Abstract

Effect of Genotypes on Micropropagation of *Terminalia arjuna*—An Important Medicinal Tree †

Meena Choudhary *, Ashok Gehlot, Sarita Arya and Inder Dev Arya

Genealogies and Tree Improvement Division, Arid Forest Research Institute, Jodhpur, Rajasthan 342005, India; agbios843@gmail.com (A.G.); aryas@icfre.org (S.A.); aryaid@gmail.com (I.D.A.)

* Correspondence: meenaseervi@gmail.com; Tel.: +91-9413878442

**Abstract:** *Terminalia arjuna* is an important tree of medicinal and sericulture industry, commonly known as Arjun. Its bark, rich in secondary metabolites, makes this plant highly valuable in the medicine industry to treat cardiovascular disease. It is also used as a feeder plant for tasar silkworm (*Antheraea mylitta*). Over-exploitation due to the high demand in medicine, low seed germination, and limitations of conventional methods of propagation push this plant towards being endangered. To conserve the germplasm of such tree species and meet the requirements of the medicinal industry, some non-conventional propagation methods, like micropropagation, have been developed. The present work highlights the effect of genotypes on the tissue culture of *T. arjuna*. For this objective, nodal explants were collected from three genotypes (G-1, G-2 and G-3) of *T. arjuna* situated at Jodhpur, Rajasthan, India. In vitro shoot proliferation was achieved on modified MS medium enriched with BAP + additives. Genotype-1 showed maximum bud break response (100%), followed by G-3 (93.33%) and G-2 (86.66%). Further multiplication of these shoots on modified MS medium containing BAP + NAA + additives gave 11.38 ± 0.26 (G-1), 9.44 ± 0.21 (G-2) and 10.22 ± 0.32 (G-3) shoots. In vitro rooting was done by pulse treatment with IBA for 10 min prior to transfer to hormone-free half-strength MS medium containing 0.1% activated charcoal. Maximum in vitro rooting was obtained in G-1 (80%), followed by G-3 (71.11%) and G-2 (68.88%). In the present study, it was observed that optimum growth in all three genotypes requires different doses of Plant Growth Regulator. Thus, by identifying and multiplying the best-performing genotypes, the gap between the demand and supply of such medicinal plants can be fulfilled.

**Keywords:** tissue culture; modified MS medium; Plant Growth Regulator

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