Synthesis and evaluation of platelet aggregation inhibitory activity of some novel Indole-Hydrazone derivatives

Nadia Kalhor¹, Marjan Esfahanizadeh, Shohreh Mohebbi

1-Department of Medicinal Chemistry, School of Pharmacy, Zanjan University of Medical Sciences, Zanjan, Iran

Abstract:
Since thromboembolic disorders including cardiovascular and cerebrovascular events are one of the major cause of death in worldwide and according to the antiplatelet activity of indol derivatives and hydrazone derivatives which have been reported in recent studies, a new series of indole hydrazone derivatives was designed and synthesized using molecular hybridization approach.

The structure of synthesized compounds were confirmed by different spectral methods such as MASS, H-NMR and IR spectroscopy. The in vitro antiplatelet activity of these compounds was evaluated using arachidonic acid (AA) and adenosine diphosphate (ADP) as aggregation inducers. Based on the results, The phenylhydrazone derivatives showed considerable activity (IC50<100μg/ml) against arachidonic acid-induced platelet aggregation. However, benzoylhydrazones were completely inactive (IC50>500μg/ml) These results indicated total loss of bioactivity when phenylhydrazone fragment was replaced by benzoylhydrazone.

Keyword: Indole, Hydrazone, antiplatelet activity