

Figure 2. *Niesslia mulleri*—perithecium.

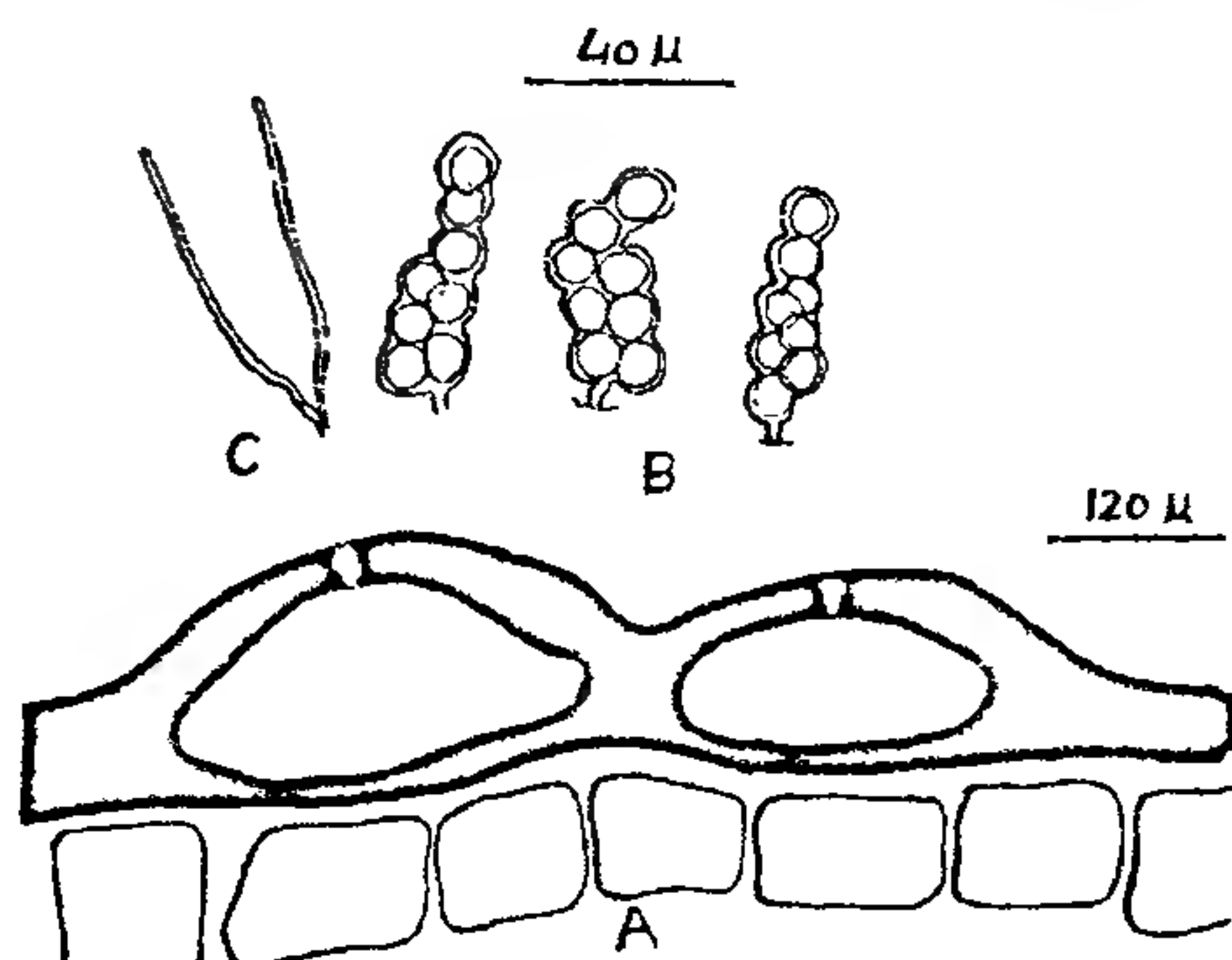


Figure 3. *Phyllachora balansae*. A, V.S. of ascostroma; B, asci with ascospores; C, paraphyses.

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1. Bilgrami, K. S., Jamaluddin and Rizwi, M. A., *Fungi of India, Part I, List and References*, Today and Tomorrow's Printers and Publishers, New Delhi, 1979, p. 467.
2. Bilgrami, K. S., Jamaluddin and Rizwi, M. A., *Fungi of India, Part II, Host Index and Addenda*, Today and Tomorrow's Printers and Publishers, New Delhi, 1981, p. 128.
3. Dennis, R. W. G., *British Ascomycetes*, 3301 Lehre, Verlag Von J. Cramer, 1968, p. 455.

