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Induction of callus from cowpea [*Vigna unguiculata* (L.) Walp] through *in vitro* culture

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SUMMARY

Pulse crops are the most versatile legumes with diversified uses as food, fodder, vegetable and green manuring crop. It is grown for its long green pods as a vegetable, seeds as a pulse and foliage as a fodder. It was observed that, among the surface sterilization treatment for explants, the ethyl alcohol for 5 minutes was found to be most effective to get 87.5 per cent aseptic cultures. The genotype Konkan Safed (83.33%) showed higher response for callus induction when 5.0 mg/l kinetin concentration supplemented with MS medium.

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Key words : *In vitro*, Regeneration, Cowpea, Explant, Callus

The dual purpose cowpea [*Vigna unguiculata* (L.) Walp cultivar group cylindrica] is used as a pulse crop as well as vegetable. It is a nutritious leguminous crop, low in anti- nutritional factor. Pulse crops are the most versatile legumes with diversified uses as food, fodder, vegetable and green manuring crop. This has been recognized as a valuable source of vegetable protein, minerals and vitamins particularly in developing countries like India where majority of population depend on low priced vegetarian food for meeting their dietary requirements. It is grown for its long green pods as a vegetable, seeds as a pulse and foliage as a fodder. It matures in about 65 to 70 days and producing long pods measuring 13 to 15 cm containing 13 seeds.

In vitro culture techniques in cowpea can be used for inducing variability among the cultivars. Callus culture and induction of somaclonal variation have their own advantages in plant breeding. Initially the embryogenic callus is to be induced in genotype which is essential step towards recovering variants. Tissue culture approach might be true effective in gaining phenotypic variation in regenerated plants such as shorter plants and increased number of pods etc. *In vitro* culture technique is useful for developing disease free plants as well as transgenic plants by incorporating desirable genes. Callus initiation and plant regeneration is complex phenomenon, influenced by a number of factors like genotypes, explants, hormones, culture conditions etc.

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MATERIALS AND METHODS

In the present investigation, the promising 20 genotypes of cowpea [*Vigna unguiculata* (L.) Walp.] selected from the germplasm available at the Research farm of Department of Agriculture Botany, College of Agriculture, Dapoli were used.

Sr. No.	Name of genotypes	Sr. No.	Name of genotypes
1.	Pusa Phalguni	11.	VCP-240
2.	Kunde Local	12.	VCP-16
3.	Konkan Sadabahar	13.	CPD-16
4.	Konkan Safed	14.	DCS-5
5.	Fodder Cowpea	15.	DCP-2
6.	Phule Pandhari	16.	ACP-109
7.	PCP-9757	17.	HC-03-1
8.	PCP-9719	18.	BDN-1
9.	GC-9040	19.	M-10
10.	GC-3	20.	Punjab

Basal medium:

The basal medium developed by Murashige and Skoog (1962) containing 30 g/l sucrose with certain modifications and addition of other desired ingredients and various concentrations and combination of plant growth