

TABLE II

Lypolysis of butter fat and coconut oil by lipase from some strains of paddy straw grown in wheat bran broth (4%) for 10 days

Thermophile	Volume of 0.02 N KOH required for titration	
	Butter fat	Coconut oil
<i>Absidia corymbifera</i>	7.5	8.2
<i>Acremonium alabamenis</i>	11.3	9.8
<i>Aspergillus fumigatus</i>	6.2	7.1
<i>Chaetomium thermophile</i>	3.6	2.8
<i>Humicola lanuginosa</i>	8.0	4.5
<i>Mucor pusillus</i>	10.2	8.6
<i>Sporotrichum thermophile</i>	3.0	2.3
<i>Thielavia minor</i>	7.0	3.5

strate (butter fat/coconut oil) also influenced enzyme activity (cf. *Thielavia minor*). The liberation of lipase by paddy straw strains of *H. lanuginosa* and *M. pusillus* was, however, smaller than that reported for other strains^{2,4}. Our observations support the role of lipase producing microbes in the decomposition process besides the fact that thermophiles are in general, more active than the mesophilic mycoflora. A detailed investigation is warranted for the thermophilic lipase producers because some of these strains may find use in cheese and allied industries.

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A NEW DISEASE OF POI (*BASELLA RUBRA* L. IN INDIA CAUSED BY *ALTERNARIA ALTERNATA* (FRIES) KEISSLER

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DURING November–December, 1979, a severe leaf spot disease was observed on the plants of *Basella rubra* L., a leafy vegetable of South India, in the kitchen gardens of the campus of Indian Agricultural Research Institute, New Delhi. The disease symptoms were observed as round, regular spots on both surfaces and margins of leaves. The disease first appeared as minute purplish dots which later on turned into circular spots upto 9 mm diameter with off-white centre and purplish margin, spots rarely coalescing. The central necrotic region of the spots dries up and falls off resulting in 'shot-hole' (Fig. 1).

Isolations from surface sterilized (0.1% mercuric chloride) portions of the leaf on potato-dextrose-agar yielded a pure culture of *Alternaria alternata* (Fries) Keissler (= *A. tenuis* Nees.). Pathogenicity of the fungus was proved in the glass house by artificial inoculations by atomiser spray. The pathogen was re-isolated from the artificially inoculated leaves and maintained on PDA. Vegetative hyphae hyaline, septate and branched. Conidiophores simple, rarely

