AQUATIC RESEARCH

E-ISSN 2618-6365

Aquat Res 6(4), 271-275 (2023) • https://doi.org/10.3153/AR23026 *Short Communication*

The first report and a new host record of leech fish, *Trachelobdella lubrica* (Grube, 1840) infecting the gills of *Sparus aurata* (Linnaeus, 1758) from the Gulf of Bejaia, Algeria

Souhila RAMDANI

Cite this article as:
Ramdani, S. (2023). First report and a new record of leech fish *Trachlobdella lubrica* (Grube, 1840) infecting the gills of *Sparus aurata* (Linnaeus, 1758) from the Gulf of Bejaia, Algeria. Aquatic Research, 6(4), 271-275. https://doi.org/10.3153/AR23026

University Abderrahmane Mira Bejaia, Faculty Life Sciences, Algeria

ORCID IDs of the author(s):
S.R. 0000-0003-4436-2620

ABSTRACT

This study is to be the first report and new host record of segmented worms in the family Piscicolidae, *Trachelobdella lubrica* parasitizing *Sparus aurata* off the coasts of Algeria. *Sparus aurata* constitutes new host record for *Trachelobdella lubrica.* 05 specimens of *Sparus aurata* were examined for their leech parasites. A single specimen of leech species was recovered from the gills of *Sparus aurata*. Typical characters allowed us to classify the leech as *Trachelobdella lubrica.*

Keywords: First report, *Trachelobdella lubrica*, New host, *Sparus aurata*, Algeria

Submitted: 21.06.2023
Revision requested: 05.07.2023
Last revision received: 09.07.2023
Accepted: 12.07.2023
Published online: 11.10.2023

Correspondence:
Souhila RAMDANI
E-mail: Souhilaramdani.dz@gmail.com

Available online at
http://aquatres.scientificwebjournals.com

Introduction

Leech in fish is well-known as ectoparasites that can attach directly to the main body of the fish (Bielecki et al., 2008) and to various sites on the body of the host, including the pectoral, pelvic, dorsal, and caudal fins (Bielecki et al., 2011; Kaygorodova et al., 2011; Schulz et al., 2011), the gill cavities (Volonterio et al., 2004; Oktener and Utevsky, 2010), the eyes (Murwantoko et al., 2018) and the mouth cavity (Cruz-Laccierda et al., 2000).

Leech infections can cause mortality from physical trauma and blood loss, predisposing hosts to secondary infections and transmitting pathogenic viruses, bacteria and flagellated haemoprotistans (Negm Eldin, 1995; Opara, 2002). *Piscicola geometra* was shown to transmit SVC virus to Carp (Ahne, 1985). Feeding wounds may become contaminated by opportunistic bacteria and fungi (Kabata, 1985).

Fish leeches of the Mediterranean Sea have been explored mainly from the Türkiye Sea (Oktener and Utevsky, 2010; Yanar et al., 2019), from Italy water (Bottari et al., 2017; Liuzzo et al., 2018) and Tunisia (Ben Ahmed et al., 2015).

In Algerian water, leeches in fish have never been recorded. A single specimen of marine leech species was recovered from the gills of *Sparus aurata* (Linnaeus, 1758) from the Gulf of Bejaia. Typical characteristics of this leech species allowed us to identify the leech as *Trachelobdella lubrica* (Grube, 1840).

To our knowledge, the presently reported *S. aurata* constitutes a new host record for the marine leech, and this is the first report of this parasite from the Mediterranean waters off the Algerian coast. This paper deals with a preliminary analysis of the morphology of the parasite leech.

Material and Methods

Fish samples, ranging between 375 to 525g, were obtained in the harbour from commercial boats fishing in the Gulf of Bejaia from February to May 2022. Fish specimens (n=05) were transported to the laboratory (University of Bejaia) in the more incredible container. Infected fish was photographed, and the parasite (P=20%) was removed from the host and fixed in ethanol for further morphological examinations, according to Epshteĭn, 1973 Sawyer et al. 1975 and Burreson, 2020.

Results and Discussion

This paper is the first documented report of marine fish leech infestation on the Algerian coast, with *Sparus aurata* as a new host record for the leech parasite *Trachellobdella lubrica*. The marine leech *T. lubrica* has been observed to infest several marine fishes in the Mediterranean Sea, from Tunisia (Ben Ahmed et al., 2015), Türkiye Sea (Saglam et al., 2003; Oktener and Utevsky, 2010), from the Italian coast Italy (Ghion et al., 1982) and from Israel water (Gabel et al., 2020). *T. lubrica* is abundant in all biogeographic regions, along the coast of Australia, the Philippines, the Hawaiian Islands, the United States, the Gulf of Mexico, Puerto Rico, the Canary Islands and New Zealand (Epshtein, 1973; Sawyer et al., 1975; Ernest et al., 1994; Garcés, 1995; Burreson et al., 2006; Burreson, 2020).

T. lubrica is a common parasite attaching to the gill cavity in numerous marine species of teleost fishes. The host *S. aurata* constitutes a new host record for *T. lubrica*. The host list of *T. lubrica* is presented in Table 1.