MORPHOLOGICAL AND ECOLOGICAL OBSERVATIONS ON *STIGEOCLONIUM FARCTUM*—CHAETOPHORALES, CHLOROPHYCEAE

TASNEEM FATMA

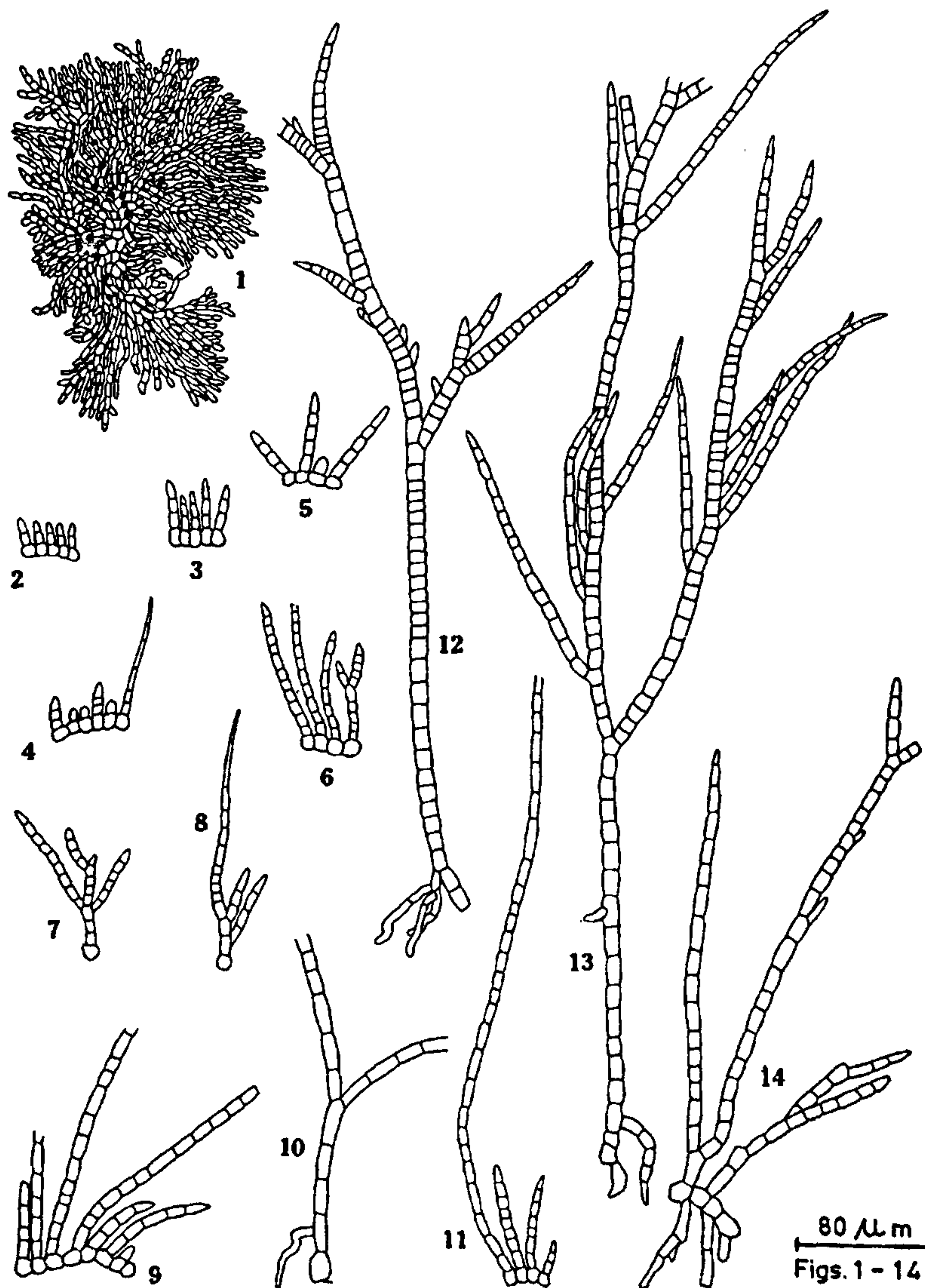
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DURING hydrobiological studies of freshwater ponds of Lucknow, the author observed *Stigeoclonium farctum* with enigmatic morphology. It could not therefore be identified for a long time and was thought to be the vegetative thallus of *Coleochaete pseudosoluta* (an oogamous chaetophoralean member). Its morphological plasticity and physico-chemical preferences are described here.

