

## MARINE FUNGI FROM SUNDARBANS (INDIA)- V

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The present paper deals with the marine Mitosporic fungi from Sundarbans coast. The dead and decayed samples of mangrove plants, intertidal wood, drift wood and submerged wood were collected and examined for the colonization of marine mitosporic fungi. Fifteen species belonging to Mitosporic fungi were isolated and illustrated. The key for the genus *Trichocladium* is provided.

**Keywords :** Mangroves; Marine fungi; Mitosporic fungi; Sundarbans.

### Introduction

The information on marine fungi of the Sundarbans coast is scanty. However, East coast was explored for the marine fungi by number of workers<sup>1-12</sup>. In the course of survey of marine fungi along the Sundarbans (W. B.), fifteen species of mitosporic marine fungi were collected from the dead and decaying mangrove substrates. The fungi species were illustrated in this paper.

### Material and Methods

Samples of intertidal wood of mangroves like *Avicennia marina*, *A. alba*, *Aegicera corniculatum*, *Acanthus ilicifolius*, *Bruguiera gymnorrhiza*, *Ceriops tagal*, *Excoecaria agallocha*, *Phoenix poludosa*, *Rhizophora mucronata*, *Sonneratia apetala*, and salt marsh plant *Suaeda maritima*. were collected along the coast of Sundarbans. The intertidal mangrove wood, driftwood, pneumatophores and roots along the mangrove creeks, as well as totally submerged wood or water logged were also collected at low tide by cutting or sawing off pieces of the substrates.

Collected samples were immediately placed in polythene bags and sealed well to prevent loss of moisture. On returning to the laboratory the specimens were immediately examined for the sporulating structure.

Incubated material was periodically examined for the presence of fungi, especially sporulating structures, which are required for their identification. The material was observed initially under stereoscopic Bush and Lamb microscopes. Fungi were finally observed under a research microscope.

The permanent slides were prepared as per suggested by Kohlmeyer and Kohimeyer<sup>13</sup>. The measurements of various parts of fungi were taken. The photomicrographs were taken by using Olumphus PM6 unit at Agharkar Research Institute, Pune.

The identification and confirmation of fungi was done on the basis of established publications<sup>14-19</sup>

### Result and Discussion

*Alternaria* sp.

*Conidiophores*: cylindrical, septate, simple, straight or curved, smooth, bearing conidia at the uniperforate apex, yellowish to brown, singly. *Conidia* : 26.4-29.7 x 10-16.5 µm ovoid, obclavate or ellipsoidal, muriform, constricted at the septa, smooth, olivaceous to brown.

*Habitat* : on drift mangrove wood, Frasarjanj, 9 Nov. Fig. 1.

**Notes** : - the morphology and measurements of conidia of this fungus show similarities with the description given by Kohlmeyer and Kohlmeyer<sup>16</sup>. The material of present collection is very sparse. It is a new addition to the marine fungi of Sundarbans (West Bengal).

*Cirrenalia pygmea* Kohlmeyer.

*Hyphae*: 2.2- 4.5 µm in diameter, septate, ramose, fuscous.

*Conidiophores*: obsolete. *Conidia*: acrogenous, solitary, helicoid, contorted ½ or 1 time, three or four septate, not or slightly constricted at the septa, fist-shaped or reniform, black or fuscous, fulgent (upper three cells dark, lower two or three cells are light coloured); cells increasing in diameter from base to apex, distinctly dissimilar; spirals. 25.5 – 31 x 28.5 – 36.0 µm; terminal cell 5–23 µm in diameter, subglobose to reniform, basely flattened; almost wedge shaped.

*Habitat*:- on intertidal mangrove wood, Amarabati (Bakkhali), 9 May 1999. Fig. 2.

*Distribution along the Indian coast*:- East Coast: Andhra Pradesh<sup>4,5,20</sup>; Tamil Nadu<sup>3</sup>. West Coast: Gujrat<sup>21</sup>, Pirotan Islands<sup>22</sup>; Maharashtra<sup>23-26</sup>; Goa<sup>27</sup>; Andaman and Nicobar Islands<sup>28</sup>; Lakshadwip Islands<sup>29</sup>.

**Notes**:-The present collection completely agrees with the description of *C. pygmea* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is assigned to that species. It has been recorded for the first time from the coast of Sundarbans (West Bengal).

*Cirrenalia tropicalis* Kohlmeyer

*Hyphae*: 2.5 – 5 µm in diameter, septate, superficial or



immersed, light brown. *Conidiophores*: 25 – 42 µm long, 2.5 – 5 µm in diameter, cylindrical, zero to four septate, simple, acrogenous or laterally on hyphae, often remaining connected with detached conidia, some time obsolete, straight or curved, light brown. *Conidiogenous cells*: monoblastic, integrated, terminal, determinate. *Conidia*: acrogenous, solitary, regularly or irregularly helicoid, mostly 1 to 1 ½ times contorted, rarely semicontorted, six to twelve septate, not or slightly constricted at the septa, amber to reddish – brown, cells increasing in diameter from base to apex, distinctly dissimilar, spirals 20 – 34.5 µm in diameter; terminal cell 9 – 15 µm high, 10 – 20 µm in diameter, subglobose to ellipsoidal, basally flattened; basal cells 5.5 – 10 µm high, 3-5 µm in diameter, cylindrical; central cell subglobose, obtusely conical or doliform.

