INVESTIGATION ON THE ACCUMULATION OF PLUMBAGIN IN *PLUMBAGO ZEYLANICA*L. HAIRY ROOTS

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ABSTRACT

The study aimed to induce hairy roots in *Plumbago zeylanica* L. And figured out the conditions determining its growth and Plumbagin accumulation capacity. The bacteria *Agrobacterium rhizogens* 11350 was used as a vector for gene transfer. The results showed four clones of successful gene-transferred roots; of which only one clone expressed both *rolB* and *rolC* genes and this clone was used to study the effects of environmental conditions. Using D-Optimal matrix, the optimal conditions were medium with 14.33% coconut water, 100 mg/l Chitosan, 19.40 mg/L salicylic acid and 500 mg/l peptone. Under the model of these investigated conditions, the expected fresh weight, dry weight and Plumbagin concentration were 4.968 g, 0.451 g and 11.135 mg per 60 ml media.

Keywords: Hairy root, D-Optimal matrix, response surface, Plackett-Burman model.