

IMPORTANCE OF ANATOMY IN SYSTEMATICS OF POLYPORACEÆ

By S. R. BOSE

Carmichael Medical College, Calcutta

Received for publication on September 15, 1944

IN the course of my continuing systematic study of Bengal Polyporaceæ, I have found the following anatomical characters to be of additional help in discrimination of species besides the characters of basidia and spores. Species are grouped under each distinctive character with text-figures (free-hand drawings from hand sections) in some cases.

1. (a) ENCRUSTED CYSTIDIA

1. *Polyporus zonalis* Berk.
2. *P. violaceo-cinereus* Petch.
3. *Polystictus elongatus* Berk.
4. *P. abietinus* (Dicks.) Fries.
5. *P. personatus* B. & Br. (Fig. 1).
6. *Lenzites striata* Swartz.
7. *L. adustus* Massee.
8. *L. subferruginea* Berk.

1. (b) SIMPLE CYSTIDIA (NOT ENCRUSTED)

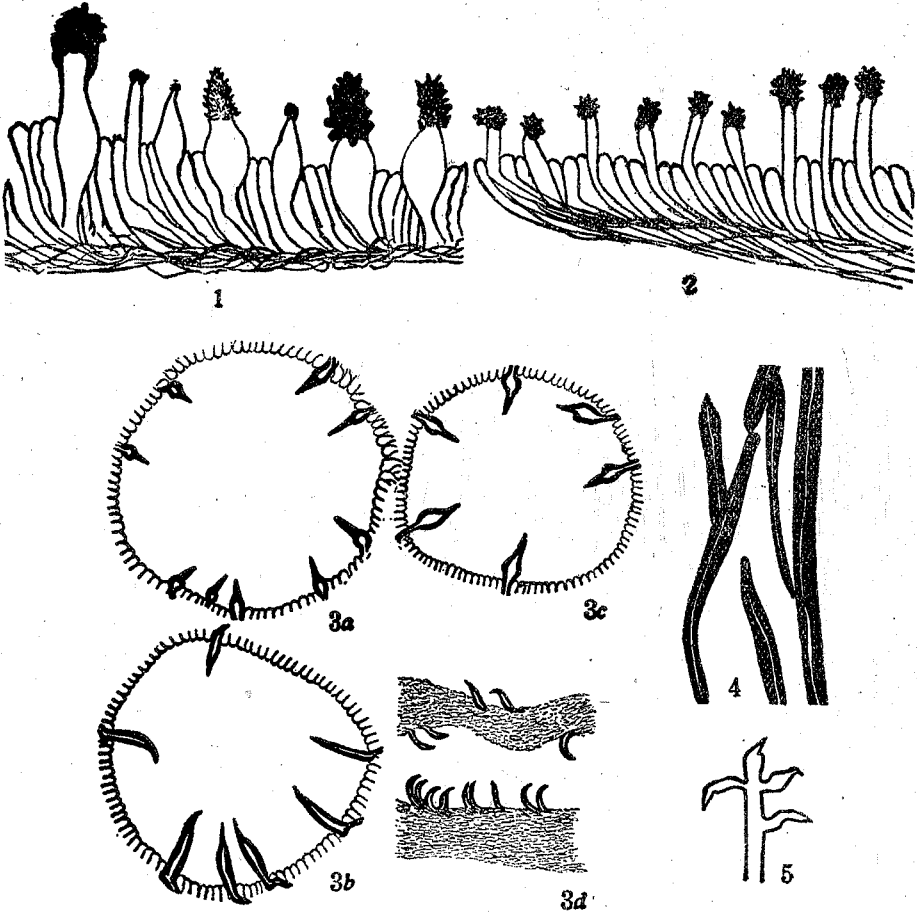
1. *Polyporus agariceus* Berk.
2. *Trametes floccosus* Bres.

1. (c) ENCRUSTED HYPHÆ

1. *Polyporus cervino-gilvus* Jungh.
2. *Trametes versatilis* Berk. (Fig. 2).

