

***Belladrilus (Santomesia) auka* n. sp. (Oligochaeta, Ocnerodrilidae) from Argentina**

G. Righi[†] & C. C. de Mischis

Righi, G. & Mischis, C. C. de, 1999. *Belladrilus (Santomesia) auka* n. sp. (Oligochaeta, Ocnerodrilidae) from Argentina. *Misc. Zool.*, 22.2: 77-80.

Belladrilus (Santomesia) auka n. sp. (Oligochaeta, Ocnerodrilidae) from Argentina.— From Cordoba Province, Argentina the Ocnerodrilidae *Belladrilus (Santomesia) auka* n. sp. is described by dissections and serial histological sections. The species is well characterised by the tumid T-shaped male porophore in XVII with an anterior half-moon depression and a posterior cross thickening. The seminal grooves are convergent and thin in the anterior half, straight and wider in the posterior half.

Key words: Oligochaeta, Ocnerodrilidae, Cordoba, Argentina, Anatomy, Taxonomy.

(*Rebut: 20 XII 97; Acceptació condicional: 22 IX 99; Acc. definitiva: 10 I 00*)

Catalina C. de Mischis, *Cátedra Diversidad Animal I, Fac. de Ciencias Exactas, Físicas y Naturales, Univ. Nacional de Córdoba, Avda. Vélez Sársfield 299, 5000 Córdoba, Argentina (Argentina).*

† Gilberto Righi deceased in 1999

Introduction

The species of earthworm presented here was collected by one of the authors (C. C. de Mischis) in the course of an ecological study on terricolous Oligochaeta in the province of Cordoba, Argentina. Due to the low number of specimens obtained, another three trips were made to the same biotopes, but the results were negative.

Material and methods

The worms were collected manually from the soil and preserved in 10% formalin. The study was performed by dissections, mounting of microscopical pieces in glycerine-water (1:1) and serial histological sections (10 μ m) stained by Mallory's triple method (PANTIN, 1964). The illustrations were made with camera lucida and the material is deposited in the Department of Zoology, University of São Paulo, Brazil.

Results

Belladrilus (Santomesia) auka, n. sp. (figs. 1-4)

Studied material

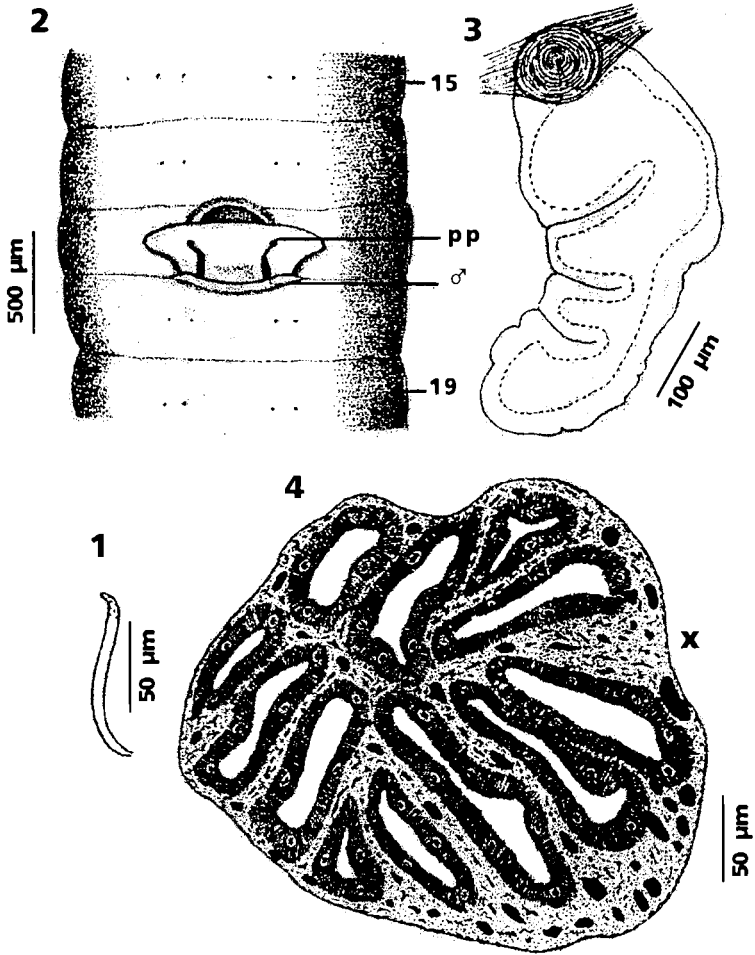
Argentina, Cordoba Province, Parque Siquiman Department, sandy soil with Gramineae, 2 clitellate worms (holotype ZU-1302A; paratype ZU-1302B), C. C. de Mischis col. 19 XI 1996.

