

ABSTRACT

Production of secondary metabolites in the explant cultures of *Trichocereus pachanoi* (Cactaceae)

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The aim of this thesis was the research of effect of selected precursors and elicitors for secondary metabolite production of mescaline in explant cultures *Trichocereus pachanoi*. Suspension cultures were cultivated on the Murashige and Skoog medium with addition of the growth regulators 2,4-dichlorophenoxyacetic acid and 6-benzylaminopurine.

To observe changes in production these precursors: cinnamic acid, sodium cinnamate and tryptophan, and these elicitors: ozone and methylene blue, were selected. Precursors were prepared and used in concentrations of 50, 100 and 500 mg·l⁻¹. Ozone was added in two time slots, 5 and 10 seconds. Methylene blue has been used in concentrations of 1, 10 and 100 mg·l⁻¹. Cultivation with added compounds lasted for 24 and 168 hours. The content of mescaline was determined by HPLC analysis.

A statistically significant effect on the production of mescaline *in vitro* culture was proved only with sodium cinnamate. The content of mescaline was increased eight times compared with a control sample after 168 hours of cultivation at the sodium cinnamate concentration of 500 mg·l⁻¹. The content of mescaline at the concentration of 100 mg·l⁻¹ was increased after the same period even eleven times. Other test compounds showed no significant changes in relation to production of mescaline.