2. (a) SETÆ IN THE HYMENIAL LAYER

1. *Polyporus gilvus* Schwein.
2. *P. gilvus* forma *gilvodes* (Schw.) Fr.
3. *P. gilvus* forma *licnoides* (Mont.) Lloyd.
4. *P. cuticularis* (Bull.) Fries.
5. *P. calcuttensis* Bose.
6. *P. hookeri* Lloyd.
7. *P. radiatus* (Schw.) Fr.
8. *Polystictus cichoriaceus* Berk.
9. *P. tabacinus* Mont.
10. *P. xeranticus* Berk.
11. *Fomes conchatus* (Pers.) Fries. (Setæ bulbous at the base) (Fig. 3 a).
12. *F. pachyphlaeus* Patouill.
13. *F. lamaensis* (Murr.) Sacc. & Trott.



14. *F. hornodermus* (Mont.) Cooke. = *F. sulcatus* Cooke.
15. *F. senex* Nees & Mont. (Fig. 3 b).
16. *F. setulosus* Lloyd.
17. *F. caryophylli* (Rae.) Bres. (Few short setæ in new growths).
18. *F. igniarius* (L.) Fr. (Fig. 3 c) (Subulate and ventricose setæ, tubes becoming whitish with deposits of lime with age).
19. *Polyporus circinatus* Fries. (Fig. 3 d) (Setæ mostly curved at the apex).

2. (b) NO SETÆ IN THE HYMENIAL LAYER

1. *Fomes durissimus* Lloyd.
2. *F. fastuosus* Lév.
3. *F. rimosus* Berk.
4. *F. pectinatus* Klotzsch.
5. *F. pinicola* Fr.

6. *F. melanoporus* Mont.
7. *F. fomentarius* (L.) Fr.

2. (c) SETÆ EMBEDDED IN THE TRAMA

1. *Polyporus calcuttensis* Bose.
2. *Fomes pachyphlæus* Patouill. (Fig. 4).
3. *F. lamaensis* (Murr.) Sacc. & Trott.

2. (d) PRESENCE OF CURVED SETÆ ON THE UPPER SURFACE
OF THE PILEUS

1. *Polyporus cuticularus* (Bull.) Fries.
2. *P. calcuttensis* Bose (Fig. 5).

3. A HYALINE CELLULAR INTERRUPTED LAYER ON THE
UPPER SURFACE

1. *Fomes senex* Nees & Mont.
2. *Polyporus gilvus* forma *licnoides* (Mont.) Lloyd.
3. *P. gilvus* forma *gilvodes* (Schw.) Fr.
4. *P. gilvus* Schwein.
5. *Fomes fastuosus* Lév.
6. *F. pectinatus* Klotz.
7. *F. merrilli* (Murr.) Sacc. et Trott. (Fig. 6).
8. *Polyporus hookeri* Lloyd.
9. *Fomes durissimus* Lloyd.
10. *Favolus scaber* Berk. & Broome.
11. *F. brasiliensis* Fr.

4. RESINOUS PALISADÉ-LIKE TISSUE ON THE UPPER SURFACE

- *1. *Ganoderma lucidus* (Leyss.) Fr. (Fig. 7).
2. *Amauroderma rugosus* Nees.
3. *Fomes subresinus* Murril.
4. *Ganoderma colossus* (Fr.) Bres.

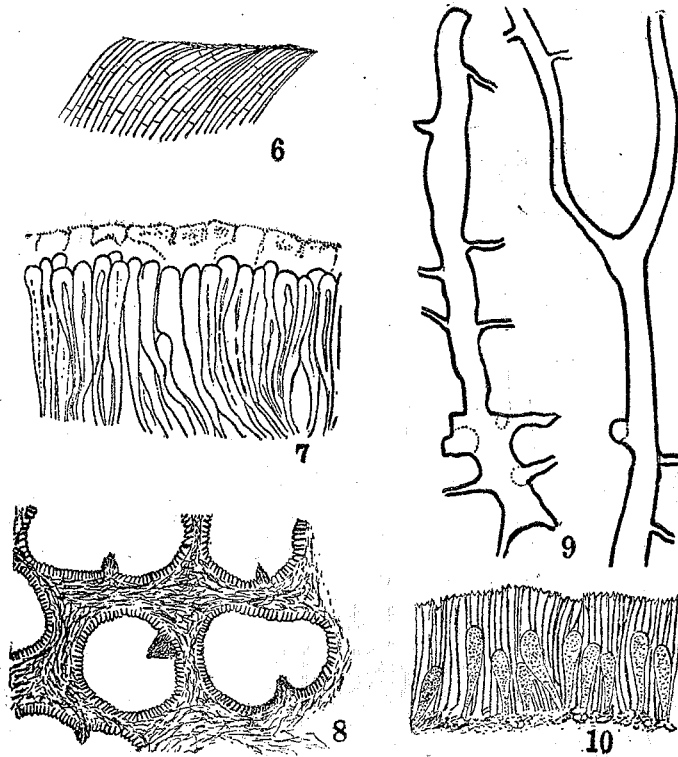
5. NO PALISADÉ-LIKE TISSUE ON THE UPPER SURFACE,
WHICH IS NON-RESINOUS

1. *Ganoderma applanatum* (Pers.) Pat.
2. *Fomes* (*Ganoderma*) *leucophæus* Mont.

