

**Enchytraeus dudichi sp. n.,  
a new fragmenting Enchytraeus species from Iran  
(Oligochaeta, Enchytraeidae)**

By

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**Abstract.** *Enchytraeus dudichi* sp. n. has been described from a soil culture. This species is able to both sexual and asexual reproduction, it is the fourth known species among the fragmenting ones.

*Enchytraeus dudichi* sp. n.

Medium-sized species, the adults are 5-22 mm long depending on the fragmentation, most frequently 10—18 mm. Diameter at segment VI 0.25—0.28 mm, at clitellum 0.3 mm—0.32 mm, at postclitellar segments 0.35 mm, in living worms. Number of segments (27)—46 — 80—128. Holotype 19 mm long, with 98 segments, width of the VIth segment 0.25 mm, at clitellum 0.30 and postclitellarly 0.35 mm. Colour whitish. Setae straight, the ental end slightly hooked : 2, (3) — 2, 3 : 3, (4) — 3. In the segments VIII or IX there are only dorsal setae. Head pore between prostomium and the first segment. Cutaneous glands are small, inconspicuous, in 4-5 transverse rows per segments, visible only in painted state. Clitellum on VIII — IX or IX — X, sometimes longer over VIII — X or XI. segments. The gland cells arranged irregularly (Fig. 4) and the cells ventrally absent between the male pores.

The brain is about 1.5—2 times longer than wide, the posterior end slightly concave. In the posterior end there are two small lateral aggregations of refractive bodies as in *E. bigeminus* (Fig. 1). The peptonephridia are unbranched tubes, with unpaired origin behind the pharynx. At the beginning there is a tube with a slightly coiled central canal, the posterior part is wider, and the canal is much coiled (Fig. 3). Three pairs of septal glands, none of them united dorsally, on septa IV/V — VI/VII. The posterior pair is small with a ventral lobe and in the VI there is a small widening on the efferent duct (secunder septal glands). Juveniles mostly also have a little 4th pair of septal glands. The anteseptal part of nephridia consists of funnel,

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the postseptal elongated with an efferent duct arising posteroventrally. Lymphocytes (Fig. 2) oval, 14—25  $\mu\text{m}$  long, finely granulated, a lot of them in the posterior end of the body, where their mass could be grey coloured in transmitted light. The chloragogen cells present from IV forming a dense layer with prominent refractive globules from VI, the diameter of the cells are 28—49  $\mu\text{m}$ . The dorsal vessel originates in XIV — XVI, but in some specimens further back as far as XXIII, blood colourless.

