

# Note on the occurrence of two species of *Volvox* (Volvocales, Chlorophyceae) from Jharkhand, India

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## भारत के झारखंड राज्य से *वोलवॉक्स* (वॉलवोकेल्स, क्लोरोफाइसी) की दो जातियों की प्राप्ति पर टिप्पणी

आर. के. गुप्ता एवं एस. के. दास

### सारांश

झारखंड के लोहरदगा जिले से *वॉलवॉक्स* वंश की *वॉलवाक्स अरीयस* एहरीनब एवं *वॉलवाक्स कार्टेरी* एफ. स्टेइन के शैवाल जातियां को प्रलेखित किया गया है। यह इस राज्य से इस वंश का नया रिकार्ड है।

### ABSTRACT

Two green algal species of the genus *Volvox*, i.e., *Volvox aureus* Ehrenb and *Volvox carteri* F. Stein are documented from Lohardaga district of Jharkhand, which is a new record of the genus from the state.

**Keywords:** Green Algae, *Volvox*, India, Jharkhand, New Record

### INTRODUCTION

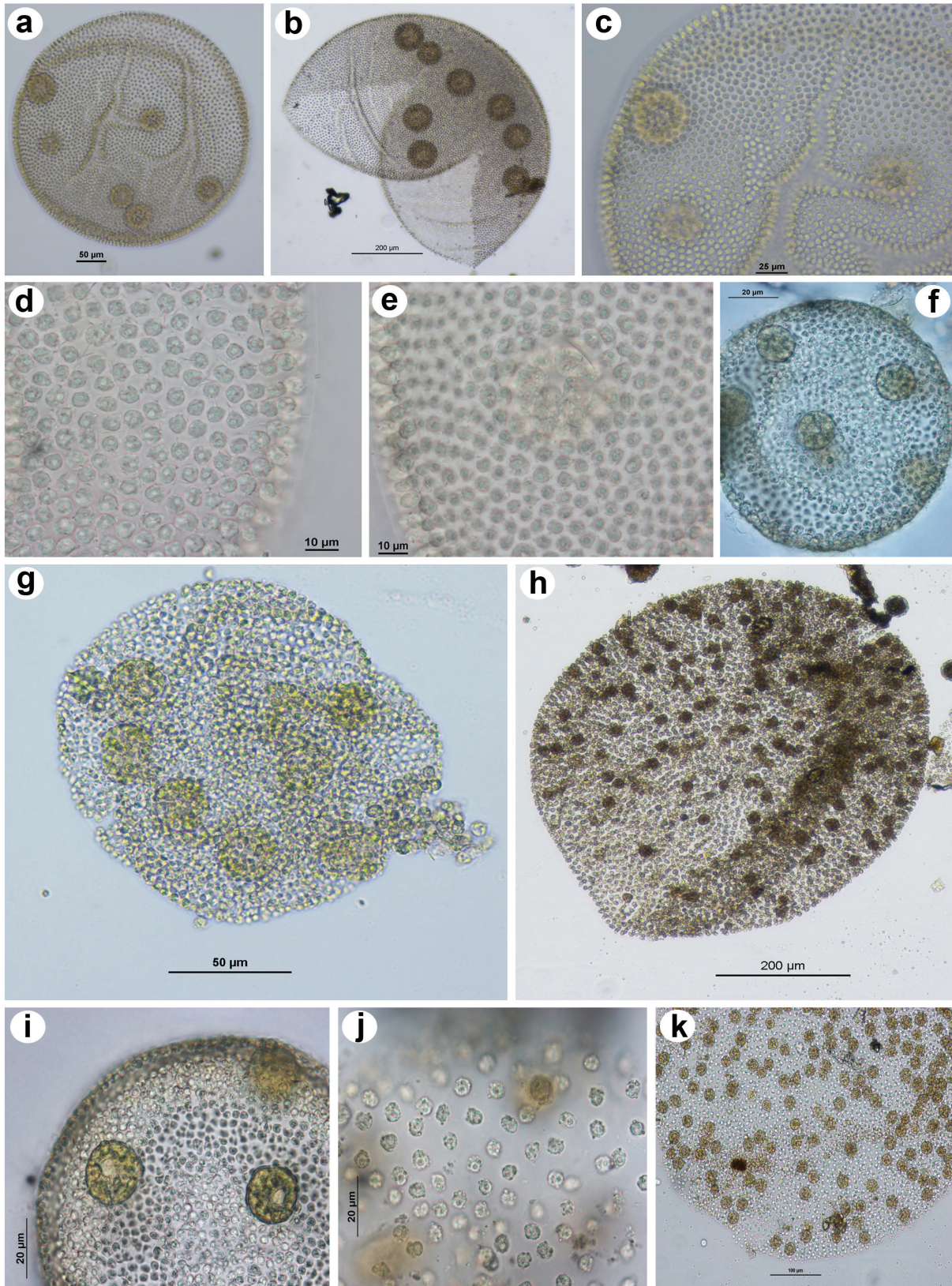
*Volvox* is a colonial flagellated green algal genus belonging to family Volvocaceae and order Volvocales. They are cosmopolitan in freshwater habitats like ponds, ditches and puddles. These organisms were first reported by Leeuwenhoek (1700), though the genus was taxonomically established by Linnaeus. They are characterized by ovoid to spherical colonies comprising small flagellated cells and daughter colonies, connected together by cytoplasmic strands. About 136 taxa were reported so far from different localities of the world, out of which 17 taxa were reported from India, which include 10 species, 4 varieties and 3 forms (Gupta, 2012).

