# Synthesis and Biological Evaluation of Novel Hydrazone Derivatives as Potential DPP-4 Inhibitors

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## Abstract

Diabetes mellitus is a metabolic disorder, which is characterized by hyperglycemia. It causes macrovascular (coronary artery disease, peripheral arterial disease and stroke) and microvascular (diabetic nephropathy, neuropathy and retinopathy) complications to the patient.

In this study, synthesis of four hydrazone derivatives **5a-5d** was carried out. The synthesized molecules were fully characterized using $^{1}$H-NMR, $^{13}$C-NMR and IR. *In vitro* biological evaluation tests for the targeted compound **5b** showed inhibitory activity of 36 % at 100 μM concentration against dipeptidyl peptidase-4 which is a target enzyme in diabetes therapy. Furthermore, the *in vivo* glucose-lowering activity of **5b** was evaluated and it significantly decreased blood glucose levels compared to control.

In conclusion, compound **5b** was found to be a successful lead compound for the development of new DPP-4 inhibitors.