

Thesis title

Factors Influencing Germination and Protocorm
Development of Paphiopedilum concolor (Lindl.)
Pfitzer

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Abstract

A series of experiments had been carried out to find suitable conditions for Paphiopedilum concolor (Lindl.)Pfitzer seed germination and seedling development. Seed germination in a liquid medium in vitro generally showed embryo enlargement at 2 - 3 weeks after first cultured resulting in increasing seed width and decreasing seed length. The embryo continued to grow until they broke through the seed coat longitudinally which happened at 3 - 4 weeks after culturing. Best germination and also best protocorm development were obtained from the 18-week-old pods. Furthermore, it was found that modified Vacin and Went(1949) liquid medium was more suitable for the seed germination and growth of the protocorms than Murashige and Skoog

(1962), and Thomale GD(1954) in the presence of MS micronutrients and the same levels of sucrose and growth additives. Peptone added to the liquid cultured medium at 0.5 - 2.0 g/l promoted more seed germination percentage than those found in the media devoided of peptone and at higher level i.e. 3 g/l . Darkness is not essential for the seed germination, but growth of the protocorms from the seed sown under continuous darkness were bigger in size than those obtained from the other treatments. Different levels of the pH tested showed that higher levels of pH ranging from 5.5 - 6.5 were found to be suitable.

The protocorms developed in the initial liquid medium were transferred to different tested subcultured media. It was found that the basal medium supplemented with 0.2 percent (w/v) activated charcoal together with 5.0 percent (w/v) homogenized ripe banana was most suitable for growth of the developed seedlings. In addition, the medium supplied with 10 percent (v/v) coconut water + 2 percent (w/v) sucrose promoted more protocorm and seedling development than other levels.