

SECOND RECORD OF *PONTODRILUS LITORALIS* (GRUBE, 1855) (ANNELIDA: OLIGOCHAETA) FROM KERALA STATE, INDIA

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Abstract

The distribution pattern of the arenicolous and limicolous *Pontodrilus litoralis* (Grube, 1855), a circummundane species, is very fascinating. Through this communication, we are reporting the second record of *P. litoralis* from the Kerala state, southern India after a time period of 85 years. 38 individuals of this species were collected from coastal mangrove sacred grove of Kannur district. We assume that, it would be present in all the potential habitats within the state.

Key words: *Pontodrilus litoralis*, distribution, Kerala, India.

INTRODUCTION

Western Ghats and western coastal plains stand out as the regions with the highest level of earthworm species in India [1]. Various prominent workers had studied the taxonomy of the earthworms of this region and reported several native and non-native earthworms from the state [2, 3, 4, 5, 6, 7, 8, 9, 10]. Here we are reporting the record of *Pontodrilus litoralis* (Grube, 1855) from Kerala after a period of 85 years.

Certain earthworms such as *Glyphidrilus*, *Ocnerodrilus*, *Thatonia*, *Pontodrilus* etc. are mostly hydrophilous and are usually associated with more or less submerged habitats [11]. The genus *Pontodrilus* is now placed in Megascolecidae family rather than Acanthodrilidae [12] and having five species worldwide. Among these, *P. litoralis* is littoral; *P. lacustris* (Benham, 1903) is a free swimming species in Lake Wakatipu of New Zealand; *P. agnesae* Stephenson, 1915 is a terrestrial species from Sri Lanka; *P. sinensis* Chena and Zhifang, 1977 is found 250km inland in China; and the last *P. primoris* Blakemore, 2000 from a beach of Tasmania of Australia [13]. Among the five species of this genus, *P. litoralis* is a widely distributed euryhaline species mainly found on shorelines in the tropics and warmer parts of the temperate zones in both hemispheres and islands in the Atlantic, Pacific and Indian Oceans and the Mediterranean, Red Sea and South China Sea [5, 13 14, 15, 16, 17]. At first it was described as *Lumbricus litoralis* and as of now it is having 20 synonyms [13]. As per Blakemore [13] it is arenicolous (sand dwelling) and limicolous (mud dwelling), but known to occur in mud with large content of organic matter and salt. It has been recorded from marine, brackish and intermittently freshwater habitats on seashores, sandy beaches, salty mud margins of estuaries and brackish water lakes, or mangrove swamps of the intertidal zone [11, 14, 16, 18]. Its worldwide distribution has long been disputed [19], but Blakemore [13] stated that overwater dispersal and human transportation are the reasons for its circummundane distribution. Its origin was argued for in the region of southern India or Australia/New Zealand where related species occur or the Mediterranean from whence the species was first described [13].

MATERIALS AND METHODS

Since 2010, as part of our ongoing study on the earthworm diversity of the Kerala state, we have collected samples from more than 290 localities of the state using the digging and hand sorting method [20]. As part of this study we did extensive collections at the Kannur district of Kerala.

RESULTS

A total of 38 specimens of *P. litoralis* were collected from the muddy and silty mangrove dominated brackish water area of Thekkumbad Koolom Thayakavu Sacred grove of Kannur district on 29 November 2012. Among these 24 are immature, 9 a clitellate and 5 clitellate. Specimens examined were deposited in the earthworm laboratory of the Advanced Centre of Environmental Studies and Sustainable Development, Mahatma Gandhi University, Kottayam.

Diagnosis: Slender medium sized worm. Setae lumbricine; Clitellum XIII-XVII, saddle-shaped; Male pores paired in XVIII, each on inner wall of a longitudinal depression, median to a longitudinal ridge. Female pores paired, medio-ventral in XIV. Spermathecal pores in 7/8 and 8/9. Spermathecae tubular. Testis sacs paired in X and XI. Seminal vesicles paired in XI and XII. Prostate glands tubular, paired in XVIII. Nephridia avascular, absent in I-XII and XIV.

Materials_examined: Kerala: 24 immature, 9 a clitellate and 5 clitellate. Site – Thekkumbad Koolom Thayakavu Sacred Grove, District - Kannur, Location - N 11° 58' 7" E 75° 17' 48.4", Altitude – 0 m, Habitat – muddy mangrove dominated brackish water bank, Collection date – 29 November 2012, Collectors - S.P. Narayanan, T. Augustine and S. Sathrumithra, Reg. no. ACESSD/EW/95.

DISCUSSION

Its occurrence in the state was first reported by Aiyer [6]. He collected 6 individuals of this species from Kovilam Beach (= Kovalam Beach) in April 1927. Hence the present record from Thekkumbad Koolom Thayakavu Sacred Grove forms the second report of this species from the state after 85 years. Within India, except the present record *P. litoralis* so far has been recorded from 16 places (Table 1) of Andaman and Nicobar Islands, Andhra Pradesh, Goa, Gujarat, Tamil Nadu, Lakshadweep, Maharashtra, Odisha, Puducherry [5, 11, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37]. Elsewhere it has been recorded from Africa: Angola, Cape Verde Islands, Congo, Madagascar, South Africa, Tanzania; Asia: China, Indonesia, Japan, Korea, Maldives, Myanmar, Papua New Guinea, Sri Lanka, Taiwan, Vietnam; Australia: Australia, Christmas Island; Central America: Galapagos Islands of Ecuador; North America: Bahamas, Bermuda, Guadeloupe, Haiti, Jamaica, Mexico, Puerto Rico, United States of America, Virgin Islands. South America: Brazil, Colombia; Pacific region: Hawaii Islands, Palmyra Atoll; Europe: France [5, 13, 14, 19, 38, 39, 40, 41, 42]. We assume that this species would be present in all the potential suitable habitats of this species within the state.

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Table 1. Records of *Pontodrilus litoralis* (Grube, 1855) from India

Sl. No.	Site	State	Reference
1	Port Okha (Gulf of Kutch)	Gujarat	[30]
2	Elephanta	Maharashtra	[5]
3	Chilka Lake	Odisha	[22, 23]
4	Vishakapattanam	Andhra Pradesh	[32, 36]
5	Margao bay	Goa	[5, 26]
6	Ennore Backwater near Chennai	Tamil Nadu	[5, 24]
7	Chennai	Tamil Nadu	[26]
8	Tuticorin	Tamil Nadu	[11]
9	CMFRI Mandapam Camp	Tamil Nadu	[37]
10	Pamban	Tamil Nadu	[25, 34, 37]
11	Puducherry	Puducherry	[18, 35]
12	Kovalam	Kerala	[6]
13	Thekkumbad Koolom Thayakavu Sacred Grove	Kerala	Present record
14	Lakshadweep Island	Lakshadweep Island	[21]
15	Port Blair?	Andaman and Nicobar Islands	[28, 33]
16	Car Nicobar Islands	Andaman and Nicobar Islands	[31, 33]

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