

Poster Abstract - G.05

ELICITATION OF PHENOLIC AND TERPENOID COMPOUNDS IN CELLS AND HAIRY ROOTS OF *SALVIA SCLAREA*

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One interesting strategy to boost biosynthesis of plant natural bioactive molecules is the use of external compounds or compound mixtures, able to mimic *in vitro* the effect of a pathogen attack or other physical stresses and force plant cells to synthesize secondary metabolites.

Different elicitors were used to enhance the biosynthesis of bioactive secondary metabolites in *Salvia sclarea* cells and hairy roots:

- a) salicylic acid and methyl-jasmonate (MeJ), known to activate in plant cells the signal transduction pathway leading to switch on transcription of genes involved in plant defense, including genes belonging to biosynthetic pathway of secondary metabolites;
- b) yeast extract, a mixture of elicitors of different chemical nature, extracted from yeast cells, known to be very effective in increasing the synthesis of tanshinone, an anti-tumoral plant diterpene.

Liquid chromatography-mass spectrometry (LC-MS) was used for simultaneous detection and identification of phenolic and terpenoid compounds from elicited *S. sclarea* cells and roots.

The most effective eliciting compounds in *S. sclarea* cell suspension culture were methyl-jasmonate (MeJ) and yeast extract, that enhanced significantly the content of rosmarinic acid, but a negligible effect on terpenoid compounds.

In *S. sclarea* hairy roots, major metabolic changes were induced by MeJ treatment, that enhanced significantly the content of several diterpenoid compounds.