Asian J. of Bio Sci. (2007) Vol. 2 No. 1 : (18-21)

Cytokinin induced multiple shoot induction from node explants of *Daemia extensa* (Jacq.) R.Br – A potentially important medicinal plant

M. RAMESH[1]*, A.SELVAM[2] AND S. KARUTHA PANDIAN[1]
[1]Department of Biotechnology, Alagappa University, KARAIKUDI (T.N.), INDIA
[2]Central Electrochemical Research Institute, KARAIKUDI (T.N.), INDIA

(Accepted : February, 2007)

In vitro shoot and multiple shoot induction was achieved in one of the important medicinal plants of Asclepiadaceae family, *Daemia extensa* (Jacq.) R.Br., which has been historically been used to treat a wide assortment of diseases. Murashige and Skoog (1962) medium supplemented with 1.0 mg/L BAP was found to be optimum to induce shoots (100 %) directly from the node explants. Significant increase in the number of shoots per explant was found in MS medium supplemented with 1.0 mg/L BAP and 15 mg/L adenine sulphate. All the tested combinations have little effect on increasing the number of shoots. The present study established reliable and reproducible protocol for rapid multiple shoot induction from node explants of *Daemia extensa* using different concentrations and combinations of cytokinins.

Key words: Veliparutthy, Micropropagation, Shoots, Benzyl amino purine, Adenine sulphate, *Daemia extensa*.

INTRODUCTION

Daemia extensa (Jacq.) R.Br, commonly known as veliparutthy is a slender foul smelling perennial milky twining herb belonging to the family Asclepiadaceae. The plant is distributed in warm regions with temperate climates. The plant is astringent, thermogenic, ementic, expectorant, emmenagogue, antihelminthic and laxative. The whole plant is useful in urothrorrhoea, inflammations, asthma, amenorrhoea and leucoderma. The plant extract is useful in uterine and menstrual disorders and in facilitating parturition. Tissue culture techniques are now becoming popular as alternative means of vegetative propagation. Micropropagation involves multiplication of genetically identical individuals by asexual reproduction within a short span of time with tremendous potential for the production of high quality plant based medicines (Murch *et al*., 2000). The advantage with micropropagation is most of the *in vitro* propagated plants of many important medicinal species were found to be uniform, showing less variation in the secondary metabolite content than their wild counterparts (Yamada *et al*., 1991).

Several workers in past have micropropagated some of the important Asclepiadaceae members such as *Ceropegia bulbosa* (Patil, 1998; Britto *et al*., 2003)), *Hemidesmus indicus* (Misra *et al*., 2003; Patnaik and Kishore, 1996) and *Holostemma ada-kodien* (Martin, 2002, 2003). Since very scarce information is available about micropropagation about this important medicinal plant, an attempt was made to develop a reproducible protocol for shoot and multiple shoot induction from nodal explants of one of the tissue culture recalcitrant medicinal plants of Asclepiadacea family,*Daemia extensa* (Jacq.) R.Br. using various concentrations of benzyl amino purine and adenine sulphate.

MATERIALS AND METHODS

Collection of explants:

Node explants were collected from healthy shoot materials of *Daemia extensa* from different places in Alagappa University, Karaikudi. Random survey was conducted to choose healthy plants to collect suitable explants for culture initiation.

Culture medium:

MS (Murashige and Skoog, 1962) medium supplemented with different concentrations of benzyl amino purine (BAP) (0.1 – 1.2mg / L were used for shoot induction. For multiple shoot induction MS medium supplemented with 1.0mg /L BAP and 5 – 20 mg /L adenine sulphate were used. The pH of all media was adjusted to 5.75 before adding 0.8% agar. About 40 ml of moltened media was dispensed in to Magenta boxes (Sigma, St.Louis, USA) and autoclaved at 15Ib and 121° C for 18 min. All the media were kept at 26 ± 2° C for 3 days before use.

* Author for Correspondence