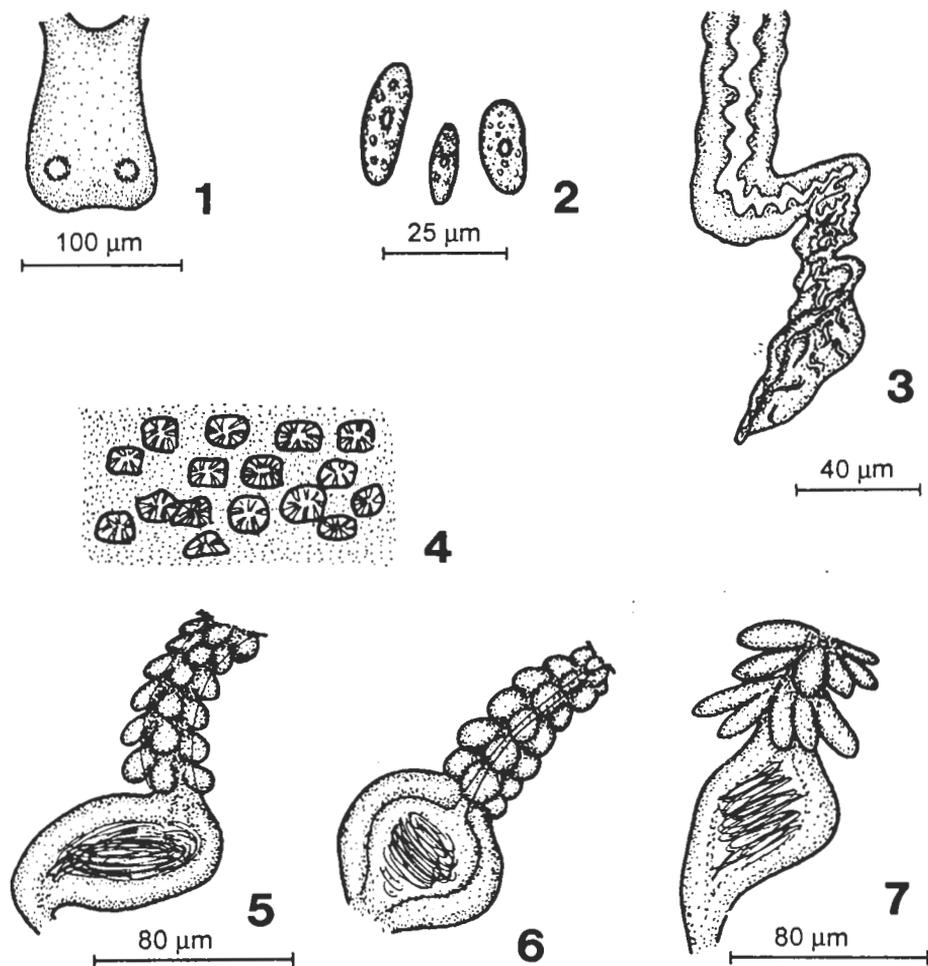


Fig. 1—6. *Enchytraeus dudichi* sp. n. 1: brain. 2: lymphocytes. 3: peptonephridia. 4: cutaneous glands. 5—6: spermathecae. — Fig. 7. *Enchytraeus bigeminus* NIELSEN & CHRISTENSEN, 1963. Spermatheca

Seminal vesicle present in VI or VII, large and slightly lobed. Sperm funnel (Figs 8, 9) in VII or VIII, ca. 2—2.5 times as long as wide (about 112—150  $\mu\text{m}$  long and 43—70  $\mu\text{m}$  wide) with a more or less distinct collar. The collar has the same diameter as the width of the funnel. The length of funnel is about half of body-diameter and pass into a thin (7  $\mu\text{m}$ ) vas deferens forming a loose coil. The

male pore present in segment VIII (76%) or IX (17%), and occasionally in VII or X. The penial bulb (Figs 10, 11) very conspicuous, egg-shaped and consists of two halves. The sperin duct penetrates it only at the male pore. The penial bulb is very similar to that of *E. bigeminus* in redescription of BOUGUENEC and GIANI (1987, Fig. 3H), but *E. dudichi* has not any glands around the male pore. The spermatheca (Figs 5, 6) forms a large spherical or ovoid ampulla communicating with the oesophagus and contains a lot of sperms. The ectal duct of spermatheca is relative long, covered by glands of the same size. The glands well visible but not too large. The spermathecas open in the intersegmental groove IV/V.

