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DETAILS OF PUBLICATIONS AND BOOKS
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POLYCYCLIC AROMATIC COMPOUNDS
https://doi.org/10.1080/10406638.2019.1628782

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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. Amidst 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 (Fe^{3+}) reducing antioxidant power was shown by compound **6e**.

ARTICLE HISTORY
Received 12 January 2019
Accepted 1 June 2019

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

Asian Pub. Corp.

www.asianpubs.org

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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Asian Journal of Organic & Medicinal Chemistry

Volume: 4 Year: 2019
Issue: 2 Month: April–June
pp: 77–88
DOI: https://doi.org/10.14233/ajomc.2019.AJOMC-P

Received: 10 January 2019
Accepted: 28 March 2019
Published: 29 June 2019

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 (Fe^{3+}) reducing antioxidant power (FRAP) among the compounds screened. Compound **5b** showed more potent of metal chelating on Fe^{2+} ions activity at all concentrations.

KEYWORDS

Indole, Oxadiazole, Azetidinone, Thiazolidinone, Microbial activities.

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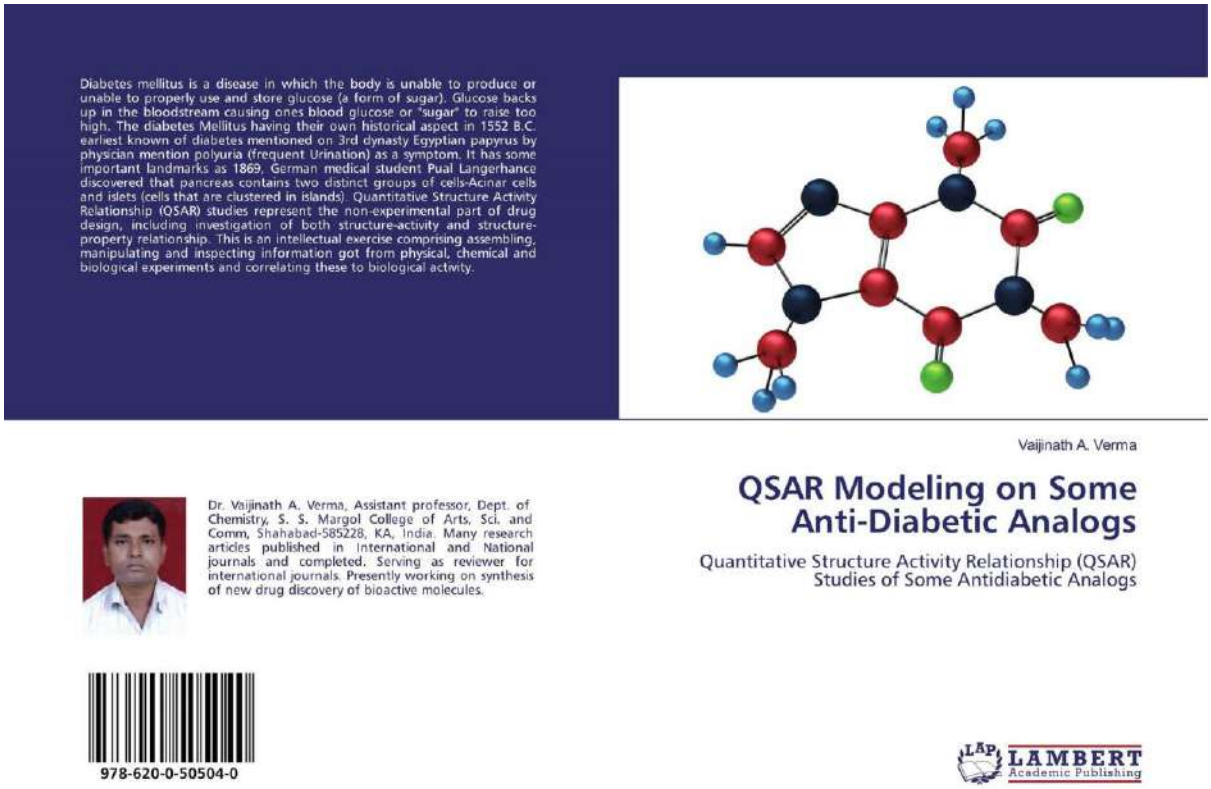
INTRODUCTION

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

ISBN-13	**:**	978-620-0-45893-3
ISBN-10	**:**	6200458936
EAN	**:**	9786200458933
Book language	**:**	English
Publishing house	**:**	LAP LAMBERT Academic Publishing
Website	**:**	https://www.lap-publishing.com/
By (author)	**:**	Verma A. Vaijinath, Halu Bharathi
Number of pages	**:**	364
Published on	**:**	2019-11-12
Stock	**:**	Available
Category	**:**	Organic chemistry
Price	**:**	93.90 €



ISBN-13	:	978-620-0-50504-0
ISBN-10	:	6200505047
EAN	:	9786200505040
Book language	:	English
Publishing house	:	LAP LAMBERT Academic Publishing
Website	:	https://www.lap-publishing.com/
By (author)	:	Vaijinath A. Verma
Number of pages	:	104
Published on	:	2019-12-31
Stock	:	Available
Category	:	Medicine
Price	:	54.90 €