

The Occurrence of the Red Alga *Bangia fuscopurpurea* (Dillwyn) Lyngbye (Bangiales - Rhodophyta) from the Malvan Coast (Maharashtra), India

Arvind G. Untawale

National Institute of Oceanography, Dona Paula, Goa-403 004.

ABSTRACT

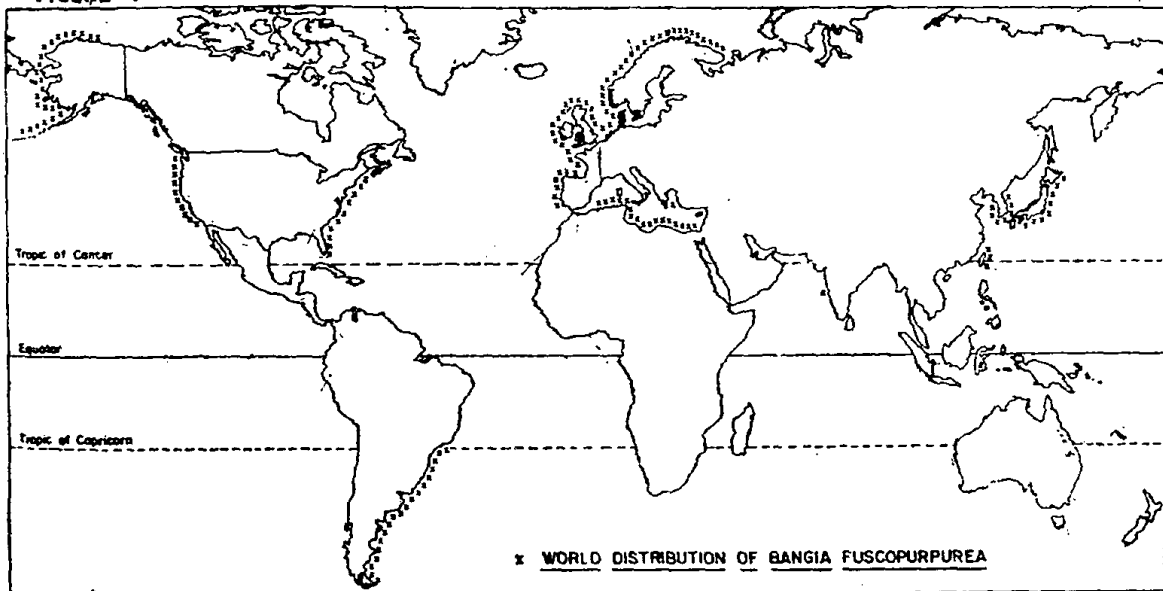
BANGIA FUSCOPURPUREA (Dillwyn) Lyngbye (Bangiales-Rhodophyta) was collected from Malvan along the Maharashtra coast. It was found growing in the upper supralittoral fringe on a rocky coast during monsoon months (June to September) associated with *PORPHYRA VIETNAMENSIS*. Various factors responsible for the growth of this alga along with the vegetative and reproductive structures are discussed.

