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## Studies on The Genus *Alternaria* Nees.

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Four species of *Alternaria* have been collected, studied and illustrated from the districts of North 24 Parganas and South 24 Parganas of West Bengal during the year 1983-1987. The specimens are *Alternaria sesami*, *Alternaria pimpriana*, *Alternaria cucumerina* and *Alternaria zinniae*.

**Key Words :** Taxonomy, *Alternaria*, West Bengal

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The genus *Alternaria* has been studied in India and abroad by several scientists (Bilgrami *et al.*, 1979, 1981 ; Rao, 1963 a & b, 1964 ; Sarbhoy *et al.*, 1977-1981 ; Elliot, 1917 ; Ellis, 1971 ; 1976 ).

The present paper deals with four species of *Alternaria* viz. *Alternaria sesami* (Kawamura) Mohanty & Behera, *Alternaria pimpriana* Vasant Rao, *Alternaria cucumerina* (Ellis & Everh) Elliot, and *Alternaria zinniae* M. B. Ellis have been collected from the district of 24 Parganas (both south and north) of West Bengal. They are all phytopathogenic fungi and cause infection to the angiospermic host plants. The specimens are for the first time reported from the state of West Bengal. These fungi have been verified by the taxonomists of CAB, International Mycological Institute, Key, Surrey, England.

### DESCRIPTION

*Alternaria sesami* (Kawamura) Mohanty & Behera,  
Curr. Sci. 27 : 493 ( 1958 ).

Synonym : *Macrosporium sesami* Kawamura, Fungi,  
Tokyo 1(2) : 26 ( 1931 ).

( Fig. 1 )

Leaf spots amphigenous, distinct, vein-limited, initially olivaceous brown to reddish brown later becomes dark centre surrounded by reddish brown margin

within yellowish halo, 2-8 mm in extent; caespituli amphigenous, chiefly epiphyllous; mycelium immersed and superficial, external mycelial hyphae branched and septate, 4-6.5  $\mu\text{m}$  wide, bearing conidiophores laterally; conidiophores arising singly or in groups of 2-10 spreading stalks, straight to flexuous, pale brown to yellowish brown, usually simple, rarely branched, almost cylindrical, thick walled, smooth, septate upto 8, sometimes geniculate upto 3, tip subobtuse, old conidial scars (2.5-3  $\mu\text{m}$ ) present at the tip or in the geniculations of the conidiophores, 5-7 x 33-106  $\mu\text{m}$ ; conidia solitary or in short chains of 2,

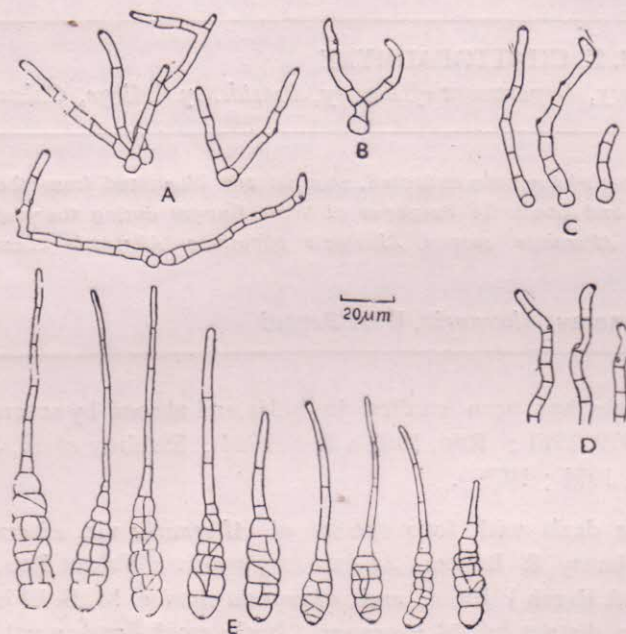


Fig. 1 : *Alternaria sesami*

A&B, Conidiophore fascicle; C & D, Conidiophores; E, Conidia.

obclavate, rostrate, mostly straight, rarely curved, light brown to mid golden brown, thick walled, smooth, septate, 3-9 transverse, longitudinal and oblique septation 2-10, beak mostly straight, light to pale olivaceous, same in length or longer than the body of conidia, beak 2-3 x 16.5-82.5  $\mu\text{m}$ , conidia measuring with beak 10-16.5 x 49.5-132  $\mu\text{m}$ .

