graft inoculated with this isolate and used for acquisition feeding. Infectivity was tested on 2-month old 6–8 cm tall acid lime seedlings grown individually in polythene bags of 20 × 15 cm size. Mature apterous aphids were allowed to feed on infected source plants in dark. After 24-hour acquisition period, aphids in groups of 25 numbers were transferred on to the test plants with a camel's hair brush. Aphids were killed by spraying with an insecticide (Metacid 0·05%) after 24 hour infection period. The test seedlings were kept in separate glasshouse for observations.

Out of 75 acid lime seedlings inoculated, 6 plants (eight per cent) showed cupping, vein-clearings and stem pitting symptoms of CTV as reported by Wallace and Drake[8], and Capoor[1] with in 60 days after inoculation. The association of this virus with the infected plants was further confirmed by reinoculation to healthy acid lime seedlings through *Toxoptera citricidus* (Kirk.). The low transmission rate of severe isolate of CTV obtained with this aphid species in the present study is similar to that reported with *A. spiraecola* Patch in Florida by Norman and Grant[3]. On the contrary in Israel *A. citricola* (*spiraecola* Patch) failed to transmit the VT isolate of CTV[4]. In India the presence of the vector *A. citricola* (*spiraecola* Patch) will increase the potential of natural spread of tristeza virus, in addition to *T. citricidus*[8], *A. gossypii* Glov. and *Myzus persicae* (Sulz.)[6]; *A. craccivora* (Koch.) and *Dactynotus jaceae* (L.)[1] and *T. aurantii* (B.D.F.)[2]. In Israel melon aphid *A. gossypii* has transmitted one strain of tristeza virus, upto 40%, and other two strains, less than five per cent[4]. Capoor and Rao[2] observed that *T. aurantii* could transmit only mild strain of tristeza virus. Transmission studies with *A. citricola* from different hosts, as well as on different strains of CTV from various donor plants are under progress.

Thus, *Aphis citricola* (*spiraecola* Patch) is found to be the vector of CTV from India.

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CHOLESTEROL CONTENT IN THE MYCELIUM OF FIFTEEN SPECIES OF *HELMINTHOSPORIUM*

STEROLIC compounds are known to occur in dilute concentrations in a large number of fungi. Ergosterol, a fungal sterol, is quite widespread and is known from diverse groups of fungi. Cholesterol, another closely related compound, is known to increase the temperature tolerance and oospore formation in *Pythium atrotrogus*[1]. In the present study cholesterol distribution in fifteen species of *Helminthosporium* was investigated with the hope that it may throw some light on the taxonomy of this genus.

Monosporic cultures of fifteen species were grown on Asthana and Hawker's medium 'A' at 27 ± 2° C. At the end of 10 days incubation, 50 mg of dry mycelium harvested on Whatman filter paper No. 42 was analysed for cholesterol content by the method suggested by Plumer[2]. Fungal mats were homogenized in alcohol : acetone (1 : 1) mixture and heated on a hot water bath for a few minutes and subsequently cooled and centrifuged at 1,800 × g for 30 minutes. The supernatant was evaporated to dryness. The resultant residue was redissolved in two ml chloroform. To this solution, 2 ml acetic anhydride and sulphuric acid (30 : 1) mixture was added and kept in darkness for twenty minutes. The colour thus developed was read at 680 nm in spekol. The quantity of cholesterol was read from standard curve of cholesterol and the results are precised in Table I.

From Table I it is clear that all the species under study showed cholesterol in their mycelial mats. However, the amount varied with the species. It was nearly 2% of the dried mycelium in *H. Halnii* and *H. hawaiiensis*. The least amount of cholesterol was shown by *H. spicifeum*. The highest level of choles-

TABLE I

Cholesterol content (mg/50 mg of mycelium) in the dried mycelium of fifteen species of Helminthosporium

