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Short Communication

Phytohormone induced leaf variants in *Vigna radiata* (L.) Wilczek

R. R. Singh and Ranu Shukla

Plant Genetics Unit, Botany Department, Lucknow University, Lucknow 226 007

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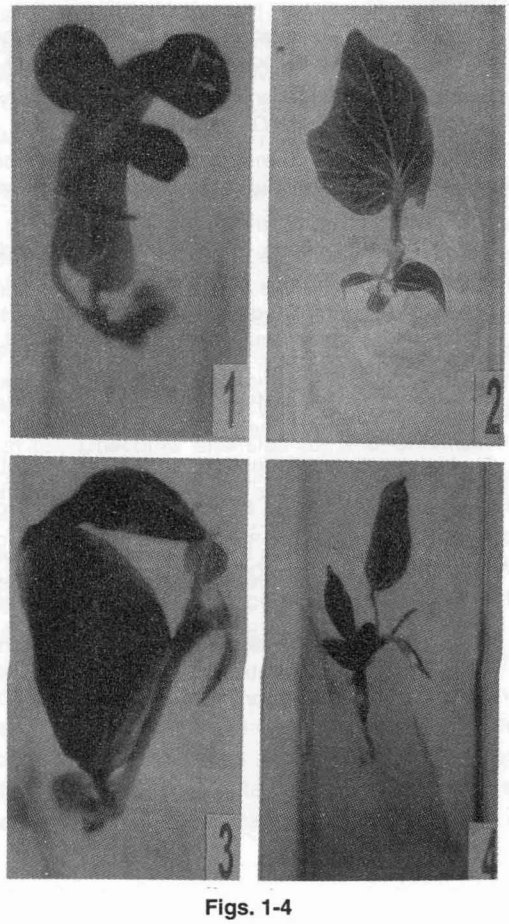
In vitro culture techniques have been used to supplement the conventional methods of genetic improvement of pulses. *In vitro* culture studies have been carried out in pulses by many researchers [1-10]. This note reports different leaf variants induced by phytohormones in mungbean [*Vigna radiata* (L.) Wilczek.].

Seeds of mungbean variety PDM-54 were washed in running tap water for one hour, treated with 1% Sorbitol for ten minutes and washed again in running tap water for 30 minutes. Then the seeds were treated with 0.1% $HgCl_2$ for 5 minutes followed by 8 rinses in double distilled sterilized water. 5 seeds were inoculated in each culture tube on 20 ml of 0.6% agarified basal MS media [11] as well as on the phytohormone supplemented MS media under asceptic conditions. Sucrose concentration was kept at 3.0%. Cultures were kept under 15 hrs. dark and 9 hrs. white cool (1200 lux) light at 22 ± 2°C. After 15 days of inoculation the different explants viz. shoot apex and axillary bud etc. were selected from *in vitro* germinated seedlings. These explants were inoculated on the various combinations of phytohormones. The different leaf variants obtained are as follows :



Figs. 1-4

(i) Variant with palmately unifoliate leaf at 2, 4-D-50 µM + NAA - 50 µM + BA-15 µ M from shoot apex explant (Fig. 2).

(ii) Variant with ovate unifoliate leaf at 2, 4-D-150 µ M + NAA-50 µ M + BA-50 µ M from axillary bud explant (Fig. 3).

(iii) Variant with unifoliate trilobed leaf at 2,4-D-50 µM + NAA-50 µM+ BA-15µM from axillary bud explant (Fig. 4).

Influence of growth regulating substances on the morphology of shoot apex of mungbean was previously studied by Jaiwal and Bhambie [7]. The efforts are being made to establish these variants.

References

1. **Bajaj Y. P. S. and Dhanju M. S.** 1979. Regeneration of plants from apical meristem tip of some legumes. Current Science, **48**: 906-907.

2. ***Bhadra S. K., Hammott N. and Davey M. R.*** 1989. Prospects of the use of *in vitro* techniques in improvement of *Vigna* pulses SABRAO J., **210**: 75-91.

3. **Evans D. A., Sharp W. A. and Medina FiLio H. P.** 1984. Somaclonal and gametoclonal variation. Amer. Jour. Bot., **71**: 759-774.

4. **Garg A. K. and Chawla H. S.** 1991. Morphogenesis from various explants of mung bean (*Vigna radiata*). Indian Journal of Pulse Research, **4**: 91-93.

5. **Gulati A and Jaiwal P. K.** 1990. Culture conditions affecting plant regeneration from cotyledon of *Vigna radiata* (L.) Wilczek. Plant Cell Tissue and Org. Cult., **23**: 1-7.

6. **Gulati A. and Jaiwal P. K.** 1992. *In vitro* induction of multiple shoots and plant regeneration from shoot tips of mungbean (*Vigna radiata* (L.) Wilczek. Plant Cell Tissue and Org. Cult., **29**: 199-205.

7. **Jaiwal P. K. and Bhambie S.** 1990. Influence of growth regulating substances on the morphology of shoot apex of *Vigna radiata* (L.) Wilczek. Proc. Nat. Sci. Academy, India.

8. **Larkin P. J.** 1987. Somaclonal variation, history method and meaning. Iowa State Journal Research, **61**: 393-434.

9. **Muthu Kumar B., Mariamma M. and Gnanam A.** 1995. Regeneration of plants from primary leaves of cowpea. Plant Cell Tissue and Org. cult., **42**: 153-155.

10. **Rubulo A. and Kartha K. K.** 1985. *In vitro* culture of shoot apical meristem of various *Phaseolus* species and cultivars. J. Plant Physiol., **119**: 425-433.

11. **Murashige T. and Skoog F.** 1962. A revised medium for rapid growth and bioassays with tobacco tissue cultures. Physiol. Plant., **15**: 473-497.