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Plant Regeneration from Axillary Buds of Plants and Calli of Mature Embryos in Glehnia littoralis

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Abstract:
Glehnia littoralis Fr. Schm. is very popular as a flavored wild vegetable and the roots are a useful crude drug. However, cultivation of Glehnia is extremely expensive because of the short harvest period. This work was conducted to clarify the propagability of Glehnia from different explants and mature embryos isolated from seeds. Only axillary buds formed about 30 shoots with good root formation in the medium containing BA 1-5 μM+NAA 5 μM. By mature embryo culture, about 40 shoots with 80% root formation per embryo explants were obtained on media containing BA 1 μM+NAA 5 μM. For callus formation from mature embryos, media containing 2, 4-D 1 μM or NAA 5 μM were best, showing that callus was formed from about 90% of embryo explants. Glehnia callus produced by embryo explants induced about 45 embryoids in suspension culture for 4 weeks when cultivated on medium containing 2, 4-D, Then, each embryoid formed about 30 shoots with roots in the MS solid medium. These multiple shoots with roots vigorously grew into plants following acclimatization. Thus, induction of multiple shoots derived from embryoids through calli, which were formed from one mature embryo, may be an effective method of mass producing Glehnia plants compared to formation of multiple shoots from axillary buds or mature embryos.

Keywords:
Axillary buds, Embryoids, Glehnia littoralis, Mature embryos, Plant regeneration, Umbelliferae

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