

Genetic stability of in vitro multiplied *Phalaenopsis gigantea* protocorm-like bodies as affected by chitosan

ABSTRACT

Chitosan is a carbohydrate polymer derivative of chitin which presents in shell of crustaceans. This biopolymer is a non toxic and environmentally friendly, considered as a plant growth stimulator in some plant species. The present study investigates the effects of chitosan and media types on multiplication and genetic stability of *Phalaenopsis gigantea* protocorm-like bodies (PLBs). PLBs were inoculated in liquid New Dogashima Medium (NDM) and Vacin and Went (VW) supplemented with various concentrations of chitosan (0, 5, 10, 15, 20 and 25 mg/L). The highest PLB multiplication was observed on VW and NDM supplemented with 10 mg/L chitosan with mean number of PLBs 177 and 147, respectively. Chitosan promoted the formation of juvenile leaves and the highest number was observed in NDM supplemented with 20 mg/L chitosan with mean number of 66 leaves after 8 weeks of culture. Genetic stability was assessed among mother plant and secondary PLBs after 2, 4, 6, and 8 weeks of culture in liquid media. 8 out of 10 ISSR markers produced a total of 275 clear and reproducible bands with mean of 6.9 bands per primer. The secondary PLBs produced during sub-culturing process of chitosan treated liquid culture were genetically uniform and similar to mother plant.

Keyword: Chitin; Chitosan; ISSR; New Dogashima Medium; *Phalaenopsis gigantea*; PLBs