

Helminth Parasites of *Anatololacerta anatolica* (Werner, 1902) from Western Provinces (Aydın, Bursa, Çanakkale, İzmir) of Türkiye

NURHAN SÜMER,¹ HİKMET SAMİ YILDIRIMHAN,^{1,4} CHARLES ROBERT BURSEY,² SEZEN BİRLİK,¹ YUSUF KUMLUTAŞ,³ ÇETİN İLGAZ,³ KAMIL CANDAN,³ AND ELİF YILDIRIM CAYNAK³

¹ Department of Biology, Science, and Literature Faculty, Uludag University, 16059 Bursa, Türkiye (e-mail: nsumer@uludag.edu.tr; yhikmet@uludag.edu.tr; sezen@uludag.edu.tr),

² Department of Biology, Pennsylvania State University, Shenango Campus, Sharon, Pennsylvania 16146, U.S.A. (e-mail: cxb13@psu.edu), and

³ Department of Biology, Faculty of Science, Dokuz Eylül University, 35160, İzmir, Türkiye (e-mail: yusuf.kumlutas@deu.edu.tr; cetin.ilgaz@deu.edu.tr; kamil.candan@deu.edu.tr; yildirim.elif@deu.edu.tr).

ABSTRACT: Thirty-eight individuals of *Anatololacerta anatolica* (Werner, 1902) (17 males, 20 females, and 1 juvenile) were collected by hand from western Provinces of Türkiye and the following helminth species were found: 1 species of Digenea *Plagiorchis elegans* (Rudolphi, 1802) Braun, 1902, 1 species of Cestoda *Mesocestoides* sp. (tetrathyridia), and 4 species of Nematoda *Skrjabinodon medinae*, *Skrjabinelazia hoffmanni* Li, 1934, *Skrjabinelazia taurica*, and *Spauligodon aloisei*. *Anatololacerta anatolica* represents a new host record for *P. elegans*, *S. taurica* and *S. aloisei*.

KEY WORDS: lizard, helminth, parasite, Digenea, Cestoda, Nematoda.

The Anatolian rock lizard, *Anatololacerta anatolica* (Werner, 1902), is endemic to western Anatolia (Asia Minor) north of the Big Menderes River and to the islands close to the coast (some Turkish, others Greek) occurring at altitudes up to 1,600 m in rocky outcrops, cliffs, boulders, and drystone walls as well as rocky areas in woodlands often near streams (Arnold and Ovenden, 2002). There is 1 previous helminthological study of *A. anatolica* in Türkiye (Yıldırımhan et al., 2020) which reported 6 species, including 1 species of Cestoda: *Mesocestoides* sp. (tetrathyridium); 4 species of Nematoda: *Skrjabinodon medinae*, *Spauligodon saxicolae*, *Skrjabinelazia hoffmanni* Li, 1934, and *Ascarops strongylina* (larvae in cysts); and 1 species of Acanthocephala: *Plagiorhynchus* sp. (cystacanth).

This study provides new helminthological data for *A. anatolica* by adding 3 new species to the host list.

MATERIALS AND METHODS

Thirty-eight *A. anatolica* individuals were captured in different localities: 10 from Çanakkale Province collected 14 May 2013 to 25 April 2014; 6 from Aydın Province collected 26 May 2013; 15 from İzmir Province collected 30 May 2013; and 7 from Bursa Province collected 3 June 2013. Hosts were transported to the parasitology laboratory, anesthetized, and killed with an injection of sodium pentobarbital. The

body cavities were opened, and the digestive tract removed. The body cavity, esophagus, stomach, small and large intestines, and lungs of each host were dissected and examined under a dissecting microscope. Trematodes were killed in hot 70% ethanol, stained with iron carmine, dehydrated, cleared, and mounted in Entellan (Merck). Nematodes were killed in a hot saline solution, fixed in 70% ethanol, cleared in a drop of glycerol on a glass slide, and identified from temporary mounts. Helminth identifications were based on the reference keys of Schmidt (1986) and Yamaguti (1961). Helminth voucher specimens were deposited in the Helminthological Collection of Uludag University Museum of Zoology, Bursa, Türkiye (BUUZM-HELM-2022, 1–6). Lizard specimens were deposited in the Department of Biology, Uludag University, Bursa, Türkiye.

