

Involvement of Reactive Oxygen Species in the Induction of (*S*)-*N*-*p*-Coumaroyloctopamine Accumulation by β -1,3-Glucooligosaccharide Elicitors in Potato Tuber Tissues

Fumio Matsuda*, Hisashi Miyagawa and Tamio Ueno

Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Kyoto 606-8502, Japan. Fax: +81-75-753-6123. E-mail: matsuda@colorado.kais.kyoto-u.ac.jp

* Author for correspondence and reprint requests

Z. Naturforsch. **56c**, 228–234 (2001); received October 23/November 27, 2000

β -1,3-Glucooligosaccharide, (*S*)-*N*-*p*-coumaroyloctopamine, *Solanum tuberosum*

Treatment of potato tuber tissues with β -1,3-glucooligosaccharide induces accumulation of (*S*)-*N*-*p*-coumaroyloctopamine (*p*-CO). We examined the role of reactive oxygen species (ROS) and nitric oxide (NO) in the signal transduction leading to *p*-CO accumulation. Induction was suppressed by an NADPH-oxidase inhibitor, diphenyleneiodonium chloride, and oxygen radical scavengers. H₂O₂ was generated in the tuber tissue within a few minutes of treatment with β -1,3-glucooligosaccharide. On the other hand, treatment with NO specific scavenger, nitric oxide synthase inhibitor, and serine protease inhibitor did not inhibit *p*-CO induction. Our findings suggest that ROS generated by the action of NADPH-oxidase play an important role in this system, while NO and serine protease are unlikely to be involved in this process.