

**Title** The response of growth and development from *in vitro* seed propagation of *Dendrobium* orchid to chitosan

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### Abstract

Chitosan is a deacetylated derivative of chitin derived from crustacean group. Thus it can be degraded in nature and safe for living organism. It has been shown to promote the growth of various plants. For example, chitosan has been reported to increase the growth rate and early flowering in orchid. The objective of this experiment was to study the effect of chitosan on *in vitro* growth of *Dendrobium* Queen Pink protocorms. Protocorms at the approximately size about 0.3-0.5 cm. were cultured on modified Vacin and Went (VW) medium supplemented with chitosan at the concentrations of 10, 20, 40, 60 mg/L or without chitosan (control). The growths were recorded after cultured for 1 year. The results showed that seedlings grown on VW supplemented with chitosan at all concentrations had higher fresh weight and dry weight when compared to the control. Chitosan at the concentration of 60 mg/L had the highest plant height, root length and leave area compared to other treatments including the control. However there was no statistically difference on number of leaves, roots and new shoots. The effect of chitosan on the number of stoma showed that chitosan at all concentrations increased the number of stomata compared to the control but the number and size of chloroplast was not different.