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Toxicological and Ecological Assessment of *Cerebera manghas* in the Eastern, Northern Provinces of Sri Lanka

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Abstract

Cerebera manghas, commonly known as the Sea mango, Tangena, and Bintaro is a small evergreen tree growing up to twelve metres. It is a coastal plant in Sri Lanka which is primarily found in Eastern Province such as Batticaloa, Trincomalee, and Ampara districts. Additionally, it is also found in Northern, Southern and Western Provinces**.** Despite its ornamental use, the plant is highly toxic, containing cardiac glycosides similar to those found in *Nerium oleander*. Accidental or intentional ingestion can lead to severe cardio toxic effects and death. The aim of the study has been previously documented yet is limited in Sri Lanka with regard to the toxic properties of *C. manghas*. The objective of this study is to identify the distribution of *C. manghas* in selected coastal areas and to assess the toxic compounds present in different parts of the plant. The methodology of this study was carried out by combining field surveys and laboratory analysis. A cross-sectional field survey was conducted at twenty selected places across the Eastern and Northern Provinces in Sri Lanka. At each site "Vegetation data were collected using standardized 10×10 m quadrats (Quadrat Sampling Technique) established at each site to assess the density and ecological characteristics of *C. manghas*." From each site, representative plant materials were collected for phytochemical profiling and toxicity assays. Ecological risk was assessed by integrating toxin levels, plant abundance, and exposure potential. The results revealed that, densities ranging from 2-9 plants per 100 m² (mean 5.8), with taller and larger trees observed in lagoon and estuarine habitats. Leaves, fruits, and seeds were present at all sites, whereas flowers were observed at 60% of locations. Phytochemical analysis reflected that, alkaloids, flavonoids, saponins, tannins, terpenoids, and phenolics, with cardiac glycosides detected in 95% of plant parts, particularly in seeds and fruits. The conclusion reveals that *C. manghas* pose a latent toxicological threat in the Eastern and Northern provinces of Sri Lanka. While ecologically valuable, its presence near residential areas necessitates urgent awareness campaigns, labelling, and potential removal in high-risk zones. Further research is needed to explore its role in the ecosystem and possible medicinal uses under controlled conditions.

Keywords: *Cerebera manghas, Sea mango, Cardiac toxicity, Eastern province, Northern province*