By rubbing the upper surface with alcohol it can be seen that *Ganoderma lucidus* and *G. colossus* present a sticky and shining upper surface while *G. applanatum* and *Amauroderma rugosus* and *F. leucophæus* will show a non-sticky and dull (*i.e.*, non-resinous) upper surface.

In *Ganoderma lucidus* when spore-discharge is very brisk, the colour of the hymenial surface is ash gray, then it turns whitish, and when the spore-discharge stops the colour becomes brownish.

* Bose, S. R., *Mycologia*, Vol. 25, 1933.



6. INDENTED OR LACERATED MARGINS OF THE GILLS AND
PORE-MOUTHS.

1. *Lenzites striata* Swartz.
2. *Favolus brasiliensis* Fr.
3. *F. scaber* Berk. & Broome.

7. HYPHAL PEGS (CLUSTERS OF CLOSELY AGGLUTINATED HYPHÆ
IN THE FORM OF PROJECTIONS) INSIDE THE PORE-TUBES WHICH
NEVER BEAR BASIDIA ON THEM

1. *Polyporus thwaitesii* Berk.
2. *P. graminecephalus* Berk. (pegs of low cone-form) (Fig. 8)
3. *Polystictus hirsutus* Fr. (We find majority of hill specimens of *P. hirsutus* have greater number of hyphal pegs than those of specimens collected from the plains.)
4. *P. sanguineus* (L.) Mey.
5. *P. versicolor* (L.) Fr.
6. *P. vinosus* (Berk.) Cooke.
7. *Favolus brasiliensis* Fr. (pegs of extremely low cone-form)
8. *Trametes serpens* Fr. (Poria)

9. *Hexagonia apiaria* Pers.
10. *H. discopoda* Pat. & Har.
11. *Dædalea unicolor* (Bull.) Fr.
12. *Polystictus zonatus* Fr.
13. *P. xeranticus* Berk.
14. *P. steinheilianus* Berk. & Lév. (pegs of cylindrical form).

N.B.—Some of the hill specimens of *Trametes lactinea* contain a few hyphal pegs in their pore-tubes, while *T. lactinea* collected from the plains does not usually show any hyphal pegs in the pore-tubes.

8. ELONGATED THICK-WALLED CONDUCTING CELLS IN THE CONTEXT AND TRAMA

1. *Polyporus sulphureus* (Bull.) Fr. (Fig. 9).

* 9. THICK-WALLED AND DEAD FRINGE-HYPHÆ COVERING THE HYMENIUM

1. *Trametes lactinea* Berk. (in some cases).
- *2. *Dædalea flavida* Lév. (fringe-hyphæ with bifurcated apices) (Fig. 10).
3. *D. stereoides* Fr. (fringe-hyphæ with tapering apices).
4. *D. quercina* (L.) Pers. (fringe-hyphæ with bifurcated apices).
5. *Hexagonia discopoda* Pat. & Har.

In perennial species of Polyporaceæ growth takes place either (I) from the living hyphal tissue *at the base* of the sporophore, completely covering the entire hymenial surface; thus a stratified sporophore is formed (as in many Fomes, some Polypores, etc.); or (II) from the living hyphal tissue *at the margin* of the sporophore; thus an applante sporophore is produced showing the new zones added year after year.

Specimens of Polyporaceæ can be distinguished from specimens of *Hydnum* by bearing groups of basidia at the bases of pore-tubes in longitudinal section, whereas in *Hydnum* species basidia are not found between the bases of spines, such bases remaining distinct.

REFERENCE

- Overholts, L. O. . . "Research Methods in the Taxonomy of the Hymenomycetes," (1929) *Proc. Internat. Congress of Plant Sciences*, 2: 1688-1712.

* Bose, S. R., *Ann. Mycol.*, Vol. 36, 1938.