

## SECONDARY METABOLITES OF GALBANUM (*FERULA GUMMOSA* BOISS) *IN VITRO* CULTURES

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**I N T R O D U C T I O N :** Galbanum (*Ferula Gummosa* Boiss) Medicinal Plant Is A Perennial Plant Belonging To Apiaceae Family. It Is A Very Valuable Medicinal, Industrial And Aromatic Endemic Plant Of Iran Which According To Its Monocarpic Type, Longe Rest Period Of Seed And Inappropriate Harvest In Natural Pastures Is In Danger Of Extinction. The Present Study Was Aimed To Studying And Determine The Presence Of Secondary Metabolites In Callus And Comparison Of Secondary Metabolites Production In Different Explants.

**M A T E R I A L S A N D M E T H O D S :** After Disinfection Of Seeds And Embryos Culture In The 1/4MS Medium With 2 Mg/L BA Hormone Levels. Callus Were Prepared From Different Parts Of The Plant (Root And Embryo That Was Cut). According To The Objective, Explants Were Placed In MS Mediums With 2 Mg/L BA And 8 Mg/L NAA Hormone Levels. One Month After Culturing Of Callus Secondary Metabolites Were Analyzed By Gas Chromatograph Connected To A Mass Spectrometer (GC / MS) To Assess The Amount And Type Of Compounds In Callus Of Root And Embryo That Was Cut.

**R E S U L T S A N D D I S C U S S I O N :** The results show that in vitro tissue culture and propagation can increase the volatile oil compounds (secondary metabolites) in plants is Galbanum.

Due to the different compounds present results obtained in vitro were analyzed by Headspace method is terpenoids (monoterpene). Results Of Secondary Metabolites Analysis Showed That Root Callus Have 90% And Embryo That Was Cut Havee 85.01% Amounts Of The Components. Root Callus Have Alpha-Pinene, Camphene, Beta-Pinene, 2-Pentylfuran, 3-Carene, 1-8 Cineole, Cis-Thujone, Alpha-Thujone, Camphor, Decamethylcyclopentasiloxane And Embryo That Was Cut Have Heptanal, Alpha-Pinene, Alpha-Pinene, Beta-Pinene, Beta-Pinene, 2-Pentylfuran, 3-Carene, Ecalyptol, Alpha-Thujone, Camphor, Decamethylcyclopentasiloxane, Decamethyl Cyclohexasiloxane. Results Shams Ardekani et al (1383) also suggests that it is derived callus on MS medium fennel plant and plant hormones has been volatile compounds including (E, E) 2,4 - Decadienal rate of 64/22 percent and 1,8 Cineole rate of 35/17% of its production.

**Keywords:** Galbanum, Callus, Secondary Metabolites, Terpenoids, GC/MS



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