



Synthesis, Characterization and Antimicrobial Evaluation of Azetidinone and Tetrazole Derivatives of Benzo[b]thiophene

Ram C. Senwar, Krishna K. Rathore and Anita Mehta*

*Department of Chemistry, M.L. Sukhadia University, Udaipur-313001, **INDIA**

Email: anita.mehta83@yahoo.co.in

Accepted on 15th May 2016

ABSTRACT

Different 3-chloro-1-benzothiophene-2-carbonyl chloride reacted with hydrazine hydrate to give compounds 3-chloro-1-benzothiophene-2-carbohydrazide (1a-d). Further indole-3-carboxaldehyde reacted with compounds (1a-d) in the presence of glacial acetic acid and methanolic media to produce Schiff bases 3-chloro-N'-[1H-indol-3-ylmethylidene]-1-benzothiophene-2-carbohydrazid (2a-d). Cyclization reaction between compound (2a-d), chloroacetylchloride and trimethylamine in the presence of 1,4-dioxane as solvent, yields azetidinone derivatives 3-chloro-N-[3-chloro-2-(1H-indol-3-yl)-4-oxoazetidin-1-yl]-1-benzothiophene-2-carboxamide (3a-d). In an another route compounds (2a-d) were refluxed with sodiumazide to give corresponding tetrazole derivatives 3-chloro-N-[5-(1H-indol-3-yl)-2,5-dihydro-1H-tetrazol-1-yl]-1-benzothiophene-2-carboxamide(4a-d). The constitution of all the synthesized products has been supported by elemental analysis and spectral studies. The synthesized compounds (3a-d) and (4a-d) were screened for their antimicrobial activity. They were found to exhibit potent antibacterial activity.

Keywords: 3-chlorobenzo[b]thiophene-2-carbonylchloride, azetidinone, tetrazole, antibacterial and antifungal activity.