RESULTS

Of the 38 lizards examined, 19 (50%) were infected by a total of 142 helminths assignable to 6 species: 1 species of trematode ($n = 1$), 1 species of cestode ($n = 17$), and 4 species of nematodes ($n = 124$). No individual host harbored more than 3 species of helminths. Of the infected lizards 16 (84%) harbored 1 species of helminth, 2 hosts (11%) harbored 2 species, and 1 host (6%) harbored 3 species. On average, there were 1.2 ± 0.3 species per infected host (range 1–3) and 7.6 ± 9.2 helminth individuals per host (range 1–35). Site of infection, number of helminths, prevalence, mean

⁴ Corresponding author.

Table 1. Site of infection, number of helminths, prevalence, mean intensity, abundance, and range of infection for 6 endoparasitic species in *Anatololacerta anatolica* from Türkiye.

Helminth	Site of infection	No. of helminths	Prevalence, n/total (%)	Mean intensity	Abundance	Range
<i>Plagiorchis elegans</i>	Small intestine	1	1/38 (2.63)	1	0.02	0–1
<i>Mesocestoides</i> sp. (tetrathyridia)	Body cavity	17	3/38 (7.89)	5.6	0.44	0–10
<i>Skrjabinodon medinae</i>	Large intestine	13	5/38 (13.15)	2.6	0.34	0–6
<i>Skrjabinelazia hoffmanni</i>	Small intestine	17	4/38 (10.52)	4.25	0.44	0–10
<i>Skrjabinelazia taurica</i>	Small intestine	2	1/38 (2.63)	2	0.05	0–2
<i>Spauligodon aloisei</i>	Large intestine	92	9/38 (23.68)	10.2	2.42	0–35

intensity, abundance, and range of infection are detailed in Table 1.

The following species (with species accounts) collected from lizards are as follows:

***Plagiorchis elegans*
(Rudolphi, 1802) Braun, 1902**

(Syn. *Fasciola elegans* Rudolphi, 1802; *Fasciola cirratus* Rudolphi, 1802; *Distoma colubri natrix* Rudolphi, 1809; *Distoma elegans* (Rudolphi, 1802) Rudolphi, 1809; *Distoma colubri tessellati* Rudolphi, 1819; *Distoma lacertae* Rudolphi, 1819; *Distomum (Brachylaimus) elegans* (Rudolphi, 1802) Dujardin 1845; *Distomum erraticum* Linstow 1894; *Plagiorchis cirratus* (Rudolphi, 1802) Lühe, 1899; *Plagiorchis mentulatus* (Rudolphi 1819) Stossich, 1904; *Plagiorchis asperus* Stossich, 1904; *Plagiorchis notabilis* Nicoll, 1909; *Plagiorchis marii* Skrjabin, 1920; *Plagiorchis blumbergi* Massino 1927; *Plagiorchis brauni* Massino 1927; *Plagiorchis loossi* Massino 1927; *Plagiorchis massino* Petrov and Tichonoff, 1927; *Plagiorchis multiglandularis* Semenow, 1927; *Plagiorchis skrjabini* Massino 1927; *Plagiorchis uhlwormi* Massino, 1927; *Plagiorchis potanini* Skrjabin, 1928; *Plagiorchis eutamiatiss* Schulz, 1932; *Plagiorchis casarci* Mehra, 1937; *Plagiorchis ferruginum* Mehra, 1937; *Plagiorchis eutamiatiss* Zibethicus Vassiliev 1939; *Plagiorchis extremus* Strom, 1940; *Plagiorchis strictus* Strom, 1940; *Plagiorchis fuji* Ogata, 1941; *Plagiorchis ptschelkini* Sobolev, 1946; *Plagiorchis petrovi* Fediushin, 1949; *Plagiorchis oscineus* Sudarikov, 1950; *Plagiorchis castoris* Orloff et Moskalev, 1953; *Plagiorchis blatnensis* Chalupsky, 1954; *Plagiorchis raabei* Furmaga, 1956; *Plagiorchis stefanski* Furmaga, 1956, *Plagiorchis muris* sensu Prokopic and Genov, 1974; *Plagiorchis proximus* sensu Prokopic and Genov, 1974; *Plagiorchis cuculi* Schaladybin, Anikin, Budkin et Suslova, 1977).

