

AGROBACTERIUM RHIZOGENES MEDIATED HAIRY ROOT INDUCTION IN DAUCUS CAROTA

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ABSTRACT: Hairy root culture is a product of genetic transformation of plants with *Agrobacterium rhizogenes*. Hairy root cultures are capable of growing unlimited in hormone free culture media and have several other properties- fast growth, genetic and biochemical stability so, it can be used as model root system for Phytoremediation. Some bioactive compound are also extracted from hairy root culture and used for removal of pollutants from environment. The objective of this work was to develop hairy root culture of *Daucus carota*. Induction of hairy root culture in mature carrot section was carried out using *Agrobacterium rhizogenes* MTTC 532 that had been grown in Yeast Extract Peptone media (24 and 48 hrs incubation). Results showed that only 48 hrs incubated bacterial culture could initiate hairy root production. After induction of hairy root culture effect of exogenous auxin (IBA) concentration has been studied and found that IBA supply in 1.0 μ M concentration in culture medium enhances the growth rate of hairy root and in higher concentrations formation of nodal structure in culture appeared which leads to formation of callus. Carrot hairy root culture can be further used as a model system for Phytoremediation.

Key words: *Hairy root culture, Agrobacterium rhizogenes, Daucus carota, bioactive compound, Peroxidases, IBA*

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