APPLICATION OF *IN VITRO* CULTURE TECHNIQUES FOR PROPAGATION OF *ZINGIBER ZERUMBET*

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SUMMARY

Application of *in vitro* culture techniques for propagation of *Zingiber zerumbet* has been established. The result showed that the optimal method for bud sterilization was soaked in 70% ethanol for 1 minutes, in $HgCl_2$ 0.1% for 9 minutes. The explants were then grown *in vitro* on Murashige and Skoog (MS) basal medium supplemented with Benzylaminopurine (BAP) 0.2 mg/l and sucrose 30 g/l, by which the regeneration rate achieved 75.64 percent after 6 weeks of culture. MS basal medium supplemented with BAP 1.2 mg/l, Kinetin 0.5 mg/l, α-naphthalene acetic acid (NAA) 0.2 mg/l and sucrose 30 g/l was the optimal medium for multi-shoot regeneration (4.08 shoots/plant), and the multi - shoot regeneration rate was 100% after 5 weeks of culture. Shoots were rooted on MS basal medium containning NAA 0.2 mg/l and sucrose 3% giving rise to approximately 5.7 roots per shoot and length of root (5.05 cm) after 5 weeks of culture. The survival rate archived 95.78% after transplanting to pots of 50% sand, 25% rice husk, and 25% coconut fiber. The plantlets were successfully acclimatized under greenhouse conditions with high humidity before transferring to the field. This procedure can be applied for mass production of *Zingiber zerumbet* to meet the commercial demand.

Keywords: Micropropagation, multi-shoot, tissue culture, *Zingiber zerumbet*.

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