

### Tissue culture propagation in Banana cv. Rajapuri Bale (*Musa spp.*, AAB group)

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**B**anana (*Musa spp.*) cv. Rajapuri Bale (AAB) is a popular cultivar of banana grown in Northern parts of Karnataka state in India. The demands for the planting material of this cultivar is high and tissue cultured plantlets are not available because of the inherent problem in the initial establishment of the culture and multiplication rate is also low. For facilitating large scale multiplication of this cultivar, the present investigation was carried out using different antioxidants and cytokinins to enhance shoot proliferation. The shoot tip explants were cultured on MS basal medium supplemented with different kinds and concentrations of antioxidants (ascorbic acid, citric acid, activated charcoal and dark incubation). Among the different treatments, ascorbic acid at 225 mg/l resulted effective control of browning (0 - no browning) and highest aseptic culture establishment (40 %). However, least polyphenol oxidase activity (39.55 unit/ml/min) and days taken for bud sprouting (21 days) were recorded with dark incubation followed by ascorbic acid (225 mg/l). Multiple shoot clumps explants inoculated on MS basal medium fortified with different kinds and concentrations of cytokinins (6-Benzylaminopurine (BAP), Thiadiazuron (TDZ) and BAP with  $\alpha$ -Naphthaleneacetic acid (NAA). Among different cytokinins, BAP 4 mg/l was found best for shoot growth parameters like regeneration (100 %),

days taken for bud sprouting (5.41), number of shoots per explants (3.13), number of leaves per shoot (2.07), shoot length (4.72 cm) and fresh weight of the plantlets (3374.80 mg/plantlet). The results obtained using RAPD markers showed 94.08 % monomorphism and 5.92 % polymorphism which was under the permissible limit. The exposure of banana cultures during *in vitro* culture to different concentrations of antioxidants and cytokinins was found not associated with the risk of genetic instability as revealed by RAPD markers.

#### Speaker Biography

Prabhuling Guranna has completed his PhD in Horticulture with specialization in banana plant tissue culture in 2011 from University of Agricultural Sciences, Bangalore, India. He participated in post graduate course on "Adapting to Climate Change: Biotechnology in Agriculture in a World of Global Environmental Changes" from 2.05.2011 to 30.06.2011 at Rehovot, Israel. Presently he is working as Associate Professor of plant biotechnology at University of Horticultural Sciences, Bagalkot, India. He has over 35 research publications that have been cited over 12 times, his RG score is 9.11 and H-index is 2 and has been serving as an editorial board member of reputed Journals viz., Research Journal of Biotechnology and European Journal of Medicinal Plants. He is MASHAV alumni, life member of International Society of Biotechnology, Karnataka Horticultural Society and Association for the Improvement in Production and Utilization of Banana. He received first best oral presentation award at National Conference on Production of Quality Seeds and Planting Material – Health Management in Horticultural Crops in 2010.

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