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Somatic embryo formation by cotyledon culture in Korean ginseng (*Panax ginseng* C.A. Meyer)

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Objectives

Somatic embryogenesis system has been emphasized as a preferred method for rapid in vitro multiplication of plants. So it was examined to find out the efficient method for inducing callus and somatic embryos from Korean ginseng (*Panax ginseng* C.A. Meyer).

Materials and Methods

1. Material

Korean ginseng seeds: Seeds were stratified in humidified sand after harvest in summer for about 3 months at cool area to induce seed dehiscence and then the dehisced seeds were stored at 4C. Fully matured seeds with 5-6 mm in length were used for examination.

2. Methods:

Ginseng seeds after removing seed coat were sterilized with 1% NaOCl for 1hr and mature zygotic embryos were dissected and cultured on MS medium for 4-5 days, then the cotyledons were excised and cultured on MS medium containing 1 mg/L 2,4-D.

Results and Discussion

Calli were induced from the cotyledons of *Panax ginseng* cultured on MS solid medium supplemented with 1 mg/L 2,4-D under the dark condition at 23±1℃. The surface of cotyledon excised from germinated zygotic embryos was completely covered with callus for 1-month culture, and the diameter of that was reached by about 10mm. Those calli were sub-cultured on the same concentration of 2,4-D then for another 1-month culture, the secondary callus was observed from the surface of the first callus. The secondary callus was developed into embryogenic callus. Most of them were developed into the separated embryo form not into multi-embryos and multi-shoots type. It was very easy to detach the secondary callus from the first callus. For further development, the embryoids were excised from the bottom callus and cultured on 1/2 MS medium without 2,4-D. The somatic embryoids of the various stages were transferred to 1/2 MS medium supplemented with 5.0, 10.0 mg/L GA_3 and without GA_3 for normal shooting and rooting simultaneously and as a result, 1/2 MS medium with 10 mg/L GA_3 was the most proper medium among them.

Above the result, 1mg/L 2,4-D alone without cytokinin was regarded as more desirable than the combination medium for inducing callus and forming embryo in *panax ginseng* .

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