

Optimizing sucrose and bap concentrations for In vitro microrhizome induction of *Zingiber officinale* rosc. 'Tambunan'

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.