

**STUDY ON EFFICACY OF TWO STRAINS (ATCC 15834 AND MTCC 532) OF  
*AGROBACTERIUM RHIZOGENES* ON HAIRY ROOT INDUCTION OF *WITHANIA  
SOMNIFERA***

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**ABSTRACT**

*Withania somnifera* L. Dunal is an important medicinal plant of the family solanaceae. Efficacy of two *Agrobacterium rhizogenes* strains ATCC 15834 and MTCC 532 was checked for transformation frequency, number of root induction and lateral branching in roots were observed in the present study. It was observed that even though using same type of explants (shoot tip) the two strains showed variation in each study. Out of these two strains ATCC15834 was dominated over MTCC 532 in every respect. The present study was showed a detailed result of hairy root induction of *Withania somnifera*. Strain ATCC15834 showed maximum  $91.29 \pm 1.75$  % of transformation frequency,  $11.15 \pm 0.30$  number of roots /explants and  $46.09 \pm 0.16$  number of lateral branching in roots /explants in 3 hours of co-culture period while MTCC 532 gave  $85.41 \pm 2.08$  % of transformation frequency,  $08.27 \pm 0.35$  number of roots / explants and  $35.12 \pm 0.23$  number of lateral branching in roots /explants in 4 hours of co-culture period. After successful achievement of genetic transformation, for the first time in the present study it was shown that hairy roots induce directly from the sub cultured part of the plant (Leaf, Shoot tip, Stem segments and from the roots also)

**KEYWORDS:** Hairy Root, *Withania*, Tropine, T-DNA, Transformation Frequency