Temporal distribution: İzmir, 30 May 2013, 1 host infected with 1 specimen.

Museum accession number: BUUZM-HELM-2022, 1

Type host and type locality: *Passer domesticus*, Germany (Rudolphi, 1802).

Additional Turkish records: *Chamaeleo chamaeleon* (Birlik et al., 2020), *Lacerta trilineata* (Yıldırımhan et al., 2011), *Podarcis muralis* (Yıldırımhan and Sümer, 2019), *Myotis alcathoe* (Sümer and Yıldırımhan, 2019), *Myotis daubentonii* (Sümer and Yıldırımhan, 2019).

Other reported hosts: **Amphibia:** *Bombina variegata* (Prokopic and Krivanec, 1975), *Pelophylax lessonae* (reported as *Rana esculenta*, Prokopic and Krivanec, 1975), *Rana temporaria* (Capuse, 1971); **Reptilia:** *Lacerta agilis* (Shechenko and Barabashova, 1958; Moravec, 1963; Capuse, 1971; Lewin, 1992a; Shimalov et al., 2000; Sharpilo et al., 2001; Borkovcova and Kopriva, 2004), *Lacerta viridis* (Capuse, 1971), *Zootoca vivipara* (reported as *Lacerta vivipara*, Lewin, 1992b; Shimalov et al., 2000), *Natrix natrix* (Capuse, 1971); **Aves:** *Accipiter gentilis* (Sitko, 1998), *Accipiter nisus* (Sitko, 1998), *Anas formosa* (Bykhovskaia-Pavlovskaja, 1962), *Anas platyrhynchos* (Styczynska-Jurewicz, 1962), *Calidris minuta* (Bykhovskaia-Pavlovskaja, 1962), *Calidris melanotos* (Tallman et al., 1985), *Gallinago gallinago* (Massino, 1927), *Carduelis flavirostris* (Massino, 1929), *Casarca ferruginea* (Mehra, 1937), *Chlidonias nigra*, (Massino, 1929), *Circus aeruginosus* (Bykhovskaia-Pavlovskaja, 1953; Krasnolobova, 1987), *Circus cyaneus* (Krasnolobova, 1987), *Circus macrourus* (Bykhovskaia-Pavlovskaja, 1953; Krasnolobova, 1987), *Coturnix coturnix* (Bykhovskaia-Pavlovskaja, 1953), *Corvus corax* (Massino, 1927), *Corvus corone* (Mühling, 1896), *Corvus frugilegus* (Braun, 1902), *Corvus monedula* (Massino, 1927), *Crex crex* (Macko, 1969), *Cucullus canorus* (Dubinina and Kulakova, 1960), *Delichon urbica* (Odening, 1961), *Dendrocopos major* (Bychovskaia-Pavlovskaja, 1954; Styczynska-Jurewicz, 1962), *Falco columbarius* (Massino, 1927; Krasnolobova,