*Habitats*:- on intertidal wood of *Rhizophora mucronata*, Pakhrala, 26 May 2000 Fig. 3.

*Distribution along the Indian coast*:- East Coast : Andhra Pradesh<sup>4,5,20</sup>. Lakshadweep Islands<sup>30</sup>; Andaman and Nicobar Islands<sup>29</sup>; West coast: Maharashtra<sup>31</sup>.

*Notes*:- The collection of the present fungus agrees with the description of *C. tropicalis* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is assigned to that species. It is a addition to the fungi of Sundarbans (West Bengal).

*Periconia prolifica* Anastasiou

*Conidiophores*: 5 – 200 x 2.5 µm, cylindrical, septate, simple or branched, hyaline, often forming pustules on the surface of the substrate; *Conidiogenous cells*: ellipsoidal or ovoid, hyaline, produced acrogenously. *Conidia*: 6 – 13 µm in diameter, one-celled, subglobose or ovoid, smooth, thick-walled, light brown with a reddish tint or dark brown, developing basipetally, catenulate, cells finally separating. *Habitats*: - on intertidal wood of *Rhizophora mucronata*, Pakhrala 26, May 2000. Fig. 4.

*Other specimens examined*: on intertidal wood of *Avicennia*, Jambu Dwip, 23 May 2001; on intertidal wood of *Acanthus ilicifolius*, Jambu Dwip, 23 May, 2001; Sunasda, 20, May 2001; on intertidal wood of *Avicennia marina*, Pakhrala, 26, May 2000; on intertidal wood of *A. officinalis*, Pakhrala, 26, May 2000; on intertidal wood of *Sonneratia apetala*, Pakhrala, 26, May 2000; on intertidal wood of *Suaeda maritima*, Canning, 25, May 2000.

*Distribution along the Indian coast*:-

East Coast: Andhra Pradesh<sup>4,5,20</sup>; Tamil Nadu<sup>1,3</sup>. West coast: Gujarat<sup>21</sup>. Diu Islands<sup>32</sup>; Pirotan Islands<sup>33</sup>, Daman<sup>33</sup>. Maharashtra<sup>23-25,34</sup>. Goa<sup>35,37</sup>; Karnataka<sup>36-38</sup>, Kerala<sup>37</sup>. Tamil Nadu<sup>37</sup>. Andaman and Nicobar Islands<sup>29</sup>. Lakshadweep Islands<sup>28</sup>.

*Notes*:- the description of the present collection completely agrees with the description of *P. Prolifica* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is assigned to that species. The fungus is a new addition to the fungi of

Sundarbans (West Bengal).

**Key to the species of *Trichocladium* from Sundarbans**

- 1: Conidia 1-3 septate \_\_\_\_\_ 2.
- 1: Conidia more than 3 septate \_\_\_\_\_ 3.
  - 2: Conidia 19-29 x 9-20 µm, without constriction \_\_\_\_\_ *T. linderi*
  - 2: Conidia less than 9 µm in diam., with constriction \_\_\_\_\_ 4.
- 3: Conidia 25-35 x 7-9 µm, 3-6 septate \_\_\_\_\_ *T. constrictum*
- 3: Conidia more than 9 µm in diameter \_\_\_\_\_ 5.
  - 4: Conidia 12-15 x 7-10 µm, ovoidal to subglobose \_\_\_\_\_ *T. alopallonellum*
  - 4: Conidia 6.5 – 13 x 4-9 µm, elongate ellipsoidal \_\_\_\_\_ *T. melhae*
- 5: Conidia 2-3 septate, 19-26 x 13.3-17.1 µm. \_\_\_\_\_ *T. opacum*
- 5: Conidia 3-5 septate, 20-34 x 10-24 µm \_\_\_\_\_ *T. acharasporum*

*Trichocladium acharasporum* (Meyers and Moore) Dixon  
*Conidiophores*: absent or short, zero to four septate, simple, formed laterally on hyphae, hyaline to light –brown or fuscous. *Conidia*: (blastoconidia) 20 – 34 x 10 – 24 µm, clavate, ovoid or obpyriform, two- to five- septate, constricted at the septa, straight or slightly curved, increasing in diameter from base to apex, formed singly on the conidiophores; apical cells subglobose, dark brown; basal cells conical or subhyaline to light brown to fuscous. *Habitats*: on intertidal wood of *Sonneratia apetala*, Pakhrala, 6, Nov. 2000, Fig. 5.

