

Effects of Theobroxide, a Natural Product, on the Level of Endogenous Jasmonoids

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The natural potato microtuber inducing substance, theobroxide, strongly induces the formation of tuber of potato (*Solanum tuberosum* L.) and flower bud of morning glory (*Pharbitis nil*) plants under non-inducing conditions (long days) (Yoshihara *et al.*, 2000). In the present study, theobroxide was evaluated for its effect on the level of endogenous jasmonoids in different tissues of such two plants. An *in vitro* bioassay using cultures of single-node segments of potato stems was performed with the supplement of theobroxide in the medium. The endogenous jasmonic acid (JA) and its analogue tuberonic acid (TA, 12-hydroxyjasmonic acid) in segments and microtubers were quantitatively analyzed. The increase in the endogenous JA level caused by theobroxide was observed in both segments and microtubers. Endogenous TA was only detected in segments, and the content increased with the concentration of theobroxide. As for morning glory, the whole plant was sprayed with theobroxide for 1 ~ 5 weeks under different photoperiods and endogenous JA in the leaves was quantitatively analyzed. Theobroxide spraying increased the level of endogenous JA in the leaves of the plants grown under both long and short days.

Key words: Theobroxide, Jasmonoids, Photoperiod-dependent Plants