Organism	Strain	Cholesterol
H. bisceptatum	CBS–37172	0·68
H. catenarium	CBS–22458	0·54
H. cynodontis	CBS–30464	0·50
H. erythrospilum	CBS–31369	0·66
H. gramineum	CBS–30235	0·20
H. hawaiiensis	*Lycopersicon esculentus*	0·98
H. holmii	*Psidium guajava*	1·03
H. monoceras	CBS–15426	0·36
H. pedicellatum	CBS–19633	0·28
H. rostratum	*Capsicum annum*	0·52
H. siccans	CBS–31869	0·58
H. sorghicola	CBS–32664	0·28
H. spiciferum	*Solanum melangena*	0·08
H. inaequalis	CBS–55069	0·12
H. portulacae	CBS–58571	0·44

terol was reported in *Paecilomyces varioti* (1·7%)[3]. Preuss *et al.*[4–5] found one or less than one per cent of the total dried mycelium. There were significant differences even among morphologically closely related species and *vice versa*. Such variation was also noticed among the isolates of *Colletotrichum dematium*[6].

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PENICILLIUM DRY FRUIT ROT OF ASHGOURD

THE fruits of ashgourd (*Benincasa hispida* Cogn.) were found decaying in fields at Agra. The rotten fruits exhibited circular yellowish-green patches, which further decayed resulting in the formation of deep cavities at advanced stage of infection (Fig. 1). *Penicillium citrinum* Thom. was isolated from the rotten samples. Pathogenicity was confirmed by inoculating injured and uninjured healthy fruit surfaces. The observations revealed that only injured fruits produced the rot symptoms, while the control and uninjured remained healthy throughout. Reisolations from rotted fruits yielded the same fungus.

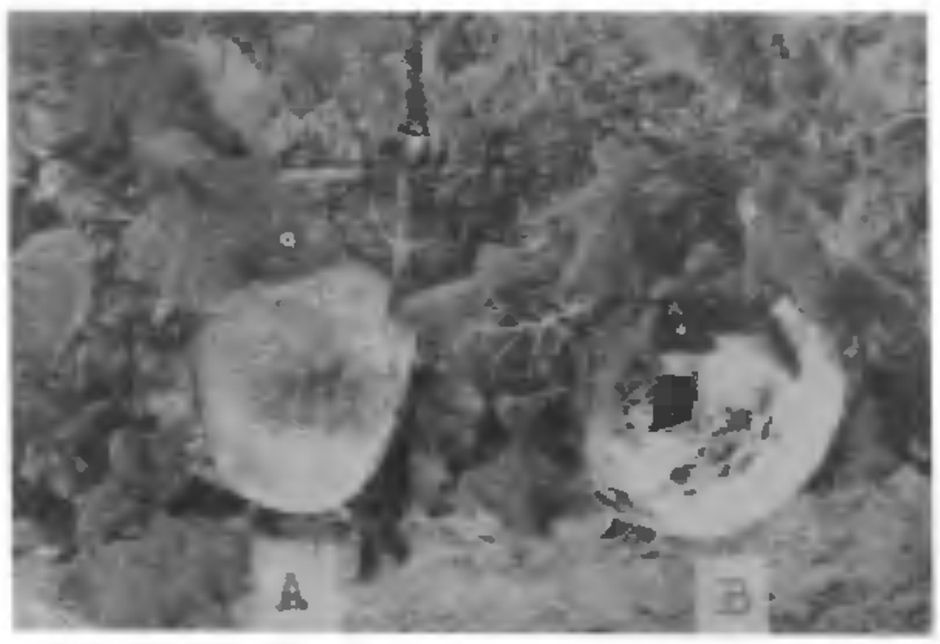

FIG. 1. Dry fruit rot of ashgourd showing early stage (A) and late stage (B) of infection in field.

Perusal of the literature revealed that several soft rot diseases of Petha Fruits were reported from India[1] and abroad[2] but the present dry caused by *P. citrinum* was not recorded so far.

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CELLULASE ACTIVITY IN HAUSTORIA OF *CASSYTHA FILIFORMIS* L.

THE production of cellulase by pathogenic microorganisms is well known. It has also been traced in roots of some higher plants (Tracy[1]). Sreenivas Rao and Thirupathaiah[2] reported the cellulase activity in aerial roots of *Vanda*. The production of cellulase in *Cassytha filiformis* L. is not known till today. Hence a study was undertaken to trace the presence of these