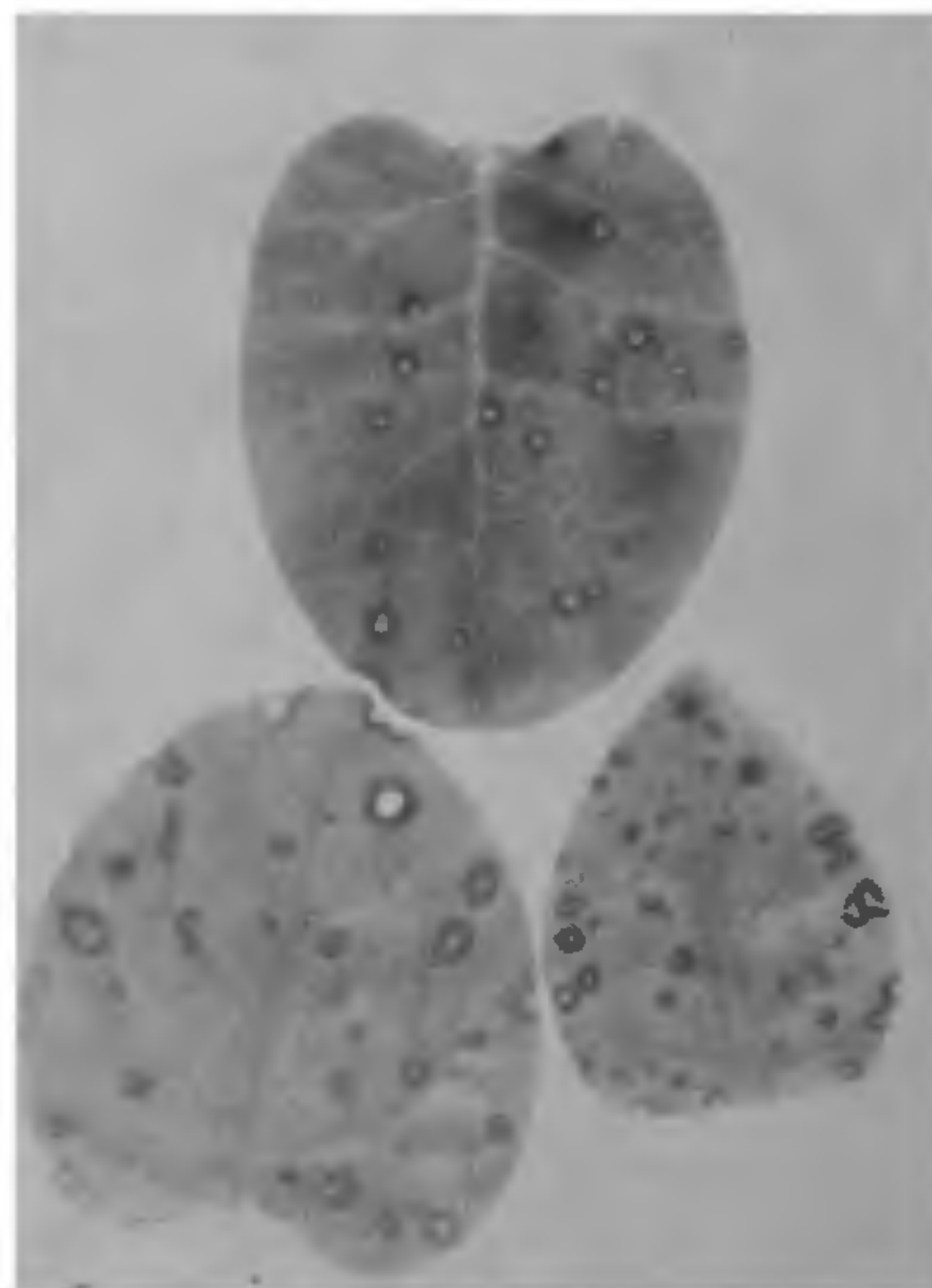


FIG. 1. Shot hole/spots on Poi leaves,

TABLE I

Effect of temperature on seed germination and natural infection of *Poi* seedlings

Trial	No. of seeds sown	Treatment at temperature (°C)	Period of treatment (in min.)	No. of seeds germinated	Seedling* infection
1	10	54	20	10	Moderate
2	10	55	30	6	Light
3	10	58	20	4	Light
4	10	60	15	4	Light
5	10	65	15	2	Traces
6	5	70	10	3	Traces
7	5	75	5	0	—

* Traces = Upto 5% infection; Light = 6-25%; Moderate = 26-50%.

branched, long bearing chains of conidia, light brown septate, geniculate, 3.06-6.12 μm in breadth. Conidia obclavate or muriform, geniculate, short, sub-hyaline beaked, double walled, walls smooth, transverse septa 3-8, longitudinal septa 1-2, moderately constricted at transverse septa, light-brown in colour measuring 13.77-61.20 μm (19.89-45.90 μm) \times 7.65-16.83 μm (9.18-12.2 μm).

An experiment was conducted for reducing the natural seed infection by physical methods. Hot water treatment was given to *Basella* seeds at different temperatures and treated seeds were sown in sterilized soil (sterilization on three successive days at 15 lb psi for 30 min). The results are summarized in Table I.

The experiment on temperature treatment demonstrated little success in curbing natural infection at the cost of damage to seeds by way of failure of germination. Hot-water treatment of seed, therefore, can hardly be recommended for control.

There is so far no record in India of *Alternaria alternata* pathogenic on *Basella rubra* L. Mundkur¹ however, reported *Alternaria* spot but the species was not identified.

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HETEROSIS IN BLACKGRAM

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DEVELOPMENT of commercial hybrids in self-pollinated crops like sorghum and cotton during the past few years, has drawn the attention of breeders to explore the possibilities of evolving such hybrids in other self-fertilized crops also. But for the commercial exploitation of heterosis, sufficient information on the desired parental combinations showing high manifestation of heterosis is essential. Hence the present investigation was undertaken to study the magnitude of heterosis on the yield and its component characters in blackgram [*Vigna mungo* (L.) Wilczek].

Materials and Methods

Ninety crosses made between 30 genetically diverse lines and 3 testers in 1973 were raised during 1974 and 1975 along with presents in randomized blocks replicated thrice. Each plot had single row of 10 plants with 50 \times 20 cm spacing. Five plants were randomly selected in each plot and observations recorded on clusters per plant, pods per cluster, harvest index, test weight (g) and grain yield per plant (g). Heterosis over the better parent was calculated from the mean values over a period of two years.