



STUDIES ON SOME CHLOROCOCCALES FROM CHITTOOR DISTRICT, ANDHRA PRADESH. INDIA.

A.Rekha¹, C.Prabhakara Raju², A.Chandrasekhar³ and P.Sujatha⁴

¹Department of Botany, Sri Padmavathi Mahila Viswavidyalayam, Tirupathi.

²Department of Botany, SSBN Degree College (Autonomous), Anantapur.


³Department of Biotechnology, Yogivemana University, Kadapa.

⁴Department of Botany, Sri Padmavathi Mahila Viswavidyalayam, Tirupathi.

ABSTRACT: Fresh water algae were collected from various parts of Chittoor district and ten taxa belonging to eight genera of Chlorococcales i.e., *Pediastrum*, *Hydrodictyon*, *Tetradron*, *Gloeotaenium*, *Botryococcus*, *Dimorphococcus*, *Coelastrum* and *scenedesmus* are reported. *Pediastrumtetra*, *Hydrodictyonreticulatum* and *Tetradrontrigonum* are least known and seven species are first reports from the state of Andhra Pradesh.

Key words: Chlorococcales, Algae, Chittoor, Andhra Pradesh

*Corresponding author: A.Rekha, Department of Botany, Sri Padmavathi Mahila Viswavidyalayam, Tirupathi, India

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INTRODUCTION

Though Philipose (1967), Narasimha Rao et al., (2010), Jyothi Kaparapu and Mohan Narasimha Rao Geddada (2013; 2015), Jyotsna et al., 2015 [1-5], reported occurrence of some algae, from Andhra Pradesh, no attempt has been made to document the freshwater algae of Chittoor district. This is the first report on the distribution of chlorococcalean algae from Chittoor district. *Pediastrumsubgranulatum*, *Tetradongracile*, *Gloeotaeniumloitlesbergerianum*, *Botryococcus braunii*, *Dimorphococcus lunatus*, *coelastrums cabrum* and *Scenedesmus perforatus* are the new distributional records to Andhra Pradesh.

MATERIALS AND METHODS

Freshwater algal samples were collected from ponds, ditches, reservoir and streams of Tirumala hills, Talakona and Burakayalakota of chittoor District. Samples of macroalgae were collected into zipped plastic covers and phytoplankton were collected with the help of plankton net and carried in cool ice chest to the laboratory and preserved in 4% formalin. Each sample was assigned with a voucher number and samples were deposited at the department of Botany, Sri Padmavathi Mahila Viswavidyalayam, Tirupathi. Temporary slides were prepared and observed under Olympus I 20 bright field microscope and measurements were recorded. Microphotographs were taken with Olympus EPL3 camera. The organisms were identified with the help of Prescott (1961), Anand (1998) Komarek and Jankovska(2001) and followed Philipose (1967) [6, 7].

SYSTEMATIC ACCOUNT

Pediastrum subgranulatum (Raciborski) J.Komárek & V. Jankovsk, 2001. Review of the algal genus *Pediastrum*: implication for pollen analytical research. *Bibliothecaphycologica* J.Cramer.Stuttgart.Band 108, p.54.fig.29. Philipose 1967,p 125,fig.43 c (**Fig.A**)

Coenobium with small holes, 85µm wide, circular in outline; marginal cells 22µm long, two lobed, lobes end in short cylindrical processi; Inner cells 18x12µm; cell wall finely reticulate and densely granular.

Collection date: Aug.2014;Tirumala hills No: CHTR-TPT 017

First report from Andhra Pradesh.

Pediastrumtetras (Ehrenb.) Ralfs 1844. Ann. Mag. Nat. Hist. 14:469; J. Komarek & V. Jankovsk 2001. P 68, fig.43. (**Fig. B**)

Coony 8 celled, circular, without holes, 45um wide; innercell one with U shaped incision; Marginal cells with V shaped deep incision, two lobed; lobes wide and concave at apex.

Distribution in AP: Karagamlake, Srikakulam district; pandi backwaters of Godavari estuary.

