

04-2-4

Somatic Embryogenesis of Siberian ginseng (*Eleutherococcus sessiliflorus*) in Bioreactor.

Shohael A M*, Yu K W, Hahn E J and Peak K Y

Research Center for the Development of Advance Horticultural Technology, Chungbuk National University,
Cheongju 361-763, Korea

Objective:

By somatic embryogenesis process in Siberianginseng somatic cells undergo a developmental sequence similar to in zygotic embryogenesis. This process is an important plant production technique for large-scale in artificial condition for different medicinal purposes. In this study concerning the structural and developmental patterns, secondary metabolites (Eleutheroside B, E, & E₁) observed during somatic embryogenesis in bioreactor.

Materials and Methods:

Plant materials: *Eleutherococcus sessiliflorus* direct somatic embryos and embryogenic callus.

Methods: Embryo development in Bioreactor, histology, scanning electron microscopy, Extraction of Secondary metabolites, and HPLC.

Result and discussion:

After transfer the embryogenic callus to PGR-free medium, further development began to occur. The globular stage of somatic embryogenesis clearly marked the beginning of structural differentiation. Scanning electron microscopy clearly showed the globular embryo formation in Siberian ginseng. After heart stage, torpedo stage and cotyledonary stage of differentiation were serially observed. Contents of secondary metabolites (Eleutheroside B, E, & E₁) were investigated according to different developmental stages of somatic embryos produced in bioreactor culture system.

Fig: Different developmental stages of somatic embryos: Globular, Heart, Torpedo and Cotyledonary stages.

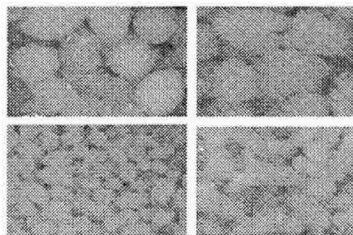


Fig: Histological studies of somatic embryogenesis in Siberian ginseng. Serial developments of pre-globular to Cotyledonary somatic embryos