In the present work two *Volvox* species, i.e., *Volvox aureus* Ehrenb. And *Volvox carteri* J. R. Stein are

documented from Lohardaga district of Jharkhand. This is a new record of the genus from the state, though both the taxa have wide occurrence around the world.

### MATERIALS AND METHODS

The *Volvox* species were collected from stagnant freshwater habitats of Lohardaga district of Jharkhand, sampled during September, 2015. The samples were preserved with 4% formaldehyde solution and deposited in algal section of Cryptogamic unit of Botanical Survey of India, Howrah. (CAL) Microscopic observations and morphological study was made with Nikon microscope Ni – 11 fitted with Nikon Digital Camera DS – Ri1 – U3 and operated by Nikon Imaging Software NIS – D + EDF.



**Fig -1:** A-E. Colony structure, daughter colonies and cellular morphology of *Volvox aureus* Ehrenb. and; F-K. *Volvox carteri* F. Stein. (Scale bar: B, H = 200 µm; k = 100 µm; A, G = 50 µm; C = 25 µm; f, i-j = 20 µm and D-E = 10 µm)



## RESULTS AND DISCUSSION

**Volvox aureus** Ehrenb., Abh. Königl. Akad. Wiss. Berlin 1831: 77. 1832. (Fig. 1 A-E)

Colonies spherical, 395.5–400.0 µm broad, contained several individual cells; cells ovoid, 5.0 – 7.5 µm long, 4.0–5.0 µm broad, connected with one another by delicate cytoplasmic strands; sheath confluent; chloroplasts circular cup shaped; contracted vacuoles 2 at anterior ends; flagella 2; gonidia 6, rounded, 30.0–50.0 µm broad, scattered; multiplication by longitudinal division of colony.

Habitat: Planktonic, freshwater, growing in a small ditch at Kairo, Lohardaga (22°52'59.64"N, 84°39'37.80"E; altitude 641 m, collection no. 59578; Dt. 09.09.2015).

Earlier records: Uttar Pradesh (Venkataraman, 1957, Lakshminarayana, 1962, Misra & al., 2008); Bihar (Saha & Wujek, 1989); Tamil Nadu (Anand, 1998); Uttarakhand (Gupta, 2005); Kerala (Maya & al., 2000); West Bengal (Sau & Gupta, 2005); Maharashtra (Deshmukh & Pingle, 2006).

**Volvox carteri** F. Stein, Org. Infus. 3(1): 134.1878.

(Fig. 1 F-K)

Colonies globose or slightly elongated, 105.0–110.5 µm long, 98.5–102.5 µm broad, contained several individual cells; cells pear-shaped 3.5–6.0 µm long, 3.5–4.0 µm broad, not interconnected by cytoplasmic strands; chloroplasts circular parietal plate; contractile vacuoles 2 at anterior end; flagella 2; gonidia 5, globose, 14.5–15.0 µm broad, scattered.

Habitat: Planktonic, freshwater, growing in a small ditch at Senha, Lohardaga (23°02'34.74"N, 84°32'27.72"E; altitude 665 m, Dt. 09.09.2015) 59576 59577 (CAL).

Earlier records: Tamil Nadu (Iyengar, 1933); Maharashtra (Apte, 1936); Uttar Pradesh (Rao, 1944; Lakshminarayana, 1962); Odisha (Sethi & al., 2012; Das & Adhikary, 2014).

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