Abstract 46 – Paper ID: 118

Antioxidant and Phytochemical Analysis of *Murraya koenigii*: Traditional Uses and Modern Insights

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Abstract

Murraya koenigii (curry leaf), a versatile plant native to India, is widely recognised for its medicinal, culinary, and industrial applications. It is rich in phytochemicals such as alkaloids, flavonoids, and terpenoids, offering a range of beneficial properties, including antioxidant, anti-inflammatory, antimicrobial, and anti-diabetic effects. This study investigates the phytochemical composition and antioxidant potential of *Murraya koenigii* leaves. Qualitative and quantitative screening was performed to identify key phytocompounds, including phenolics, alkaloids, steroids, glycosides, tannins, saponins, flavonoids, terpenoids, and flavanols. GC-MS analysis further characterised the chemical profile. The antioxidant activity was assessed using DPPH, ABTS, and FRAP assays, which demonstrated dose-dependent scavenging activity with IC_{50} values of 1497 μg/ml, 176 μg/ml, and 1095 μg/ml, respectively. These findings highlight the antioxidant potential of *Murraya koenigii* leaves, supporting its therapeutic applications in traditional and modern medicine.

Keywords: Murraya koenigii, GC-MS, Antioxidant activity, DPPH, ABTS, FRAP

ISBN: 978-81-989164-2-6; DOI: 10.21467/abstracts.8.1