Rosmarinic Acid Synthesis in Transformed Callus Culture of *Coleus blumei* Benth.

Nataša Bauer*, Dunja Leljak-Levanic, and Sibila Jelaska

University of Zagreb, Faculty of Science, Department of Molecular Biology, Rooseveltov trg 6, HR-10000 Zagreb, Croatia. Fax: +385 14 82 62 60. E-mail: nbauer@zg.biol.pmf.hr

* Author for correspondence and reprint requests

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Agrobacteria mediated *Coleus blumei* tumour tissues were cultured *in vitro* on MS medium. Sixteen diversified transformed callus cultures were maintained for several years in the absence of plant growth regulators and antibiotics without affecting the growth rate. Rosmarinic acid was detected spectrophotometrically in all tissue lines but in different quantities. The highest rosmarinic acid accumulation detected was 11% of dry tissue mass. The relation between culture growth and rosmarinic acid production was investigated in three callus lines. The lines showed different rosmarinic acid accumulation in relation to their growth rate; it was either parallel or inversely related to the tissue growth. The effects of certain medium constituents on the callus growth and rosmarinic acid accumulation were examined in four tumour cell lines. Addition of 4% or 5% sucrose stimulated rosmarinic acid synthesis and decreased callus growth. Nitrogen reduction to one half or one quarter of initial concentration did not affect rosmarinic acid synthesis and decreased callus growth in three lines, while it increased rosmarinic acid accumulation and callus growth in one line. Addition of 0.1 mg/l Phe stimulated rosmarinic acid production in two lines but had little effect on the rosmarinic acid level in others. Rosmarinic acid production was significantly improved on modified macronutrients, where the Ac2 line produced 16.5 mg of rosmarinic acid per tube (0.2 g of dry wt) after being in culture for 35 days.

Key words: Crown Gall, *Coleus blumei*, Rosmarinic Acid