

(05-3-15)

Increased Accumulation of Eleutherosides by High Temperature in Root Cultures of *Eleutherococcus koreanum*

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Objectives

Effects of temperature during culture period and post harvest on eleutheroside accumulation in cultured roots of *Eleutherococcus sp.* were investigated to elucidate the relationship between temperature and biosynthesis of these metabolites.

Materials and Methods

- Plant material** Adventitious roots of *Eleutherococcus sinensis* and *E. koreanum*
Cultures 1/2 MS medium containing 3.0 mg/L IBA, 0.01 mg/L thidiazuron and 30 g/L sucrose
Temperature Culture: 15, 17.5, 20, 22.5, 25°C
Post harvest: 3, 23, 33, 38°C
HPLC analysis Thermo Separation Products HPLC system, UV detector, Spherisorb ODS column, water and acetonitrile as the mobile phase.

Results and Discussion

In *Eleutherococcus sinensis*, roots grew best at 22.5°C while eleutherosides accumulated maximally at 25°C. Above 25°C, root growth was severely inhibited. In post harvest treatment of *E. koreanum* with alternating temperatures, eleutheroside production in adventitious roots remarkably increased within 3-5 days when placed in high temperature (33-38°C, see the figure below), and then decreased with time. Neither low (3°C) nor medium temperature (23°C) was effective for the stimulation of eleutheroside production. In this study, enhanced production of eleutheroside was achieved by cultivating at optimal temperature for maximum growth and then placing at high temperature regime for eleutheroside accumulation.

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