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Short Communication / *Kısa Bilimsel Çalışma*

First record of *Synhimantus (S.)laticeps* (Rudolphi, 1819) Railliet, Henry et Sisoff, 1912 (Nematoda, Acuariidae) in *Accipiter nisus* (Aves, Accipitridae) in Turkey

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Summary: One female and two male nematodes were identified as *Synhimantus (Synhimantus) laticeps* (Rudolphi, 1819) Railliet, Henry et Sisoff, 1912 in the postmortem examination of a female goshawk's gizzard (*Accipiter nisus*) which was brought to our Parasitology Laboratory by the Directorship of Environmental and Forestry authorities of Samsun, Turkey in September, 2008. Some morphological features, measures and photographs of the nematodes were given within this report. To our knowledge, this is the first report of *Synhimantus (S.) laticeps* and also the genus from Turkey.

Key words: Accipiter nisus, goshawk, *Synhimantus (S.) laticeps,* Turkey

Türkiye'de atmacada (Aves, Accipitridae) ilk *Synhimantus (S.)laticeps* (Rudolphi, 1819) Railliet, Henry et Sisoff, 1912 (Nematoda, Acuariidae) olgusu

Özet: Bu çalışmada, Samsun Çevre ve Orman İl Müdürlüğü tarafından Eylül 2008'de Fakültemiz Parazitoloji laboratuarına getirilen bir dişi atmacanın postmortem muayenesi sırasında midesinden bir dişi ve iki erkek *Synhimantus laticeps* (Rudolphi, 1819) Railliet, Henry et Sisoff, 1912 teşhis edilmiştir. Türkiye'de bu cins ve *Synhimantus laticeps'*in ilk kayıt olması nedeniyle parazitin önemli morfolojik özellikleri, ölçümleri ve fotoğrafları verilmiştir.

*Anahtar sözcükler***:** *Accipiter nisus,* atmaca, *Synhimantus(S.)laticeps,* Türkiye.

Acuariid nematodes which belong to *Synhimantus (Synhimantus)laticeps* (Rudolphi, 1819) Raillet, Henry and Sisoff, 1912 are characterized by their anastomosed cordons, a long buccal capsule and their tricuspid deirids located posterior to the cordons (7). This species was widely reported from all around the world, especially Turkistan, Russia, Bulgaria, Spain, Algeria, USA and India in some raptor birds (*Accipiter, Aegiolus, Aquila, Asio, Bubo, Buteo, Circus, Cerchenis, Falco, Gyps, Otus,* and *Strix*) (1,9). Despite its cosmopolite distribution, information about this nematode morphological feature is restricted. This parasite is located in oesophagus, crop, gizzard, stomach and intestines (6,9).

Acuariidae is a very wide family which contains 25 genera and some of them are *Acuaria, Dispharynx, Echinuria, Seuratia, Streptocara, Synhimantus,* etc. The *Synhimantus* genus resembles to *Dispharynx* that is seen in Turkey. However some authors considered that *Dispharynx* is a subgenus of *Synhimantus* (10), it can be differentiated by anastomosed and recurrent cordons (2).

Synhimantus contains of 25 species, but just nine of them were seen in Europe; S. *affinis, S. elliptica, S. falconis, S. hamatus, S. laticeps, S.niloticus, S. robertodollfusi, S. sirry* and *S. spiralis.* (7,8), *Synhimantus (S.) laticeps* can be defined by recurrent and anastomosed cordons, long and narrow buccal capsule, posteriorly located tricuspid cervical papilla behind the cordons, and the unequal and dissimilar male spicules, distal end of left spicule has complexity (1,3,9)

Some morphological features, measures and photographs of the nematodes were given within this report. To our knowledge, this is the first report of *Synhimantus (S.) laticeps* and also the genus from Turkey.

