SOME EPIZOIC ALGAE FROM SOUTHERN IRAQ

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Substratum is one of the important factors for the growth and distribution of the benthic algae. There are evidences that some benthic algae show preferences for specific types of substratum, while some others do not show substratum preference, particularly those growing in streams and rivers (Whitton 1975). Shells of live turtles and molluscs are special types of substrata which are often found colonized by different benthic forms to be called epizoic algae. The species of *Basicladia* are known to be specifically epizoic on the backs of turtles although they may occur on other hard surfaces (Prescott 1961, Proctor 1958, Islam & Alam 1980).

The present study of some epizoic algae is based on the collections of the following live animals in February and March 1981 : turtle, *Mauremys caspica* (Gmelin), the Caspian Terrapin, from the river Abul Khasib ; the bivalve *Corbicula fluminalis* (Muller) and the gastropod *Theodoxus jordani* (Swerby) from the Shatt al-Arab river near Basrah city, and *Melanoides tuberculata* (Muller) from the river Shafi (these molluscan animals were identified as per Ahmed, 1975). The survey of all the shells of above animals revealed the presence of the following genera and species. This is probably the first report on the occurrence of epizoic algae from the shells of aquatic animals in Iraq.

Descriptions of the algae

CHLOROPHYTA : Order Cladophorales

1. *Basicladia chelonum* (Collins) Hoffman & Tilden (Islam & Alam 1980 ; Prescott 1961 ; Proctor 1958).

Thallus forming green tufts or bushy patches almost all over the back of the turtle ; green erect filament upto 2 cms or little more in length, attached to shell by rhizoids and prostrate green branched filaments from which the erect filaments grew ; cells of erect and prostrate filaments contain compact reticulate chloroplasts with many pyrenoids ; cells of erect filaments cylindrical, narrower and many times longer than broad and gradually becoming shorter and broader towards the upper end from which the zoospores liberate by median pore ; cells 28-60 μm broad and 44-815 μm long ; cell wall 3.5-9 μm thick and lamellate. (Figs. 1-13).

From the shell of *Mauremys caspica* (Gmelin).

Our plants, although fit well with the above species, show variation with respect to prostrate filaments with ramifications from which the erect filaments also grow. At some places the plastids were found to be coming out of the cell by lateral pore on the wall (Fig. 8). The cause and consequence of this have not, however, been ascertained.

2. *Cladophora glomerata* (L.) Kuetz. (Islam & Alam 1980 ; Prescott 1961).

Alternate branching dominant ; cells of main axis 36-100 μm broad and 2½-20 times longer than broad.

On the shells of *Corbicula fluminalis* and *Theodoxus jordani.*

3. *Cladophora profunda* Brand. fa. (Islam & Alam 1980). Opposite branching dominant, sometimes two branches originate from same side and several forming whorls ; cells cylindrical and also irregularly swollen or subcylindric ; cells of main axis 29-57 μm broad, 7-12 times longer than broad. Similar plant has been shown by Islam & Alam (1980, P1. 1, Figs. 5 & 6) from the shells of molluscs from Bangladesh.

From the shell of *Melanoides tuberculata* (Muller).

4. *Lola implexa* (Harv.) Hamel (= *Rhizoclonium implexum* Harvey) (Islam 1973).

Filaments unbranched, dull green, entangled within *Basicladia* filaments ; cells long, cylindrical, slightly contorted with undulate cell wall, 14-18 μm diam. and 17.5-52.5 μm long. (Figs. 14-15).

On the shell of turtle.

Order : Oedogoniales :

5. *Oedogonium* spp. Four different vegetative forms of *Oedogonium* were found on the shells, but could not be identified due to lack of mature oospore formation.

Two of the sterile forms were found on the turtle and other two on the gastropods.

CYANOPHYTA : Order Nostocales

6. *Lyngbya lutea* (Ag.) Gomont (Desikachary 1959 ; Islam 1973). Filaments unbranched, entangled within *Basicladia* filaments, upto 10.5 μm broad, very long, bluish green, more or less straight ; cells rectangular or near quadratic, not constricted, upto 10 μm diam., 7.5 μm long ; apical cell blunt and broad, not tapering, 10 × 10.5 μm ; sheath thin, colourless (Fig. 16).

