THE EFFECT OF INTERACTION BETWEEN LIGHT QUANTITY AND INCREASED LEVEL OF CYTOKININS ON *ARABIDOPSIS THALIANA* SEEDLINGS PHOTOMORPHOGENESIS

VLIV SPOLUPŮSOBENÍ SVĚTELNÉ INTENZITY A ZVÝŠENÉ HLADINY CYTOKININŮ NA FOTOMORFOGENEZI SEMENÁČKŮ *ARABIDOPSIS THALIANA*

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ABSTRACT

The extension of the hypocotyl is regulated by a network of interacting factors as light and plant hormones. Light is one of the most important environmental factors for plants, as it provides the source of energy and photomorphogenetic signal. Cytokinins are the plant growth regulators that among others inhibit hypocotyl elongation in darkness but have no obvious effect on hypocotyl length in the light. We have been investigated the influence of light quantity (fluence) on hypocotyl elongation of transgenic *A. thaliana* seedlings (pOp-ipt-GUS::LhG4) with increased level of endogenous cytokinins. Upon low fluence 16 μmol photons m^{-2} s^{-1} hypocotyls of *ipt* overexpressing plantlets were significantly longer compared to control - non-overexpressing plantlets. It is known, that ethylene overlaps the elongation effect of cytokinins on hypocotyl in the light. Despite it we have been observed this phenomenon even if inhibitors of ethylene synthesis respectively perception were not supplemented to growth medium. Further, it was observed, the level of endogenous cytokinins play the role in the phenotype variability in *ipt* overexpressing plants. The increased cytokinin level evoke several various abnormal phenotype, on the one hand larger leaf rosette compared to control plants, on the other hand dwarfish plants.

Key words: *Arabidopsis thaliana*, cytokinins, hypocotyl, plant growth regulators