INTRODUCTION

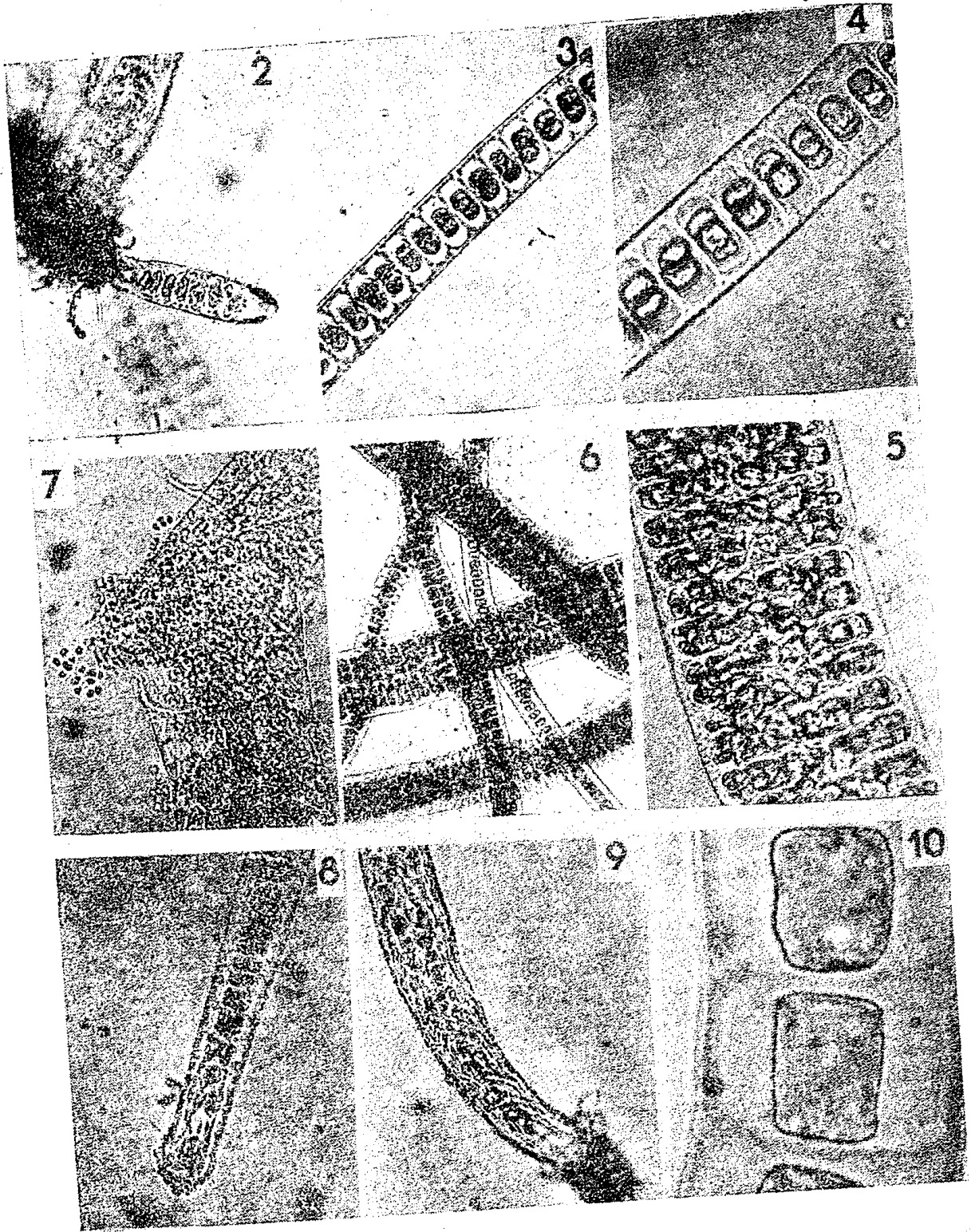
The marine red algal species *Bangia fuscopurpurea* (Dillwyn)* Lyngbye has not been reported from the Indian coast so far. It has been reported earlier from Formosa (Taiwan), Korea, Japan, Canada, Bering

sea, Alaska, Pacific coast of North America, Atlantic coast of North America, South America, Europe, North sea, Libya as well as in the Arctic area of Norway (fig.1), as indicated by Tokida (1954).

FIGURE 1



* Geesink (1973) provides experimental evidence supporting the synonymy of *B. FUSCOPURPUREA* with *B. ATROPURPUREA*.



B. fuscopurpurea was collected from Malvan coast of Maharashtra (India) during the southwest monsoon season (June to September) in 1981. It grows in the upper littoral along with *Porphyra vietnamensis*. Jassund (1957) has also reported the association of *Porphyra* and *Bangia* from the exposed coasts in the arctic region of Norway. The present report is a first record of the genus *Bangia* and its species *B. fuscopurpurea* from the Indian coast and the Indian Ocean.