1987), *Falco peregrinus* (Krasnolobova, 1987), *Falco subbuteo* (Bykhovskaia-Pavlovskaja, 1953; Styczynska-Jurewicz, 1962; Krasnolobova, 1987), *Falco tinnunculus* (Sitko, 1998) *Falco vespertinus* (Styczynska-Jurewicz, 1962; Krasnolobova, 1987), *Fringilla coelebs* (Bykhovskaia-Pavlovskaja, 1962), *Gallinago gallinago* (Massino, 1927), *Gallus gallus domesticus* (Odening, 1959), *Garrulus glandarius* (Bykhovskaia-Pavlovskaja, 1953), *Glareola pratincola* (Bykhovskaia-Pavlovskaja, 1962), *Hirundo rustica* (Odening, 1961), *Lanius collurio* (Massino, 1927), *Larus argentatus* (Bykhovskaia-Pavlovskaja, 1962), *Larus ichthyaetus* (Mhaisen et al., 1990), *Larus ridibundus* (Bykhovskaia-Pavlovskaja, 1962), *Limosa haemastica* (Kinsella et al., 2007), *Limosa limosa* (Bykhovskaia-Pavlovskaja, 1962), *Lyrurus tetrrix* (Bykhovskaia-Pavlovskaja, 1962), *Micropus apus* (Odening, 1961), *Milvus migrans* (Krasnolobova, 1987), *Motacilla alba* (Bykhovskaia-Pavlovskaja, 1962), *Motacilla flava* (Bykhovskaia-Pavlovskaja, 1962), *Muscicapa striata* (Styczynska-Jurewicz, 1962), *Numenius arquata* (Bykhovskaia-Pavlovskaja, 1962), *Numenius tenuirostris* (Bykhovskaia-Pavlovskaja, 1962), *Nyroca fuligula* (Styczynska-Kirewocz, 1962), *Oriolus oriolus* (Bykhovskaia-Pavlovskaja, 1962), *Otus scops* (Braun, 1902), *Pandion haliaetus* (Krasnolobova, 1987), *Panurus biarmicus* (Bykhovskaia-Pavlovskaja, 1962), *Parus major* (Braun, 1902; Bykhovskaia-Pavlovskaja, 1962), *Passer domesticus* (Braun, 1902), *Passer montanus* (Bykhovskaia-Pavlovskaja, 1962), *Periparus ater* (Massino, 1929), *Pernis apivorus* (Ferrer et al., 2004), *Philomachus pugnax* (Bykhovskaia-Pavlovskaja, 1962), *Pica pica* (Braun, 1902), *Plegadis falcinellus* (Bykhovskaia-Pavlovskaja, 1962), *Prunella modularis* (Styczynska-Jurewicz, 1962), *Sitta europaea* (Styczynska-Jurewicz, 1962), *Sterna hirundo* (Bykhovskaia-Pavlovskaja, 1962), *Sturnus vulgaris* (Bykhovskaia-Pavlovskaja, 1953), *Sylvia nisoria* (Bykhovskaia-Pavlovskaja, 1962), *Tetrastes bonasia* (Bykhovskaia-Pavlovskaja, 1962), *Tringa glareola* (Bykhovskaia-Pavlovskaja, 1962), *Turdus pilaris* (Bykhovskaia-Pavlovskaja, 1962), *Upupa epops* (Bykhovskaia-Pavlovskaja, 1962); **Mammalia:** *Alopex lagopus* (Malczewski, 1961; Rausch et al., 1983), *Apodemus agrarius* (Furmaga, 1956; Zarnowski, 1960; Shimalov, 2002; Chihai et al., 2020), *Apodemus flavicollis* (Matskasi, 1971; Chihai et al., 2020), *Apodemus sylvaticus* (Furmaga, 1956; Boyce et al., 2014; Chihai et al., 2020), *Canis familiaris* (Petrov and Tichonoff, 1927; Desrochers and

Curtis, 1987), *Clethrionomys glareolus* (Matskasi, 1971; Tenora et al., 1983; Mazeika et al., 2009; Chihai et al., 2020), *Felis domesticus* (Petrov and Tichonoff, 1927), *Micromys minutus* (Matskasi, 1971), *Microtus arvalis* (Chalupsky, 1954), *Myotis brandtii* (Demidova and Vekhnik, 2004), *Myotis mystacinus* (Demidova and Vekhnik, 2004), *Mus musculus* (Odening, 1959), *Neomys fodiens* (Panov and Karpenko, 2004), *Ondatra zibethicus* (Sey, 1965; Matskasi, 1971; Mazeika et al., 2009), *Procyon lotor* (Hoberg and McGee, 1982), *Sorex araneus* (Matskasi, 1971), *Didelphis virginiana* (Richardson, 2013).

Geographic range: Northern Hemisphere.

