

## **High frequency multiplication of *Phalaenopsis gigantea* using trimmed bases protocorms technique**

### **Abstract**

This study was conducted to determine the effects of coconut water (CW) and activated charcoal (AC) on multiplication of *Phalaenopsis gigantea* protocorms. The protocorms used for this study were obtained by germinating seeds in vitro. Protocorms with trimmed and untrimmed bases were cultured on XER basal medium containing 0, 10, 15 or 20% (v/v) CW; and 0, 1, 2 or 2.5 g AC(-1). Trimmed protocorms exhibited the highest percentage of proliferation on a medium containing 15% (v/v) CW and 2.5 g AC F 1 (56.82 +/- 38.86%) with an average of 4.24 +/- 2.89 pro-protocorms formed per protocorm. Untrimmed protocorms cultured on a medium containing 20% (v/v) CW without AC produced the highest percentage of new protocorms (6.93 +/- 6.28%) with an average of 0.72 +/- 0.57 per protocorm. When CW was added to a medium singly, 10% (v/v) CW induced a higher degree of proliferation on trimmed protocorms (5.68 +/- 10.14%) with an average 0.50 +/- 0.84 new protocorms per protocorm. Untrimmed protocorms proliferate to a much lower extent (2.57 +/- 2.74%) with an average of 0.72 +/- 0.57 protocorms per protocorm when cultured on a similar medium. A high concentration of CW enhanced proliferation on untrimmed protocorms, but increased mortality of trimmed protocorms. The addition of CW with AC to media increased protocorm proliferation and survival of both trimmed and untrimmed protocorms. When cultured on all media, trimmed protocorms produced a higher number of new protocorms (an average 0.5-7.0) as compared to untrimmed protocorms (0.3-1.9). Comparative studies showed that trimmed protocorms produced up to 10 times more new protocorms than untrimmed ones. Altogether this study showed that trimmed protocorms cultured on a medium containing CW and AC can be used for high-frequency multiplication of *P. gigantea* seedlings. (c) 2006 Elsevier B.V. All rights reserved.