A CULTURE COLLECTION OF CYANOBACTERIA (BLUE-GREEN ALGAE)

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Cyanobacteria or Blue Green Algae are considered the most primitive algae in existence. They are autotrophic, prokaryotic organisms generally blue-green in colour due to the presence of chlorophyll-a together with unique phycobilin pigments c-phycocyanin and or c-phycoerythrin. They are mostly free living but a few have established symbiotic relationships with all other major groups of plants. Cyanobacteria are ubiquitous in distribution, common in aquatic and moist habitats while a few are terrestrial. Many species fix atmospheric nitrogen and contribute significantly to the sustenance of soil fertility. Some are planktonic primary producers, which are a source of food to certain other organisms, but a few are toxin producers and these toxins could be lethal to certain animals including man. They are also common inhabitants of polluted environments and form blooms in water bodies due to eutrophication. These organisms therefore produce both beneficial and detrimental effects, are frequent primary colonizers of barren land and warrant extensive study. One of the basic requirements for the study of this important group is a collection of these organisms isolated from their diverse habitats. This presentation reports on the progress so far made in the establishment of such a culture collection.

Samples collected from diverse habitats such as water bodies, paddy fields, moist soil, drains, parapet walls etc. located in different parts of the country, were brought to the laboratory. They were first examined under the light microscope and the cyanobacterial taxa observed were recorded. Aliquot sub-samples were inoculated under aseptic conditions into culture media with and without combined nitrogen and incubated under light (1.875-2.625 Wm^{-2}) and room temperature (27 $\pm 2^0C$). Further isolation and purification from these initial cultures were done by periodic observations and sub-culturing into fresh media. Once unialgalcultures were obtained they were identified to the genus level after thorough microscopic examination. The identified isolates were labeled, transferred onto agar slants and stocked for future use.

Out of a total of 209 isolates prepared during the period under review, 150 have been purified into monoculture stage. Of these, 28 are unicellular and the rest are filamentous, 27 without and 95 with cell differentiation. Among those with cell differentiation, 40 are unbranched, 23 show false branching while 32 show true branching. 63% of the isolates are nitrogen-fixing types indicating that the potential for nitrogen fixation may be widespread in our habitats.