



Callus Mediated *In Vitro* Regeneration of *Plumbago zeylanica* L. and Quantitative Analysis for Plumbagin from *Agrobacterium rhizogenes* Mediated Hairy Root Culture

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ABSTRACT: *Plumbago zeylanica* L. (White chitrak) is an important herbaceous medicinal plant of the family Plumbaginaceae. The roots of *Plumbago* contain important secondary metabolite compound i.e. plumbagin which has anticancer property. A protocol for profuse callus induction and in vitro regeneration *Plumbago zeylanica* was developed from leaf explants in Murashige and Skoog (MS) medium supplemented with different concentration of BAP and NAA. Profuse, compact callus was induced on MS medium supplemented with 2mg -l each of BAP and NAA. Regeneration of roots from the in vitro grown callus was obtained in MS medium supplemented with 0.5 mg-l IBA. More amount of plumbagin (2.5times) was recorded by TLC and HPTLC methods from hairy roots obtained through *Agrobacterium rhizogenes* (A4 strains) mediated transformation of *P. zeylanica* L. as compared to the roots of in vivo grown plants. The current research findings revealed for the rapid in vitro regeneration and the potentialities of hairy root cultures of *P. zeylanica* for the production of important secondary metabolite plumbagin. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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