

Effects of benzyladenine purine and its interaction with polyamines on growth of *Spathoglottis plicata* PLBs

ABSTRACT

Spathoglottis plicata is highly sought after by florists and orchid growers due to its unique structure and colors. However, this orchid is a slow-growing type and thus the planting materials are acutely limited. Therefore, there is a need to improve its multiplication efficiency and speed up its growth in order to meet the market demand. Benzyladenine purine (BAP) has been widely used to improve plantlet multiplication in plant cultures. Polyamines have also been reported to improve the growth and development of in vitro cultures. The objective of this study was to investigate the effects of BAP and different polyamines on the physical and biochemical changes of protocorm-like bodies (PLBs) of *S. plicata*. Different concentrations of BAP and polyamines (putrescine, spermine, and spermidine) were used. BAP and polyamines were supplemented singly in half-strength MS medium and PLBs were cultured for 2 weeks. It was observed that 5 μ M BAP and 25 μ M spermidine resulted in the highest fresh weights of 0.38 g and 0.31 g, respectively. The total soluble protein and carbohydrate content for PLBs treated with 25 μ M spermidine was 4.85 mg/g FW and 6.36 mg/g FW. A separate experiment was carried out to investigate the interactive effects of 25 μ M spermidine with 5 μ M BAP. The presence of spermidine in the media reduced the peroxidase and catalase activities by increasing the nitrate reductase activity.

Keyword: Benzyladenine purine; Micropropagation; Orchid; Polyamine; *Spathoglottis*