*Other Specimens examined*: on intertidal wood of *Bruguiera gymnorrhiza*, Amarabati (Bakkhali), 22, May 2001.

*Distribution along the Indian coast*: East coast: Andhra Pradesh<sup>4,5,20</sup>. Tamil Nadu<sup>3</sup>. West coast: Gujarat<sup>21</sup>. Pirotan Islands<sup>33</sup>. Maharashtra<sup>23-26,34</sup>. Goa<sup>27</sup>. Karnataka<sup>36,37</sup>; Kerala<sup>37</sup>. Andaman and Nicobar Islands<sup>29</sup>, Lakshadweep Islands<sup>28</sup>. *Notes*: - The description of the present collection completely agrees with description of *T. acharasporum* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is referred to that species. It has been reported for the first time from the coast of Sundarbans (West Bengal).

*Trichocladium alopallonellum* (Meyers and Moore) Kohlm. and Volkm.-Kohlm.

*Hyphae*: septate sub-hyaline to light brown: *Conidiophores*: 5 – 8 x 3-5 µm, macronematous, simple one to two celled, smooth, subhyaline to light brown, lateral, short, sometimes indistinct. *Conidia*: 12 – 15 µm long, 7-9 µm diameter, obpyriform, ovoidal or subglobose, one or two celled fuscous; when two celled, apical cell large (8 – 14 x 6 – 12 µm), ovoid fusious, basal cell smaller, obconical with conidium.

*Habitat*: on intertidal mangrove wood, Pakhrala, 8 May, 1999. Fig. 6.



**Distribution along the Indian coast:-** West coast: Gujarat<sup>21</sup>, Pirotan Islands<sup>33</sup>, Maharashtra<sup>23,31,34,39</sup>, Goa<sup>27,37</sup>; Karnataka<sup>36-38,40</sup>, Kerala<sup>37,39</sup>, Lakshadweep Islands<sup>28</sup>, Andaman and Nicobar Islands<sup>29</sup>.

**Notes:** The description and measurements of the present collection completely agrees with the description of *T. alopallonellum* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is assigned to that species. It has been collected for the first time from the coast of Sundarbans (West Bengal).

*Trichocladium constrictum* Schmidt

**Hyphae:** septate subhyaline to light brown; Conidiophores: 5 – 8 x 3-5 µm, macronematous, simple one to two celled, smooth, subhyaline to light brown, lateral, short, sometimes indistinct. **Conidia:** 25 – 35 µm long, 7-9 µm diameter obpyriform, ovoidal or subglobose, three or five celled fucous.

**Habitat:-** on intertidal wood of *Aegiceras corniculatum*, Jharkhali, 7 Nov. 2000, Fig. 7.

**Other specimens examined:** on intertidal wood of *Ceriops tagal*, Ganga Sagar, 24 May 2001.

**Distribution along the Indian Coast:** West coast: Kerala<sup>37</sup>.

*Trichocladium linderi* Crane and Shearer

**Mycelium:** composed of branched, septate, at first hyaline, later subhyaline to light brown hyphae. **Conidiophore:** micronematous, mononematous, smooth, thin-walled and hyaline or thick-walled and light brown. **Conidiogenous cells:** holoblastic, integrated, terminal or intercalary, smooth, cylindrical, determinate. **Conidia:** solitary, subglobose to obpyriform, 1-2 septate, without constrictions, 19-29 x 9-20 µm, becoming 3-6 µm wide at base, apical cell larger, dark brown to black, 12-17 µm high, basal and sub-basal cells smaller, light brown, wall unequal in height, hence the base of the conidia become curved.

**Habitats:-** on intertidal wood of *Phoenix poludosa*, Sajanakhali, 4, Nov. 2000, Fig. 8.

**Distribution along the Indian coast:-** East coast: Andhra Pradesh<sup>4,5,20</sup>. West coast: Maharashtra<sup>23-26</sup>.

**Notes:-** The description of the present collection completely agrees with the description of the *T. linderi* given by Crane and Shearer<sup>41</sup>, therefore, it is referred to that species. It is recorded for the first time from Sundarbans (West Bengal). *Phoenix poludosa* recorded as a new substrate for the present fungus.

*Trichocladium melhae* Jones, Abdel- Wahab and Vrijmoed

**Hyphae:** sub-hyaline to light brown, septate and branched. **Conidiophores:** 5-20 µm long and 2-5 µm in diam., macronematous, simple, one -two celled, light brown, lateral(apical) short. **Conidia:** dark brown to fucous and constricted at the septa. **Apical cell:** 6.5- 13 µm long and 4-9 µm diam., elongated to ellipsoidal in shape, **Middle cell:**

4-13.5 µm long and 4.5 -5 µm in diam.

