

## **In vitro seed germination of *Paphiopedilum lowii*, an endangered slipper orchid in North Borneo**

### **ABSTRACT**

*Paphiopedilum lowii* (Lindl.) Stein is alarmingly decreasing in numbers due to habitat destruction and over-collection. Propagation through seed is one effort to conserve the species. In vitro method offers better results for seed germination in orchids, but the success of germination is species-specific. Hence, this research aimed to evaluate different types of media [(1/2 strength Murashige & Skoog and Orchimax Medium (Duchefa Biochemie)], and to determine the effects of sucrose [0% 1%, 2% and 3% (w/v)], peptone [0%, 0.1% and 0.2% (w/v)], coconut water [0%, 10%, 20% and 30% (v/v)] and fertilizer [Orchid Focus-0%, 0.1% and 0.2% (v/v)] on seed germination. The protocorm size was also determined after 12 weeks of observation. Half-strength MS media consistently gave higher seed germination, 1/2 MS supplemented with 1% (w/v) sucrose, 0.1% (w/v) peptone, 0% (v/v) coconut water and 0.1 % (v/v) fertilizer resulted in the highest seed germination at  $5.32\% \pm 5.9$ ,  $19.27\% \pm 9.34$ ,  $11.33\% \pm 3.80$  and  $19.31\% \pm 9.03$  respectively. Despite being 12 weeks in culture, the sizes of the protocorms are small ( $0.222 \pm 0.089$  mm diameter,  $0.703 \pm 0.280$  mm circumference, and  $0.045 \pm 0.043$  mm<sup>2</sup> area); this requires future investigation. These findings can serve as base information for further enhancement of seed germination and development of propagation methods of *P. lowii* for use in a conservation program. © 2022, Society for Indonesian Biodiversity. All rights reserved.