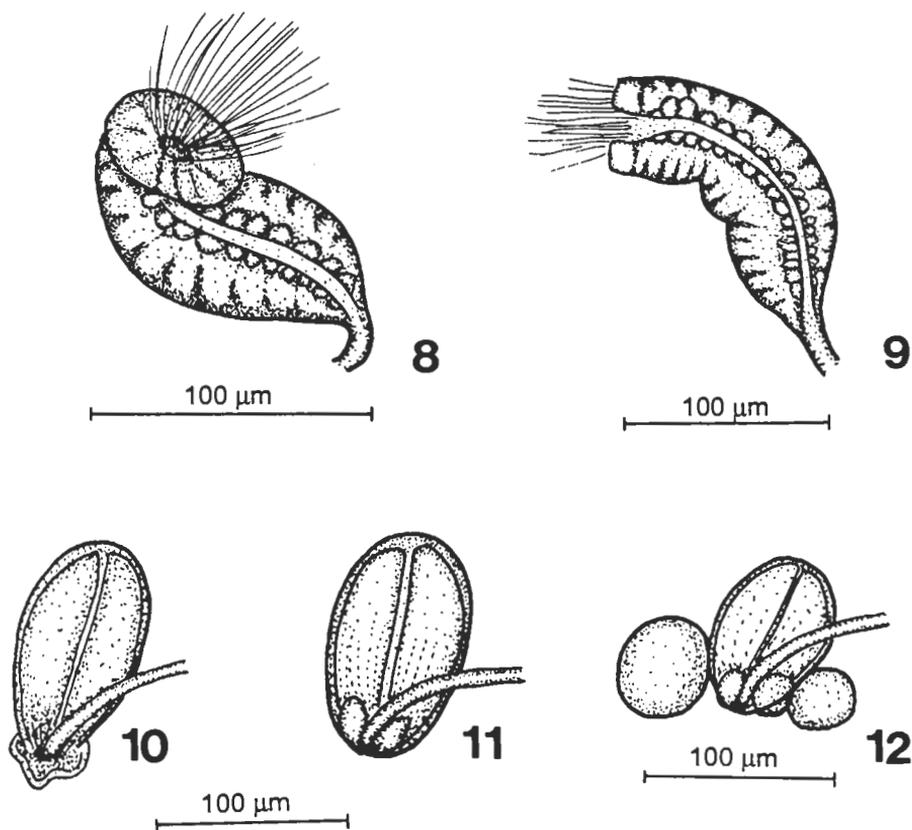


Fig. 8—11. *Enchytraeus dudichi* sp. n. 8—9: sperm funnel, 10: penial bulb extruded, 11: penial bulb. — Fig. 12. *Enchytraeus bigeminus* NIELSEN & CHRISTENSEN, 1963. Male pore with the penial bulb

Reproduction: sexually and asexually with fragmentation.

Holotype: En.1. Paratypes: P.32.1 — P.32.9., from different enchytraeid cultures, 88 specimens, 20 juveniles and 23 fragments. The animals were fixed in bouen and stored in 70% ethanol. Type material is deposited at the Department of Systematic Zoology and Ecology of the Eötvös University, Budapest.

Occurrence: From an enchytraeid culture which was made from a garden-soil of Za bol near Hamun Lake, Iran. In the culture also *E. bigeminus* and *E. sp.* occurred. The soil sample was collected in November 1993, by Dr. FERENC BASKA.

Uptill now 4 fragmenting species of the genus *Enchytraeus* (*E. fragmentosus* BELL, 1959, *E. bigeminus* NIELSEN & CHRISTENSEN, 1963, *E. variatus* BOUGUENEC & GIANI, 1987 and *E. japonensis* NAKAMURA, 1993) have been described. The reproductive organs of *E. japonensis* are unknown. The clitellum of *E. variatus* is on the XII and XIII segments, but is displaced some segments forwards in *E. bigeminus* and *E. fragmentosus*, likewise as in *E. dudichi*. *E. fragmentosus* and *E. japonensis* have only 2 setae in a bundle. *E. bigeminus* has 2 attached cells of the setal sac, *E. variatus* 2-10, in the new species these are absent. I think the new species comes closest to *E. bigeminus*, regarding the size (but *E. dudichi* is the largest species among the fragmenting *E. spp.* with its maximum 128 segments and 21 mm), the form of peptonephridia and spermatheca, the size of sperm funnel, but the glands on the duct of spermatheca are different. This glands are in *E. bigeminus* larger and form two sets around the orifice (Fig. 7), furthermore at the male pore there are one large and two smaller compact structures attached to the body wall in front of and behind the pore (Fig. 12), while they are lacking in the new species.

The new species was named in honour of Prof. Dr. ENDRE DUDICH, founder of the Department of Systematic Zoology and Ecology in the Eötvös University, Budapest.

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