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Start Codon Targeted Markers as a Suitable DNA Marker to Assess Population Genetic Diversity of *Suaeda maritima*

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Abstract

Members of the genus *Suaeda* is one of the most frequently found halophytic plant in salt marsh vegetation's around the world. More than 100 different species in the genus have been reported and distributed in arid and semi-arid coastal lines around the world. In Sri Lanka three species of the genus have been reported as *S.maritima*, *S. monoica* and *S. vermiculata*. *S. maritima* is the most common species distributed in North, Northwestern parts in the island. Even though a considerable level of phenotypic plasticity is reported among the members of *S. maritima*, it is not clear whether the populations in Sri Lanka are sub divided and the level of genetic diversity remains unknown. With the high economical potential of the plant, it is utmost importance to detect the genetic diversity present in Sri Lanka. The first step in such an attempt is to identify a set of suitable polymorphic markers. Here we assessed the suitability of Start codon targeted (SCoT) DNA markers as a tool for analysing population genetic diversity of *S. maritima* for the first time in Sri Lanka. Genomic DNA was extracted from young leaves of *S. maritima* plants collected from three study sites: Manner, Seguwantiwu and Palavi, using modified CTAB method. Three representative samples from *S. maritima* plants were subjected to PCR amplification using eight SCoT primers (SCoT4, SCoT5, SCoT6, SCoT7, SCoT12, SCoT17, SCoT32 and SCoT34). Optimum temperature was identified for SCoT primers and all the markers amplified successfully. Among the 8 markers, 6 pairs showed polymorphism among three individuals. Notably, SCoT12 and SCoT32 exhibited the highest polymorphic percentages as 70% and 57.14% respectively. Our findings indicate the suitability of these SCoT markers for elucidating the genetic diversity of *S. maritima* populations, laying the foundation for comprehensive genetic studies in future.

Keywords: DNA extraction, Halophytes, Polymorphic percentage, *Suaeda maritima*, SCoT markers

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