



Short Communication

In vitro organogenesis from shoot tip in blackgram

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To develop suitable protocol for *in vitro* organogenesis directly from the explant source in blackgram (*Vigna mungo* (L.) Hepper) an experiment was designed with a view to rapid multiplication of true to type elite strain. In recent past such approach has assumed significance in number of grain legumes like Mungbean [1], Cowpea [2] and Winged bean [3].

Shoot tips with leaf primordia (3-4 mm) were excised from aseptically raised 12 days old seedlings in Phytohormone free MS basal medium [4] of two blackgram genotypes T-9 and L-13, a mutant of T-9 [5]. They were cultured in the modified MS containing MS salts + B5 vitamins [6] + 3mg l⁻¹ BAP+1mg/l⁻¹ NAA. The light intensity was maintained at 2500-3000 Lux and the temperature was 25 ± 1°C. Within 7 days of culturing little callus mass was observed at the explant base (Fig. 1a). After another 7-10 days culturing, 2-3 multiple shoots appeared (Fig. 1b). Percent shoot induction was as high as 80 in both the genotypes. Multiple shoots were separated and each individual shoot was transferred to the rooting medium containing MS salts + B5 vitamins + IBA 3 mg l⁻¹. By another 15-17 days of culturing plantlets showed good rooting with 4-5 trifoliolate leaves (Fig. 1c). T-9 displayed a little higher success percent in rooting (Table 1). In this case the level of cytokinin constantly remained higher and cytokinin : auxin was 3 : 1. Kartha *et al.* [7] in tomato found a complete reverse situation where auxin: cytokinin was 10:1 in MS with B5 vitamins. It can be

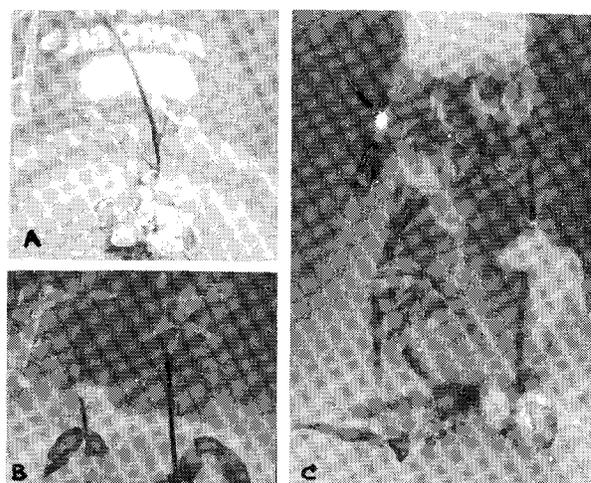


Fig. 1 a, b and c

suggested that in grain legumes like blackgram growth hormone formulation could be very different from that of other non-legumes. The study also suggests that auxin NAA in MS salts + B5 vitamins would be a better choice for successful *in vitro* shoot organogenesis directly from the explant in blackgram if the ratio between auxin and cytokinin mentioned is maintained. In the present study IBA has been found to be desirable root inducing auxin for *in-vitro* produced shoots. The results are in agreement with Jaiwal and Gulati [8] in mungbean and Geetha *et al.*, [9] in the blackgram. However, full strength MS has been found to be unfavourable for shoot organogenesis from stem explants of blackgram [10]. In the present study shoot-tips were used as explants and the type of explant is known to influence the frequency of shoot organogenesis in a number of legumes [11]. Moreover the use of B5 vitamins in this case might have registered positive influence in the shoot organogenesis along with the specific auxin and cytokinin maintained at the right proportion.

Table 1. Direct organogenesis from shoot-tip explant in modified MS*

Geno- type	No. of explant	Days to shoot formation	No. of multiple shoots	Success (%)	Days to rooting	Root formed (%)
L13	20	14-17	2-3	80	15-17	70
T9	20	14-17	2-3	80	15-17	75

*Shoot induction : MS salt + B5 vitamin + BAP 3mg/l⁻¹ + NAA 1 mg/l⁻¹

*Rooting : MS salt + B5 vitamin + IBA 3mg/l⁻¹.

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