Morbi) from a different region of Saurashtra have been collected. Serial dilutions method was employed followed the by spread plate method for the isolation of rhizospheric bacterial strains. Total 41 bacterial strains were isolated from soil samples among which 4 bacterial strains potentially act as rhizobacteria. They were screened by various growth promotion tests such as the HCN test, Ammonia test, siderophore production, IAA production, and chitinase assay. KS2, KC8, KC9, and KC11 show the highest results for all these tests. So, these traits can be further used as potential biofertilizers to promote the growth of plants. According to the results of test these traits may belong to *Azatobacter* sp., *Bacillus* sp., and *Pseudomonas* sp.

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Synthesis, characterization & biological evaluation of some novel 6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-imidazo[2,1-b]thiazole derivatives

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Abstract: An efficient and convenient procedure has been developed for the synthesis of some novel imidazo[2,1-b]thiazole derivatives like 6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)-N-arylimidazo[2,1-b] thiazole-2-carboxamide having 57-71% yield and aryl-6-(2,3-dihydrobenzo[b][1,4]dioxin-5-yl)imidazo[2,1-b]thiazole-2-carboxylate having 56-74% yield. The structures of the new compounds have been evaluated on the basis of FT-IR, ^{1}H NMR and Mass spectroscopy data. They have also been screened for their antimicrobial activities against various strains of bacteria and fungi.

Keywords: Antimicrobial activity, Imidazo[2,1-b]thiazole, imidazole, thiazole

Introduction:

therefore in the last few decade the research in this field has generated various patents

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Optimization for Enhanced Production of Antibacterial Metabolites by Marine Actinomycetes *Kocuria* sp. strain rsk4

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Review Article http://dx.doi.org/10.20546/ijcmas.2016.508.018

Endophytic Actinomycetes: A Novel Antibiotic Source

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Research Paper

GC-MS Profiling of Palmarosa Essential Oil to Identify Bioactive Compounds and Develop Antiviral Metal Based Nano Emulsion for Chili Crop

K. H. Sodha*[1], H. P. Gajera[2], Vasantba J. Jadeja[3] and B. A. Golakiya[4]

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Short Communication

Isolation, characterization and chromatography based purification of antibacterial compound isolated from rare endophytic actinomycetes *Micrococcus yunnanensis*

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