S. farctum was found growing epiphytically on submerged macrophytes (*Hydrilla*, *Chara* and *Ceratophyllum*) and submerged discarded polythene sheets. Thallus was heterotrichous, consisting of well-developed prostrate and erect systems. The prostrate system was composed of creeping filaments of restricted growth, giving rise to prostrate lateral filaments in an irregular manner, which rebranched, becoming as long as the main filament. The lateral prostrate filaments were so close to one another that they appeared as a pseudoparenchymatous disk, like the vegetative thallus of another discoid chaetophoralean member, *Coleochaete pseudosoluta* (figure 1). The prostrate cells in the central region were more or less angular or isodiametric but somewhat cylindrical towards the periphery. After a few months, some cells of the mature prostrate system started to give rise to erect filament initials, which looked like small beads on the surface of the prostrate thallus (figure 1). Later, these cells developed into short erect filaments (figures 2–8). Again, after a few months, the thallus looked different altogether like *Stigeoclonium*, with an extensively developed erect system with a range of morphological variability, ranging from unbranched to alternately branched, unilaterally branched to dichasially branched filaments (figures 2–14). Branch tips ended bluntly (figures 2, 3, 5, 6 and 7) or in multicellular hairs (figures 4, 8).

Both prostrate system cells (figure 14) and erect system cells (basal) gave rise to rhizoids (figures 10, 12 and 13). Rhizoids developing from terminal cells of the prostrate system could not be observed (cf. ref. 1).

The prostrate system cells in the central region



Figures 1-14. *Stigeoclonium farctum*. 1, Well-developed prostrate system with young erect filament initials; 2-14, different stages in the development of erect filaments.

were more or less angular or isodiametric, but towards the periphery they were somewhat cylindr-

ical. In general, prostrate system cells were 6-9 (12.5) μm broad, and 5-10 (14) μm long. The erect

Table 1 Physicochemical tolerance limits of *S. farctum*

Parameter	Concentration (mg/l) (except 1 and 2)
pH	7.5–8.5
Temperature	19–34°C
Dissolved oxygen	3.2–11.2
Total organic matter	7.7–115.2
Total alkalinity	24.0–208.0
Alkalinity to phenolphthalein	ND–24.0
Total hardness	36.0–176.0
Calcium	16.0–76.0
Magnesium	1.0–24.3
Carbonate	ND–12.0
Bicarbonate	24.4–170.8
Chloride	28.0–108.0
Free and saline ammonia	ND–13.0
Albuminoid ammonia	ND–10.8
Nitrate nitrogen	1.8–10.7

ND, Not detectable.

system cells were cylindrical, 4–6 (8) μm broad and 5–15 μm long in young filaments, and 5–27.5 μm long in mature filaments.

The alga has been identified as *Stigeoclonium farctum*. It resembles 'strain 5–30' (in width of erect filament cells) and 'strain 7–17' (in nature of hair, presence of extensively developed erect filaments and the length of erect filament cells) of Cox and Bold¹.

Monthly water analysis and studies on Chaetophorales of four freshwater ponds of Lucknow during a whole year revealed that *S. farctum* could not grow throughout the year in all the ponds. In pond I, it was present from August to June, in ponds II and III from October to June, and in pond IV only during September to November. The first three ponds are situated in villages and receive different types of effluents while pond IV is situated in the city and receives urban and industrial effluent. The ranges of physicochemical factors favourable for *S. farctum* are given in table 1 (ref. 2).

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2. Anonymous, *Methods of Sampling and Test (Physical and Chemical) for Water used in Industry*, Indian Standard Institution, New Delhi, 1964.

HELICOUBISIA CORONATA, NEW TO INDIA

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DURING a study of fungi associated with decomposing leaf litter of *Eucalyptus* species in South India a helicosporous fungus was collected from dead fallen leaves of *E. tereticornis* and subsequently identified as *Helicoubisia coronata* Lunghini & Rambelli. This rare and interesting helicosporous hyphomycete was originally collected on dead stems from the Ivory Coast by Lunghini and Rambelli¹. Since then further collections of this monotypic fungus have not been reported. Our collection represents the first made outside the type locality and constitutes a valuable addition to Indian fungi. A brief description of the fungus is given below.

Colonies effuse, hairy. Conidiophores macronematous, scattered, straight, simple, dark brown below, paler above, 6–9-septate, up to 110 μm long, 5–7 μm thick at the base and 3–4 μm thick towards the apex. Conidiophores terminating into 3–4 sporogenous cells bearing short denticles, 4–6 \times 3–5 μm , olivaceous brown. Conidia acropleurogenous, coiled,



Figure 1. *Helicoubisia coronata* Conidiophore with young and mature conidia ($\times 700$).