Thesis Title	Synthesis of Phthalimidoalkyl Derivatives as Potential HIV-1 Reverse Transcriptase Inhibitors
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ABSTRACT

Reverse Transcriptase (RT) is an important enzyme for the replication and infectivity of Human Immunodeficiency Virus type 1 (HIV-1). This enzyme reverse transcribes the RNA of HIV-1 to single strand DNA. Since reverse transcriptase enzyme is not present in human, therefore, it is a potential therapeutic target for HIV-1 inhibitors. The HIV-1 RT inhibitors are classified into 2 groups; the nucleoside analogs such as, AZT, DDI, DDC and D4T which are clinically used in AIDS patients nowadays and the non-nucleoside analogs. The non-nucleoside analogs are dissimilar in chemical structure and they bind at different site of RT.

In this research, 11 phthalimidoalkyl derivatives were designed and synthesized. The chemical structure consists of phthalimido ring and another heterocyclic ring, i.e., phenyl, pyridyl, morpholyl, indolyl, piperonyl, thienyl and pyranyl, linking with alkyl chain. The HIV-1 RT inhibitory activity testing was performed by using non-radiometric microplate based assay. This is a new method for evaluation of RT inhibitory activity of synthesized compounds.

The inhibitory activity testing of 10 compounds at concentration 200 μg/ml resulted that compound 36, 5-phthalimidomethyl-1,3-benzodioxole, was the most active compound in this series with 94 % inhibition. Compound 31, 2-phthalimidomethylpyridine, was the least potent active with 16 % inhibition. The other 8 compounds showed the inhibitory activity at 34-76 % inhibition.