research. People also observe and complain about a veil of secrecy in the government administrative culture. We have to consider a series of steps to bring about professionalism and transparency in the management of every sector.

v) In policy formulation, decision making, preparation of developmental plans and implementation, scientists and technologists must be enabled to play an important role. We may consider how this can be achieved. The vision 2020 documents may be examined for providing a basis for future planning.
vii) We must bring to bear upon our agricultural practices all modern developments in S and T and substantially increase the output from unit area of land and unit volume of water and promote large-scale employment, improving the purchasing power of the people is a prerequisite for industrial development.

C. Subramaniam lives at ‘Riverview’, Kotturpuram, Chennai 600 085, India.

SCIENTIFIC CORRESPONDENCE

Life history and culture studies of Monostroma oxypermum (Kutz.) Doty (Monostromataceae, Chlorophyceae) growing in estuarine conditions along the central west coast of India

Monostroma (Chlorophyceae) specimens collected specially from mangrove ecosystem of Shrigao creek (Ratnagiri, Maharashtra), Terekhol creek (Goa) and Kali estuary (Karwar, Karnataka) were found to be M. oxypermum (Kutz.) Doty on the basis of the following observations: thallus prostrate, forming mats in muddy substrata, 20–40 × 15–20 cm in size (Figure 1), monostromatic with frill margins, 20–24 μm thick, outer margin yellowish at maturity, thallus cells polygonal, 10–15 × 18–20 μm (Figure 2) in surface view with single parietal chloroplast and one pyrenoid. The zoospores (swarms) are liberated, biflagellate, 5–7 × 2–4 μm in size, flagella of the same length. In culture swarms become round, losing flagella and subsequently develop a germination tube (Figure 3). Fusion does not take place among the zoospores. Division of cell in swarms takes place after 4–5 days, the upper cell forming the uniseriate filament and the lower rhizoidal development (Figure 4). Cyst formation does not take place at any stage. Further divisions in the filament are in vertical and transverse plane, resulting in about 1–2 months, in a satchet-like thallus (Figure 5), which becomes monostromatic (Figure 6). On reaching a size of 3–4 cm in about 3–4 months, sporangia develop on the surface (Figure 7) and liberate the swarms. Cytological studies of the thallus and swarm cells revealed the chromosome number to be 8–10 (Figure 8). There is no alternation of generation. The species contain high level of carbohydrates and can be recommended for economic exploitation, as it can be easily cultivated on a large scale, the growth rate being 0.32 g per day.

The species has earlier been reported from swamps and brackish waters in substrips by Boergesen1 and Abbott and Hollenberg2. Life history of different species of Monostroma has been described by Tatewaki3. Another species of Monostroma occurring in Okha coast,
A survey of impact and evaluation of water pollution on reservoir fisheries in Kumaun Himalayas, India with special reference to micro-organisms

Water pollution in the reservoirs of the Kumaun Himalayas has been studied with special reference to micro-organisms. Impact and evaluation of the micro-organisms were extensively studied on fish. Various diffuse and point sources of water pollution have been found, which are responsible for the deterioration of the surface water. Various water-borne diseases are prevalent in the fish. Fungal attack on fish is a potential threat to the reservoir fishery.

Kumaun Himalayas is a north-west region of UP, lying between 28°41' and 30°49'N lat. and 78°45' and 81°1'E long., which abounds in several natural and artificial water resources such as rivers (Gori and Kali, Gomti, Gaula, Kosi, Dabka, etc.); natural lakes (Nainital, Bhimtal, Naukuchiyatal, etc.); and artificial reservoirs (Jamarani, Nandkhsagar, Begul, Haripura, Dhaur and Tumaria). These water resources have long been explored for irrigation, hydroelectric power and fisheries. Water quality of all these resources especially lakes and reservoirs has been deteriorating due to disposal of garbage, religious offering, sewage, recreational and constructional activities in the catchment areas.

Reservoirs, artificial ecosystem characterized by the existence of both lentic and lotic components, constitute the prime inland fishery resources in the south-east India. The deterioration of surface water quality has incontestably brought a massive increase in fish mortality. Contaminated water provides shelter to a variety of diverse micro-organisms such as planktons, bacteria, actinomycetes, viruses and fungal populations which occur as opportunistic potential pathogens of aquatic organisms such as fish. Watermolds, the zoosporic fungi, are constant and ubiquitous component of the aquatic environment and are a continual challenge to fish.

The present communication summarizes (i) the pollution level of the important reservoirs with special reference to the micro-organisms, and (ii) effects of micro-organisms on fish.

A large number of infected fry and adults of fish were collected every month with nylon nets and brought to the laboratory. Fresh living fish collected by the fish department of the UP government were also inspected for mycotic infection. Water samples were also collected in sterilized bottles and analysed for the physicochemical and microbiological parameters.

A small portion of the mycelium from the infected portion of the fish was removed with the help of a sterile forceps and washed thoroughly with sterile distilled water. It was then placed in a petri dish containing 20 ml of sterile distilled water and baited with different

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GEETANJALI DESHMUKHE
V. K. DHARALKAR
A. G. UNTAWALE

Biological Oceanography Division,
National Institute of Oceanography,
Dona Paula, Goa 403 004, India