A wounded female goshawk had been died during the transport to our faculty clinics for treatment by the Directorship of Environmental and Forestry authorities of Samsun, Turkey in September, 2008. Initially, the gastrointestinal system was opened in the Parasitology Laboratory. Each organ contents were separately sieved

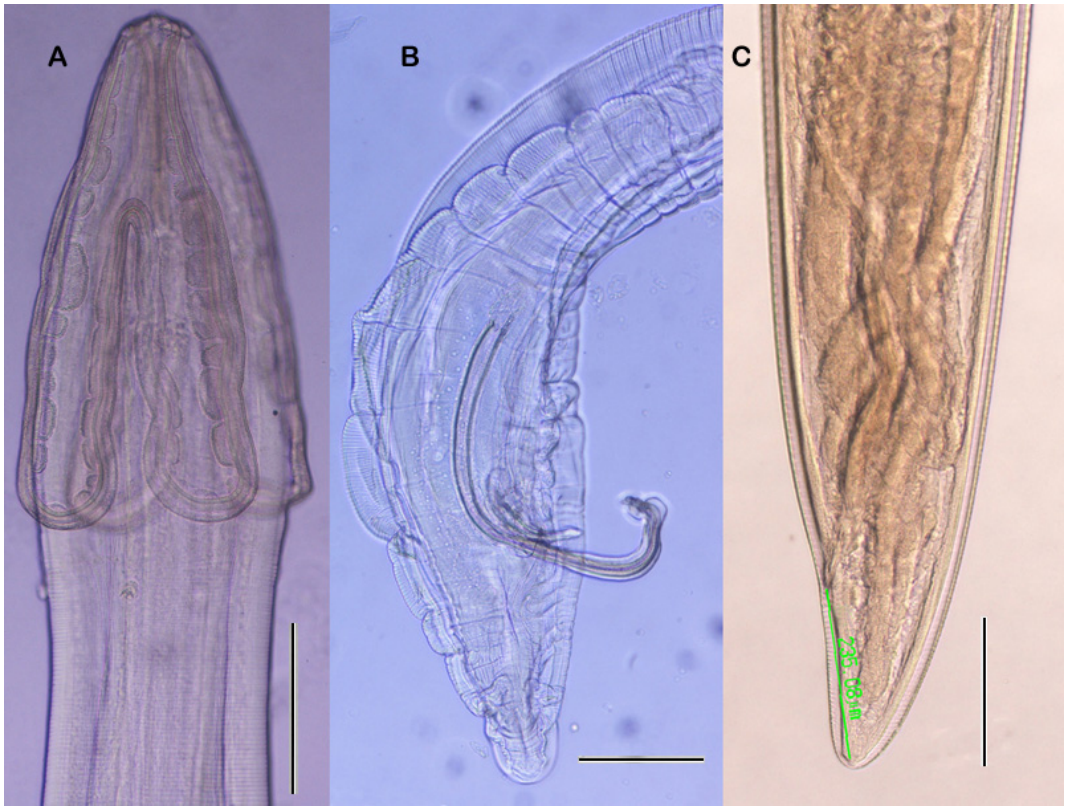

Figure 1. A. Anterior part of male, B. Posterior extremity and spicules of male, C. Posterior end of female. (Scale bars in three figures: 200 µm)
Şekil 1. A. Erkeğin ön kısmı, B. Erkeğin arka ekstremitesi ve spikülü, C. Dişinin arka kısmı. (Her üç şekildede bar 200 µm)

