عنوان مقاله:

Influence of Agrobacterium rhizogenes strains on hairy roots induction in Trigonella foenum-graecum L. and secondary metabolites production

محل انتشار:

دوفصلنامه اصلاح مولکولی گیاهان, دوره 6, شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Neda Tariverdizadeh - *Department of Horticultural Sciences, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Ardabil, Iran*

Mehdi Mohebodini - *Department of Horticultural Sciences, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Ardabil, Iran*

Esmaeil Chamani - *Department of Horticultural Sciences, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Ardabil, Iran*

Asghar Ebadi - *Department of Horticultural Sciences, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Ardabil, Iran*

خلاصه مقاله:

Fenugreek(Trigonella foenum-graecum L.) is a rich source of important medicinal metabolites. This plant belongs to the Fabaceae family. Induced hairy roots by Agrobacterium rhizogenes are a suitable tissue for the production of secondary metabolites, due to the stability and high production of roots without phytohormone in a short time. Different strains of Agrobacterium rhizogenes (A4, ATCC11325 and ATCC15834) were evaluated for induction of transformed hairy roots in T. foenum-graecum L. using seedling explants. The application of hairy root culture may become an alternative method for increase secondary metabolites. Transgenic status of the roots was confirmed by PCR using rolB specific primers. All of the A. rhizogenes strains led to hairy roots induction. The maximum frequency of transformation (97.87%) was obtained using A4 strain in 7-days-old seedling. The 7-days-old explants were inoculated using A4 strain result in highest fresh (0.166 g) and dry (0.080 g) weight of roots. The explants were inoculated by ATCC11325 strain produced hairy roots with highest amount of total phenol (8.113 mg/g DW) and flavonoid content (3.215 µg/g DW).

کلمات کلیدی:

Fenugreek, Medicinal plant, Polymerase chain reaction, rolB