

## **A Comparison of the phytochemicals and *In Vitro* antioxidant activity of different parts of *Syzygium cumini* in Jaffna District, Sri Lanka for the preparation of nutraceuticals**

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*Syzygium cumini* (L.) Skeels (Myrtaceae) is also known as Java plum commonly available in the Jaffna District, Sri Lanka has been widely used in traditional medicine to treat diabetes and various diseases as allergies, inflammation, and gastric ulcers due to the presence of bioactive compounds. In this study, the aim was to compare the phytochemicals and antioxidant activity of the different parts of *S. cumini*. Three parts, including leaves, seed coat, and bark, were collected in November from the Jaffna District and their ethanol, methanol and aqueous extractions were subjected to the evaluation of qualitative and quantitative analysis of phytochemicals and antioxidant activity using standard laboratory procedures. Antioxidant capacity was measured using spectrophotometer following standard procedures with DPPH and ABTS assays in which trolox was used as the standard. Three replicates were maintained for each sample in every analysis. The Statistical analysis of results was carried out using ANOVA using mini tab 17 software and Turkey's multiple comparisons at probability value ( $p \leq 0.05$ ). Phytochemical analysis revealed that all extracts of all parts contained alkaloids, flavonoids, tannins, phenol, triterpenoid, quinone, and saponins. The highest phenolic ( $10.43 \pm 0.64$ ), tannin ( $844.05 \pm 5.36$ ) and alkaloid ( $66.62 \pm 0.82$ ) contents were present in the methanolic extract of the seed coat. Also, the methanolic extract of the seed coat of *S. cumini* showed the highest DPPH and ABTS antioxidant activities due to the lowest  $IC_{50}$  values ( $125.57 \pm 0.25$  and  $140.67 \pm 0.32$ ), respectively. Based on these findings, the methanolic extract of the seat coat of *S. cumini* showed the existence of medicinally significant phytochemicals and antioxidant potential compared to other parts and it can be used as a nutraceutical in future.

**Key words:** Antioxidant activity, ABTS, DPPH, Phytochemicals, *Syzygium cumini*

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