CONCLUSIONS
CONCLUSIONS

- Orchid seeds could be successfully germinated aseptically by providing an appropriate nutrition in vitro. The germination response, in general, varies with the habit, developmental stage of the seeds (wap), and the nutrient pool.

- 'Green pod culture' technique based on the ability of the seeds to germinate much before their dispersal, significantly shortens the time lapse between pollination and sowing of seeds in orchids.

- The epiphytic taxa germinate better than their terrestrial counterparts due probably to their simple requirements and amenability to a wider nutritional amplitude. Such a behaviour of the epiphytes seems to be correlated with their genetic and ecological stability. The nutritional complexities of the terrestrial taxa, on the other hand, may be attributed to their inherent adaptability to highly competitive habitat.

- Dormancy and other inhibitory factors if any, develop either during very early or later stages of seed development.

- Development of rhizomatous structures, prior to organogenesis, in Cymbidium lowianum and the related
Protoeerm multiplication, an inherent trait of orchids was selectively expressed depending upon the chemical stimulus in the present cultures and this potential (a delayed expression of polyembryony) appears to have an adaptive significance leading to species perpetuation in this group of plants.

In terrestrial taxa, the chlorophyll development in the protocorm is genetic attribute. The extent of its development, however, varies with the media composition. In epiphytic taxa, the stage of chlorophyll development (pre- or post- protocorm) is directly correlated with the quality and combination of the growth adjuncts in the medium. Though, it is difficult to suggest that the chlorophyll development is definitely associated with a functional change from heterotrophic to autotrophic mode of nutrition, the present studies are tempting enough to consider that its initial development during germination is directly governed by the genetic and/or nutritional factors.

The species under investigation germinated readily in M and KC media, which contain both the ammonium and nitrate ions due probably to the utility of both these nitrogen sources during germination. Whatever be the exact nitrogen requirement of the present species, the author
is of the opinion that variable patterns of differentiation and growth under similar but of nutritional environment may be a genetic attribute and calls for a detailed biochemical investigation on orchid nutrition.

- The exogenous supply of growth hormones and nitrogenous compounds play an important role during germination, differentiation and growth of seedlings in vitro.

- Protocorm, pseudobulb, rhizome, leaf and root explants can be profitably employed for clonal propagation under suitable nutritional environment. The source, juvenility of the tissues and appropriate nutritional environment are important factors for their proliferation. The endogenous and/or exogenous level of auxin plays an important role in events leading to transformation of a root into a shoot. Incorporation of auxins and/or cytokinins with or without organic growth supplements stimulate regeneration.

- AC, an active adsorbent, can be effectively used to check the release of phenolic exudates in the medium and save the cultures from their harmful effects. Since, the harmful effects of certain growth adjuncts were successfully alleviated by using AC in the present experiments, it appears that these and other potential
growth inhibitors present in the agar/or, released by the explants themselves are probably adsorbed by AC.