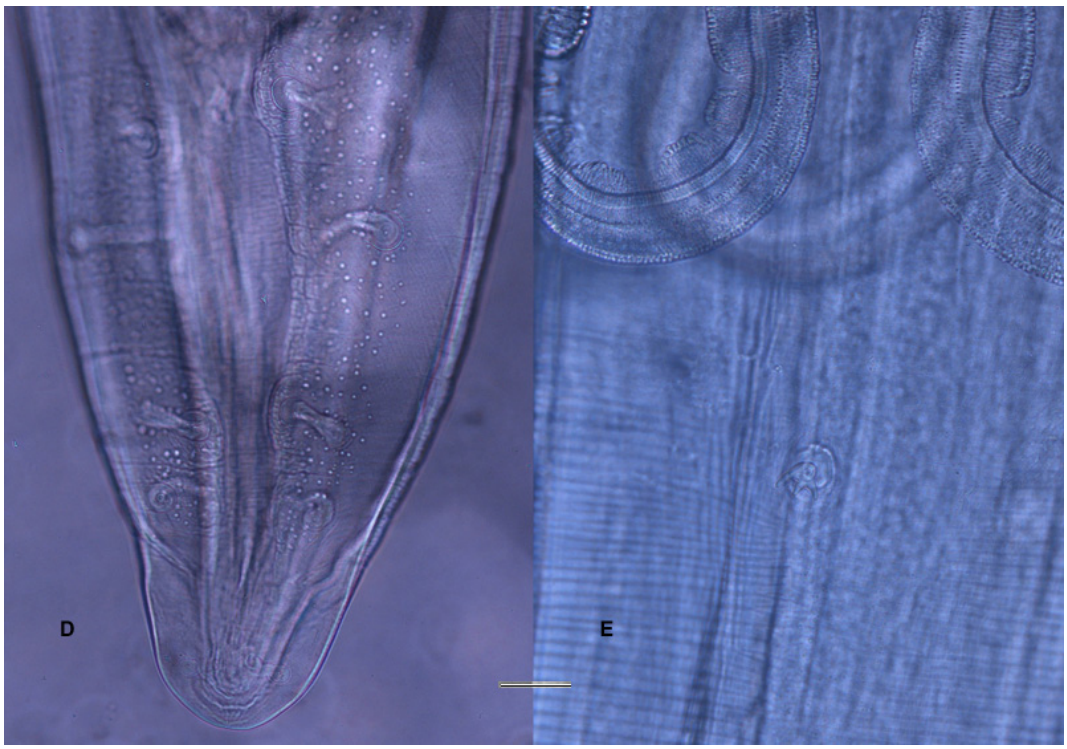

Figure 2. D. Posterior end of male and post anal papillae, E. Tricuspid cervical papilla (Scale bar 50 µm)
Şekil 2. D. Erkeğin arka kısmı ve post anal papilla, E. Trikuspid servikal papilla (Bar 50 µm)

through 100 µm pore diameter sieve and examined under the stereomicroscope (Nikon SMZ 1500). Collected parasites were washed in physiological saline, than fixed in 70% hot alcohol, and cleared in lactophenol for examination. After examination, specimens were preserved in; 92 part 70% ethanol, 5 part glycerine, and 3 part commercially available formalin solution. They were then measured and identified using a (Nikon Eclipse 80i) microscope.

Parasite identify card

Host: *Accipiter nisus,* goshawk (Aves, Accipitridae)

Site of infection: Gizzard

Locality: Çarşamba, Samsun, (40° 50' - 41° 51' North latitude, 37° 08' and 34° 25' East longitude), Black Sea Region, Turkey.

Intensity of infection: 3 (1 female and 2 male) nematodes from *Accipiter nisus*.

Material deposited: Voucher specimens were deposited in the Helminth Coll. No. 2008/3 Department of Parasitology, Faculty of Veterinary Medicine, Samsun, Turkey.

Description

Cuticle with clear transverse striations. Anterior end with two lateral pseudolabia. Cordons recurrent, anastomosing on each lateral surface. Cervical papilla (deirids) tricuspid and located posteriorly to the cordons. Buccal capsule narrow, long and expanded anteriorly. Four large cephalic papillae located at the base of pseudolabia. Oral aperture oval-elongated. Spicules are clearly unequal. Five pairs of post-cloacal are pedunculated papillae and one pair of sessile papillae (1,3,7,9).

Male (n=2): Length 8.04 (8.00 – 8.08) mm. Width 235.78 µm (220.04-251.51). Cordons long 371.74 (325.01-418.47) µm. Cordon width 166.11 (139.00-193.22) µm. Buccal capsule 191.17 (176.18-206.16) µm long, nerve ring 253.29 (205.14-301.43) µm, deirids 432.35 (400.87-463.82) µm, excretory pore 386.94 (344.66- 429.21) µm from anterior extremity. Deirids 19.91 (18.46-21.35) µm long (Fig.1-A, 2-E). Spicules are dissimilar and unequal. Right spicule 251.82 (204.83-298.81) µm and left spicule 708.69 (696.30-721.08) µm in length and distal end of it is complex shape (Fig.1-B). Tail 149.06 (132.70-165.42) µm long (Fig.2-D, Table 1).