**Habitat:** on intertidal wood of *Avicennia marina*, Canning, 25 May 2000, Fig. 9.

**Other specimens examined:** on intertidal mangrove wood, Sajanakhali, 4 Nov. 2000; on intertidal mangrove wood, Jambu Dwip, 23 May 2001.

**Notes:** The morphology of the present collection agrees well with the description of the *T. melhae* given by Jones et al.<sup>42</sup> hence, it is referred to that species. The fungus is reported for the first time from Sundarbans.

*Trichocladium opacum* (Corda) Hughes

**Colonies:** dark brown to black felty, vegetative hyphae brown. **Conidia:** g angiospores, produced laterally or terminally with a small conidiogenous cell: dark brown, smooth, ovate, 2-3 septate, 19-26.6 x 13.3-17.1 µm.

**Habitat:** on intertidal wood of *Rhizophora mucronata*, Pakhrala, 5 Nov. 2000, Fig. 10.

**Other specimens examined:** on intertidal wood of *Avicennia marina* Jharkhali, 7 Nov. 2000; on intertidal mangrove wood Jambu Dwip, 23 May 2001.

**Distribution along the Indian Coast:** East coast: Tamil Nadu<sup>1</sup>. West coast: Maharashtra<sup>31</sup>.

**Notes:** The description of the present collection agrees with the description of *T. opacum* given by Kohlmeyer and Kohlmeyer<sup>16</sup> hence, it is referred to that species. It makes an addition to the marine fungi of Sundarbans.

*Zalerion maritimum* (Linder) Anastasiou

**Hyphae:** 2 – 4 µm, in diameter, septate, branched, hyaline to fuscous. **Conidiophores:** 10–115µm long, 3–5.5 µm in diameter, mucronematous or semi macronematous. Slightly increasing in diameter from base to apex, simple or rarely ramose, straight or curved, cylindrical, septate, superficial, light to dark fuscous, rarely absent. **Conidia:** 19.5 – 50 µm in diameter, acrogenous, solitary, blastic, coiled in two or three dimensions, forming 1 – 5 (-6) more or less regular coils; conidial filament (3.5-) 5.5 – 12 µm in diameter, 4 – 27 (-35)-septate, slightly or strongly constricted at the septa, fuscous or almost black.

**Habitats:-** on intertidal wood *Aegiceras corniculatum*, Jharkhali, 7, Nov. 2000. Fig. 11.

**Other specimen examined:-** on intertidal wood of mangrove wood, Pakhrala, 26, May 2000.

**Distribution along the Indian Coast:-** East coast: Tamil Nadu<sup>1</sup>. West coast: Gujarat<sup>21</sup>; Diu Islands<sup>32</sup>; Daman<sup>33</sup>; Maharashtra<sup>23-26,34</sup>; Goa<sup>27</sup>; Karnataka<sup>38,40,43,44</sup>; Lakshdweep Islands<sup>28</sup>.

**Notes:-** The description of the conidia of present collection completely agrees with the description of *Z. maritimum* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is referred to the same species. It has been recorded for the first time from the Sundarbans coast (West Bengal).



*Zalerion varium* Anastasiou

**Hyphae:** septate, branched, immersed, hyaline.  
**Conidiophores:** up to 30 µm long, 2–3.5 µm in diameter, micronematous, simple, cylindrical, septate, superficial, hyaline to light olive-coloured, some time absent,  
**Conidia:** 15–65 x 13.5–56 µm, solitary, irregularly helicoid or coiled in three planes, forming a knot or ball of about 10 to 30 cells; conidial filament lateral, rarely branched or subtending an additional conidium; thick-walled, smooth, brown to dark brown, appearing black in mass; cells 5–13 x 4–10.5 µm.

**Habitats:-** on intertidal wood of *Avicennia marina*, Pakhrala, 26, May 2000, Fig. 12.

**Other Specimens examined:-** on intertidal wood of *Avicennia* sp., Pakhrala, 20, May 2000; Jambu Dwip, 23, May 2001.

**Distribution along the Indian coast:-** East coast: Tamil Nadu<sup>1,3</sup>; Andhra Pradesh<sup>4,5,20</sup>. West coast: Gujarat<sup>21</sup>; Diu Islands<sup>32</sup>. Daman<sup>33</sup>; Maharashtra<sup>23,24,26,34</sup>. Goa<sup>27</sup>. Karnataka<sup>38,43,44</sup>. Andaman and Nicobar Islands<sup>29</sup>. Lakshdweep Islands<sup>28</sup>.

**Notes:** The description of the present collection agrees well with the description of *Z. varium* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is referred to the same species. It has been recorded for the first time from the coast of Sundarbans (West Bengal).