Fungus studied on *Sesamum indicum* DC. (Fam. Pedaliaceae), Ichapur, North 24 Parganas, West Bengal, PCC 3430 (IMI 281286), leg. A. K. Das, 17 June, 1983.

*Alternaria pimpriana* Vasant Rao,  
Curr. Sci. 32 : 84-85 ( 1963 ).

( Fig. 2 )

Spots amphigenous, initially round to oval, older spot becoming irregular at later stage, reddish centre surrounded by brown to black margin, often leaving shot

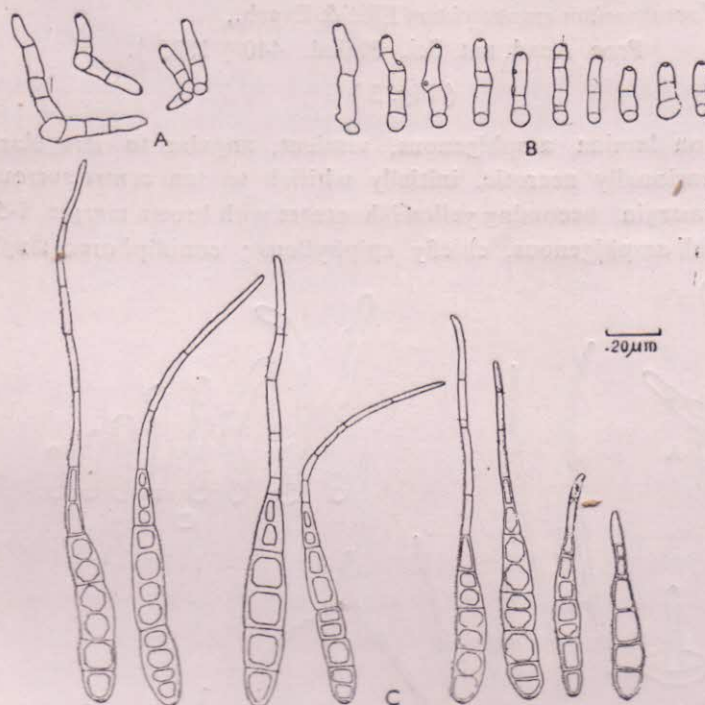


Fig. 2 : *Alternaria pimpriana*

A, Conidiophore fascicles ; B, Solitary conidiophores ; C, Conidia.

hole, 1-7 mm in extent ; caespituli amphigenous, mycelium partly immersed and partly superficial, superficial mycelial hyphae light to pale olivaceous, 3-5  $\mu$ m wide, bearing conidiophores both laterally and terminally; conidiophores erect or ascending, straight to slightly flexuous, mostly solitary but very rarely in groups of 2-3, pale olivaceous brown, more or less cylindrical but often slightly swollen at the base, septate upto 4, frequently geniculate, old conidial scars ( 4-7  $\mu$ m in diam.) situated at the tip or in geniculations, 5-7 x 12-63  $\mu$ m ; conidia solitary, obclavate, rostrate, straight to slightly curved, pale or very pale olivaceous or golden brown, septate, constricted at the septa, transverse septation upto 11, longitudinal septation 1-2, beak straight to curved, longer than the body, sometimes shorter, pale olivaceous, 5-7 x 33-148  $\mu$ m, conidia with beak 7-15 x 100-265  $\mu$ m.

Fungus studied on *Alternanthera sessilis* R. Br. (Fam. Amaranthaceae), Baruipur, 24 Parganas (South), West Bengal, PCC 3602 (IMI 288591), leg. A. K. Das, 16th May, 1984.

