

## AN ADDITION TO *SPHAEROPSIS* FROM PAKISTAN

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### Abstract

A new species of *Sphaeropsis karachiensis* from *Salvadora oleoides* is described, illustrated and compared with allied taxa.

### Introduction

During the course of studies on Coelomycetes on *Salvadora*, a pycnidial fungus was found having enterogenous, determinate conidiogenous cells without conidiophore and aseptate brown conidia with ornamented inner wall. An account of the taxon places it in the genus *Sphaeropsis*. *Sphaeropsis* closely resembles the pycnidial genera having aseptate, brown conidia viz., *Coniothyrium* Corda, *Lichenochonium* Petrak & Sydow, *Coniella* Höhn, *Microsphaeropsis* Höhn, *Readeriella* H. & P. Sydow, *Lasminella* Petrak & Sydow, *Aplosporella* Speg., *Cymbothyrium* Petrak, *Cytoplea* Bizz & Sacc., *Harkenessia* Cooke, *Cyclothyrium* Petrak and *Avettaea* Petrak. However, they all clearly differ from *Sphaeropsis* (Sutton, 1977, 1980; Abbas *et al.*, 1999).

*Sphaeropsis karachiensis* sp. nov.

Figs. 1 & 2.

Conidiomata pycnidialia, globosa vel depresso-globosa, solitaria, nigra, immersa, unilocularia, 231-330x198-297  $\mu\text{m}$ . *Ostiolum* singulum, circulare, centrale, raro papillatum, 20  $\mu\text{m}$  diam., parietes 6-15 cellulis crassis et 20-32  $\mu\text{m}$  lati ex textura angulari et strato duobus compositi, parietes exteriores nigri, 4-8 cellulis crassi, parietes interiores 2-10 celluli crassi, gradatim hyalini, centrum versus tenuiores. *Conidiophora* absentia. *Cellulae conidiogenae* discretiae, determinatae, cylindraceae vel lageniformes, laeves, ex cellulis interioribus parietum formatae, non proliferationes, 6.4-12.8 x 2.4-5  $\mu\text{m}$ . *Conidia* hologenetica, aseptata, brunnea, elliptica ad oblonga, laevia, intra minute verruculosa, apicem et basim obtusa, 19.2-26.4 x 10.4-12  $\mu\text{m}$ .

In ramis emortuis *Salvadorae persica*, viatici inter Karachi ad Hyderabad, Pakistan, 8 Apr. 1964, S. Ahmad 16912c (IMI 138491c), holotypus.

*Conidiomata* pycnidial, globose to depressed globose, solitary, black, immersed, unilocular, 231-330 x 198-297  $\mu\text{m}$  diam., *ostiole* single, circular, central, sometimes papillate, 20  $\mu\text{m}$  diam. Wall of textura angularis, 6-18 cells thick and 20-32  $\mu\text{m}$  wide, generally the outer layer very thick and black, consisting of 4-8 cells, the inner layer

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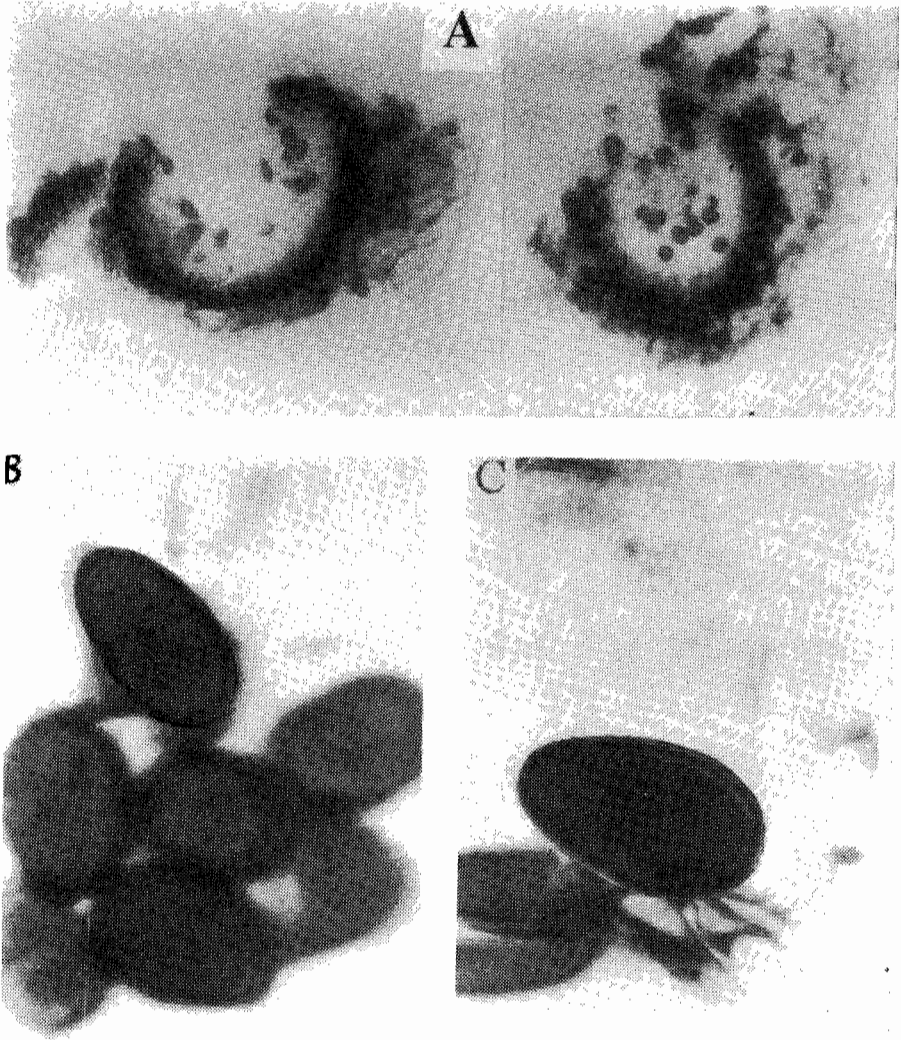


