In vitro micropropagtaion of medicinal plants

Chi-Ni Hsia[1], Yih-Juh Shiau[2], Shu–Ru Yang[2], Wei-Chin Chen[2]

[1]Associate Agronomist, [2]Assistant Agronomist, Agronomy Division of Agricultural Research Institute, Council of Agricultural Executive Yuan, Wufeng, Taichung, Taiwan 41301, ROC.

Abstract

Medicinal plants are getting important to human health in many ways however since their natural habitats destroyed rapidly and the over-collection by human beings, the natural population of medicinal plants disappeared significantly. Many of these plants when propagated by conventional methods take long times or along with a low rate for multiplication. Those endangered medicinal herb germplasms not only need to be conserved but also need to produce substantially for the using of herbal medicine industry. The rapid multiplication of medicinal herbs by tissue culture techniques can help to solve these problems.

During the last decade, our team has studied two major medicinal orchids an endangered Taiwanese species *Anoectochilus formosanus* Hayata and another important Chinese herb *Dendrobium candidum* Wall. Ex Lindl. After several years of work, the proper timing for pollination, maturity of pod for sawing, the media for seed germination and seedling growing and the fast seedling multiplication techniques were all investigated. Standard operation

processings for production *in vitro* seedling of *A. formosanusand* and *D. candidum* seedlings have been established. Moreover, tissue culture training classes held annually introduced relevant techniques to farmers and a project for returning *A. formosanusand* back to their natural habitats is ongoing.

An efficient protocol to produce high quality rooted planted which are easy to acclimatize for field establishment is very important for large-scale production of *in vitro* seedlings. The seedling production of *Bupleeurum kaio* Liu, Chao et Chuang and *Salvia miltiorrhiza* Bunge, two important Chinese medicinal plants, by using ventilated container closure to overcome the problems of vitrification (hyperhydricity) on fast multiplication seedling of in vitro, has became more practical.

In these two years we start to produce *Angelica dahurica* in vitro seedling for the herb medicine company through a cooperation project which may open another window for us to bring our research studies to a level of industry scale.