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Master Thesis Defense

Entitled

SYNTHESIS AND CHARACTERIZATION OF NOVEL DERIVATIVES OF 1,3,4-OXADIAZOLE AND ISONIAZID

by

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Date & Venue

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Abstract

This thesis describes the synthesis of novel derivatives of isoniazid and 1,3,4-oxadizole piperazines and biological activities evaluation. Nucleophilic substitution of chloroacetylated isoniazid 34 with substituted piperazines 35a-l produced isoniazid-piperazines 36a-l. On the other hand, cyclodehydration of chloroacetylated isoniazid 34 with POCl3 give the corresponding 1,3,4-oxadizole 37 which upon treatment with substituted piperazines 35a-m gave 1,3,4-oxadizole-piperazines 38a-m. All newly synthesized compounds were purified and characterized using spectroscopic techniques including 1H-NMR, 13C-NM, IR spectrometry and mass spectrometry. The biological activity of the synthesized compounds has been studied. The anti-bacterial activity was evaluated against six gram positive and gram negative bacteria. Compound 38m showed high and comparable activity as ciprofloxacin drug, while the other derivatives showed moderate activity. All derivatives showed no antifungal activity. Anti-cancer viability assay against breast cancer for selected derivatives showed significant activity.

Keywords: Oxadiazole, 1,3,4-oxadizole, isoniazid, piperazine, anti-bacterial, antifungal, anti-cancer.