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**Morphological and molecular identification of different morphotypes of
Suaeda maritima from Puttalam district in Sri Lanka**

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Suaeda is a genus belonging to the family Amaranthaceae (Chenopodiaceae) and comprises more than 100 species that are distributed all over the world. Members of the genus are mainly used for food, feed, and medicine. Three *Suaeda* species have been reported in Sri Lankan salt marshes among them, *S. maritima* is widely distributed. During a field survey in Seguwanthive in July 2022, two clearly distinct morphotypes of tentatively identified *S. maritima* were found. This tentative identification was done purely based on morphological characteristics. One morphotype had green stems and leaves while the other had reddish-green leaves and brightly red-colored stems. No reproductive parts were found at the time of the survey. Even though, previous reports indicated high phenotypic plasticity among the members of the genus, it was not clear whether both morphotypes belonged to the same species or not. Due to the lack of floral structures throughout the year, accurate species identification was a great challenge for a layperson and for a trained taxonomist. Therefore, the current study was conducted to obtain detailed morpho molecular identification of each morphotype of *Suaeda maritima*, and to confirm their species identity using molecular data as well. Plant samples were collected from Seguwanthive area mainly focusing on two morphotypes and documented. Leaves were succulent, linear in shape, flattened only on one side, and acute in the apex. Plants were 40-65 cm range in height in both morphotypes with a woody base. Flowers were observed only on green plants by the time of sampling, and they were bisexual and contained 5 stamens and 3 stigmas and located axillary in 2 mm diameter clusters and seeds were black, smooth and glossy, and suborbicular to ovoid in shape. Molecular identification was conducted using DNA barcoding approach. Genomic DNA extraction was optimized. The nuclear ribosomal ITS (Internal transcribed spacer) region was PCR (Polymerase chain reaction) amplified using universal primers BLASTn searchers of the sequences confirmed that both morphotypes were identical and 100% similar to previously published records of *S. maritima* (KF866384). This project findings give insights into the plant's phenotypic plasticity under its natural environment and can be used as a future guide.

Keywords: Amaranthaceae, DNA barcoding, DNA extraction, PCR amplification, *Suaeda maritima*.

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