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Abstract

In vitro seed germination, phytochemical screening and quantitative estimation podophyllotoxin from Podophyllum hexandrum using HPLC and LC-MS/MS

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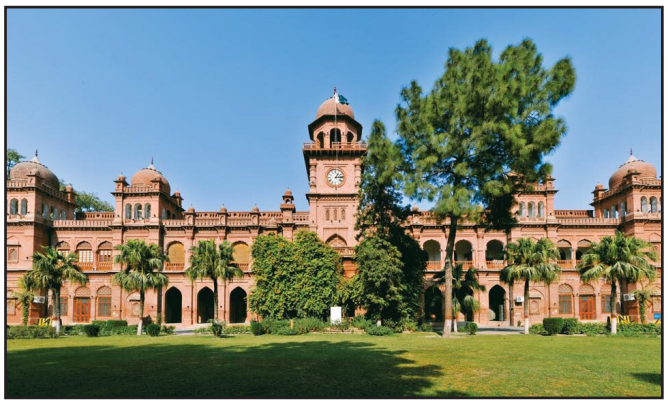
Abstract:

Podophyllum hexandrum is an important medicinal plant in Himalayan region. It is an important source of podophyllotoxin used in pharmaceutical industries. It has been extensively harvested from its natural habitat, and listed as an endangered medicinal plant in the Red data book of Indian plants. For the in vitro cultivation of P. hexandrum, the seed dormancy was overcome by the hot water treatment at 80°C for 60 seconds, which showed 16-18% seed germination and Whatman filter paper technique, followed by direct sowing of seeds in the soil showed 10-12% seed germination. The in vitro callus induction, MS medium supplemented with NAA (3 mgl-1) and BAP (1 mgl-1) showed best callus induction. The roots, seed and leaves showed the presence of all the secondary metabolites except saponins which were only present in the roots. An analytical gradient RP-HPLC and LCMS/MS method for the quantification of podophyllotoxin from Podophyllum hexandrum was developed. The qualification of podophyllotoxin was performed through TLC , Rf values of 0.85 for leaf and 0.87 were derived for root when compared to standard. Chromatographic purity of podophyllotoxin was found to be 2.001% in leaf and 2.08% in root samples and consequently the mass ratio of 415.2 [M+1] + for leaf and 415.2 [M+1] + for root sample using ES- ion trapanalyzer by MS/MS. The developed method was validated as per ICH (Q2b) guidelines.



The developed method has a great potential for technology transfer to the production scale in anticancer drugs producing companies from R&D scale.

Biography:

Jitender Kumar completed his PhD at the age of 30 years from Shoolini University of Biotechnology and Management Sciences and working as a Research Associate in Department of Botany, Panjab University,India.

Recent Publications:

1. Kumar J., K. dev and A. kumar 2014. Quantification of podophyllotoxin from Podophyllum hexandrum using HPLC-UV-DAD. Journal of Tree Sciences. Vol. 33(2): 33-37.

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