CHAPTER - VIII

SUMMARY AND CONCLUSION
BGA, an unusually well defined group of organisms of undoubted antiquity are widespread in present day ecosystems. A detailed systematic and ecological study of cyanobacterial flora available in different habitats of greater Guwahati was undertaken. During this research 142 number of species belonging to 40 genera had been identified and described. The family wise availability were: 46 Oscillatoriaceae, 33 Chroococcaceae, 26 Nostocaceae, 14 Rivulariaceae, 10 Scytonemataceae, 6 Stigonemataceae and two each of Pleurocapsaceae and Nostochopsidaceae and one each of Entophysalidaceas, Chamaesiphonaceae and Dermocarpaceae, 63 forms are new additions to the existing list of BGA of the State of Assam.

The genus Oscillatoria emerged to be the most dominant BGA and found to occur throughout the year in different habitats including industrial effluents and could resist high temperature and high light intensity.

The appearance and growth of blue-green algae in general seemed to have a direct relation with the onset of monsoon or the summer months or both together.

Paddy field harboured the maximum number of BGA species (72), followed by hills (45), ditches (29), beel/pond (19) and stream (12) respectively. Variations in available number might be accounted for availability of water and climate having high humidity, favourable soil texture suitable pH value and the presence of organic substance in the habitat.

It was seen, that above 50.70% of total BGA species collected were found in paddy fields alone and out of these 48.61% were heterocystous BGA forms.

The percentage of similarity was found to be less than 25, indicating the extent of
diversity of cyanobacterial flora in different habitats of greater Guwahati area.

Greater Guwahati area had a great diversity of BGA. They occurred in diverse habitats but one habitat had emerged to be the tropical paddy fields.

The dominance of BGA started with the onset of rainy season and maximum dominance of species and genera took place in the month of October, particularly in the neutral to alkaline media and in the paddy fields containing high organic carbon and high nitrate value.

Further, during the spring, no water accumulated over the soil, so no vegetative or colonial growth of BGA was possible. It might be the reason for lowest frequency of BGA during that season. Physical factors like temperature and light intensity regulated seasonal appearance of algal forms.

Variation in species diversity and dominance of cyanobacteria depended on the stage of the life cycle of rice plants. In general, the initial period of field preparation and transplantation showed dominance of non-nitrogen fixers; evidently a consequence of absence of crop canopy and availability of nitrogen applied as basal dose.

Hydrogen ion concentration (pH) emerged as an important factor, which directly influenced distribution and frequency of BGA. This study revealed that pH of water ranged between 6.6 - 8.7 which favoured predominance of BGA.

Most of the BGA preferred diffused sunlight. In direct sunlight, the BGA migrated into shady places. In the paddy field, they thrived under the crop canopy and in the stream they preferably remained under water, to avoid incident light.

The favourable temperature for the growth of BGA ranged between 29 - 33°C and maximum number of species (44.67%) occurred between 31 - 33°C.
Less number of BGA (2.11%) were found in industrial effluents. However, no blue-greens were found in the refinery outlet at Pandu and it was due to presence of high phenolic compounds, oil/grease, and low dissolved oxygen.

It may be concluded that due to favourable topographical and climatological factors, greater Guwahati offers suitable habitats for growth of large number of BGA with a lot of diversity. A large number of BGA must have lost in the course of time due to anthropogenic pressure and some more are being endangered by now. So more and more research are needed to save these tiny but very economically important plants, which in the long run would prove to save human from present day uncurable disease.

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