*Camarosporium roumeguerii* Saccardo

**Pycnidia:** 90–210 µm high, 85–260 µm in diameter, globose to ellipsoidal or lenticular, immersed, ostiolate, short papillate, coriaceous, yellow-brown to olivaceous, darkest around the ostiole, solitary or gregarious; venter filled with a mucilage, especially in the ostiolar canal. **Peridium:** 7–12 µm thick at the base, 12–20 µm at the ostiole, composed of up to four layers of thin-walled cells with large lumina, dark on the outside, almost hyaline near the venter, forming *textura angularis*. **Paraphyses:** simple, filiform, hyaline, non-septate. **Conidiogenous cells:** phialidic, flask shaped, one celled, hyaline, originating along the inner-wall of the pycnidium. **Conidia:** 10–20 x 7–13 µm; ontogeny enteroblastic, monopialidic; initially one celled, hyaline, maturing in the center of the pycnidial venter; mature conidia subglobose, ovoid, ellipsoidal or irregular, muriform, with (one to) three transverse and one or two longitudinal or oblique septa, slightly constricted at the septa, composed of two to eight cells, smooth, gold-ochraceous, or olive-brown, without appendages or gelatinous sheath (irregular flocculates of mucus deriving from pycnidial cavity may adhere to conidia).

**Habitat :-** on intertidal wood of *Avicennia alba*, Ganga Sagar, 10 May 1999, Fig. 13.

**Other specimens examined:-** on Intertidal mangrove wood

of *Avicennia* sp., Amarabati (Bakkhali), 6, Nov. 2001.

**Distribution along the Indian coast:-** East Coast :- Andhra Pradesh<sup>4,5,20</sup>. West Coast: Gujarat<sup>21</sup>; Maharashtra<sup>26,34</sup>.

**Notes:-** The description of the present collection completely agrees with the description of the *Camarosporium roumeguerii* given by Kohlmeyer and Kohlmeyer<sup>16</sup>, therefore, it is referred to that species. It is the addition to the fungi of Sundarbans (West Bengal).

*Phoma* sp.

**Pycnidia:** 72–118 µm high, 100–154 µm in diameter, subglobose to ellipsoidal, short papillate or epapillate, coriaceous, light, solitary or gregarious. **Peridium:** composed of an outer layer with thick-walled, dark cells and an inner layer with hyaline cells bearing conidiogenous cells. Papillae about 15 µm in diameter, ostiolar canal about 10 µm in diameter. **Conidiogenous cells :** 5–8 µm long, phialidic, flask shaped, hyaline, originating along the inner wall of the peridium similar to the inner cells of the peridium. **Conidia :** 4–6 x 1–1.5 µm, ellipsoidal to subglobose, one-celled, often biguttulate, hyaline, originating in basipetal succession.