*Alternaria cucumerina* (Ellis & Everh.) Elliott,  
Am. J. Bot. 4: 472 (1917).

Synonym : *Macrosporium cucumerinum* Ellis & Everh.,  
Proc. Acad. nat. Sci. Philad. 440 (1895).

(Fig. 3)

Spots formed on lamina, amphigenous, virulent, angular to irregular, rarely coalescent, occasionally necrotic, initially whitish to tan centre surrounded by reddish brown margin, becoming yellowish centre with brown margin, 1-5 mm in extent; caespituli amphigenous, chiefly epiphyllous; conidiophores singly or in

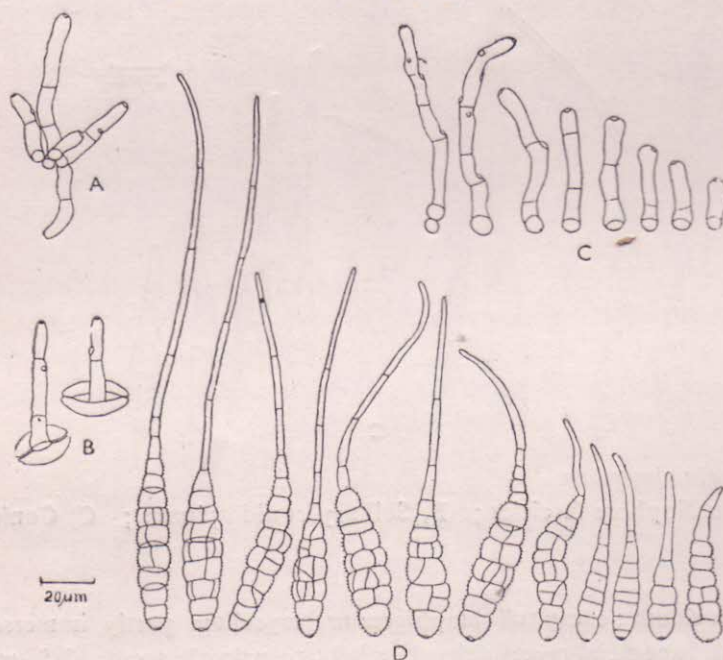


Fig. 3 : *Alternaria cucumerina*

A, Conidiophore fascicle; B, Conidiophore emerging through stomata;  
C, Conidiophores; D, Conidia.

small groups of 2-5, emerging by rupturing host tissue or coming out through the stomata, pale to mid brown, slightly paler towards the tip, straight or flexuous, almost cylindrical, mostly simple but rarely branched, septate upto 4, rarely geni-

Leaf spots amphigenous, brownish centre with dark brown margin, virulent, angular to irregular, rarely coalescent, occasionally necrotic, 2-8 mm in extent; caespituli amphigenous, non-stromatic; mycelium both immersed and superficial, superficial mycelial hyphae subhyaline to pale olivaceous brown, smooth, septate, 2.5-6.5  $\mu\text{m}$  wide, producing lateral conidiophores; conidiophores amphigenous, solitary or in groups of 2-4 stalks emerging through stomata, often developing from single swollen cell, pale brown to brown, paler towards the apex, straight to slightly bent, smooth, thick walled, pluriseptate (2-6), cylindrical, rarely geniculate, base swollen, apex rounded with a single conidial scar (16), 2.5-3  $\mu\text{m}$  in diam., 3.5-6.5 x 23-148  $\mu\text{m}$ ; conidia usually solitary, rarely in chains of two, obclavate, rostrate, pale to dark brown, smooth to minutely verruculose, basal cell rounded with hilum, 4-9 transverse septation, longitudinal and oblique septation 2-6, beak filiform, simple, hyaline to pale brown, 2-2.5 x 30-66  $\mu\text{m}$ , with beak 10-16.5 x 49.5-132  $\mu\text{m}$ .

Fungus studied on: *Zinnia* sp. (Fam. Asteraceae), Baruipur, 24 Parganas (South) West Bengal, PCC 3742, leg. A. K. Das, 10th October 1984.

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