

**Development and characterization of flower and capsule in Borneo jewel orchid *Macodes limii* J.J. Wood and A.L. Lamb (Orchidaceae: Asparagales)**

**Abstract**

*Macodes limii* J.J. Wood and A.L. Lamb is an endemic jewel orchid of Sabah in Borneo. The species has unique characteristic with high potential to be commercialized as ornamental plant. However, it was understudied because of its scarcity in nature, which can only be found at certain area in Sabah with ultramafic soil. To understand the reproduction biology of this species, the present study was conducted to document the developmental stages of flower and capsule to determine the right harvesting time for further use in seed germination study. *Macodes limii* was collected from its natural habitat and cultivated ex situ throughout this study. Flower development was recorded starting from inflorescence initiation until full bloom, which took over 54 days to complete. Flower was artificially pollinated, and capsule was produced within 22 days, and harvesting was performed prior to dehiscence. Seeds were aseptically cultured on half-strength Murashige and Skoog medium þ 3% (w/v) sucrose, and 29% of seeds were successfully germinated after 24 weeks under continuous dark condition. The current findings are beneficial as a reference to support the conservation efforts of this endemic species