**Habitats:** on intertidal mangrove wood, Canning, 25 May 2000, Fig. 14.

**Other specimens examined:** on intertidal mangrove wood Pakhrala, 25 May 2000.

**Notes:-** It has been reported for the first time from the coast of Sundarbans (West Bengal).

*Phomopsis mangrovei* Hyde

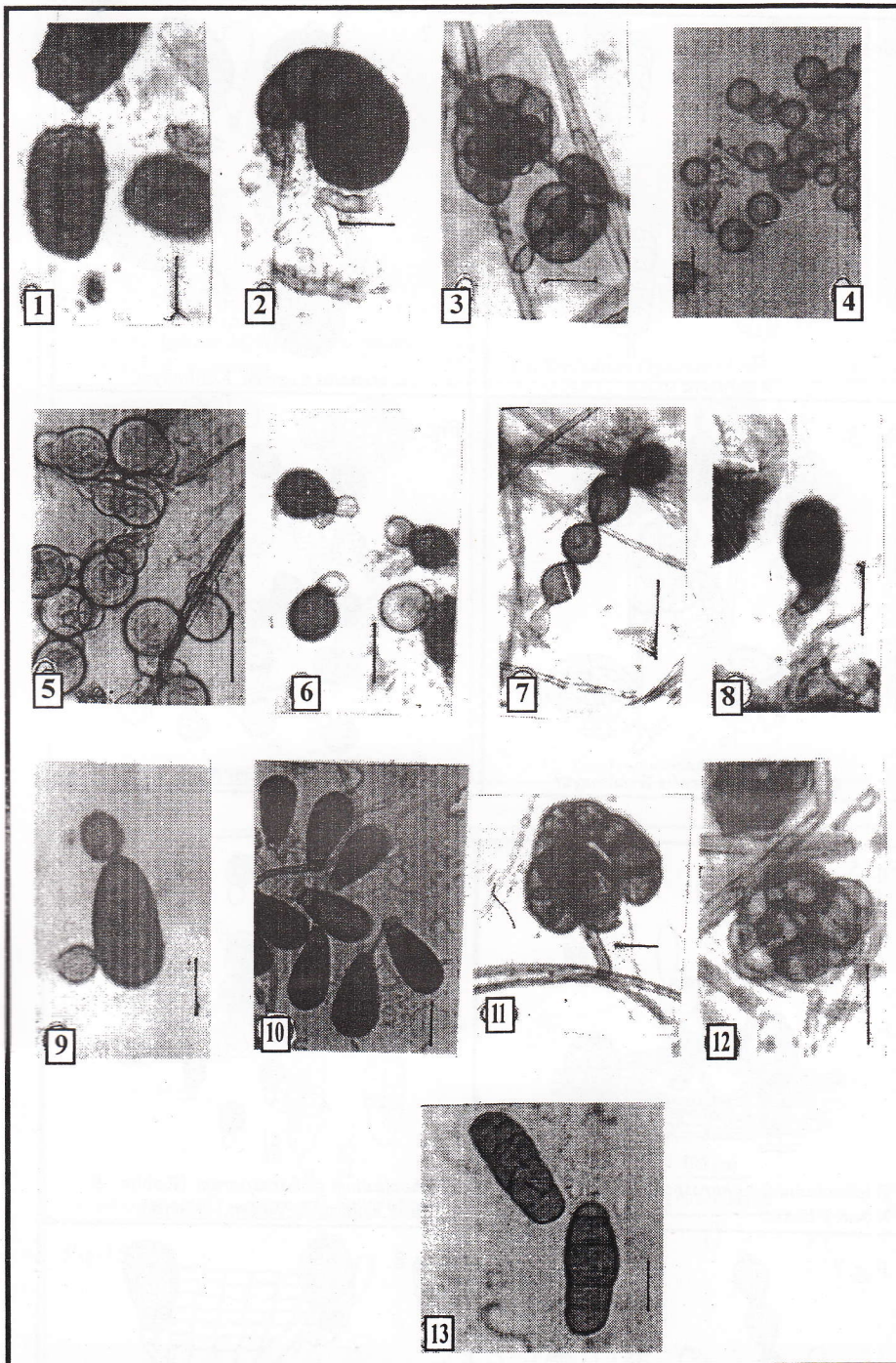
**Conidiomata:** ellipsoidal or subglobose, 225–436 µm long, 115–208 µm wide and 162–260 µm high, estromatic, immersed, black, separate or aggregate in groups of 2–3, unilocular, thick walled of *textura angularis*, darker in the region and lined with a layer of highly melanized smaller celled tissue. **Ostioles:** single, circular, non-papillate. **Conidiophores:** upto 52 µm long, branched, stout or filiform, septate at the base with 0–3 septa above, hyaline, formed from the inner cells of the locular walls. **Conidiogenous cells:** phialidic, e terminate, integrated, hyaline, cylindrical, collateral channel and periclinal thickening minute. **Conidia:** holoblastic, of one type only, 9–16 x 2.5–3.5 µm, hyaline, fusiform or ellipsoidal, straight, 0–3 guttulate, aseptate, rounded at one end with a truncate scar at the base.

**Habitat:** on intertidal wood of *A. marina*, Ganga Sagar, 8 May 2000, Fig. 15.

**Distribution along the Indian coast:** - East coast: Andhra Pradesh<sup>4,5,20</sup>. West coast: Gujarat<sup>21</sup>. Maharashtra<sup>6</sup>. Andaman and Nicobar Islands<sup>29</sup>.

