

Root Cultures of *Linum* Species Section *Syllinum* as Rich Sources of 6-Methoxypodophyllotoxin

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Dedicated to Dr. Abulghasem Soltani, formerly professor of Pharmacognosy, Tehran Faculty of Pharmacy, Tehran on the occasion of his birthday

Linum spp. from section *Syllinum* are promising for the production of aryltetralin lignans like podophyllotoxin (PTOX) and 6-methoxypodophyllotoxin (MPTOX). MPTOX is a PTOX congener that has cytotoxic activity comparable with PTOX. In this study root cultures of *Linum Bungei* from section *Dasyllinum*, *L. strictum* from section *Linastrum*, *L. album*, *L. mucronatum* ssp. *mucronatum* and *L. nodiflorum* from section *Syllinum* were established and their MPTOX levels were investigated in 1000 ml flasks. Root cultures of *L. mucronatum* ssp. *mucronatum* and *L. nodiflorum* were used to examine cell growth and production of MPTOX during a culture period of 36 days in 250 ml flasks. Considerable amounts of MPTOX in root cultures (1000 ml flasks) of *L. album* (6 mg/100 g DW), *L. mucronatum* ssp. *mucronatum* (770 mg/100 g DW) and *L. nodiflorum* (91 mg/100 g DW) were detected while it wasn't detected in root cultures of *L. Bungei* and *L. strictum*. In time course experiments, the maximum amount of MPTOX in *L. nodiflorum* root culture was at day 16 with 480 mg/100 g DW and the maximum amount of MPTOX in *L. mucronatum* ssp. *mucronatum* root culture was at day 12 with 130 mg/100 g DW. The results showed that root cultures of *Linum* species from section *Syllinum* are rich sources of MPTOX and since this lignan has remarkable cytotoxic activity, it can be used as a precursor for the production of antitumor agents.

Key words: *Linum* Section *Syllinum*, 6-Methoxypodophyllotoxin, Root Culture