Remarks: *Plagiatorchis elegans* requires 3 hosts to complete its life cycle (Chihai et al., 2020). In the adult stage it parasitizes the small intestines of the definitive hosts (amphibians, reptiles, birds, mammals); in the larval stage it parasitizes the digestive tract of aquatic gastropods as first intermediate hosts, then in aquatic insects and crustaceans as second intermediate hosts. Given the broad host range, any insectivore might be expected to harbor *P. elegans*. *Anatololacerta anatolica* represents a new host record for *P. elegans*.

Mesocestoides sp. (tetrathyridia)

Temporal distribution: Çanakkale Province, 4 April 2007. One male host infected with 1 specimen; İzmir Province, 30 May 2013, 2 hosts infected with 6 and 19 specimens, respectively.

Museum accession number: BUUZM-HELM-2022, 2

Additional Turkish records: *Anatololacerta anatolica* (Yıldırımhan et al., 2020), *Anatololacerta danfordi* (Gürelli et al., 2007), *Apathya cappadocica* (Birlık et al., 2015), *Darevskia rudis* (Birlık et al., 2018a), *Darevskia valentini* (Birlık et al., 2018b), *Heremites auratus* (Yıldırımhan et al., 2021), *Iranolacerta brandtii* (Birlık et al., 2017), *Lacerta trilineata* (Yıldırımhan et al., 2011), *Lacerta viridis* (Yıldırımhan et al., 2020), *Phoenicolacerta laevis* (Birlık et al., 2016), *Podarcis muralis* (Yıldırımhan and Sümer, 2019).

Other reported reptilian hosts: The genus *Mesocestoides* is cosmopolitan and tetrathyridia can be found in all classes of vertebrates. We have listed known, accidental, or paratenic hosts reported from the Palearctic biogeographic region: *Anguis fragilis* (Lewin, 1990), *Eremias argus* (Dugarov et al., 2018), *Lacerta agilis* (Lewin, 1992a; Sharpilo et al., 2001; Nelli

et al., 2014), *Lacerta viridis* (Biserkov and Kostadinova, 1998), *Paralaudakia erythrogaster* (reported as *Agama erythrogaster*, Radchenko, 1973), *Lacerta media* (Nelli et al., 2014), *Lacerta schreiberi* (Roca and Ferragut, 1989), *Lacerta viridis* (Biserkov and Kostadinova, 1998), *Ophisops elegans* (Nelli et al., 2014), *Phrynocephalus mystaceus* (Ikromov and Cho, 2004), *Podarcis bocagei* (Roca et al., 1989), *Podarcis hispanica* (Roca et al., 1989), *Podarcis muralis* (Kirin, 2002a), *Podarcis pityusensis* (Roca and Hornero, 1991, 1994), *Psammodromus hispanicus* (Roca et al., 1986a; Roca and Lluch, 1988), *Tarentola delalandii* (Roca et al., 1987), *Coronella austriaca* (Biserkov, 1996), *Hierophis viridiflvus* (Santoro et al., 2013), *Zamenis longissimus* (reported as *Elaphe longissima*, Biserkov, 1996), *Gloydius halys* (reported as *Ancystrodon halys*, Bogdanov et al., 1969), *Natrix natrix* (Lewin, 1992b), *Vipera ammodytes* (Biserkov, 1995).

Geographic range: Cosmopolitan (McAllister et al., 1991).

Remarks: The life cycle of *Mesocestoides* sp. is thought to require 3 hosts (i.e., a vertebrate definite host, a vertebrate second intermediate host, and a purported arthropod first intermediate host) (Rausch, 1994). Tetrathyrida are frequently found in the body cavities of amphibians, reptiles, birds, and mammals (Padgett and Boyce, 2004). *Anatololacerta anatolica* represents the 12th host record for the genus *Mesocestoides* in Turkey.

Skrjabinodon medinae
(García-Calvente, 1948) Specian and Ubelaker,
1974

Syn. *Pharyngodon medinae* García-Calvente 1948; *Parathelandros medinae* [García-Calvente, 1948] Read and Amrein, 1953).

