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Pisum fulvum carries a recessive gene for powdery mildew resistance

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A new source of powdery mildew resistance in pea has been identified in the genetic line Wt 11256 which was received from Prof. W.K. Swiecicki as a donor of genes *Adi Umb Astr Le R.* It belongs to *Pisum fulvum,* which is still considered to be a separate species. The seeds received were very small with dark red testa. The plants had spreading growth habit. The strain was very late in winter at Delhi, produced flowers 97 days after sowing, and did not produce seed due to high temperatures during flowering period. The genotype was also resistant to powdery mildew. It had no trace of fungal infection even though the plants remained green till early May. By this time most of the pea materials had been harvested. The disease appeared toward the end of February, and all susceptible genotypes were laden with fungus by mid-March when all plant parts, including leaves, stipules, stem, peduncles and pods, were covered with thick mycelial coat. The pods of early susceptible genotypes turned black by March end. Isolated patches of fungal growth could be seen on foliage in the upper green part of the resistant genotypes, although the infestation did not spread to stem and reproductive parts. This question has been examined separately (3). The plants of Wt 11256 remained absolutely free from infection through the entire period of growth. Patches of fungal growth did not appear even on foliage until the end of plant life. Resistance to powdery mildew was unmistakable.

We have concluded that powdery mildew resistance in *Pisum sativum* is controlled by a single, and not two, recessive gene. The two-gene hypothesis of Heringa et al. (2) for this trait has been accepted as *fait accompli* without experimental verification. It is yet to be determined whether different strains of P. *fulvum* differ in their disease reaction. Nevertheless, discovery of resistance in this putative species leads to the conclusion that a common gene for powdery mildew resistance operates in the entire genus *Pisum.* Allelism of powdery mildew resistance genes in P. *sativum* ssp. *sativum* and primitive landraces has been confirmed experimentally (4).

The recessive gene for resistance in P. *fulvum* must be a different allele of the'Er gene already known in P. *sativum* (1). The allele discovered in Wt 11256 is designated as er^f (f for *fulvum).*

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