

P-14. *IN VITRO* SEED GERMINATION OF SOME EPIPHYTIC ORCHIDS OF NORTH-EAST INDIA

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Orchids represent the most highly evolved family amongst monocotyledons and are greatly valued for their most beautiful and long lasting flowers. Of the 20,000 to 30,000 species of orchids in the world, about 1250 occur in India; of these nearly 650 are found in the North-East India.

The orchid wealth of this region is fast depleting due to ruthless commercial exploitation and indiscriminate felling of forest trees for 'Jhum' (shifting agriculture), unplanned human activity and population pressure. They are, as a result, becoming scarce and some of the species are at the verge of extinction.

In their natural conditions, the majority of orchid flowers are not pollinated, their ovules are not fertilized and capsules are rarely formed. Orchid seeds are the minute (usually less than 2 mm in length). They have no endosperm and the embryo consists of a mass of undifferentiated tissue, with no plumule, radicle, etc. (Stoutamire, 1964, 1681).

The orchid plants produce enormously high number of seeds per capsule. However, they show very poor germination in their natural environment due to a particular fungal requirement. Recently, many workers have started to grow orchid seedlings under laboratory conditions in flasks and test tubes. However, a limited success in *in vitro* germination

has been achieved; the main reason for this is that no generalized pattern can be established with regard to the germination requirements of all orchid species and even for the same species growing in different areas. The problem of orchid seed germination has been recently reviewed by Arditti (1983).

In an attempt to develop practical methods for preserving threatened and/or endangered orchid species of North-east India, studies on seed germination of some orchids were conducted. Seeds obtained from immature capsules of *Aeradis multiflorum*, *Cymbidium elegans*, *Coelogyne cristata*, *C. poretta*, *C. prolifera*, *Thunia alba*, *Sarcanthus pelludis*, *Bulbophyllum cosmosus* and *Dendrobium nobile*, were obtained. The sterilized seeds were germinated on different media, viz., Knudson C, Vacin and Went, and Peffers at $23 \pm 2^\circ\text{C}$ and illuminated by a mixed light of 3000 lux. The orchid seed germination initiates after swelling of the embryo followed by rupture of the testa and formation of an ovoid tear-top-shape protocorm. Subsequent to this, formation of rhizoids, roots and shoots occur. The seeds of all the species germinated best on Knudson C medium as compared to the other two media. Many workers have found Knudson C or its modifications suitable for orchid seed germination (Arditti, 1967).