Temporal distribution: Bursa, 3 June 2013, 5 host with 1, 1, 2, 4, 3, and 6, respectively.

Museum accession number: BUUZM-HELM-2022, 3

Type host and type locality: *Lacerta muralis*, Spain (García-Calvente, 1948).

Additional Turkish records: *Anatololacerta anatolica* (Yıldırımhan et al., 2020), *Apathya cappadocica* (Birlik et al., 2015), *Darevskia rudis* (Birlik et al., 2018a; Yıldırımhan et al., 2020), *Darevskia valentini* (Birlik et al., 2018b), *Iranolacerta brandtii* (Birlik et al., 2017), *Lacerta trilineata* (Yıldırımhan et al., 2011), *Lacerta viridis* (Yıldırımhan et al., 2020), *Phoenicolacerta laevis* (Birlik et al., 2016).

Other reports: *Lacerta schreiberi* (Roca and Ferragut, 1989), *Podarcis bocagei* (Roca et al., 1989), *Podarcis hispanica* (Roca et al., 1986b; Roca and Lluch, 1988; Roca et al., 1989; Hornero and Roca, 1992a), *Podarcis lilfordi* (Hornero and Roca, 1992b; Roca and Hornero, 1994), *Podarcis muralis* (Calvente, 1948; Dollfus et al., 1961; Hornero and Roca, 1992a), *Podarcis pityusensis* (Roca and Hornero, 1991; Hornero and Roca, 1992a; Roca and Hornero, 1994), *Zootoca vivipara* (host reported as *Lacerta vivipara*, Dollfus et al., 1961).

Geographic range: France (Dollfus et al., 1961), Spain (Roca and Hornero, 1994), Türkiye (Yıldırımhan et al., 2011).

Remarks: The life cycle of *S. medinae* has apparently not been studied, but members of the family Pharyngodonidae are strictly monoxenous (Anderson, 2000). Typically, female worms produce thick-shelled eggs which are released and develop in the host through oral infection of the host (Anderson, 2000). *Anatololacerta anatolica* represents the ninth host record for *S. medinae* in Türkiye.

Skrjabinelazia hoffmanni
Li, 1934

Temporal distribution: İzmir Province, 30 May 2013, 4 hosts infected with 2, 2, 3, and 10 specimens, respectively.

Museum accession number: BUUZM-HELM-2022, 4

Type host and type locality: *Eremias argus*, China (Li, 1934).

Additional Turkish records: *Anatololacerta anatolica* (Yıldırımhan et al., 2020), *Darevskia rudis* (Birlik et al., 2018a), *Darevskia valentini* (Birlik et al., 2018b), *Lacerta trilineata* (Yıldırımhan et al., 2011), *Lacerta viridis* (Yıldırımhan et al., 2020), *Podarcis muralis* (Yıldırımhan and Sümer, 2019).

Other reports: *Crossobamon eversmanni* (Andrusko and Markov, 1956; Sharpilo, 1976), *Darevskia raddei* (host reported as *Lacerta raddei*, Khomustenko and Atayev, 1979), *Darevskia saxicola* (host reported as *Lacerta saxicola*, Sharpilo 1976), *Eremias argus* (Li, 1934; Dugarov et al., 2018), *Eremias nikolskii* (Sharpilo, 1976), *Lacerta agilis* (Sharpilo, 1976; Sharpilo et al., 2001), *Lacerta viridis* (Biserkov and Kostadinova, 1998), *Podarcis bocagei* (Roca et al., 1990; Galdon et al., 2006), *Podarcis carbonelli* (Galdon et al., 2006), *Podarcis hispanica* (Roca et al., 1990), *Podarcis lilfordi* (Hornero and Roca, 1992a; Roca and Hornero, 1994), *Podarcis muralis* (Roca

et al., 1990), *Tarentola angustimentalis* (Roca et al., 1999), *Teratoscincus scincus* (Sharpilo, 1976).

