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Morphological diversity of Cyanobacteria from Northern Sri Lanka

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Cyanobacteria are gram negative photosynthetic prokaryotes with most widespread phylogenetic groups previously known as blue- green algae. Their occurrence ranges from tropical desserts to cold dry valleys. Sri Lanka has rich cyanobacterial diversity. This study was aimed to investigate the occurrence of diverse groups of cyanobacteria from Northern part of Sri Lanka. Water samples (n=32) were collected from tube wells (n=9), house hold wells (n=7) and paddy fields (n=16) from Thenmarachchi (n= 18), Vadamarachchi (n=11) and Valikamam (n=13) areas in Jaffna district. Sterile containers were used for water sample collection. Soil samples (n=10) was also collected in cleaned polythene bags. 50ml water sample and 2g soil sample with 15ml distilled water was centrifuged separately at 3500 rpm for 15 minutes. 500 µl of supernatant and pellet from water sample and 500 µl supernatant from soil sample were inoculated in BG11 medium and allowed at 28 ±2°C with fluorescent light with intensity of $4.8 \times 10^{-4} \text{cm}^{-2} \text{W} - 5.9 \times 10^{-4} \text{cm}^{-2} \text{W}$ at a 16:8-h D/L cycle. Samples were grown in both solid and liquid media. Pure cultures were obtained for morphological observation. Photo documentation was carried out. *Chroococcus*, *Anabaena*, *Gleocapsa*, *Lymnothrix* and *Spirulina* were observed in Thenmarachchi and Valikamam areas. *Synechococcus*, *Nostoc*, *Merismopedia* and *Leptolynbya* were observed in Valikamam and Vadamarachchi while *Microcystis*, *Synechocystis*, and *Oscillatoria* were observed in all three areas. Twelve genera were observed and among them seven genera were observed in water samples collected from paddy fields, three genera from well waters and two genera were from soil samples. *Microcystis*, *Anabaena*, *Nostoc*, *Leptolynbya* and *Oscillatoria* are potential cyanotoxin producers. Occurrence of potentially toxic cyanobacteria in water bodies were observed and better knowledge about cyanobacterial diversity is necessary before using these waters for human consumption.

Keywords: Cyanobacteria, cyanotoxin, morphology, Sri Lanka