Collection date: Aug. 2014; Place: Tirumala hills No:CHTR-TPT 017

Hydrodictyon reticulatum (Linn.) Bory, 1824. *Dictionnaire Classique de l'Histoire Naturelle*. (Audouin, I. et al. Eds) Vol. 6, pp. 506. Paris: Rey et Gravier; Baudouin Frères.

Colony macroscopic, free floating, net like, young colonies within parent colony; meshes tetragonal, pentagonal or hexagonal; Cells of young colony elongate-cylindrical with 2-3 pyrenoids, 3.5mm long, 230um wide (**Fig.D**).

Distribution in AP: Meghadrigedda reservoir, Visakhapatnam.

Date of collection: 9-1-16 Place: Way to Talakona. No: CHTR-TPT 004-16

Tetraedrontrigonum (Naegeli) Hansgirg, 1888. Ueber die süßwasseralgen Gattungen Trochisia Ktz. (Acanthococcus Lagrh, Glochiococcus De Toni) und Tetraedron Ktz. (Asteridium Corda, Polyedrium Nag., Cerasterias Reinsch). Hedwigia 27(5/6):126-132; Philipose, 1967. p.142, pl.58-59 (**Fig.E**) [8].

Cells flat, triangular, 35um wide, sides concave, corners end in spine, spines 6.25 um long; cell wall smooth.

Distribution in AP: Karangamlake, Srikakulam district.

Collection date: Aug.2015, Tirumala hills, CHTR-TPT 007-15

Tetraedrongracile (Reinsch) Hansgirg, 1889. p.19. Philipose 1967. p 154, fig.69 (**Fig. F**) [9].

Cells flat, quadrate in outline, 37.5 um wide, sides deeply concave, corners produce into four processes; processes 7.5um long, 5um broad, stiff, branch twice; branches end in two spines, the primary branches of adjacent processes are parallel. Cell wall smooth.

Date of collection: oct.2014, Tirumala hills, CHTR-TPT -003-14

First report from Andhra Pradesh.

Gloeotaeniumloïtes bergerianum Hansgirg, 1890. p.10; Philipose, 1967. p.178, fig.88 (**Fig.G**) [10].

Colony 2 or 4 celled, 45um long, 35um wide, ellipsoidal, Cells are separated by dark gelatinous bands. Walls thick and smooth.

Date of collection: 2-4-2016, A tank near a village, on the way to Chandragiri, CHTR-CDGR-005-16

First report from Andhra Pradesh.

Botryococcusbraunii Kuetzing 1849, Species algarum, P 892; Philipose, 1967. p 195, fig.108 (**Fig.H**).

Colony cordate to spherical in outline, 62.5um wide, orange coloured; cells compactly arranged, ovoid, slightly projected from colony; colonies are connected by mucilage strands.

Collection date: Aug.2014; No: CHTR-TPT 017-14

First report from Andhra Pradesh.

8.Dimorphococcus lunatus A. Braun 1855. Algarum unicellularum genera nova et minus cognita, p 44. Philipose, 1967. P205, fig.115 (**Fig.I**).

Colony spherical to irregular, 60µm broad; cells arranged in groups of four each, all are connected with fine strands, cells 12.5µm long, 7.5µm broad, ends of cells round. Collection date: August 2015, Tirumalahills, Collection No. CHTR-TPT 007-15. First report from Andhra Pradesh.

Coelastrumscabrum Reinsch, 1877.J.Linn.Soc(Bot) 16(92) p 238; Philipose, 1967.p231,fig.140 (Fig.J).

