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Micro algae of Vakulamatha Cheruvu in foot of the Tirumala Hills, Chittoor District, Andhra Pradesh

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Abstract

The taxonomic survey of algae in Vakulamatha cheruvu in foot of the Tirumala hills, Andhra Pradesh was carried out in the month of November. The present study reported 12 fresh water microalgae. They were *Merismopedia punctata* (Meyan), *Spirulina maxima* (Setchell &N. L. Gardner) Geilter,*Gloeotrichia echinulata* (J.E.Smith) P.G. Richter,*Scenedesmus acutus* Meyen, *S. dimorphus* (Turpin) Kutzing,*Sorastrum spinulosam* (Nageli) var. *spinulosam*, *Amphora ovalis* (Kuetz.) Kuetzing,*Cymbella ventricosa* (Kuetz.), *Gomphonema parvulum* (Kuetz) Kuetzing,*Navicula cuspidata* (Kutzing) Kuetzing,*Navicula feuerbornii* (Hustedt),*Synedra ulna* (Nitz.)Ehrenberg

Keywords: Fresh water Algae, Tirumala hills, Chlorococcales, *Scenedesmus, Navicula*, Ponds and Streams.

Introduction

Tirumala is home for Sri Venkateswaratemple dedicated to Hindu deity Lord Venkateswara, one of the holiest pilgrim centre in Andhra Pradesh. Water bodies and bio diversity are very rich in Tirumala hills. From the state of Andhra Pradesh, work on fresh water algae has been carried out by Rao and Philipose (1967),Subbaraju(1968, 1968a), Venkateswarulu (1970), Vidyavati and Nizam(1970, 1974, 1975), Narashima Rao(1991,1995,2000), Narashimarao and Subbarangiah (2008) and Digambar Rao (2008).

Materials and Methods

Samples were collected in Vakulamatha cheruvu in the month of November after rainy season. The samples were collected and immediately transferred to the thermal box for storage. In laboratory the samples were fixed in 4% Formalin for future studies. The date of collection, number, pH and Temperature of waterwere noted down. A drop of DPX mount was placed in the Algal material, mounted on the slide andcovered carefully with cover slips. All the samples were observed under trinocular microscope, photographs were taken with digital camera CHI 20, characters ofall thesamples were noted down. They were identified with the help of monographs of Desikachary (1959), Philipose (1967), Anand (1998),Bhoale (2010) and Jai Prakash Keshri (2015).

Results and Discussion

The presentstudy we report 12 species belonging to 11 genera. .3 species belong to Cyanophyceae, *Merismopedia punctata* (Meyan), *Spirulina maxima* (setchell & N. L. Gardner) Geilter),(*Gloeotrichia echinulata* (J.E.Smith) P.G. Richter; 3 species belong to Chlorophyceae (*Scenedesmus acutus* Meyen, *S. dimorphus* (Turpin) Kutzing, *Sorastrum spinulosam* (Nageli) var. *spinulosam*) and 6 species belong to Bacillariophyceae (*Amphora ovalis* (Kuetz.) Kuetzing, *Cymbella ventricosa* (Kuetz.), *Gomphonema parvulum* (Kuetz.) Kuetzing, *Navicula cuspidata* (Kuetzing) Kuetzing, *Navicula feuerbornii* (Hustedt) and*Synedra ulna* (Nitz.)Ehrenberg.

1. *Merismopedia punctata* (Meyan) 1839

Colonies are tubular, flat in regular row with loosely arranged cells, spherical in shape. 62 celled colony, 15µm length, 10µm thick, cell 1.5 µm length,1.5µmwidth.

VKMT...012, Tirupati, Andhra Pradesh

2. *Spirulina maxima* (Setchell & Gardner) Geilter, 1932

Spirulina 3.75µm thick, 200 µm length, undifferentiated and filamentous, soft cell wall, spiral in shape. Spirulina reproduce by binary fusion.

3. Gloeotrichia echinulata (J.E.Smith) P.G. Richter,1894

Colony with many trichomes, Spherical in shape,embedded in gelatinous sheath,have a common centre. Each trichome hascolour less sheath,and has abasal heterocyst to a fine hair like point extending beyond the limits of the colonial mucilage. Cells barrel shaped at base of the trichrome,8-10µm in diameter and 50µm long.

VKMT….014, Tirupati, Andhra Pradesh

VKMT…0011, Tirupati, Andhra Pradesh

4. *Scenidesmus acutus* Meyen 1829

4 celled colony,cell zigzag manner, joined at the centre, parallel to each other.Outer two cells slightly curved outside. Cell 7.5 µm thick, 12.5 µm long.

VKMT...005, Tirupati, Andhra Pradesh

5. *Scenedesmus dimorphus* (Turpin) Kutzing 1834

8 celled colony, cell joined at ends, 25µm length, 20 µm width. Cells 12.5µmlong, 2.5 µm thick.

VKMT...019, Tirupati, Andhra Pradesh

6. Sorastrum spinulosam (Nageli) var. *Spinulosam* 1849

Colony16 cells,25 µm length, cell 8µmlength, 5µm thick, Spines about 2.5µmlong,

VKMT...003, Tirupati, Andhra Pradesh

7.*Amphora ovalis* (Kutz) Kutzing 1844

10 µm length, 5µmwidth, valves are semi ellipticalwith a smoothly arched dorsalventral margin and slightly concave ventral margin, valve ends are rounded. Uninterrupted raphe ledge.

VKMT...007, Tirupati, Andhra Pradesh.

8. *Gamponema parvulam*(Kutz)kutzing 1849.

250 µm length, 10 µm width, outline of the valve only slightly asymmetrical to transpical axis. Cell box shaped in girdle view with pseudo septa visible. Raphe often slightly sinuous.

VKMT...007, Tirupati, Andhra Pradesh.

9. *Cymbella ventricosa* (Kutz.), 1844.

13µmlength, 4µm width, valves are strongly dorsal ventral,with substrate to rostrate apices. The dorsal margin arched, the raphe is lateral.

VKMT…010, Tirupati, Andhra Pradesh

10. *Navicula cuspidata* (Kutzing) Kutzing, 1844: 94 Mann 1990

20 µm length, 8µm width, valves are rhombic lanceolate and widest at the centre of the valve's and narrow apices. The raphe is filiform.

VKMT…007, Tirupati, Andhra Pradesh.

11.*Navicula feuerbornii* (Hustedt)

18 µm length, 5µm width, rhombus shape apices are narrow, central broad.

VKMT…008, Tirupati, Andhra Pradesh.

12. *Synedra ulna* (Nitz.)Ehrenberg).1832: 87

65 µm length, 4µmwidth, linear valves, central area distinct, roughly squire inOutline.

VKMT…007, Tirupati, Andhra Pradesh.

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