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**DETAILS OF PUBLICATIONS AND BOOKS
FOR THE ACADEMIC YEAR -2019-20**

POLYCYCLIC AROMATIC COMPOUNDS
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Synthesis of Some Novel 5-(8-Substituted-11*H*-Indolo[3,2-*c*]isoquinolin-5-ylthio)-1',3',4'-Oxadiazol-2-Amines Bearing Thiazolidinones and Azetidinones as Potential Antimicrobial, Antioxidant, Antituberculosis, and Anticancer Agents

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ABSTRACT

As a part of systematic investigation, a novel series of 5-(8-Substituted-11*H*-indolo[3,2-*c*] isoquinolin-5-ylthio)-*N*-((5-substituted-2-phenyl-1*H*-indol-3-yl)methylene)-1',3',4'-oxadiazol-2-amine analogs were synthesized and appraised for their *in vitro* antimicrobial, antioxidant, anti-tuberculosis and anticancer activity against three tumor cell lines. Amongst the compounds tested **6a** has demonstrated intense antibacterial and radical scavenging activities. Compound **7a** revealed efficient to fantabulous antifungal activity. It is worth noting that compound **6g** was most active antituberculosis agent against H37Rv strain *Mycobacterium tuberculosis*. In case of anticancer activity compounds **6e** and **8e** against all the three tumor cell lines manifested remarkable cytotoxic activity. Ferrous ions (Fe³⁺) reducing antioxidant power was shown by compound **6e**.

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KEYWORDS

Azetidinone; indolo[3,2-*c*]isoquinoline; oxadiazole; thiazolidinone



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ARTICLE

Synthesis of Schiff Base Indolyl-1,3,4-Oxadiazole, Thiazolidinone and Azetidinone as Efficient Antimicrobial, Antioxidant, Antituberculosis and Anticancer Agents

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and Rajkumar S. Meti³

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ABSTRACT

The present investigation was under-taken to synthesize the Schiff base indole derivatives bearing of 1,3,4-oxadiazole thiazolidinone and azetidinone moieties. New series of 5-(5-substituted-3-phenyl-1*H*-indol-2-yl)-*N*-[(5-substituted-2-phenyl-1*H*-indol-3-yl)methylene]-1,3,4-oxadiazol-2-amines and screened their biological activities. Compound **4a** showed excellent antibacterial and radical scavenging activities. Compound **5a** revealed efficient to antifungal activity. In addition, compound **4a** was found to be most active against H37Rv strain *Mycobacterium tuberculosis*. In case of anticancer activity methoxy compounds **4e** and **6e** against all the three tumor cell lines manifested remarkable cytotoxic activity. Compounds **4e**, **5e** and **6e** have shown strong ferrous ions (Fe²⁺) reducing antioxidant power (FRAP) among the compounds screened. Compound **5b** showed more potent of metal chelating on Fe²⁺ ions activity at all concentrations.

KEYWORDS

Indole, Oxadiazole, Azetidinone, Thiazolidinone, Microbial activities.

INTRODUCTION

Cancer is one the horrendous diseases which cause unrestrained onto genesis of group of cell. It remains an imply treat to human beings and intensifying causes of death [1-3]. The basic effectuate of cancer is due to the spectacular free radicals and reactive oxygen species (ROS). These are ions or molecules that have a single unpaired electron in their outermost shell of electrons. It is possible to endogenous free radical reaction, initiated by ionizing radiation, resulting to in increased metabolic activity and caused damage to cell structure, nucleic acids, membrane lipids, proteins purine and pyrimidine bases of DNA biomolecule, thus leading to mutation [4-7]. Many studies have

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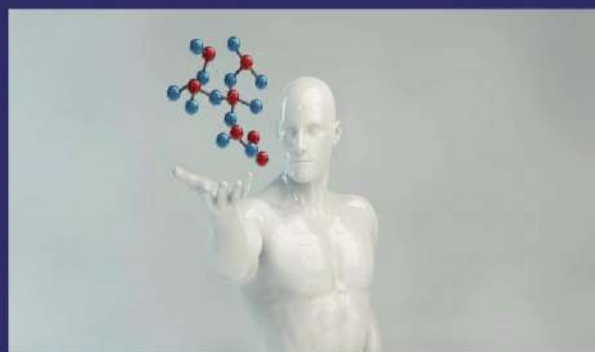
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In recent years, heterocyclic compounds are one of the most exploring fields in heterocyclic chemistry due to their diverse biological importance. Among the heterocyclic compounds, nitrogen, sulphur, oxygen heterocycles play a vital role in our day to day life. Inspired by the extensive advances of molecular hybridization with their significance, indoloisoquinoline, pyrimidine, thiazole-2-amine compounds are associated legitimately or by implication to N-bridged heterocyclic thiazolidinone, azetidinone, pi-conjugated 1,3,4-oxadiazole and heteroaromatic indole analogs. In line with previous reports new compounds have the biological potential as antimicrobial, anticancer, anti-TB, antioxidant activities. Molecular docking further supports the theoretical data with clear display of binding of molecules with protein and its effect.

Synthesis of heterocyclic compounds of biological interest



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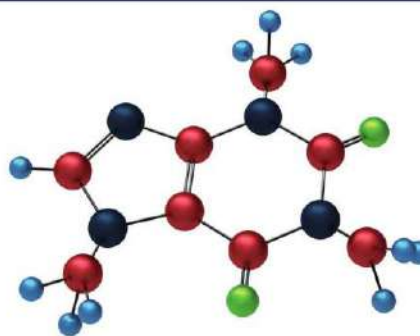
Synthesis and Drug Design of New Heterocycles of Biological Concern

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Diabetes mellitus is a disease in which the body is unable to produce or unable to properly use and store glucose (a form of sugar). Glucose backs up in the bloodstream causing ones blood glucose or "sugar" to raise too high. The diabetes Mellitus having their own historical aspect in 1552 B.C. earliest known of diabetes mentioned on 3rd dynasty Egyptian papyrus by physician mention polyuria (frequent Urination) as a symptom. It has some important landmarks as 1869, German medical student Pual Langerhance discovered that pancreas contains two distinct groups of cells-Acinar cells and islets (cells that are clustered in islands). Quantitative Structure Activity Relationship (QSAR) studies represent the non-experimental part of drug design, including investigation of both structure-activity and structure-property relationship. This is an intellectual exercise comprising assembling, manipulating and inspecting information got from physical, chemical and biological experiments and correlating these to biological activity.



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QSAR Modeling on Some Anti-Diabetic Analogs

Quantitative Structure Activity Relationship (QSAR) Studies of Some Antidiabetic Analogs



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