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**LEPIDIUM SATIVUM LINN.—
AN UNRECORDED HOST FOR ALBUGO
CANDIDA (PERS. EX CHEV.) KUNTZE.**

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DURING a survey of vegetable diseases in Pithoragarh District of Kumaun Himalaya in December 1979, a severe infection by white rust was observed on the leaves of *Lepidium sativum* Linn. (Halim). The pathogen of the infected leaves was identified as *Albugo candida* (Pers. ex Chev.) Kuntze. [= *Cystopus candidus* (Pers.) Lev.] A survey of literature¹ indicated that *Lepidium sativum* was an unrecorded host for *A. candida*.

The fungus is an obligate endoparasite. Mycelium intercellular, non-septate which produces knob-like

haustoria inside the host cells. Conidiophores are short, erect, and club-shaped forming a palisade tissue underneath the host epidermis. Conidia are formed in chains in basipetal succession, arising from the conidiophores at the base of the cavity. Conidia spherical, thick-walled, hyaline, and interconnected by isthmus. The conidia measure 15.00 to 17.22 μ in diameter.

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**NOTE ON INHERITANCE OF RESISTANCE
TO POWDERY MILDEW AND DAYS
TO FLOWERING IN PEAS**

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POWDERY mildew (*Erysiphe polygoni* DC) is a serious disease of pea (*Pisum sativum* L.). All the cultivated pea varieties are severely damaged by this disease. For a stable solution of this problem, breeding of early maturing, powdery mildew resistant varieties is, therefore, imperative. A late maturing, tall type, powdery mildew resistant line (T-10) was crossed with Arkel (early maturing, susceptible to powdery mildew and a famous vegetable type variety) and New Line Perfection, i.e., NLP (early-medium maturing, susceptible to powdery mildew and good for vegetable type). The performance of parental lines, F_1 , F_2 , BC_1 and BC_2 generations in Arkel \times T-10 and that of parents, F_1 and F_2 generations in NLP \times T-10 observed during 1976-77 and 1977-78 are given in Table I.

Based on the distribution of days to flowering in parental lines and F_1 , the flowering duration of 55 or more days was considered as late and the lower duration as early. The F_1 was late in both the crosses indicating lateness as dominant. The F_2 generation followed a segregation ratio of 3 late : 1 early. Back cross with late dominant parent (T-10) did not segregate as expected. Back cross with the recessive parent (Arkel) fitted to an expected ratio of 1 : 1. The F_2 of NLP \times T-10 also gave a segregation pattern of 3 late : 1 early. These results clearly demonstrate

TABLE I
Classification of progenies for flowering duration and reaction to powdery mildew in two crosses of peas

Generation	Early	Flowering late	Segregation ratio	X ²	Reaction to powdery mildew		Segregation ratio	X ²
					Resistant	Susceptible		
Arkel T-10								
F ₁ (Arkel × T-10)		Late			Resistant	Susceptible		
F ₂	5	23	3 : 1	0.761	4	24	3 : 1	1.715
BC ₁ (F ₁ × Arkel)	38	34	1 : 1	0.222	4	34	0 : 1	..
BC ₂ (F ₁ × T-10)		38	0 : 1	..	19	19	1 : 1	0.000
Joint segregation : Late-susceptible = 18, Early-susceptible = 5, Late-resistant = 5, Early-resistant = 0, X ² = 2.095								
NLP T-10								
F ₁ (NLP × T-10)		Late			Resistant	Susceptible		
F ₂	27	52	3 : 1	3.548	21	58	3 : 1	0.105
Joint segregation : Late-susceptible = 40, Early-susceptible = 19, Late-resistant = 12, Early-resistant = 8, X ² = 4.138								

that days to flowering in peas is controlled by single gene pair, lateness being dominant.

Resistance to powdery mildew (Table I) was controlled by single recessive gene as F_1 in both the crosses was susceptible and F_2 gave a segregation pattern of 3 susceptible : 1 resistant. BC_1 ($F_1 \times$ Arkel) was expected to be non-segregating type, however 4 unexpected resistant plants were obtained. These might have been escapes/off types, although the progenies were sprayed with the inoculum. BC_2 ($F_1 \times$ T-10) gave an excellent fit to a ratio of 1:1. Therefore involvement of a single recessive gene to control resistance for powdery mildew in T-10 is beyond doubt.

