



## The Effect of Organic Nutrient and Growth Regulators on Seed Germination, Embryo and Shoots Development of *Dendrobium antennatum* Lindl. Orchid by *In Vitro*

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### Abstract

*Dendrobium antennatum* has high economic value as cut flowers and flowerpots. Like orchid seeds in general, *D. antennatum* is difficult to germinate under natural conditions. This study aimed to determine the effect of coconut water on seed germination and embryo development, as well as the effect of NAA on shoots development of *D. antennatum*. This study consisted of two stages. In the first stage, the 12 weeks-old seeds after pollination were sown on MS medium containing 2 g/L peptone + 0%; 5%; 10%; and 20% coconut water. After 8 weeks of culture, the seeds germinated and the shoot formed were recorded. The highest in seed germination (92.2%) and the formation of shoots (51.4%) were obtained when seeds were cultured on MS medium containing 2 g/L peptone + 20% coconut water. In the second stage, the shoots were sub-cultured on MS medium containing 1 mg/L thidiazuron + 0 mg/L; 1 mg/L; 2 mg/L; and 3 mg/L NAA. After 16 weeks of sub-culture, the height of *plantlets*, the length of the roots and leaves, number of leaves and roots formed were recorded. MS medium containing 1 mg/L thidiazuron + 1 mg/L NAA was the most suitable for the shoots development of *D. antennatum*. The embryo development of *D. antennatum in vitro* begins with the enlargement of embryo, with further it emerges from the seed coat (germinated) followed by the formation of the apical meristems to form the shoots and the roots.

### How to Cite

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