

## **Research Paper**

### **Estimation of Total Phenolic and Flavanoid Contents in Leaf Extracts of Selected Kenyan Anti-obesity Medicinal Plants and Their Antioxidant Activities**

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Submitted on 23<sup>th</sup> May 2022

Published on 8<sup>th</sup> June 2022

## **Abstract**

Dissatisfaction with high costs and hazardous side effects of the anti-obesity drugs currently available in the market, the potential of natural products for obesity treatment is under exploration. The study sought to screen selected medicinal plants, *Mangifera indica*, *Psidium guajava*, *Syzygium cumini* and *Persea americana*, used in treatment of obesity by herbalists in Kenya for their phenolic and flavonoid contents and antioxidant activity. Methanol extracts of leaf samples of four anti-obesity medicinal plants, collected from different agro-climatic regions in Kenya, were prepared. The total phenolic contents were measured spectrophotometrically by Folin-Ciocalteu method and total flavonoid contents by aluminum chloride colorimetric method. Free radical scavenging activity was evaluated using 2,2-diphenyl-1-picryl-hydrazyl (DPPH) assay. The highest amounts of phenolics were recorded in *P. guajava* extracts from the coast region ( $104.35 \pm 23.64$  mg GAE/g extract) and the lowest amount in *P. americana* extracts from the central region ( $40.15 \pm 14.07$  mg GAE/g extract). The highest amounts of flavonoids were recorded in *S. cumini* extracts from the coast region ( $67.83 \pm 9.98$  mg quercetin/g extract) and the lowest amount in *P. americana* extracts from western region ( $38 \pm 10.45$  mg quercetin/g extract). The highest IC<sub>50</sub> values in the DPPH scavenging assay were recorded in *P. guajava* extracts from the coast region (41.2 µg/ml). A significant linear correlation was observed between the antioxidant power and phenolic contents ( $R^2 = 0.97$ ). The study findings show that polyphenolic compounds in the extracts are responsible for the free radical scavenging capacity of the plants.

**Key words:** Phenolic, Flavanoid, Antioxidant

**Cite this Abstract:** Omwango, E., Onguso, J., Onchora, J., and Kirira, P. (2022). Estimation of Total Phenolic and Flavanoid Contents in Leaf Extracts of Selected Kenyan Anti-obesity Medicinal Plants and Their Antioxidant Activities. Journal of Contemporary Biotechnology, Volume 3, Issue 2, P 12 – 13, 2022.

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