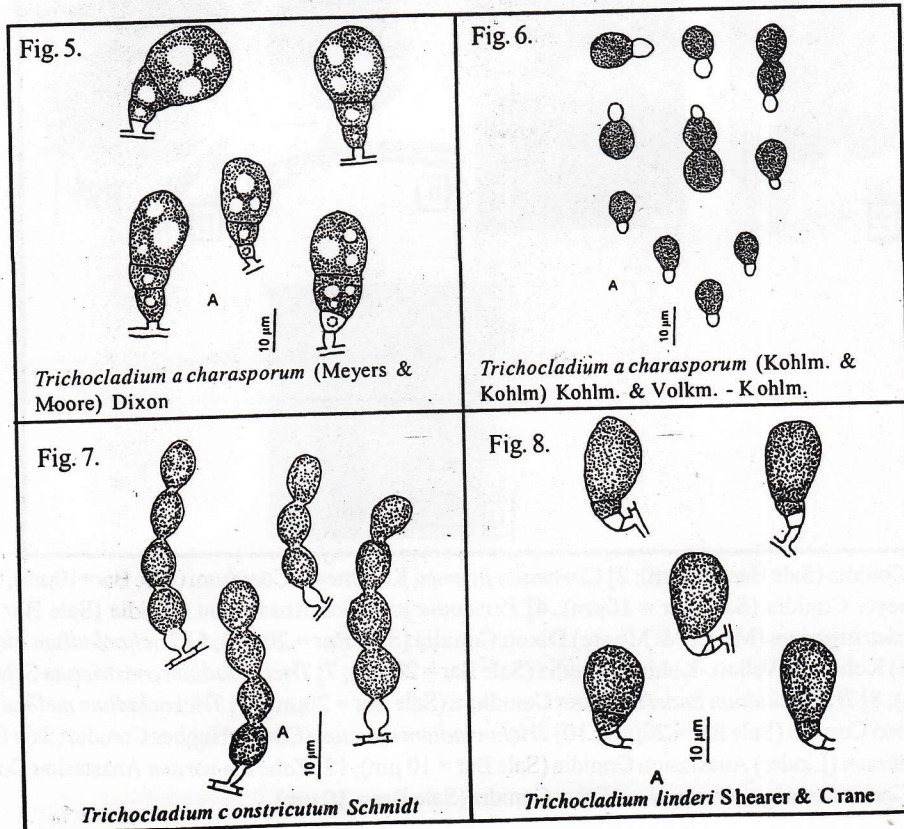
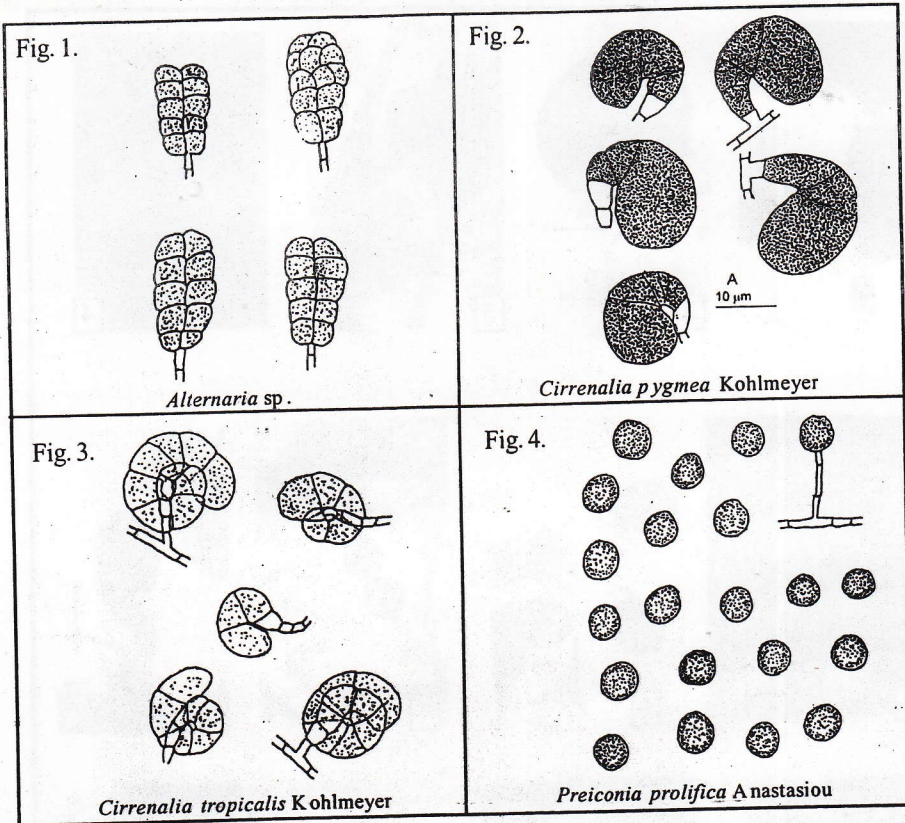
**Notes :** Hyde<sup>45</sup> collected the fungus on *Rhizophora* sp. In the present collection it was isolated from *Ceriops tagal*. It is an addition to the fungi of Sundarbans (West Bengal).