MATERIAL AND METHODS

The alga was collected in 1981 from Malvan Coast of Maharashtra (India). Voucher specimens of it are deposited at the National Institute of Oceanography, Dona Paula, Goa. Photomicrographs showing various morphological and reproductive structures were taken of the formalin preserved specimens.

OBSERVATIONS AND DISCUSSION

The alga is a small filamentous plant, 30 to 40 mm tall, found growing on the rocky substratum of the extreme supralittoral fringe, particularly during southwest monsoon. This zone usually receives the spray of the breaking waves. The cells of the filaments are greater in width than in height. The width of the cells varies from 40 to 60 μm or about 150 μm or more according to the position of the cell in the apical or basal portion as well as young uniseriate or mature multiseriate filaments. These filaments are unbranched and they are attached to the substratum by a discoid holdfast. The interesting feature is that the basal cells of the filaments

develop nonseptate rhizoid-like tubular outgrowths which descend down towards the holdfast through thick gelatinous walls (fig. 9). It has been observed that this type of rhizoidal growth can take place from 30 to 40 cells above the holdfast.

The growth of the filament takes place by intercalary divisions of the cells as well as by divisions of a dome shaped apical cell. Apart from the horizontal division of the cells, vertical divisions also take place resulting in a multiseriate condition at irregular intervals.

The Indian plant of *B. fuscopurpurea* produces three types of spores, the monospore which is formed singly in each cell, medium sized spores usually 4 per cell and somewhat sickle shaped and spores which are very small in size, as compared to the earlier types, and in larger number (figs. 4 - 7).

The monospore is released by the dissolution of the gelatinous wall on one side. However, the minute spores which are many in number, are generally released by dissolution of the cell wall in one line, so that entire filament is unfolded or dehisced and the spores are released.

Lin *et al.*, (1977) are of the opinion that asexual monospores produced by the two different phases, *Bangia* and *Conche-celis* are different in their characters. It has been opined by Dawes (1981) that the sexual reproduction is lacking in this species because the chromosome numbers in both the phases are same. Formation of monospores from the undifferentiated cells has been discussed by Drew (1956),

The reproduction in Bangiophyceae with the help of micro-and macroplanospores has been discussed by Dixon (1973). The third type of spore formation as suggested by Drew (1936) by successive divisions of the spore mother cell and

the wall formation at 2 or 3 planes at right angles was noticed in *B. fuscopurpurea*. In short the reproduction in this particular species seems to be still confusing and needs further studies.

Literature

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| Cole, K., and
Conway, E. | 1980 | <i>Bot. Mar.</i> , 23 : 545 - 53 |
| Dawes, C. J. | 1981 | <i>Marine Botany</i> , John Wiley & Sons, New York |
| Dixon, P. S. | 1973 | Biology of the Rhodophyta, Otto Koeltz Science Publishers
Koenigstein, W. Germany |
| Drew, K. M. | 1956 | <i>Bot. Rev.</i> , 22 553 - 611 |
| Fritsch, F. E. | 1945 | <i>The Structure and Reproduction of Algae</i> . vol II, Cambridge
Univ. Press |
| Jassund, E. | 1957 | <i>Bot. Gothoburg</i> , 4 : 1 - 174 |
| Lin, H. P., and
M. R. Sommerfeld | 1977 | <i>9th Intern. Seaweed Sympo. st. Barbara U. S. A.</i> Abstract
No. 233, Page - 41 |
| Reinke, J. | 1978 | <i>Jahrb. Wiss. Bot.</i> , 11 : 274 - 282 |
| Tokida, J. | 1954 | Mem. Fac. Fish, Hokkaido Univ. Hakodate, Japan, 1 - 264 |

ACKNOWLEDGEMENTS

Author wishes to record his sincere thanks to the Director, National Institute of Oceanography, Dona Paula, Goa for his encouragement and facilities.