Pengaruh Sumber Karbon dan Kondisi Inkubasi terhadap Pertumbuhan Kultur in Vitro Purwoceng

---

Abstrak

Pruatjan (Pimpinella pruatjan Molk.) is an Indonesian medicinal plant which is categorized as endangered plant and included in Appendix I based on CITES. The in vitro conservation techniques have been studied. However, the storage period was very short (4 months) when plant growth retardant and media dilution were applied. Beside that, the residual effect of growth retardant was strong enough so that it needed more than 4 months for recovery. Thus, the use of certain carbon source may prolong the preservation period with shorter time for recovery. The objective of the study was to know the effects of carbon sources (sucrose and mannitol) and culture conditions (culture room and growth chamber) to the growth of pruatjan cultures. This application was hoped to prolong preservation period of pruatjan longer than 4 months and to cut the recovery period after presservation. The study was conducted at Tissue Culture Laboratory in Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development from August 2006 to July 2007. The activities included propagation of in vitro shoot grown in vitro as explants source, preservation of in vitro shoots of pruatjan, and regeneration of the cultures after preservation. The experiment was designed as factorial in Randomized Completely Block Design with 6 replications. The DKW basal media containing 1 ppm BA, 0.2 ppm thidiazuron, and 100 ppm arginine were supplemented with mannitol or sucrose at the level of 1, 2, 3, 4, and 5%. The observed variables were total number of leaves, number of shoot, and number of wilt leaves. The result revealed that pruatjan cultures could be stored longer than 4 months. Generally, the effect of mannitol or sucrose was more dominant than that of cultures condition. The mannitol (1-5%) strongly inhibited the growth of pruatjan cultures so that only a few cultures survived at 7 months preservation period and needed about 1 month for recovery. On the contrary, the effect of sucrose (at the same level) was better than mannitol. The 2.5% sucrose optimally inhibited pruatjan cultures. At that condition, the cultures could be stored for 10 months without morphological changes so that they could recover spontaneously.