Female (n=1): Length 15 mm. Width at the level of the vulva 480.03 µm. Cordons 635.64 µm long, 314.17 µm width, recurrent, approximately 1/3 part of the length anastomosing. Buccal capsule 269.38 µm long, nerve ring 404.35 µm, deirids 712.71 µm distance from anterior extremity. Deirids 21.31 µm long (Fig.2-E) Oesophagus 4.26 mm in length. Muscular oesophagus 908.18 µm in length and glanduler oesophagus 3.35 mm in length. Vulva 5.74 mm from tip of tail. Larvated eggs 37.66 in length and 23.98 in width. Tail 235.08 µm in length (Fig.1-C, Table 2).

Table 1: Comparative mean values measurements (µm) of male specimens of *S. (S.) laticeps.*
Tablo 1. Erkek *S. (S.) laticeps*'in karşılaştırmalı ölçüleri (µm).

Male	Smogorzhevskaya (1990)	Etchegoin et al. (2000)	Acosta et al. (2008)	Present specimens
Length	8000	4470	8890	8040
Width	200	145	237	235.78
Cordons length	416	149	360	371.74
Cordons width	-	-	-	166.11
Buccal capsule (dfae)	220	107	215	191.17
Nerve ring (dfae)	260	139	-	253.29
Excretory pore (dfae)	-	164	408	386.94
Deirids (dfae)	315-465	165	477	432.35
Deirids long	-	11.6		19.91
Right spicule	156-184	194	202	251.82
Left spicule	660	554	796	708.69
Tail	-	90	347	149.06

dfae**:** distance from anterior extremity

Table 2**:** Comparative mean values measurement (µm) of female specimens of *S. (S.) laticeps*
Tablo 2. Dişi *S. (S.) laticeps*'in karşılaştırmalı ölçüleri (µm).

Female	Smogorzhevskaya (1990)	Etchegoin et al. (2000)	Present specimen
Length	1400-1800	4850	1500
Width	416	215	480.03
Cordons length	747	146	635.64
Cordons width	-	-	314.17
Buccal capsule (dfae)	-	108	269.38
Nerve ring (dfae)	-	168	404.35
Excretory pore (dfae)	-	258	-
Deirids (dfae)	-	233	712.71
Deirids long	-	14	21.31
Muscular oesophagus	714	405	908.18
Glandular oesophagus	3000	2110	3350
Vulva from tip of tail	4250	2110	5740
Larvated eggs in length	40-43	35.6	37.66
Larvated eggs in width	20-22	20	23.98
Tail	166	144	235.08

dfae**:** distance from anterior extremity

Some authors accepted that *Dispharynx* genus which occurs in Turkey (4) is a subgenus of the *Synhimantus* genus. *Dispharynx nasuta* is rarely seen as *Synhimantus (Dispharynx) nasuta* in the literatures (10). However, cordons with anastomosing were accepted as *Synhimantus* (*Synhimantus*) in contrast cordons without anastomosing were accepted as *Synhimantus* (*Dispharynx*) genus (2).

Synhimantus (S.) laticeps were reported in different birds in some European countries (Germany, Netherlands, Spain, France and Greece) (1,5,6). Sanmartin *et al.* (2004) and Acosta et al. (2008) reported that *S. (S.) laticeps* is a common species which found 60% and 36.5% in Falcaniform birds in Spain, respectively. Recently Papazahariadou *et al*. (2008) reported *Synhimantus(S.)laticeps* in Greece from free-ranging birds (*Buteo buteo*).

Our morphological measurements were similar to literatures (1,3,7) except small differences (Table 1, 2).

Turkey is located at the junction of three continents, with natural important route for seasonal migration for the wild birds in the world. Also in Turkey there are some important wetlands (Kızılırmak "*redriver*"delta in Bafra, Yeşilırmak "*greenriver*" delta in Çarşamba) which provide a habitat for a large number of migratory birds and resident species. So the new species or/and new diseases can be seen every year.

The reason of these differences is may be arisen from different hosts, so host size is effected by the parasite size in classical knowledge. Therefore, some morphological measurements of the species were similar except little differences in the literature (2,6).

A detailed description and some morphological and general structures for the definition about an adult male and a female of *S. laticeps* is presented with this report to guide for other *Synhimantus species* while *S. (S.) laticeps* is reported for the first time by the present study in Turkey.

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