# Effect of genotypes on micropropagation of *Terminalia arjuna* – an important medicinal tree

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## INTRODUCTION

- *Terminalia arjuna* is an important tree in medicine and sericulture industry.
- Overexploitation, poor seed germination and lack of proper macropropagation methods led to decrease in its population.
- To conserve germplasm of such tree species and meet the requirement in medicinal industry, some non-conventional propagation method like micropropagation have been developed.
- Number of paper dealing with micropropagation of *T. arjuna* through seedling and mature nodal explants (1,2,3). In 2015 [4] and 2018 [5] we also worked on different aspect of *T. arjuna* micropropagation.
- It is our further study on the effect of genotypes on tissue culture of *T. arjuna*.

## METHODOLOGY

- Nodal segments collected from three genotypes (G-1, G-2, G-3) situated at Ummaid garden, AFRI campus and AFRI nursery, Jodhpur, India, respectively.
- Disinfected with a 0.1% (w/v) bavistin and streptomycin for 15 min, followed by surface sterilization with 0.1% HgCl2 for 8 min.
- Phenolic exudation removal by dipping the explants in pre chilled sterile antioxidant solution of 100 mg/l of ascorbic acid, 50 mg/l of citric acid and 25 mg/l PVP for 10-30 min
- *In vitro* bud break response medium:- MMS medium supplemented with BAP.
- *In vitro* shoot multiplication medium :- MMS medium supplemented with BAP with NAA.
- *In vitro* rooting:- pulse treatment with IBA for 10 min and then transferred to the hormone free half strength of MS medium containing 0.1% activated charcoal.

## RESULTS

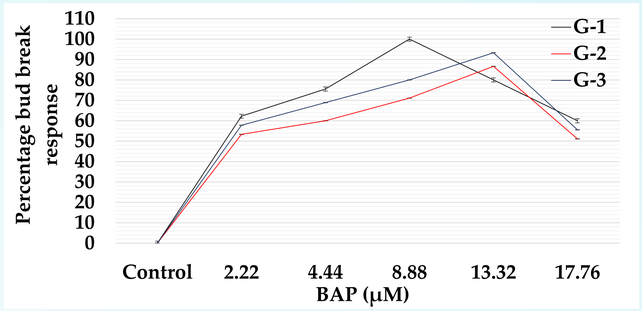


Figure 1. Effect of genotypes on *in vitro* axillary bud break.

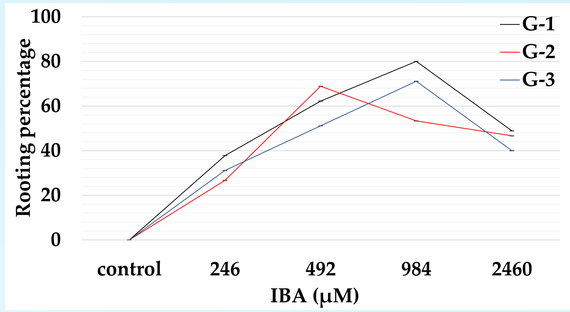


Figure 3. Effect of genotypes on *in vitro* rooting.

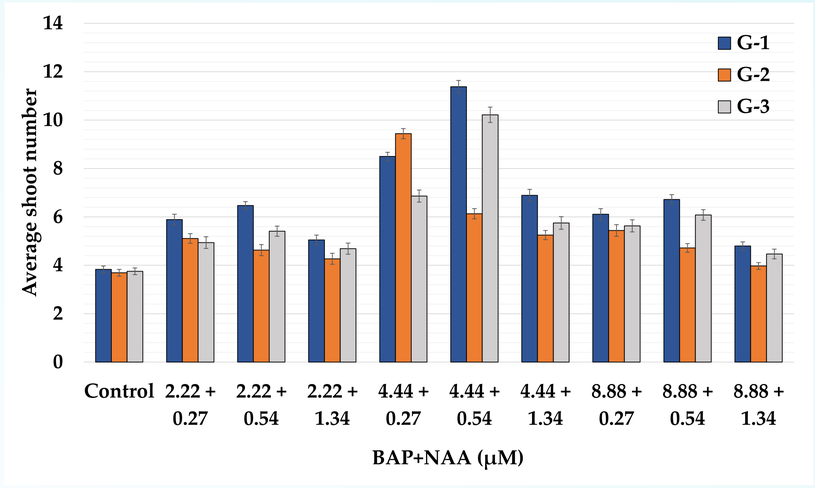


Figure 2. Effect of genotypes on *in vitro* shoot multiplication.

- Genotype-1 showed maximum bud break response (100%) followed by G-3 (93.33 %) and G-2 (86.66%).
- 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.
- Maximum *in vitro* rooting was obtained in G-1 (80%) followed by G-3 (71.11%) and G-2 (68.88%).

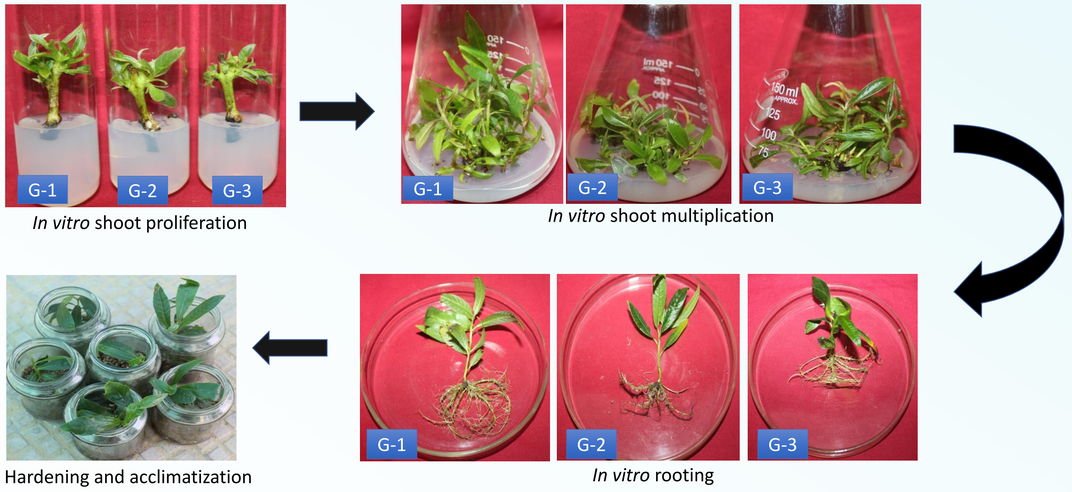


Figure 4. Effect of genotypes on different stages of micropropagation of *T. arjuna*.

## CONCLUSION

Present study concluded that different genotypes showed differential plant growth regulator requirement for their optimal growth. There is no report on effect of genotypes on micropropagation of *Terminalia arjuna*. Thus, genotype which performed better during *in vitro* shoot proliferation, *in vitro* multiplication and *in vitro* rooting can be multiplied in large scale to fulfil the gap between demand and supply of such medicinal plant.

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