

Purine Alkaloid Formation During Somatic Embryo Development of *Coffea arabica*

B. NEUENSCHWANDER, T. W. BAUMANN

Institute of Plant Biology, University of Zurich, Zollikerstrasse 107,
CH-8008 Zurich, Switzerland

SUMMARY

The formation and excretion of purine alkaloids (PA) during somatic embryo development was studied by analyzing, after a one-week incubation period, the tissue and the aqueous incubation solution of four different developmental stages: mature embryos, embryos exposed to light, germinating embryos and plantlets with cotyledons. The study shows that mature somatic embryos already dispose of a complete biosynthetic capacity to produce PA comparable to the adult coffee plant. While the caffeine content is increasing during embryo germination and reaches 1.2% (d.wt) the theobromine content of all stages is low. Somatic, embryos of all four developmental stages readily excrete PA into the incubation solution. After the one-week incubation period 70% of the total caffeine and about 75% of the total theobromine content can be found in the solution. Therefore it is possible to determine the PA content of somatic embryos non-destructively by analyzing the incubation solution.