RESEARCH PAPER

Callus induction and organogenesis in chandrasoor (*Lepidium sativum* L.)

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The experiment was carried out in the Tissue culture laboratory, College of Agriculture, Indore J.N.K.V.V. (M.P.), during the session 2008-2009. Seven media were tried under the study. Of them, five were of Murashige and Skoog's basal medium with various concentrations and combinations of growth hormones and the other two media were Gamborg B_5 and White's media. The three explants used in this investigation were stem disc, leaf base and leaf blade (middle). With regard to callusing percentage and callus growth, some modifications of MS medium gave high callusing efficiency, as compared to other MS combinations. Medium M_4 was the best, which contained MS+ 0.2mg/l BAP +1mg/l Kinetin +2mg/l IAA.The callusing was less in medium M_1 (MS +0.5mg/l 2,4-D) followed by Medium M_3 (MS + 2mg/l 2,4-D +1 mg/l Kinetin + 0.5 mg/l BAP) The decreasing order of effectiveness of different media tried was M_4> M_5>M_3> B_5> White's>M_2>M_1. Among the explants used, stem disc was found to be the best explant closely followed by the leaf base. Thus, the present investigation suggested the use of stem disc and leaf base for callusing. Regarding shoot regeneration M_4 medium containing $^1/_2$MS salts + 0.2mg/l BAP + 0.05 mg/l Kinetin + 1mg/l IAA was the best followed by M_5 with MS salts + 1mg/l Kinetin + 2mg/l NAA + 0.5mg/l GA_3. For root regeneration, M_4 medium containing $^1/_2$MS salts + 0.2mg/l BAP + 0.05 mg/l Kinetin + 1mg/l IAA was found to be the best. Darkness was found to be favourable for root regeneration.

Key words **:** Callus induction, Organogenesis, *Lepidium sativum* L.

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INTRODUCTION

Lepidium sativum (2n=16, 24,36) Linn. is a valuable medicinal plant belonging to the family Cruciferae grown in India, Europe and US is an underutilized crop and distributed throughout India, cultivated as well as growing wild. The plant name in different languages is Chandrasoora Chandrika, in Sanskrit, Garden cress in English and Chandrasoor in Hindi. Chandrasoor is an erect annual herb up to 50cm height, leaves variously lobed, entire, leaves in lower part are petiolate, and upper sessile; flowers white, small and found in racemes; fruits ovate pods, about 5mm long, with two seeds per pod. Chandrasoor has some medicinal properties like, to cure vitiated vata, kapha, urinary retention, colic, indigestion, painful dioarrhea, pain, and arthritis. It also works as a stimulant. It induces production of breast milk. The useful plant parts of chandsoor are roots, leaves, and seeds.

RESEARCH METHODOLOGY

The experiments were carried out at Tissue culture Laboratory of College of Agriculture, Indore a constituent campus of Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur (M.P.) during the year 2008-2009. The experimental material was *Lepidium sativum* Linn which was subjected to *in vitro* culture using three explants *viz.,* stem disc, leaf discs and cotyledons and design was completely randomized design.

Sterilization of glass wares:

Under *in vitro* conditions, It is necessary to have complete aseptic conditions of culture medium.

Stock solutions:

Three culture media, *viz.,* Murashige and Skooge (MS) (1962), Gamborg's B5 (1968) and White's (1934) were used during investigation. Freshly prepared solution of inositol, sucrose and hormones were added to culture medium during