

## CALLUS INDUCTION AND SHOOT BUD FORMATION FROM COTYLEDONARY EXPLANTS OF *SESBANIA AEGYPTIACA* PERS.

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Induction of callus and regeneration of shoot buds from the cotyledonary explants are described. Excised cotyledons were inoculated on MS medium supplemented with various combinations of IAA, NAA BAP and GA<sub>3</sub>. After two weeks callus was formed on the entire explant. The callus when subcultured on MS medium containing NAA, BAP and GA<sub>3</sub> developed shoot buds.

**Keywords :** *Sesbania aegyptiaca*; Callus; Shoot buds.

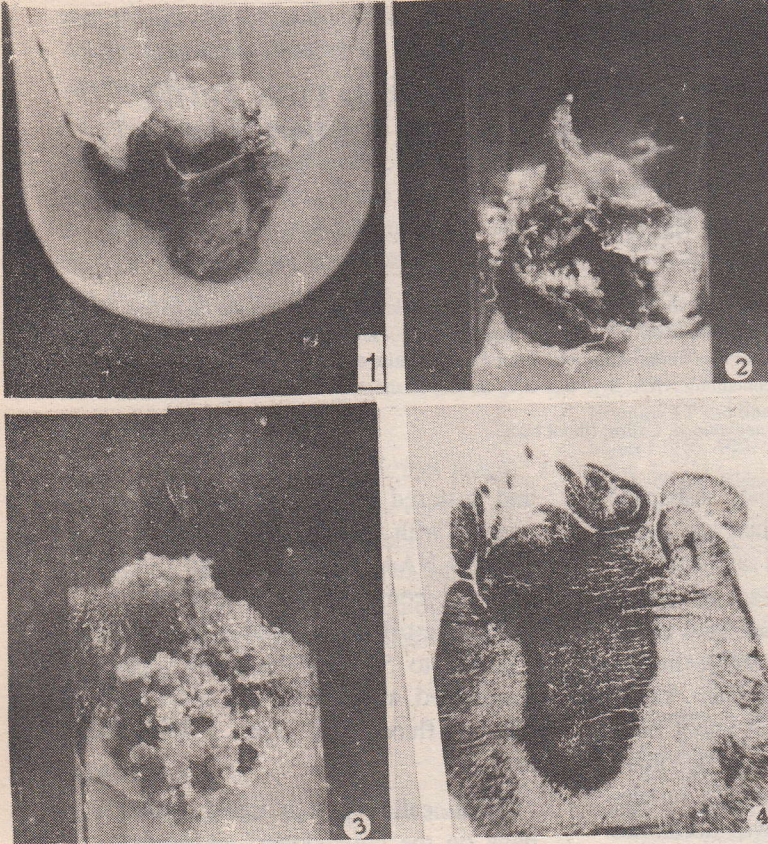
*Sesbania aegyptiaca* (=S. sesban) is an important medicinal plant and green manure crop. The seeds are used as galactagogue. Flower extract is used in anti-fertility. The plants are used as insecticide (Anonymous, 1972). In the earlier work with *S. aegyptiaca*, callus cultures were initiated and shoot buds were regenerated from the cotyledonary explant on Gamborg's medium supplemented with various growth hormones (Khattar and Mohan Ram, 1982; Shanker and Mohan Ram, 1990). In the present study attempts have been made to initiate callus and shoots on MS medium (1962).

The seeds of *S. aegyptiaca* were scarified with 2% sulphuric acid for 10 minutes, washed thoroughly in distilled water and soaked overnight in distilled water. The seeds were then surface sterilized in 0.1% mercuric chloride for 5 minutes and washed repeatedly with sterile distilled water and inoculated aseptically in 0.8% agar. The cotyledons were excised from 6 days old seedling

and cultured on MS medium supplemented with various growth regulators such as NAA, BAP, IAA and GA<sub>3</sub> in different combinations and concentrations. The pH of the final medium was adjusted to 5.8 and the cultures were maintained at 25 ± 1° C under continuous fluorescent light (1000-1200 lux).

The callus was initiated within 7 days on the cotyledonary explant. For the initial induction of callus, incubation in dark is essential and after the induction of callus, cultures were transferred to continuous light. Of the different growth hormones tried MS + BAP (3mg/l) + NAA (2mg/l) induced profuse callusing (Fig.1). Addition of GA<sub>3</sub> (1mg/l) to the medium along with BAP (2mg/l) and NAA (0.5mg/l) resulted in the formation of green nodular callus (Fig. 2).

The green nodular callus on subculturing in the same medium with increasing concentration of BAP (3mg/l)



Figures. 1-4 *Sesbania aegyptiaca*  
 1. Callus developed on MS + BAP (3mg/l) + NAA (2mg/l); 2. Compact green callus developed on MS medium BAP (2 mg/l), GA<sub>3</sub> (1mg/l) and NAA (0.5mg/l); 3. Shoot bud formation; 4. L.S. through bud showing the leaf primordia.

produced shoot buds within 35 days (Fig. 3). Histological studies of organogenesis have been made using the callus developed from the cotyledon fixed after 3 and 5 weeks respectively. A histological study of the 3 weeks old callus cultures showed the presence of meristamoid. By further meristamatic activity in these regions buds developed from which the shoot apex surrounded by a pair of leaf primordia are formed (Fig. 4).

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