

In vitro tissue culture studies and synthetic seed formation from *Plumbago zeylanica* L.

Paras Jain*, Komal Danwra, HP Sharma & Dipa Mahato

Laboratory of Plant Physiology and Biotechnology,
University Department of Botany, Ranchi University,
Ranchi- 834008, Jharkhand, India

Received 09 June 2017; revised 18 July 2018

Synthetic seeds and *in vitro* propagation are the need of the hour especially for conservation of medicinal plants which are under the threat of extinction due to extensive exploitation. The plumbagin, *Plumbago zeylanica* L., is one such highly exploited medicinal plant. Here, we attempted *in vitro* propagation of its roots by tissue culture and also synthetic seed development towards conservation of this plant. Its leaves were used as the explant. Surface sterilized explants were aseptically cultured on MS medium supplemented with different plant growth hormones. The embryoid callus produced from tissue culture was then used to produce synthetic seed for large scale production of the plants and to reduce the risk of maintenance, storage and transportation of the cultured plants. For the production of synthetic seed, the embryoid callus were chopped aseptically and were encapsulated with sodium alginate and liquid MS medium without CaCl_2 supplemented with growth hormones of similar concentration as used in tissue culture. Best result of callus induction and root regeneration was observed on MS medium supplemented by 2 ppm NAA (naphthalene acetic acid).

Keywords: Auxin, Callus, *In vitro* propagation, NAA, Plumbagin, Root regeneration