

Transformation of *Catalpa ovata* by *Agrobacterium rhizogenes* and Phenylethanoid Glycosides Production in Transformed Root Cultures

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Transformed root cultures of *Catalpa ovata* were established following shoots infection with four agropine strains of *Agrobacterium rhizogenes*. Frequency of root formation was dependent on the bacterial strain and the presence of acetosyringone in the incubation medium. It is the first report concerning the possibility of transforming *Catalpa ovata* by *A. rhizogenes*. Both transformed and untransformed root cultures of *C. ovata* were studied for their growth and phenylethanoid glycoside production. As with the roots of intact plants, *cis*- and *trans*-verbascoside as well as martynoside were produced in transformed and untransformed root cultures of *C. ovata*. In hairy roots, total (*cis* + *trans*) verbascoside production could be stimulated up to three-fold of that of roots of 6-month-old plants grown in a greenhouse, by using an appropriate root line cultured in liquid ½ B5 Gamborg medium containing indole-3-butyric acid (0.1 mg/l) in the dark but not light conditions. Transformed and untransformed root cultures of *C. ovata* were also found to have 10 times higher martynoside production than roots of intact plants.