RESEARCH ARTICLE

ASSESSMENT OF GENETIC FIDELITY OF MOTHER PLANT AND *IN VITRO* RAISED MEDICINAL PLANT *EPHEDRA GERARDIANA* THROUGH MOLECULAR MARKERS

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Abstract: *Ephedra gerardiana* is an important medicinal gymnosperm shrub. It has been traditionally use for an assortment of medicinal purpose. Molecular markers analysis was conducted to screen genetic fidelity among *in vitro* raised plantlets compare with mother plant of *Ephedra gerardiana*. Genetic fidelity of regenerated plants was assessed using Random Amplified Polymorphic DNA (RAPD) and Simple Sequence Repeat (SSR) Primers. A total of 50 RAPD primers and 30 SSR primers were utilized in the present study to analyze genetic fidelity of mother plant and among tissue culture raised plants of *Ephedra gerardiana*. Out of 50 RAPD primers, 19 primers exhibited DNA amplification in all the DNA samples and out of 30 SSR primers, 18 were show amplification. The amplified products of the regenerated plants showed similar banding patterns to that of the mother plant thus demonstrated the homogeneity of the micropropagated plants. The banding pattern ruled out presence of any kind of somaclonal variation. Thus, the results revealed that genetic fidelity between the micropropagated and mother plant in *Ephedra gerardiana* and supports the suitability of tissue culture technique for generation of genetically similar plants. Hence, the results obtained confirmed genetic stability of regenerated plants.

Keywords: *Ephedra gerardiana*, Micropropagation, Genetic fidelity, RAPD, SSR

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