

***DIDILIA* SP. (TETRADONEMATIDAE: MERMITHOIDEA: NEMATODA), A PARASITE OF *PHLEBOTOMUS SERGENTI* IN PORTUGAL**

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Summary :

A tetradonematid parasite of phlebotomine sandflies was found in the body cavity of a male *Phlebotomus sergenti* with unrotated genitalia caught near Tavira, Algarve, Portugal. It was identified as *Didilia* sp. (possibly *D. ooglypta*) by body length (3.4 mm), position of the vulva (anterior) and the sculpturing of the egg shell. This is the first European record of *Didilia*.

KEY WORDS : *Didilia*, parasitic nematode, phlebotomine sandflies, *Phlebotomus sergenti*, Portugal, geographical record.

Résumé : *DIDILIA* SP. (TETRADONEMATIDAE:MERMITHOIDEA: NEMATODA), PRÉSENCE DE CE PARASITE CHEZ *PHLEBOTOMUS SERGENTI* DU PORTUGAL

Près de Tavira, en Algarve au Portugal, un tétradonématode parasite de phlébotomes a été observé chez un *Phlebotomus sergenti* mâle dont l'appareil genital n'avait pas subi une rotation normale. Il a été identifié comme appartenant au genre *Didilia* (peut être *D. ooglypta*) d'après la longueur du corps (3,4 mm), la position de la vulve (antérieure) et l'aspect sculpté de l'œuf. Il s'agit de la première observation de *Didilia* en Europe.

MOTS CLÉS : *Didilia*, nématode parasite, Phlébotomes, *Phlebotomus sergenti*, Portugal, observation géographique.

Didilia Tang, Hominick, Killick-Kendrick, Killick-Kendrick and Page, 1993 is a monotypic genus of tetradonematid nematodes described from the phlebotomine sandfly *Phlebotomus papatasi* (Scopoli) in Afghanistan (Tang *et al.*, 1993). The species was named *D. ooglypta*. Similarly large nematodes with characteristically sculptured eggs have been seen in (a) *P. papatasi* in Pakistan (Lewis, 1967); (b) *P. sergenti* Parrot in Pakistan (Lewis, 1967), Saudi Arabia (Büttiker & Lewis, 1983), Afghanistan (Ashford, personal communication) and Morocco (Rioux, personal communication); (c) *P. kazeruni* Theodor & Mesghali in Jordan (Kamhawi, personal communication); (d) *Sergentomyia clydei* Sinton in Pakistan (Lewis, 1967) and Saudi Arabia (Büttiker & Lewis, 1983); (e) *S. christophersi* Sinton in Saudi Arabia (Büttiker & Lewis, 1983); (f) *S. adleri* Theodor; (g) *S. bedfordi* Newstead; and (h) *S. schuwetzi* Adler in Uganda (Barnley, in Büttiker & Lewis, 1983). From the preliminary descriptions of these parasites they appear to be *Didilia* species but, without a detailed examination of the morphology, they cannot yet be assigned to species *ooglypta*.

In the visceral leishmaniasis focus in the Cévennes, France, « a single, large unidentified nematode was found doubled-back on itself and filling much of the abdominal cavity of a sandfly... » (Brooks, 1985). The fly was one out of 1,436 female *P. ariasi* Tonnoir dissected in the commune of Roquedur, Gard, in the summer of 1985. As neither a description nor measurements of the eggs were given, the nematode remains unidentified. There are no similar reports from the Cévennes, although other nematodes have been found among many tens of thousands of specimens of *P. ariasi* from the same place which have been dissected over the past 30 years (Golvan *et al.*, 1963; Rioux & Golvan, 1969; Rioux *et al.*, 1969; Killick-Kendrick *et al.*, 1976), and Ribeiro *et al.* (1994) reported a nematode in *P. ariasi* in Arriba, Portugal. *Didilia* has not been recorded in sandfly species of the subgenus *Larrousius* Nitzulescu, to which *P. ariasi* belongs, and Tang *et al.* (in press) failed experimentally to infect a closely related fly, *P. (Larrousius) perniciosus* Newstead, with *D. ooglypta* in the laboratory. The most likely explanation of Brooks' report is that he came across an accidental infection of a parasite normally of an invertebrate other than sandflies.

We report here the first identification of *Didilia* in Europe. The nematode was found in the body cavity of a male specimen of *P. sergenti* caught on 11 August, 1993 in a CDC miniature light trap near Tavira, Algarve, Portugal. The fly had unrotated genitalia (Fig. 1) which

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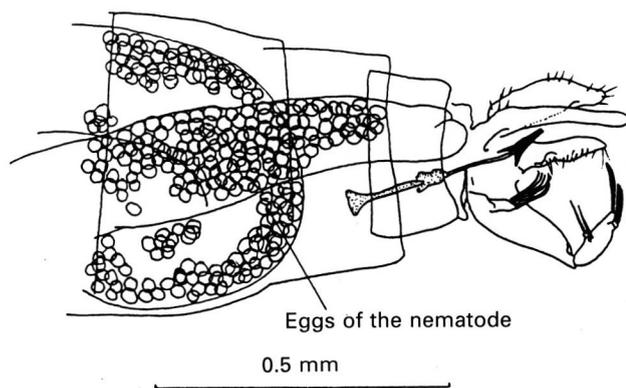


Fig. 1. — The tip of the abdomen of Portuguese *P. sergenti* showing the position of a gravid female *Didilia* sp. and unrotated genitalia of the male fly.

is typical of sandflies infected with *D. ooglypta* (Killick-Kendrick *et al.*, 1989). The nematode was a mature female with an anteriorly positioned vulva and spherical, heavily sculptured eggs. A comparison of its size with that of *D. ooglypta* (Tang *et al.*, 1993) is given in Table I.

There is no statistically significant difference in the body length or egg diameter, but the width of the body of the Portuguese specimen is significantly more than that of *D. ooglypta*. However, since the comparison is made between a specimen in a wild caught fly and others from laboratory infections, this difference may be misleading. The nematode from Portugal is assigned to the genus *Didilia* by its length, the anterior position of the vulva and the fact that it prevented the rotation of the genitalia of the male sandfly. From the size and appearance of the eggs, it is provisionally identified as species *ooglypta*, but further studies are necessary to confirm this identification.

Didilia ooglypta is easily established in laboratory bred sandflies and it is suggested that workers who find large nematodes with heavily sculptured eggs in the abdominal cavity of a sandfly should endeavour to feed the eggs to first instar larvae of the same species of phlebotomine and rear out adults flies, many of which may be infected. Later instars of sandfly larvae are not

Nematode	Body length	Body width	Egg diameter
<i>Didilia</i> sp.	3,400 <i>n</i> = 1	200 <i>n</i> = 1	26.4 ± 2.2 (<i>n</i> = 25)
<i>D. ooglypta</i>	3,113 ± 361 <i>n</i> = 17	141 ± 16.4 <i>n</i> = 17	27.7 ± 1.5 (<i>n</i> = 17)

Table I. — Measurements ± SD (µm) of a tetradonematid of Portuguese *P. sergenti* and *D. ooglypta* of Afghan *P. papatasi*.

susceptible. If eggs cannot be fed to larvae immediately, they will remain viable at room temperature in moist conditions for up to two years (Tang *et al.*, 1993) and can be kept for laboratory infections at a later date. Morphological studies of the developmental stages of the parasite would then be possible to see if there is more than one species in the genus *Didilia*. The type host is *P. papatasi*, although there are more reports from *P. sergenti* than any other species of sandfly.

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