Comparative Analysis of Phenolic Content and Antioxidant Activity of *Garcinia dulcis* and Chia Seed Extracts

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Abstract

Plant - derived compounds which behave as antioxidants can play a role in offering protection against excess free radicals, consequently reducing oxidative stress. *Garcinia dulcis*, locally known as Yellow Mangosteen, is a traditional plant consumed for its health benefits, while chia seed (*Salvia hispanica* L.) is internationally recognised for its nutritional and functional properties. Differences in their utilisation may be attributed to variations in phenolic composition and antioxidant capacity. This study aimed to quantify total phenolic (TPC) and total flavonoid content (TFC) and to compare the antioxidant potency of chia seed and *G. dulcis* extracts using DPPH and ABTS assays. Plant materials were extracted with 90% ethanol whilst TPC and TFC were determined using the Folin–Ciocalteu method followed by an aluminium chloride colourimetric method, subsequently antioxidant activity was evaluated by radical scavenging assays. Chia seed showed values of 2.939 ± 0.104 mg GAE/g (TPC) and 0.454 ± 0.128 mg QE/g (TFC), with IC_{50} values of 251.48 µg/mL (DPPH) and 126.68 µg/mL (ABTS). In contrast, *G. dulcis* extract showed noticeably higher TPC at 288.65 ± 0.128 mg GAE/g and TFC at 159.00 ± 0.192 mg QE/g, with IC_{50} values of 321.15 ± 0.412 µg/mL for DPPH and 262.53 ± 0.254 µg/mL for ABTS. In conclusion, both plant extracts demonstrated notable antioxidant potential. However, *G. dulcis* exhibited higher TPC and TFC, despite displaying weaker antioxidant potency than *S. hispanica*. This suggests that antioxidant potency depends more on phenolic composition and structure-activity characteristics than on total phenolic concentration alone.

Keywords**:** *Salvia hispanica L., Garcinia dulcis, DPPH, ABTS, total phenolic content, total flavonoid content*