Geographic range: Azerbaijan (Khomustenko and Ataev, 1979), Bulgaria (Biserkov and Kostadinova, 1998), Central Asia (Andrusko and Markov, 1956) China (Li, 1934), Portugal (Galdon et al., 2006), Russia (Dugarov et al., 2018), Spain (Roca et al., 1990), Türkiye (Yıldırımhan et al., 2011), Ukraine (Sharpilo et al., 2001).

Remarks: The life history of *S. hoffmanni* apparently has not been studied. However, the congener *Skrjabinelazia galliardi* is claimed by Chabaud et al. (1988) to produce 2 types of egg, 1 thin-shelled and containing third-stage larva, probably autoinfective, and a second, red, thicker-shelled with third-stage larvae, which probably pass out of the host. This is the second report of *S. hoffmanni* in *A. anatolica*.

***Skrjabinelazia taurica* Sypliaxov, 1930**

Temporal distribution: İzmir Province, 5 May 2013, 1 host infected with 2 specimens.

Museum accession number: BUUZM-HELM-2022, 5

Type host and type locality: *Podarcis tauricus*, (reported as *Lacerta taurica*), Crimea (Sypliaxov, 1930).

Additional Turkish records: *Pelobates syriacus* (Yıldırımhan and Bursey, 2010), *Lacerta taurica* (Schad et al., 1960), *Lacerta viridis* (Schad et al., 1960; Yıldırımhan et al., 2020).

Other reports: *Podarcis bocagei* (Roca et al., 1989), *Psammmodromus algirus* (Busack and Bursey, 2016).

Geographic range: Spain (Roca et al., 1989), Türkiye (Schad et al., 1960).

Remarks: The life history of *S. taurica* apparently has not been studied. See remarks under *Skrjabinelazia hoffmanni*. This is the second report of *S. taurica* in *L. viridis* collected in Türkiye. In this study, specimens were assigned to *S. taurica* based the table of characteristics published by Lhermitte et al. (2007). *Anatololacerta anatolica* represents a new host record for *S. taurica*.

***Spauligodon aloisei* Cassanova, Milazzo, Ribas, and Cagnin, 2004**

Temporal distribution: Çanakkale Province, 14 April 2007, 1 host infected with 35 specimens; 25 April 2009, 2 hosts infected with 2 and 6 specimens, respectively; Aydın Province, 26 May 2013, 3 hosts infected with 1, 10, and 27 specimens, respectively;

İzmir Province, 30 May 2013, 3 hosts infected with 2, 2, and 7 specimens, respectively.

Museum accession number: BUUZM-HELM-2022, 6

Type host and type locality: *Podaracis sicula*, Italy (Casanova et al., 2003).

Additional Turkish records: *Darevskia rudis* (Birlık et al., 2018a), *Darevskia valentine* (Birlık et al., 2018b), *Iranolacerta brandtii* (Birlık et al., 2017).

Other reports: None.

Geographic range: Italy (Casanova et al., 2003), Türkiye (Birlık et al., 2017).

Remarks: The life cycle of *S. aloisei* has apparently not been described, but it is assigned to the family Pharyngodonidae whose members are strictly monoxenous (Anderson, 2000). *Anatololacerta anatolica* represents a new host record for *S. aloisei*.

DISCUSSION

Yıldırımhan et al. (2020) published a helminth list for 23 of the 44 lacertid lizards found in Turkey, on average there were 3.1 ± 3.2 species per host lizard (range 1–11). In the previous study of *A. anatolica*, Yıldırımhan et al. (2020) reported 6 helminth species: 1 species of Cestoda, *Mesocestoides* sp. (tetrathyridium); 4 species of Nematoda, *Skrjabinodon medinae*, *Spauligodon saxicolae*, *Skrjabinelazia hoffmanni*, and *Ascarops strongylina* (larvae in cysts); and 1 species of Acanthocephala, *Plagiorhynchus* sp. (cystacanth). This study expands the helminth list to 9 species, adding *Plagiorchis elegans*, *Skrjabinelazia taurica*, and *Spauligodon aloisei*. *Anatololacerta anatolica*, like other lacertid Turkish lizards, is infected by generalist helminths.

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