Fig. 1. *Sphaeropsis karachiensis*

A. V.S. of conidioma, 150X; B, C. Conidia 1500 X.

composed of 2-10 cells, relatively thin and becoming hyaline towards the centre. *Conidiophores* absent. *Conidiogenous cells* formed from the innermost layer of the conidiomatal wall, cylindrical to lageniform, discrete, determinate (non-proliferating), smooth, hyaline,  $6.4-12.8 \times 2.4-5 \mu\text{m}$ . *Conidia* hologenous, aseptate, brown, oval to oblong, smooth-walled, apex and base obtuse,  $19.2-26.4 \times 10.4-12 \mu\text{m}$ , inner wall minutely verruculose.

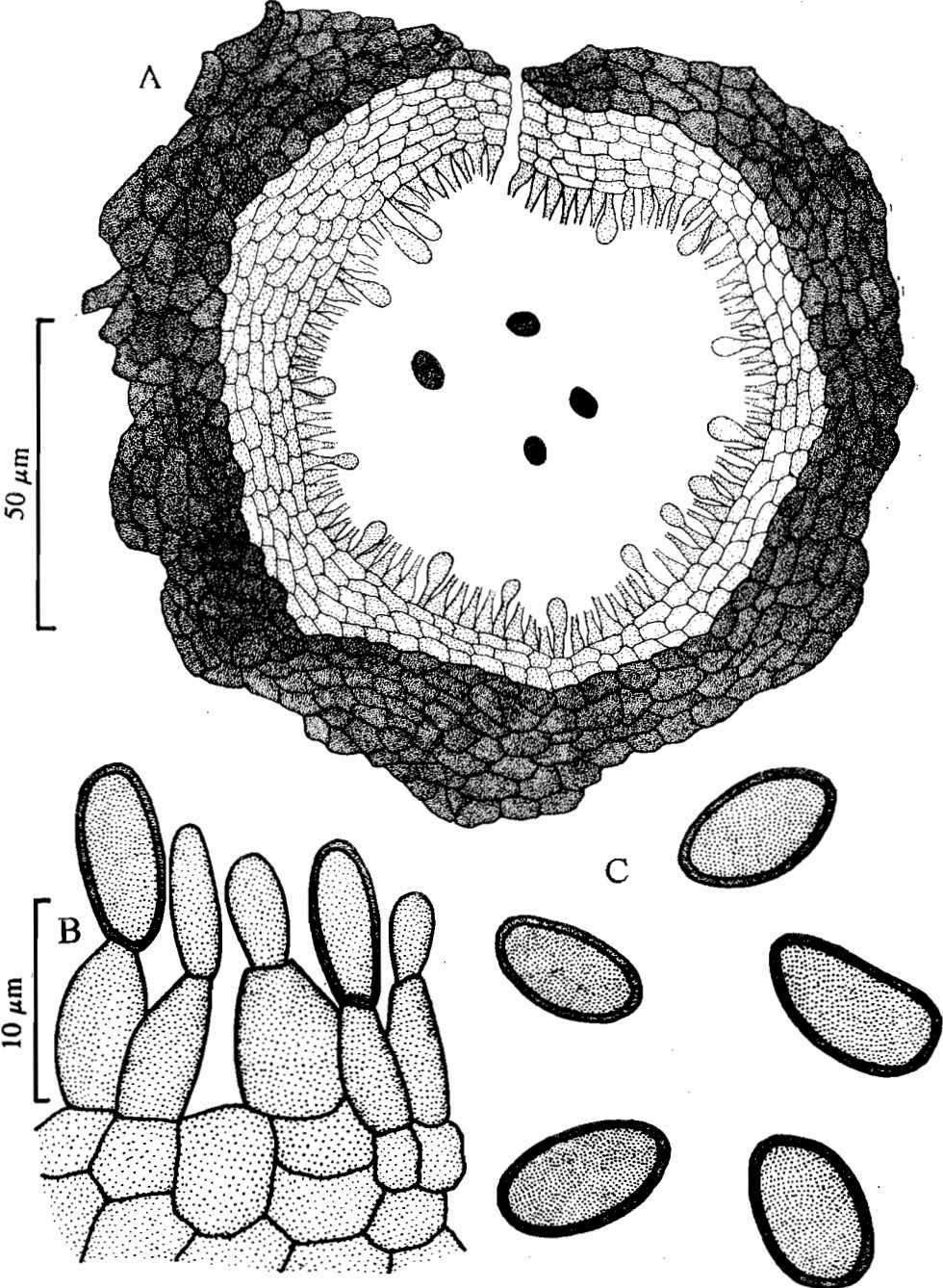


Fig. 2. *Sphaeropsis karachiensis*  
A. V.S. of conidioma, B. Conidiogenous cells, C. Conidia

*Sphaeropsis karachiensis* is distinguished from all the other Coelomycetes found on *Salvadora* by the aseptate, brown conidia with ornamentation inside the conidial wall. *Avettaea salvadorae* differs from *S. karachiensis* by its eustromatic conidiomata with paraphyses, the presence of well-developed conidiophores and globose to pyriform, aseptate, brown conidia (13.5-21.5 X 10.5-17.5  $\mu\text{m}$ ) enclosed in a mucilaginous sheath. Abbas & Sutton (1988) placed the *Sphaeropsis salvadorae* Ahmad in synonymy to *Avettaea salvadorae* (Petra) Abbas & Sutton which was based on studies of type specimens of *Haplosporella salvadorae* Petra, *Coniothyrium salvadorinum* Ahmad and on original description of *S. salvadorae* where conidial size and shape strongly favour to this change. Ahmad (1971) did not mention mucilaginous sheath around the conidia which is characteristics of the genus *Avettaea*. In *S. karachiensis*, conidia (19.2-26.4 x 10.4-12  $\mu\text{m}$ ) are bigger than in *S. salvadorae* (15.5-20.5 x 10-15  $\mu\text{m}$ ) and therefore different from each other. Similarly, the *Coniothyrium* spp., found on *Salvadora* (Abbas et al., 1999) differ in having enteroblastic, progressively proliferating conidigenous cells. Conidial morphology also differentiates them from *S. karachiensis* in that they have aseptate, brown conidia with the outer wall ornamented. *C. sultanii*, *C. sivanesanii* and *C. truncatum* differ in having oblong conidia with the outer wall ornamented and a truncate base, measuring respectively 10-16 X 5.6-8; 5.6-11.2 X 4-8.8; 5.6-6.8x4-5  $\mu\text{m}$ . These are much smaller than in *S. karachiensis*. *Coniothyrium pakistanicum* differs in its pycnidial to eustromatic conidiomata and cylindrical to oblong, smooth-walled conidia with truncate base (6.4-12 X 2.4-4.8  $\mu\text{m}$ ). Conidia are more pigmented on the apical, basal and lateral sides. *Coniothyrium undulatum* also differs in having oval to oblong-globose conidia (5.6-7.2 X 4.8-6.4  $\mu\text{m}$ ) with an uneven surface. *C. salvadorae* differs with very small (2.8-4.8x1.8-3.2  $\mu\text{m}$ ), thin-walled verruculose guttulate conidia. *C. oblongatum* also resembles *Sphaeropsis karachiensis* in that conidia are oblong, dark brown with both ends obtuse but they are smaller in size (3.7-7.8x3.6-5.6  $\mu\text{m}$ ). *Diplodia salvadorina* differs in its smaller pycnidial conidiomata (138.5  $\mu\text{m}$  diam.) and 1-septate, brown, oval, smaller conidia (14.6-21.5 X 8.6-10  $\mu\text{m}$ ). *Microdiplodia salvadorina* also differs from *S. karachiensis* by its smaller conidiomata (175-200  $\mu\text{m}$  diam.) and 1-septate, brown, oblong to ellipsoidal conidia (8-11 X 4-5  $\mu\text{m}$ ), constricted at the septum and with both ends obtuse.

*Specimens examined:*

*Sphaeropsis karachiensis* sp. nov.

On stem of *Salvadora persica*, Karachi to Hyderabad highway road, Pakistan, 8 Apr. 1964, S. Ahmad 16912c (IMI 138491c).

*Avettaea salvadorae* (Petra) Abbas & Sutton

On stem of *Salvadora oleoides*, Changa Manga, Pakistan, 25 Mar. 1950, S. Ahmad 3129 (IMI 228842), holotype. (= holotype of *Haplosporella salvadorae* Petra).

*Diplodia salvadorina* Ahmad

On stem of *Salvadora oleoides*, Ladhur, Sheikhpura, Pakistan, 8 July 1947, S. Ahmad 1863, holotype.

***Microdiplodia salvadorina* Ahmad**

On stem of *Salvadora oleoides*, Ladhur, Sheikhpura, Pakistan, 10 July 1947, S. Ahmad 1878 (IMI 16632), holotype. (no *Microdiplodia* was found).

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