

SOMACLONAL VARIATION IN PROGENIES OF PEA PLANTS REGENERATED FROM TISSUE CULTURES¹

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Somaclonal variation is a well known phenomenon in plants regenerated from tissue cultures (6). In pea, cytological variation was reported both in undifferentiated cultures and regenerated plants (4, 8, 9, 11). Morphological and physiological variation was observed in plants regenerated from long-term callus cultures (2,5).

Immature primary scales and leaflets from 3-4 day-old seedlings of the cv. Century were cultured basically according to the procedure of Mroginski and Kartha (7), with modifications in some experiments. Regenerated shoots were rooted (3) and successively transferred to a greenhouse. On the whole it was possible to analyze the progenies of 24 R₁ plants.

In 18 R₂ families no variation was observed. R₁ plants were regenerated after 3 months of culture and the results agree with those reported by Rubluo et al. (10). The other 6 R₁ plants were regenerated from cultures grown *in vitro* for three months on a MS medium with NAA and BAP at 10 mkm each, subcultured for two months on the same basal medium with the NAA level reduced to 0.1 mkm, and finally transferred for a further 45 days on a basal medium without growth regulators. Three out of these 6 plants segregated for chlorophyll and morphological mutations (Table 1). One of them appeared as a chlorina-type mutation, another had funnel-shaped and lacinate leaflets resembling the lac mutant described by Blixt (1), while a third one showed an increased number of basal branches and reduced plant growth and leaflet size. From the first two segregation ratios a monogenic recessive mutation can be hypothesized, whereas in the third case a deficit of recessives was observed. Work is in progress to better characterize the genetic basis of the mutations observed.

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Table 1. Phenotype of mutant plants and segregation ratios in three R₂ progenies.

Mutant,	Phenotype	Number of R ₂ plants	Number of R ₂ mutant plants	X ² (3:1)
A	<u>chlorina</u>	16	4	0 NS
B	<u>laciniata</u> -type	18	2	1.85 NS
C	increased number of basal branches; reduced plant growth and leaflet size	34	2	6.63 **

NS not significant; ** P = 0.01
