

for fodder. Old varieties of *V. mungo* were of long duration and only one crop could be grown in a year. The cultivar T₉ (figure 1) has short maturity period. This is a selection, released from Bareilly (U.P.) It is possible to get three crops in a year. However, it does not give high yield. This paper reports the results of mutation breeding for improvement in yield.

Dry pure seeds of T₉ of *V. mungo* were irradiated at 10, 20 and 30 krad of gamma rays followed by EMS treatment with 0.25% in buffer solution at 7 pH and at 30 ± 1°C. Separate control was maintained. In M₂ population at 20 krad two pentafohate mutants (figure 2) were isolated in segregating the family. In M₃ generation this mutant proved stable.

The morphological data of M₃ generation were statistically analysed. The number of branches in mutant was 4.6 ± 0.3879 and 2.2 ± 0.2795 in control, the number of nodes was 17.7 ± 0.4415 in mutant and 14.9 ± 0.3581 in control. Stem perimeter (cm) was 2.1 ± 0.0584 in mutant while 1.4 ± 0.0672 in control. The total number of pods per plant in mutant was 35.8 ± 5.7973 and 28.3 ± 0.2273 in control, weight of 50 seeds (g) was 1.15 ± 0.0419 in mutant and 1.43 ± 0.0214 in control. Thus all these parameters of mutant were slightly higher than the control. The number of leaves in mutant was 29.0 ± 2.2456 more than (13.3 ± 0.8204) of control. The height (cm) in mutant was 53.0 ± 3.5254, slightly less when compared with control (53.3 ± 2.3665). The pod length was lesser in mutant (3.4 ± 0.0530) than control (3.7 ± 0.0520). An interesting point is that the root nodules in mutant are larger in number and in size than in control. The performance of this mutant is being tested. At present M₄ has been sown.

Due to increase in amount of foliage the mutant may be better in green manuring and as fodder. Increase in leaf surface area may yield increase in photosynthesis. The genes may be incorporated in other varieties in pulse improvement programme.

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A NEW LEAF SPOT DISEASE OF *CANNABIS SATIVA* CAUSED BY *PHOMOPSIS CANNABINA* CURZI

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DURING the course of investigation of the leaf surface fungi of *Cannabis sativa* in Almora hills, a severe leaf spot disease of yellowish brown colour was frequently observed during September to October 1984. The disease appeared as small spherical chlorotic patches scattered on the leaves of the plant which grew irregular in shape with increase in size. The smaller leaf spots sometimes coalesce to form larger irregular lesions. At maturity the middle portion of the spots may be shot off leaving behind holes.

The spots showed numerous dark-coloured, ostiole, immersed, erumpent and nearly globose pycnidia. The cultural observation revealed the presence of hyaline mycelium—septate and branched. Conidiophores single, short, 6 × 2 μm; conidia hyaline, one-celled, of two types, ovoid to dusoid (alpha) conidia, 3–6 × 1.5–2.5 μm and filiform, curved or bent stylospores (beta conidia) measuring 22–25 × 1.5 μm.

On the basis of the above observations the pathogenic fungus was identified as *Phomopsis cannabina* Curzi. The specimen was deposited in CMI, England (IMI No. 291288). A perusal of literature indicates that the pathogen *P. cannabina* is recorded here for the first time as a new leaf spot disease of *Cannabis sativa* from India.

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