Description

The length of the two worms is 30 and 35 mm and the diameter in the middle-body is 1.4 and 1.7 mm respectively. The prostomium and part of the first segment are invaginated; the number of segments is 106 in both worms. There is no pigment. The setae start from segment II and are arranged in four pairs of longitudinal series; there are no ventral setae in XVII. The setal relations in the middle-body are $aa:ab:bc:cd:dd = 6.9:1.0:10.0:0.9:17.5$ ($ab = 103 \mu$ m). The setae (fig. 1) are sigmate of larger proximal curvature, without nodulus and their apical fifth presents irregularly arranged punctiform marks. The setae length is $96 \pm 4 \mu$ m. The clitellum is ring-shaped in XIII-XX (= 8 segments) with poorly demarcated

intersegmental furrows of light brown as in number 190 in SÉGUY (1936). The male genital field (fig. 2) is restricted to the ventral surface of XVII with an odd male porophore. The tumid milk-white porophore resembles a short and wide T. The transverse axis of the porophore is the longest, surpassing line *b* in the equator of XVII; its anterior margin is convex. In the anterior fourth of XVII, between the anterior border of the porophore and the intersegment 16/17, lies a half-moon depression of thickened anterior margin. A transverse thickening makes the posterior border of the male genital field in the *bb* space of the intersegment 17/18. The shorter specimen has the male genital field in a slight depression of XVII. The pair of male pores is somewhat medial to line *a* in 17/18 and the pair of prostatic pores lies in the most elevated point of the male porophore in the equator of XVII, line *a*. The pair of seminal grooves is wide and straight in the posterior third of XVII, becoming thin and turned laterally in the middle of the segment. These grooves unite the male pores to the prostatic pores. The pair of female pores is in the *ab* space, just behind the intersegment 13/14, on a little tumid milk-white circular area. The paired spermathecal pores are in *ab* of 8/9, but they are seen only in microscopical sections.

Septa 5/6-8/9 are thick and muscular, 9/10-11/12 become gradually thinner and those on continuation are thin and fragile. Septal glands extend to VIII. The oesophageal wall is thin throughout; there is no gizzard. A pair of calciferous glands open widely into the posterolateral region of the oesophagus in IX. The pear-shaped glands are directed forwards and downwards, their wider ental part reaches the septum 8/9. The glands are subdivided by longitudinal trabeculae, which coalesce along the gland axis setting apart wide channels (fig. 4) united in the gland opening. The loose connective tissue of the gland walls and trabeculae include thin canaliculi intermingled with blood spaces. The transition oesophagus-intestine lies in 11/12. There are neither typhlosole nor intestinal caeca. Three pairs of hearts in IX-XI, the first pair being the most slender. One pair of holonephridia is found in every segment from II backwards. The nephridia are wide, flat, rectangular and without a bladder; the



Figs. 1-4. *Belladrilus (Santomesia) auka*: 1. Seta; 2. Ventral surface of segments XV-XIX: pp. Prostatic pore, ♂. Male pore; 3. Spermatheca; 4. Medial cross section of a calciferous gland: x. Position of the oesophagus.

Belladrilus (Santomesia) auka: 1. Cerda; 2. Superficie ventral de los segmentos XV-XIX: pp. Poro prostático, ♂. Orificio genital masculino; 3. Espermateca; 4. Corte transversal mediano de una glándula calcífera: x. Posición del esófago.

nephridiopores are not seen. One pair of testes and shining male funnels are ventrally in X and one pair of rounded seminal vesicles with lobulated outline adhere to the posterolateral surface of septum 10/11. Paired bright male ducts run close to the inner surface of the body wall, curving laterally to the prostatic duct and piercing the body

wall at 17/18. The pair of prostates in XVII is long and tubular and extends backwards or forwards; the pair is interwoven below the intestine in XV-XIX of one animal and in XVII-XXII of the other. The prostatic duct is muscular, without ectal widening, wavy and as long as two segments. The glandular part is well set off and nearly two times as broad

and 4-5 times as long as the corresponding duct. One pair of fan-shaped ovaries and female funnels lies ventrally in XIII. One pair of small spermathecae lies ventrally in anterior of IX, covered by the calciferous glands. The spermathecae (fig. 3) are short, sac-like and slender entally; their walls are glandular and do not contain spermatozoa.

Remarks

Until now *Belladrilus (Santomesia) emilianii*, Righi, 1984 (RIGHI, 1984) was the only species ascribed to *Santomesia*. It is known from Córdoba and Santa Fe Provinces, Argentina. The two species now recognized are distinguished by the organization of the male genital field and the shape of the spermathecae.

The name of the new species is that of an old Indian group.

Resumen

Belladrilus (Santomesia) auka sp. n. (*Oligochaeta, Ocnerodrilidae*) de la Argentina

Se recolectaron ejemplares de *Belladrilus (Santomesia) auka* sp. n. en el Parque Siquiman, Provincia de Córdoba, Argentina (figs. 1-4).

La especie está bien caracterizada por el espesamiento del campo genital masculino, impar y ventral en XVII (fig. 2), cuya forma semeja a una corta y ancha letra T con una depresión semilunar anterior y un espesamiento transversal posterior. Los surcos seminales, uniendo los poros masculinos y prostáticos a cada lado, son convergentes y finos en la mitad anterior, rectos y anchos en la mitad posterior.

References

- PANTIN, C. F. A., 1964. *Notes on microscopical technique for zoologists*. University Press, Cambridge.
- RIGHI, G., 1984. On a collection of neotropical Megadrili Oligochaeta, I. *Stud. Neotrop. Fauna Environ.*, 19 (1): 9-31.
- SÉGUY, E., 1936. *Code universel des cluleurs*. Paul Lechevalier, Paris.