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**COMPARATIVE ANTIOXIDANT ACTIVITY AND
QUANTIFICATION OF GYMNEMIC ACID FROM SRI LANKAN
GYMNEMA SP.**

A PROJECT REPORT PRESENTED BY

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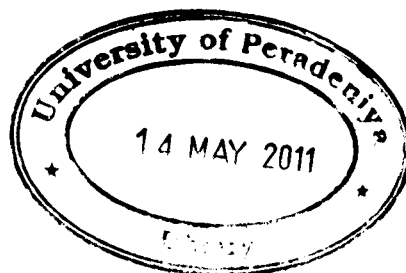
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COMPARATIVE ANTIOXIDANT ACTIVITY AND QUANTIFICATION OF GYMNEMIC ACID FROM SRI LANKAN GYMNEMA SP.

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Gymnema lactiferum (L.) R. Br. ex Schultes in Roemer & Schultes (Sin: Kuringnan; Tam: Kurintai; Eng: Ceylon cow plant) is widely used to treat diabetic patients and other urinary disorders in ayurvedic medicinal formulations in Sri Lanka from ancient times. Also the use of *Gymnema sylvestre* R. Br. (Sin: Masbedda; Tam: Cherukurinja, Sirukurunkay; Eng: Periploca of the woods) an Indian woody climber has increased recently because of the pharmaceutical potential of its antidiabetic components. Both *G. lactiferum* (L.) R. Br. ex Schultes in Roemer & Schultes and *G. sylvestre* R. Br. belong to the Asclepiadaceae family and they show this antidiabetic activity is due to the gymnemic acids present in the leaves. It has also been reported that *G. sylvestre* contains fairly good antioxidant activities. So far very less information is available on research on *G. lactiferum* (L.) R. Br. ex Schultes in Roemer & Schultes. Therefore this study focused on the Sri Lankan *Gymnema* species, *G. lactiferum* (L.) R. Br. ex Schultes in Roemer & Schultes and *G. sylvestre* R. Br in comparison to Indian counterpart.

In the present study on quantification of gymnemic acid in *Gymnema* sp. was done by High Performance Liquid Chromatography (HPLC) and Gravimetry. Even though HPLC is an accurate and sophisticated method, gravimetry is a rapid and easy method which can be used to estimate gymnemic acid content in industrial applications.

When considering the antioxidant activity of *Gymnema* sp. DPPH assay was used to evaluate antioxidant potential. This method has been developed to determine the antioxidant activity of different extracts using the stable 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical.

It has been observed that *Gymnema lactiferum* (L.) R. Br. ex Schultes in Roemer & Schultes has a higher gymnemic acid content (94.2%) and a higher antioxidant activity (EC₅₀: 311.1 ± 29.8), compared to *G. sylvestre* (Dambulla- EC₅₀: 478.7 ± 23.8 and (Indian- EC₅₀: 463.4 ± 44.0).