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In-vitro antioxidant activity of the methanolic leaf extract of *Jeffreyia zeylanica*Sulaxsan V¹, Delakshainy V^{1*}, HAS Weragodaarachchi¹, Sivasinthujah S¹¹Department of Pharmacy, Faculty of Allied Health Sciences, University of Jaffna, Sri Lanka.

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Introduction & Objectives: *Jeffreyia zeylanica*, an endemic medicinal plant of Sri Lanka, leaf of the plant is traditionally used to treat various ailments, including fractures and bone fusion, boils, eczema, asthma, food poisoning, diarrhea, dysentery, wounds, and abscesses, and are also used as an antivenom agent; however, scientific evidence supporting its antioxidant activity remains limited. Therefore, this study aimed to evaluate the in-vitro antioxidant activity of the methanolic leaf extract of *J. zeylanica*.

Materials & Methods: Fresh leaves of *J. zeylanica* were collected during October 2025 from Kaithady, Jaffna District, Northern Province, Sri Lanka, authenticated by at the National Herbarium, Royal Botanical Gardens, Peradeniya, Sri Lanka, shade-dried, powdered, and extracted by methanolic maceration. Antioxidant activity was evaluated using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay and the ferric reducing antioxidant power (FRAP) assay was assessed at 200 µg/mL, with ascorbic acid as the reference standard. The total phenolic content was evaluated using the Folin-Ciocalteu method at 200 µg/mL, with gallic acid as the reference standard. DPPH activity was expressed as IC₅₀, while FRAP and TPC were expressed as mg AAE/g extract and mg GAE/g extract, respectively. All experiments were performed in triplicate and reported as mean ± standard deviation. An independent-samples t-test was used to compare DPPH IC₅₀ values between the extract and ascorbic acid at a 5% significance level ($p < 0.05$).

Results: The methanolic extract exhibited moderate antioxidant activity, with the mean IC₅₀ value of 49.02 ± 3.58 µg/mL, whereas the mean IC₅₀ value of the ascorbic acid standard was 24.96 ± 0.51 µg/mL. Statistical analysis indicates a significant difference between the standard and the methanolic extract ($p < 0.05$). The FRAP of the methanolic extract was 402.85 mg AAE/g extract, and the total phenolic content was 385.455 mg GAE/g extract.

Conclusions: The methanolic extract of *J. zeylanica* exhibits in-vitro antioxidant activity, which might be due to the presence of phenolic content. These findings support the traditional medical use of *J. zeylanica* and highlight its potential as a natural source of antioxidant compounds for future pharmaceutical and nutraceutical applications.