

H207 Plant Regeneration via Spontaneous Somatic Embryogenesis and Organogenesis of *Peucedanum japonicum* THUNB

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The regeneration of *Peucedanum japonicum* was induced on the leaf and stem explants culture through somatic embryogenesis and organogenesis. Callus formation occurred on the leaf and stem explants culture and showed spontaneous embryogenic and organogenic capability on MS basal medium supplemented with 0.1-5 mg/l NAA and 0-10 mg/l BAP. 2,4-D was not need for the regeneration of *Peucedanum japonicum* on the medium. Though 2,4-D was profitable the formation of callus, the regeneration was prominently low rate. Unexpectedly, the regeneration was occurred at random, however, was high rate on the basal medium supplemented with 2.5-5 mg/l NAA and 10 mg/l BAP. Development of the somatic embryo progressed through the globular, heart-shaped, torpedo-shaped, and cotyledonary stage, typical of zygotic embryos. These plants were successfully transferable to soil.

H208 Effect of Ceramic and Chitosan on Pigment Production in Red Beet Hairy Roots

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For the enhancement of pigment production in red beet(*Beta vulgaris* L.) hairy roots, the effects of ceramic and chitosan on hairy root cultures were investigated by batch culture. Hairy roots of red beet were induced from normal root segments by *Agrobacterium rhizogenes* strain A4, screened for selection of high pigment production clones. Hairy roots cultivated in 100 mL Erlenmeyer flasks containing 30 mL 1/2 MS liquid medium with 3 % sucrose and no phytohormone on a gyratory shaker(100rpm) under continuous light(1,400 lux, white fluorescent tubes) for 14 d at 25±1 °C. Initial inoculum was five root tips about 3 cm long. The higher ceramic concentration, hairy root growth was increased, but the amount of betalains was decreased. The best yield of betalains was at ceramic 0.02%. The addition of chitosan 0.002% to the medium was effective on the production of betalains.