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ISSR Based Molecular Phylogeny in Naturally Growing Suaeda Populations of Saudi Arabia

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Abstract : The objective of the present study was to identify the phylogenetic relationships and determine genetic diversity among Suaeda genotypes growing in Saudi Arabia and to find out whether these could be a potential source for genetic diversity. A set of nineteen genotypes was analyzed using twenty-four ISSR primers. Clear amplified polymorphic DNA products were obtained from the screening of twenty-four ISSR primers on nineteen genotypes that allowed selection of ten primers and the results were reproducible. Nineteen genotypes were revealed a unique profile with ten ISSR primers and thus it can be used for the DNA fingerprinting. Different primers produced a different level of polymorphism among the nineteen genotypes. The number of polymorphic bands per primer varied from 5 to 14 with an average of 8 bands per primer. The results revealed that the genotypes differed for ISSR markers. The genetic similarity based on Nei and Li's ranged from 0.450 to 0.930. Cluster analysis was conducted based on ISSR data to group the Suaeda genotypes and to construct a dendrogram. Four groups can be distinguished by truncating the dendrogram at GS value of 0.54. ISSR markers showed high level of polymorphism among the genotypes examined. The present study indicates that ISSR markers could be successfully used in genetic characterization and diversity in Suaeda.

Keywords : suaeda, DNA fingerprinting, ISSR, Saudi Arabia
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