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*Full Length Research Article*

# New Distributional Record Of The Indian Species Of The Genus *Testudinella* Bory De Saint-Vincent, 1822 (Rotifera: Floscullariacea: Testudinellidae) From The Western Ghats Of Tamil Nadu, India.

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***Abstract***
*The present paper reports the new distributional record of a littoral -periphytic rotifer species of the family Testudinellidae Harring, 1913 from the state of Tamil Nadu as well as to the Western Ghats. The species Testudinella greeni Koste, 1981 is an interesting Palaeotropical rotifer element which is reported earlier from North East India only. From the state of Tamil Nadu four species of the genus Testudinella viz. Testudinella parva (Ternetz, 1892), Testudinella incisa, Testudinella mucronata (Gosse, 1886) and Testudinella patina (Hermann, 1783) were earlier reported. The present study also provided brief descriptions of this species, including images taken with 80i Nikon microscope, illustrated and comments are made on their distribution.*

***Keywords:*** *Western Ghats, Tamil Nadu, Testudinellidae, Palaeotropical, Littoral-periphytic rotifer.*

## Introduction

Being heterotrophic organisms Zooplankton are the major trophic link in food chain and plays a key role in cycling of organic materials in aquatic ecosystem. In addition, their diversity has assumed added importance during recent years due to the ability of certain species to indicate the deterioration in the quality of water caused by pollution or eutrophication. Rotifers form an important component of zooplankton. Rotifers were documented and described from India since pioneering taxonomic survey of Anderson (1889). Testudinellidae is a family of Rotifers which comes under the order Floscullariacea. While working on the zooplankton specimens from the Western Ghats of Tamil Nadu, the author come across this interesting element of Rotifera. This report is of interest for biodiversity and distribution of Rotifera of the Western Ghats of Tamil Nadu.

## Materials And Methods

This present study is based on analysis of plankton collections examined from the Theni district of Tamil Nadu collected by survey team of Zoological Survey of India, Southern Regional Centre during the year 2015 as a part of faunal studies of Western Ghats of Tamil Nadu. Suppalapuram pond is a waterbody located in the village of Suppalapuram, Andipetti taluk of Theni dist of Tamil Nadu. The Co-ordinates of the locality is N- 9.96953°, E- 77. 55681°.

The samples were collected by sweeping the nylobolt Plankton net (50 µm) among the aquatic weeds and were preserved in 5% formalin. Later the specimens were sorted out and mounted in Polyvinyl alcohol-lactophenol mixture. Illustrations are made with 80i Nikon microscope. *Testudinella* spp. was identified following viz. Edmondson (1959), Koste (1978), Sharma (1990) and Sharma and Sharma (2008, 2013, 2015).

**List of *Testudinella* species recorded from India.** (Source: Sharma & Sharma, 2018)

1. *Testudinella amphora* Hauer, 1938
2. *Testudinella brevicaudata* Yamamoto 1951
3. *Testudinella caeca* (Parsons, 1892)
4. *Testudinella elliptica* (Ehrenberg, 1834)
5. *Testudinella emarginula* (Stenroos, 1898)
6. *Testudinella greeni* Koste, 1981
7. *Testudinella insinuata* Hauer, 1938
8. *Testudinella incisa* (Ternetz, 1892).
9. *Testudinella mucronata* (Gosse, 1886)
10. *Testudinella parva* (Ternetz, 1892)

11. *Testudinella patina* (Hermann, 1783)
12. *Testudinella patina dendradena* Beauchamp, 1955
13. *Testudinella tridentata* Smimov, 1931
14. *Testudinella walkeri* Koste & Shiel, 1980

## Results & Discussion

**Taxonomy**

Phylum: Rotifera Cuvier, 1798
Class: Eurotatoria De Ridder, 1957
Subclass: Monogononta Plate, 1889
Order: Floscullariacea Harring, 1913
Family: Testudinellidae Harring, 1913
Genus: *Testudinella* Bory de Saint-Vincent, 1822
*Testudinella greeni* Koste, 1981

**Key**

**Key to the Family Testudinellidae**

Body loricate; lorica with distinct foot-opening…….. Family Testudinellidae.

