

Establishment of *Physalis minima* hairy roots culture for the production of physalins

Abstract

This report describes the technique used to induce the hairy roots in *Physalis minima* (Linn.). Different types of explants obtained from in vitro germinated seedlings were aseptically co-cultivated with *A. rhizogenes* strain LBA9402 in different media. Root growth and production of physalins were investigated in various basal media grown under dark and light conditions, and compared to that of normal root cultures. Transformed hairy root cultures grew rapidly and reach stationary phase after 15 days on a B5 medium. HPLC analysis of extracts of hairy root cultures showed that the maximum content of physalin B and F was 1.82 and 4.15 mg g⁻¹ DW, respectively, when grown under dark conditions. Normal root cultures produced higher physalin B (1.60-1.62 mg g⁻¹ DW) and F (3.30-3.75 mg g⁻¹ DW) under the same culture conditions. Physalin F synthesis in light-grown root cultures was reduced significantly.

Keyword: *Agrobacterium rhizogenes*; Genetic transformation; Physalins production; *Physalis minima*; Transformed roots