



An induced flower colour mutant in grass pea (*Lathyrus sativus* L.)

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Reports of flower colour mutation are quite scanty in grass pea (*Lathyrus sativus* L.) [1&2]. A flower colour mutation isolated in grass pea through gamma rays irradiation is reported here.

Dry seeds of grass pea (Var. Bio R231) were treated with different doses (5, 10, 15, 20, 25, 30, 35, 40 kR) of gamma rays. The treated seeds were sown under identical conditions in experimental field plots keeping uniformly 30 cm. and 50 cm. distance between the different plants and lines respectively to raise M₁ progenies. Fifty four M₁ seeds were sown in the following generation under R.B.D. during winter season in 1998 to obtain M₂ progenies. While screening the M₂ plants individually, out of the 49 plants, 3 violet flower colour mutant plants were isolated in the samples treated with 15 kR gamma ray and these were distinguished from the control plants having blue coloured petals.

With conspicuous violet colouration in petals, the mutant was slightly shorter and moderately spreading (Table 1). The sepals were normal green and the

corolla was violet but intensity of colour was not uniform in all the petals. It was rather faint in the keels (Fig. 1). The length of pedicel and leaflets were slightly larger and number of seeds/pod, number of pods/plant

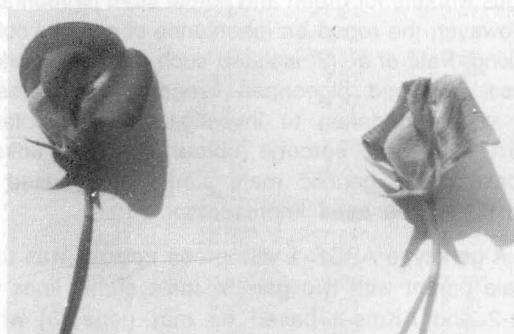


Fig. 1. Flower of control (blue) and mutant (pale violet) plant

and number of branches also increased in comparison to normal plants. All the 110 M₃ plants raised by growing 121 seeds harvested from the mutant plant in M₂ generation manifested the mutant flower colour uniformly. The frequency of pale violet flower colour

mutant (3:49) in the M₂ generation and transmission of the trait in the M₃ without any segregation indicated the possibility of occurrence of the mutant phenotype through a recessive mutation. Such conclusion can however, be made only after intercrossing with normal diploid plants.

References

1. Nerker Y. S. 1976. Mutation studies in *Lathyrus sativus*. Indian J. Genet., 36: 223-229.
2. Waghmare V. N. and Mehra R. B. 2000. Induced genetic variability for quantitative characters in grass pea. Indian J. Genet., 60: 81-87.

Table 1. Range and mean of different characters of control plants (Var. Bio R231) and pale violet mutant of grass pea

Characters	Pale violet flower mutant		Control (Bio R231)	
	Range	Mean \pm SE	Range	Mean \pm SE
1. Plant height (cm)	45-49.24	48.03 \pm 0.03	50-55	52.40 \pm 0.03
2. Nodes/plant	220-230	223.6 \pm 0.01	208-212	210.12 \pm 0.01
3. Length of internode (cm)	3.21-3.26	3.24 \pm 0.004	3.20- 3.25	3.22 \pm 0.01
4. Leaves/branch	23-29	25.7 \pm 0.08	24-28	27.5 \pm 0.4
5. Branches/plant	12-16	14 \pm 0.1	10-15	12.4 \pm 0.11
6. Leaves/plant	310-318	315.6 \pm 0.008	301-312	306.8 \pm 0.01
7. Leaflets/leaf	2-6	4.4 \pm 0.27	2-6	4.6 \pm 0.27
8. leaflet length (cm)	6.2-6.3	6.25 \pm 0.005	6-6.2	6.1 \pm 0.01
9. Leaflet width (cm)	0.44-0.51	0.5 \pm 0.012	0.51-0.53	0.52 \pm 0.01
10. Length of pedicel (cm)	4-4.5	4.2 \pm 0.04	2.5-3.4	3.26 \pm 0.08
11. Days to first flowering	49-53	51 \pm 0.03	45-52	48 \pm 0.04
12. Days to 50% flowering	58-63	60 \pm 0.03	60-65	62 \pm 0.01
13. Pods/plant	80-89	87.2 \pm 0.03	80-88	84 \pm 0.03
14. Seeds/pod	4-4.5	4.3 \pm 0.03	3.4	3.6 \pm 0.14
15. Pod length (cm)	3-3.03	3.01 \pm 0.002	3.53-3.55	3.53 \pm 0.002
16. Seed yield/plant (g)	11.6-13.9	12.6 \pm 0.07	10.6-12.2	11.6 \pm 0.04
17. Biological yield/plant (g)	26.2-28.62	27.25 \pm 0.03	25.5-28	26.65 \pm 0.03
18. Harvest index (%)	44.26-48.59	46.18 \pm 0.03	41.56- 44.36	43.52 \pm 0.02