**Key to the genus *Testudinella* of family Testudinellidae**

Foot present. Lorica strongly built. Benthic forms……..Genus *Testudinella* Bory de Saint-Vincent, 1822.

**Key to recorded species of the genus *Testudinella* from Western Ghats of Tamil Nadu.**

1. Lorica circular, foot-opening located nearly in the middle of ventral side---------- ---------- *T patina* (Hermann, 1783).
   Lorica of other shapes, foot not located in the middle---------- --- **2**
2. Lorica pear shaped. Foot elliptical ---------- ---------- *T parva* (Ternetz, 1892).
3. Lorica dorso-ventrally flattened and completely fused laterally. Foot long, retractile, annulated and terminates into a tuft of cilia ---------- *T incisa* (Ternetz, 1892).
4. Lorica elongate-oval, strongly curved dorsally, maximum width in its middle region. Foot opening inverted v-shaped, situated at posterior end of lorica---------- *T greeni*

   Koste, 1981
5. Lorica with a spine ---------- ---------- *T mucronata* (Gosse, 1886).
6.

**Description**

*Testudinella greeni* Koste is a littoral rotifer species of the family Testudinellidae. The members of this genus are distinguished on the basis of shape, size and position of foot opening, position of lateral antennae and outline of lorica in dorsal view and cross-section. Dorsal and ventral plates of lorica completely fused laterally. Greatly flattened dorso-ventrally and sometimes nearly circular. Foot long, retractile, annulated, and terminating in a tuft of cilia. Foot opening ventral in most species, terminal in some. Lorica dorso-ventrally flattened. Foot long, retractile, annulated, and terminating in a tuft of cilia.

**Characters of *Testudinella greeni* Koste, 1981**

Lorica elongate-oval, dorsally curved and maximum width in the middle. Lorica elongate-oval, strongly curved dorsally, maximum width in its middle region, produced posteriorly into a tubular angulated end. Anterior dorsal margin with distinct, long, median spine and produced external angles; ventral margin with median notch, bounded by two spines. Foot opening inverted v-shaped, situated at posterior end of lorica.

**Measurements**: Total length 383-385µm; lorica length 325µm; maximum width 198µm; anterior width 84µm; median dorsal spine 60µm; length of foot opening 20µm; width of foot-opening 32µm.

**Fig. 1. *Testudinella greeni* Koste,1981**

**Material Examined:** 2 exs., 10-vi-2015, Suppalapuram pond, on way to Srivilliputhur, Theni dist, coll. S. Prabakaran & party.

**Distribution**

**India:** Assam, Meghalaya, Tripura**. Elsewhere:** Cosmopolitan.

**Discussion**

A total of 14 species of Testudinella documented from India which are listed above. From the Oriental

region (Segers, 2008) 15 species of Testudinellidae are reported. Nearly four dozen valid species of Testudinellidae are known globally (Segers, 2007) while Jersabek and Leitner (2013) raised totally tally to 60+ species. The palaeotropical *Testudinella greeni*, described from Australia, is reported from the Afrotropical, Australian, Neotropical and Oriental regions (Segers, 2007). Interestingly, this species was noticed to be restricted to the floodplain lakes of the Brahmaputra river basin of Assam (Sharma and Sharma, 2014a, 2014b) while it is now observed from a small water body from the Theni district of Tamil Nadu along with the zooplankton collections of Meghamalai Tiger Reserve thus indicating distinct distribution in Western Ghats of Tamil Nadu. The other members of this genera include *Testudinella amphora*, *T. dendradena*, *T. incisa*, *T. parva parva, T. parva bidentata*, *T. parva semiparva, T. mucronata and T. tridentata* are examples of the regional distribution interest in the Indian subcontinent. Of these, *T. amphora, T. brevicaudata, T. dendradena, T. greeni, T. parva bidentata, T. parva semiparva, T. tridentata* and *T. walkeri* are characterized by distribution exclusively restricted to northeast India Sharma (2018**).** The present report supports the general remarks made by Sharma (1996, 1998) and suggests need for further investigations on biogeographically important elements from different states of India.

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