

## Biological evaluation of *Samanea saman* in comparison to *Albizia lebeck* based on anti-inflammatory and antioxidant potential

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*Samanea saman* is a Mara variety of the family Fabaceae commonly available in Sri Lanka. Substitution is replacement of an original drug with an equivalent commonly available drug having similar pharmacological properties and action to the original one. The objective was to biologically evaluate anti-oxidant and anti-inflammatory activities of *Samanea saman* for use as a substitute for *Shireesha: Albizzia lebeck* - rarely available, well-known pain relieving (*Vedanasthapana*) drug with pharmacological properties of sweet taste, sharpness in quality, hot in potency, pungent in post digestive state. A previous survey reported and confirmed that *Samanea saman* is commonly available in the drug market. Phytochemicals were analyzed in powdered stem bark of methanol and aqueous extracts. Both extracts were evaluated for anti-oxidant activity with DPPH assay method compared to standard BHT, and anti-inflammatory activity using red blood cell membrane stabilizing method and compared with standard Aspirin. The concentration of the extracts needed to produce 50% inhibition IC<sub>50</sub> value was calculated using Probit analysis (MINITAB Release 14.2 statistical software). Both extracts were positive for phytochemicals tannins, phenolic compounds, alkaloids, saponins, glycosides and flavonoids. Previous research reported same phyto-chemicals were positive in stem bark of *Albizzia lebeck* with IC<sub>50</sub> values 48.62, and 0.11 (µg/ml) for anti-oxidant and anti-inflammatory activities respectively. The DPPH free radical scavenging activity of methanol and aqueous extracts exhibited an IC<sub>50</sub> values 75.909 (µg/ml) and 68.38 (µg/ml) respectively compared to BHT 55.07 (µg/ml). IC<sub>50</sub> values for anti-inflammatory activity in methanol and aqueous extracts were 0.40 (µg/ml), and 0.37 (µg/ml) respectively compared to standard Aspirin 0.12 (µg/ml). Based on the results, it can be concluded that *Samanea saman* is similar to *Albizzia lebeck* in selected biological activities and pharmacological properties, and it is a suitable substitute for *Albizzia lebeck* due to its availability. Further studies are required to evaluate and compare the analgesic and antidote potentials of the two plants.

**Keywords:** *Phytochemicals, Anti-oxidant, Anti-inflammatory, Substitute, Pain relieve*