OXIDATIVE STRESS IN *NICOTIANA TABACUM* EXPRESSING BACTERIAL IPT

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ABSTRACT

Cytokinins (CKs) can, among the others, positively regulate shoot development and delay onset of the senescence. However, recently opposite effects of CK action, namely promotion of programmed cell death, and cytotoxic effects of overexpression of the CK-biosynthetic gene in tobacco, were recognized. Here we investigated the cytotoxic effects of *ipt* expression in tobacco in detail. We show that lesion formation in expanded tobacco leaves proceeds shortly after the induction – the first lesions being observed in app. 60 hours after induction of expression, and lesions can spread over the entire leaf area within 5 days after the induction. The formation of visible lesions was preceded by increasing in reactive oxygen species (ROS) as indicated by DAB and 2´7´- dichlorofluorescein diacetate staining despite increasing in a key ROS scavenging enzyme – APX. Further, we demonstrate that lesion formation is a light-dependent process as it is prevented by shading. The expression of *ipt* was also followed by stomata closure as revealed by microscope.

Key words: cytokinins, *Nicotiana tabacum*, oxidative stress, ROS, stomata

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