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Alpha-amylase and alpha-glucosidase inhibitory activities of a novel compound isolated from *Murraya koenigii*

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Herbal plants are composed of a vast amount of novel antidiabetic drugs for the management of diabetes mellitus. The leaves of *Murraya koenigii* L. Sprengel. which belongs to Family- Rutaceae (Common name- curry leaves) plant is known to be a promising source of natural bioactive compounds. In this research, we report the isolation and characterization of a new compound from hexane extract of leaves of *M. koenigii* and its in vitro antidiabetic activity. The new compound was identified as 3,3',5,5',8-pentamethyl-3,3'-bis (4-methylpent-3-en-1-yl)-3,3',11,11'-tetrahydro-10,10'-bipyrido [3,2-a] carbazole and the structure was elucidated based on extensive ¹³C and ¹H NMR, high-resolution mass spectrometry (HRMS) and 2D NMR analysis. Investigated the *in vitro* antidiabetic activity of the new dimer using alpha-amylase and alpha-glucosidase enzyme inhibition activities. The compound exhibited significant alpha-amylase activity (IC₅₀ = 30.32 ± 0.34 ppm) and the alpha-glucosidase inhibition activity (IC₅₀ = 30.91 ± 0.36 ppm) when compared with the acarbose at 0.05 significant level. These results revealed that the new compound isolated from the hexane extract of leaves of *M. koenigii* could act as an antidiabetic agent.

Keywords: Antidiabetic compound, Enzyme inhibition assays, *Murraya koenigii*, Percentage inhibition activity

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