Cultures of a few rare and endangered orchid species were studied by using different culture media, viz., VW, KC, N\textsubscript{f}, MS and Nitsch. Germination of both mature and immature seeds was tried in these media with or without plant growth regulators and other complex additives. Explant cultures such as leaf-tip, leaf-base, shoot-tip, root-tip and rhizome were also tried with supplementation at different levels of concentration.

Seeds of *Cymbidium eberneum*, *C. gigantium*, *C. aloifolium*, *Rhynchostylis retusa*, *Aerides odoratum*, *Paphiopedilum hirsutissumum* and *P. spicerianum* germinated in the experimented media. In most of the cases, the rates of germination were between 70-100%. Seeds of *P. hirsutissumum* and *P. spicerianum* showed low rate of germination as compared to other species studied.

Enhanced growth of seedlings after germination was observed in two different media viz., VW and KC. Vigorous growth of seedlings at varying degrees was observed when AC, BE and CW along with the plant growth regulators at certain levels of concentration were used in the medium. For *Paphiopedilum* species growth of the seedlings after germination was studied in N\textsubscript{f} medium with the supplementation of plant growth regulators with or without AC. Survival rate of seedlings of *Paphiopedilum* species was very low in comparison with others.

A comparative study of the explants of *C. eberneum* collected axenically and from its habitats was also carried out in VW and KC media.
with supplementation of NAA, BAP and Kn. Better proliferation and differentiation were observed in axenic explants. Axenically collected explants of *C. gigantium*, *C. aloifolium*, *A. odoratum* and *R. retusa* were also successfully cultured in VW medium with the supplementation of plant growth regulators at different levels of concentration. Regeneration and healthy growth of shoots, PLBs and calli were observed in varying degrees at different concentrations. In the case of *A. odoratum*, only calli and shoot were generated by the explants in the same medium. Better response in the formation of shoot, calli and PLBs was found in VW and KC media supplemented with BE in shoot-tip explant culture.

Comparative growth of calli of *R. retusa* in VW medium were studied by irradiating at low doses of γ-radiation (10, 25 and 40 Gy). Maximum weight and size of calli were observed in groups irradiated at 10 Gy.

VW medium supplemented with BE, CW, TJ, PJ and AC was also studied to observe further proliferation and differentiation of calli of *A. odoratum*. Highest plantlet differentiation was observed in BE and AC supplemented medium.