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OPTIMIZING SUCROSE AND BAP CONCENTRATIONS FOR

IN VITRO MICRORHIZOME INDUCTION OF

***Zingiber officinale* Rosc. ‘Tambunan’**

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ABSTRACT

In vitro microrhizome induction is considered as an effective tool for high yielding rhizomatous crops. In this study, the effect of sucrose and BAP was examined to establish a suitable protocol for *in vitro* microrhizome production of *Zingiber officinale* Rosc. 'Tambunan'. The *in vitro* derived plantlets were used as explants and cultured on Murashige and Skoog (MS) medium treated with a combination of sucrose and BAP at various concentrations and maintained at $25 \pm 2^\circ\text{C}$ with 16 hr of photoperiod. After three months of culture, explant responded well on MS medium supplemented with 60 g/L of

sucrose and 6 mg/L of BAP compared to other treatments. This treatment had significantly promoted the highest number of microrhizomes (seven) with a total weight of 2.90 g and a total number of 35 buds. Acclimatization of this microrhizome showed 88% of survivability rate after 21 days with a formation of new shoot and root. The current finding revealed the potential of microrhizomes for large-scale production of healthy planting material to support the ginger industry in this region.

Key words: 6-Benzyladenine (BAP), ginger, microrhizome, sucrose, Zingiberaceae