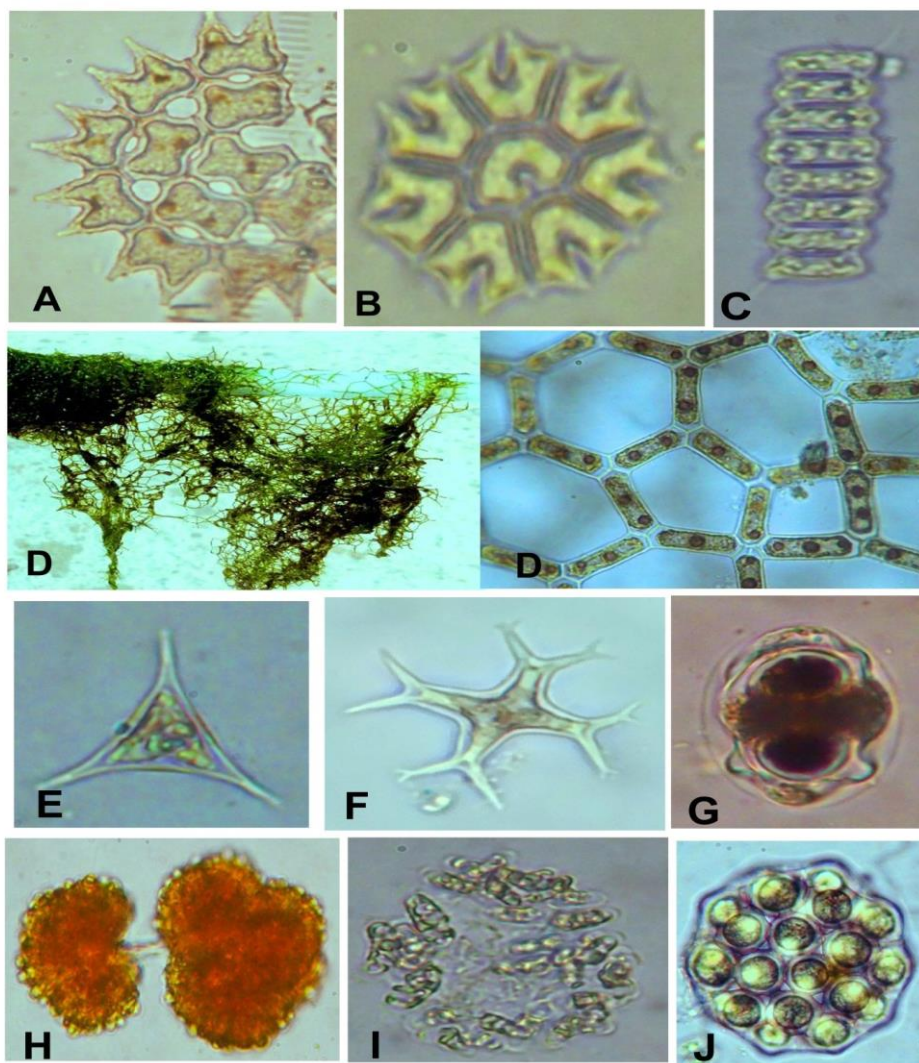
Colony spherical, 32 celled, 86 µm wide; intercellular spaces triangular; cells spherical, 22 µm broad, walls have 5-6 truncated processes through which neighboring cells are connected.

Collection date: Aug.2015, Tirumala hills, Collection No. CHTR-TPT 007-15

First report from Andhra Pradesh.

Scenedesmus perforatus Lemmermann 1903.p 104; Philipose,1967.p280,fig.186(Fig.C) [11].

Colony 8 celled, 48µm long, spines at poles of terminal cells only; cells oblong with round to capitate poles, 20µm long, 7µm broad, cells attached towards poles, walls slightly concave, perforations conspicuous. Collection date: Aug.2015, Tirumalahills, Collection No. CHTR-TPT 011-15. First report from Andhra Pradesh (Fig 1).



A.Pediastrum subgranulatum (Raciborski) J.Komárek & V.Jankovsk B.Pediastrum tetras (Ehrenb.) Ralfs
 C.Scenedesmus perforatus Lemmermann D.Hydrodictyon reticulatum (Linn.) Bory E.Tetraedron trigonum (Naegeli) Hansgirg
 F.Tetraedron gracile (Reinsch) Hansgirg G.Gloeotaenium loitlesbergerianum Hansgirg H.Botryococcus braunii Kuetzing
 I.Dimorphococcus lunatus A.Braun J.Coelastrum scabrum Reinsch

Fig 1: Taxa belonging to eight genera of Chlorococcales

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