The test for joint segregation in F_2 plants in both the crosses fitted to a ratio of 9 late-susceptible : 3 early-susceptible : 3 late resistant : 1 early resistant indicating independent assortment for both these genes. Thus the parental genotypes could be designated as 11ErEr for early and susceptible genotypes (Arkel and NLP) and LLerer for late and resistant genotype (T-10). The inheritance being simple and free from undesirable linkage, a back cross breeding programme could easily be used to transfer the gene for resistance and earliness from T-10 and Arkel/NLP respectively into the genome of other varieties. Due to independent assortment of these genes, early and resistant genotypes could be recovered in a regular breeding programme following pedigree method of breeding also, one should raise large F_2 population as the frequency of this class will be low (1/16). As a result of breeding programme in this direction lines possessing earliness and resistance to powdery mildew are under evaluation. These results on inheritance of resistance to powdery mildew agree with those of Harland¹, Saxena *et al.*³ and Narsinghani².

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A NEW SPECIES OF PERICHAENA FR.

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DURING the survey of Myxomycetes of Marathwada, the author came across an interesting myxomycete growing on dead stem of a shrubby plant. On critical

examination, it was found to be a species of *Perichaena* Fr., but differing totally from the earlier described species. It is, therefore, being described here as a new species along with its Latin diagnosis

Perichaena thindii Nanir sp. nov.

Fructifications flat, pulvinate, circular to irregular elevated. Sporangia sessile on broad bases, scattered or grouped but not heaped or crowded, more or less 0.1 mm thick, 0.2-0.4 mm (-0.6 mm) in dia. Upper flat region dark chestnut brown or black; lower half bright yellow. Peridium single, membranous, opaque, blackish and rough in upper half; transparent, thin and persistent in lower half. Hypothallus after dehiscence transparent and honey-comb-like. Capillitium scanty, free elaters, very rarely with cross connections, non-calcareous, long, slender, tubular, constricted, more or less 2.5 μ m in dia., echinulate. Spores yellow in mass, faint yellow under transmitted light, globose, tending to be elliptic, spinulose, 12-13.8 μ m in dia.

One dead stem of shrubby plant, Daulatabad, July, 1975 leg S. P. Nanir, deposited at MACS, Poona, AMH No. 3033 (Holotype).

Perichaena thindii Nanir sp. nov.

Fructificatio planus pulvinatus, circularis ad irregulariter. Sporangia elevatus, sessilis, suprabasin, dispersus ad aggregatus sed noncongetus, \pm 0.1 mm crassus, 0.2-0.4 mm (-0.6 mm) latus 1 diamensio. Supra pars atrobadium vel vividus flavus. Peridium simplices membranaceus nontranslucidus, supra planus pars negellus et exasperatus dum dimidio, inferiore flavus et translucidus. Capillitium liber elaterum, non abundus, noncalcareus, longus, gracilis, tubulosus, constrictus, echinulatus, crux connexuz raro, plus minusve 2.5 μ m diamensio. Sporae flavus aggregatae, vividus et dilutus flavus luce transmissa, globosus, affinitas per ellipticus, spinulosus 12-13.8 μ m diamensio.

Lectus in caule mortuo, Daulatabad, Leg. S. P. Nanir, July 1975, et positus in herbario MACS Lab., Poona, AMH No. 3033 (Holotypus).

Perichaena corticalis (Batch) Rost. shows some resemblance with *P. thindii* Nanir sp. nov., but the former is recognised by its variable fructifications from sessile to short stipitate, plasmodicarpus to globose, subglobose or hemispheric sporangia; double peridium, capillitium slender, warted to spiny threads 4 μ m dia; spores unequally warted.

The distinguishing features of *P. thindii* Nanir sp. nov. are as follows :

1. Fructification pulvinate on the broad base.
2. Peridium single :

A—Upper flat portion dark, chestnut blackish brown, opaque and rough.