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COMMENSALIC ALGAE FROM SNAIL SHELLS

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Commensalic association is characterized by the growth of one organism upon other without harming it. Commensalism of algae with fishes, turtles and snails has been described (Prescott, 1951; Tiffany & Britton, 1952; Moski, 1957 a,b). Algae growing on turtle and snail shells have been reported from Pakistan (Anjum *et al.*, 1980; Hussain & Anjum, 1982). The present communication is a further contribution to the commensalic algae from Peshawar valley. The location and climatic conditions of the valley is given by Sarim & Faridi (1976).

Living as well as dead shells of *Bensonies jaquemonti, Macrochlamys* sp., *Monacha* sp., and *Succinea putris* infested with algal growth were collected during April-May, 1980 from different parts of Peshawar valley, preserved in 3% formaline and identified.

Twenty-nine species (Table 1). belonging to Chlorophyceae (10 spp.), Cyanophyceae and Bacillariophyceae (each with 9 sp.) and Xanthophyceae (1 spp.) were identified from the shells. The association of these algae with the shells might be due to their preference or tolerance for lime rich habitats. Some of the algae viz., *Cladophora glomerata, Nitzschia amphibia Oscillatoria formosa, Phormidium fragile,* species of *Gomphonema, Lyngbya* and *Navicula* have previously been reported on turtles from Peshawar (Anjum *et al.*, 1980) and snail shells from Khuzdar (Hussain & Anjum, 1982) while the remaining species are common in waters of Peshawar valley which might be due to their wide ecological range or tolerance towards calcium rich habitats. The cyanophycean members occupy diversified habitats presumably due to their primitive behaviour and ecological amplitude. Species of *Cladophora, Cosmarium, Navicula, Oscillatoria, Phormidium, Stigeoclonium* and others recorded from soils, fresh and saline waters would suggest that their association is not obligatory with the shells.

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TABLE 1. Commensalic algae from snail shells of Peshawar Valley.

I. CLASS CYANOPHYCEAE
1. *Chroococcus minor* (Kütz.) Näg.
2. *Lyngbya* sp.
3. *Microcoleus* sp.
4. *Nostoc* sp.
5. *Oscillatoria curviceps* Ag.
6. *O. formosa* Bory
7. *Phormidium fragile* (Menegh.) Gomont
8. *P. retzii* (Ag.) Gomont
9. *Spirulina laxissima* West, G.S.

II. CLASS CHLOROPHYCEAE
1. *Chlorococcum minutum* Starr
2. *Chlorohormidium flaccidum* (Kg.) Fott
3. *Cladophora glomerata* (L.) Kg.
4. *Cosmarium moniliforme* (Turpin) Ralfs
5. *Microspora quadrata* Hazen
6. *Protococcus viridis* Ag.
7. *Protoderma viride* Kütz.
8. *Rhizoclonium hieroglyphicum* (Ag.) Kütz.
9. *Stigeoclonium longipilum* Kütz.
10. *Ulothrix zonata* (Weber & Mohr) Kütz.

III. CLASS XANTHOPHYCEAE
1. *Heterococcus longicellularris* Pitsmann

IV. CLASS BACILLARIOPHYCEAE
1. *Cocconies* sp.
2. *Cymbella cymbiformis* (Kütz.) Bréb.
3. *C. ventricosa* Kütz.
4. *Diatoma vulgare* Bory
5. *Gomphonema* sp.
6. *Navicula* sp.
7. *Nitzschia amphibia* Grun.
8. *Surirella* sp.
9. *Synedra ulna* (Nitzsch.) Ehrenberg

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