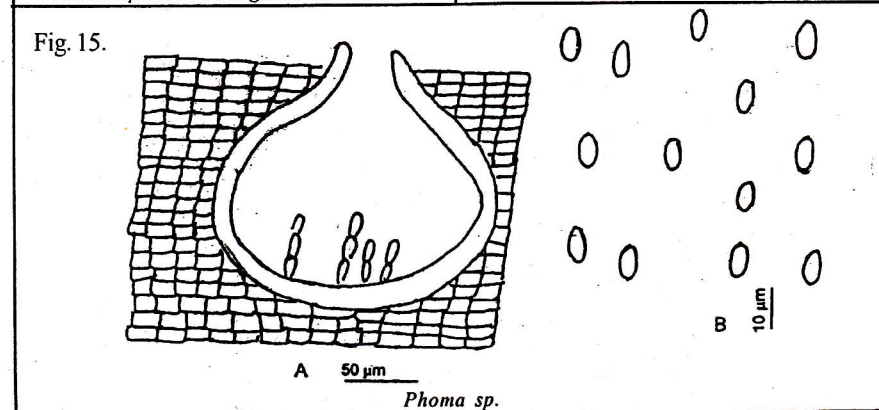
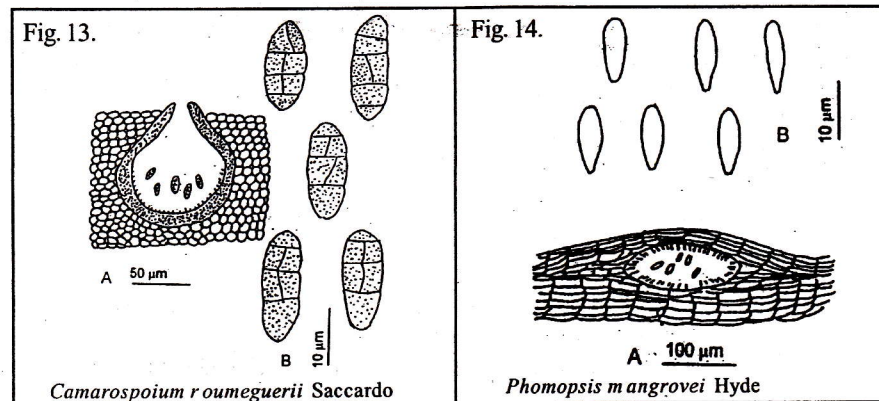
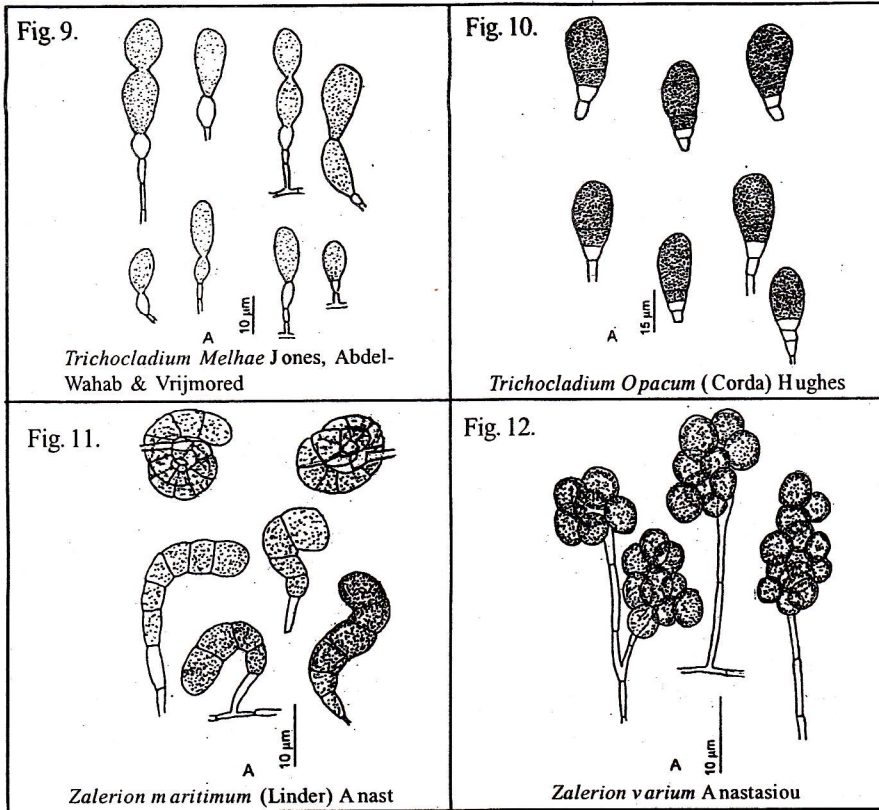




1] *Alternaria* sp. Conidia (Sale Bar = 15 $\mu$ m); 2] *Cirrenalia pygmaea* Kohlmeyer Conidium (Sale Bar=10 $\mu$ m); 3] *Cirrenalia tropicalis* Kohlmeyer Conidia (Sale Bar = 10 $\mu$ m); 4] *Periconia prolifica* Anastasiou Conidia (Sale Bar = 20 $\mu$ m); 5] *Trichocladium acharasporum* (Meyers & Moore) Dixon Conidia (Sale Bar = 20 $\mu$ m); 6] *Trichocladium alopallonellum* (Meyers & Moore) Kohlm. & Volkm.-Kohlm. Conidia (Sale Bar = 20 $\mu$ m); 7] *Trichocladium constrictum* Schmidt Conidia (Sale Bar = 20 $\mu$ m); 8] *Trichocladium linderi* Shearer Conidium (Sale Bar = 20 $\mu$ m); 9] *Trichocladium melhae* Jones, Abdel - Wahab & Vrijmoed Conidia (Sale Bar = 20 $\mu$ m); 10] *Trichocladium opacum* (Corda) Hughes Conidia (Sale Bar = 20  $\mu$ m); 11] *Zalerion maritimum* (Linder) Anastasiou Conidia (Sale Bar = 10  $\mu$ m); 12] *Zalerion varium* Anastasiou Conidium (Sale bar = 20 $\mu$ m) 13. *Camarosporium roumeguerii* Sacc. Conidia (Sale Bar = 10  $\mu$ m).









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