

## **An improved PVS2 cryopreservation technique for Ascocenda Wangsa Gold orchid using protocorm-like bodies**

### **ABSTRACT**

Ascocenda Wangsa Gold is a new and fascinating orchid hybrid in the Malaysian flower industry. An efficient plant vitrification solution 2 (PVS2) cryopreservation technique was developed for protocorm-like bodies (PLBs) of Ascocenda Wangsa Gold orchid. Parameters assessed included the effect of PVS2 exposure periods, thawing duration, temperature, and culture conditions based on 2,3,5-triphenyltetrazolium chloride absorbance readings and regrowth rates. A regrowth rate of 33.3% was obtained after 2 months when the PLBs were dehydrated in PVS2 for 30 min. The growth rate was improved to 47% when thawing was conducted at 45 °C for 85 s. The highest growth rate (53.3%) was obtained when the PLBs were subjected to a 7-day dark treatment before being transferred to a 16-h/8-h light/dark photoperiod. Histological analyses were conducted to study the morphology of cryopreserved and noncryopreserved PLBs of Ascocenda Wangsa Gold. The vitrification protocol developed in this study is a feasible and safe method for strengthening the germplasm conservation of this orchid for commercial purposes.

**Keyword:** Plantvittrification solution 2; Liquid nitrogen; 2, 3, 5-triphenyltetrazolium chloride assay; Ascocenda Wangsa Gold; Histology