7. *Nodularia* sp. Filaments unbranched ; vegetative cells bluish, about 2 μm long, 7 μm without sheath and 8.8 μm with sheath broad ; heterocyst 8.8 μm diam., 4 μm long ; akinetes reddish brown, subspherical, 3-5 in a row. (Fig. 17).

On the shell of turtle. Only a few fragments of this alga were found which are tentatively placed under this genus.

Of all the above species *Basicladia chelonum* was the dominant one and followed by sterile *Oedogonium* spp. and *Lola implexa* on the back of turtle. On the shells of molluscs only *Cladophora* spp. were dominant.

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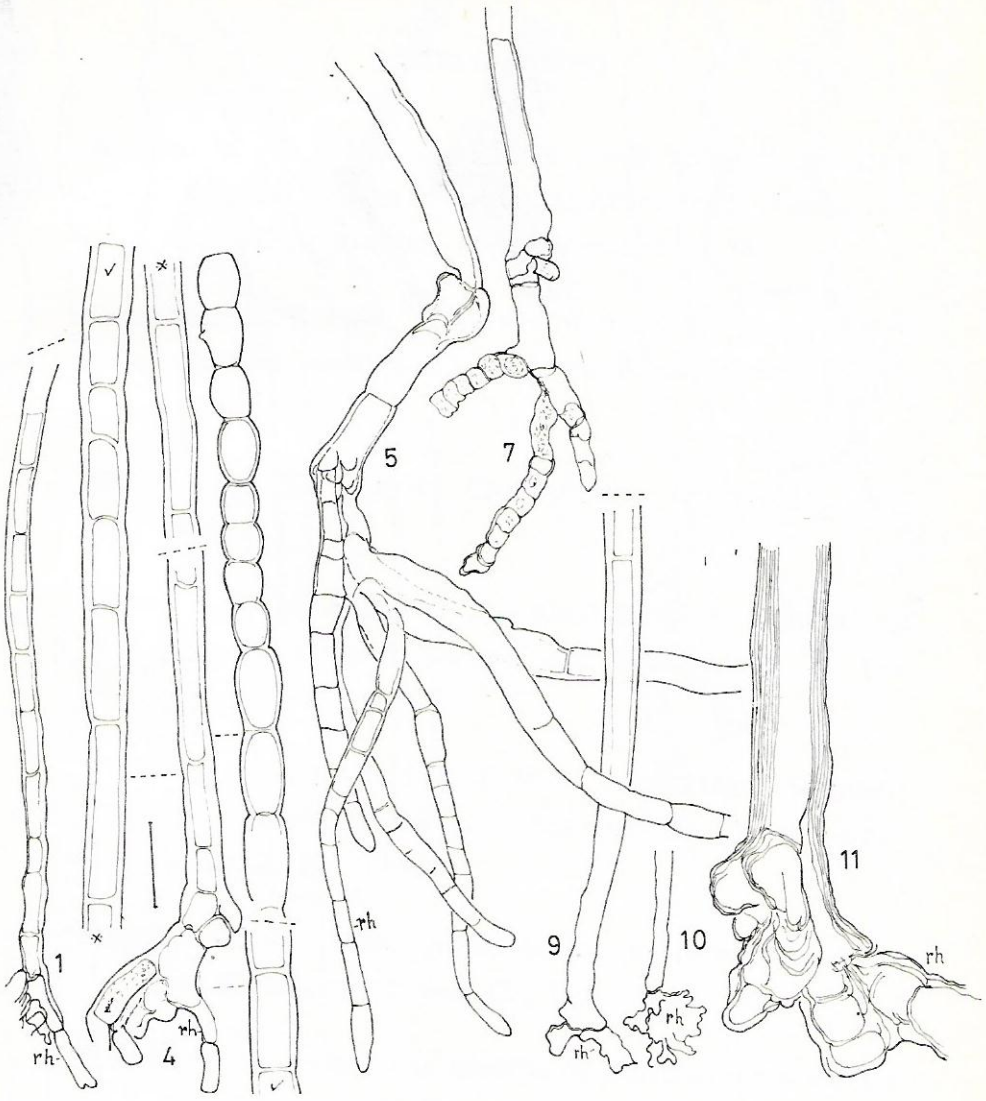
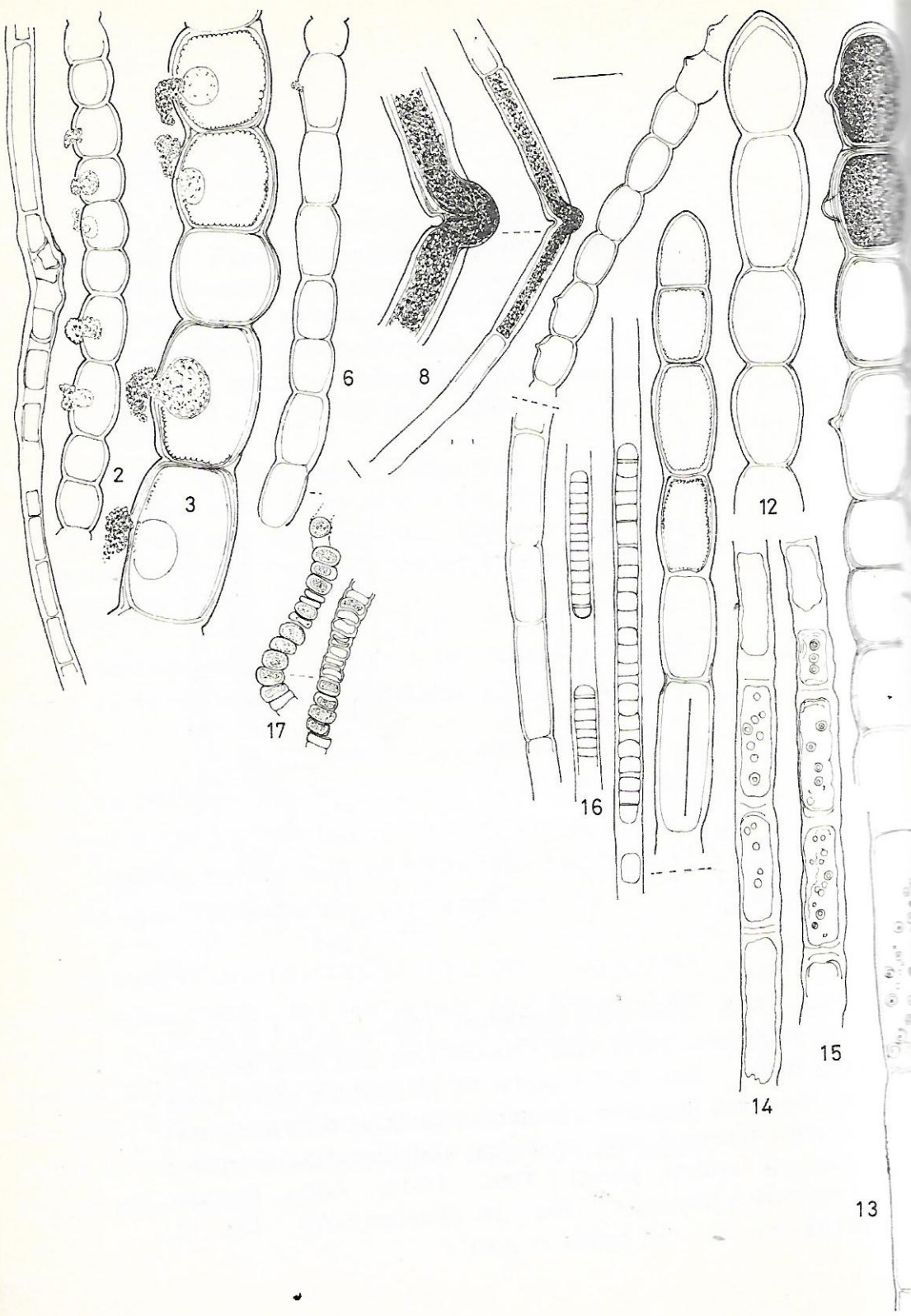


Figs. 1-13. *Basicladia chelonum* (figs. 1, 4, 5, 7, 9, 10, 11, showing basal parts with rhizoids (rh) and basal branching habit ; figs. 2, 3, 6, 9, 11, 12, 13, showing upper parts of the green filaments with long culindrical cells and short swollen terminal cells producing and liberating zoospores through lateral pores) ; Figs. 14-15. *Lola implexa* (vegetative filaments) ; Fig. 16. *Lyngbya lutea* ; Fig. 17. *Nodularia* sp. (all scales = $\mu\times$).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