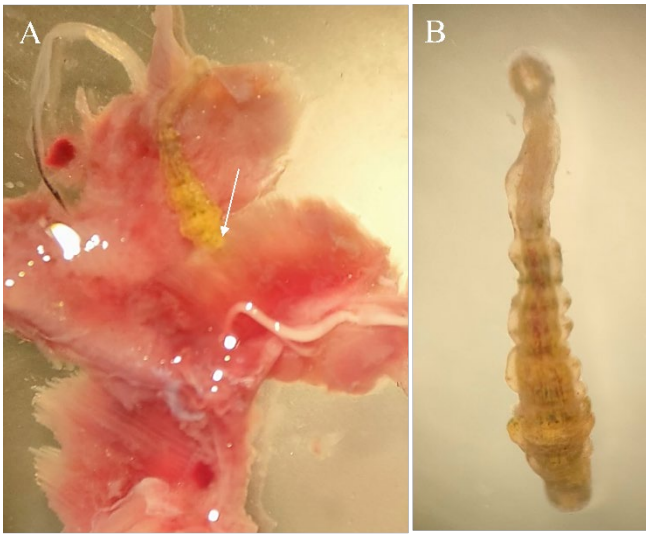

Figure 1. A: leech on gill aches of *Sparus aurata* (white Arrow*)*
B: leech total view. Scale bar: A, B, =1cm

Conclusion

The parasitic leech fauna in fish still needs to be studied in Algeria; further studies are necessary on parasitic leech fish in Algeria.

Table 1. List host species of leech parasite *Trachelobdella lubrica*

Leech specie	Host species	Locality	References
Trachelobdella lubrica	*Fistularia petimba*	Australia	Epshtein, 1973.
	Fistularia villosa	Philippine	
	Epinephelis guernus	Hawaiian Islands	
	Priacanthus boops		
	Priacanthus melki		
	Priacanthus cruentatus		
	Caranx adsensionis		
	Trachurus trachurus strachurus		
	Trachurus trachurus capensis		
	Sciaena umbra		
	Umbrina cirrosa		
	Lethrinus miniatus		
	Lethrinus nebulosus		
	Acanthopagrus bifasciatus		
	Diplodus annularis		
	Upeneus sulphureus		
	Paristiopterus gallipavo		
	Labrus sp.		
	Coris julis		
	Uranoscopus scaber		
	Nemadactylus macropterus		
	Blennius sanguinolentus		
	Siganus oramin		
	Gobius niger		
	Scorpaena scrofa		
	Scorpaena porcus		
	Chelidonichthys kumu		
	Taurulus bubalis		
	Solea solea		
	Lophius piscatorius		
	Lutjanus cyanopterus	United States Gulf of Mexico	Sawyer et al., 1975.
	Dicentrarchus labrax	Italy	Ghion et al., 1982.
	Pomacentrus partitus	Puerto Rico	Ernest et al., 1994.
	Sciaenops ocellatus	/	Garcés, 1995.
	Scorpaena porcus	Türkiye	Saglam et al., 2003.
	Scorpaena scrofa /	Canary Islands	Burreson et al., 2006.
	Labrus bergylta,	Türkiye	Oktener and Utevsky, 2010.
	Diplodus vulgaris		
	Epinephelus aeneus		
	Symphodus tinca	Tunisia	Ben Ahmed et al., 2015.
	Lethrinus Laticaudis	Australia	Burreson, 2020.
	Lutjanus sebae	New Zealand	
	Epinephalus merra		
	Lethrinus nebulosus		
	Scorpaena cardinalis		
	Lagocephalus sceleratus	Israel	Gabel et al., 2022.
	Sparus aurata	**Algeria**	**Present study**

Compliance with Ethical Standards

Conflict of interest: The authors declare that for this article, they have no actual, potential, or perceived conflict of interest.

Ethics committee approval: Ethics committee approval is not required.

Data availability: Data will be made available on request.

Funding disclosure: -

Acknowledgements: We warmly thank the fishermen who helped us in our sampling survey.

Disclosure: -

References

Ahne, W. (1985). Argulus foliaceus L. and Piscicola geometra L. as mechanical vectors of spring viraemia of carp virus (SVCV). *Journal of Fish Diseases,* 8, 241-242. https://doi.org/10.1111/j.1365-2761.1985.tb01220.x

Ben Ahmed, R., Romdhane, Y., Tekaya, S. (2015). Checklist and distribution of marine and freshwater leeches (Annelida, Clitellata, Hirudinea) in Tunisia with identification key. *Ecologica Montenegra*. 2(1), 2015, 3-19. https://doi.org/10.37828/em.2015.2.1

Bielecki, A., Rokicka, M., Ropelewska, E., Dziekońska−Rynko, J. (2008). Leeches (Hirudinida: Piscicolidae) parasites of Antarctic fish from Channichthyidae family. *Wiadomooeci Parazytologiczne*, 54(4), 345-348.

Bielecki, A., Kapusta, A., Cichocka, J.M. (2011). Atlantic sturgeon, *Acipenser oxyrinchus Mitchill*, infected by the parasitic leech, *Caspiobdella fadejewi* (Epshtein) (Hirudinea; Piscicolidae), in the Drwêca River. *Archives of Polish Fisheries*, 19, 87-93. https://doi.org/10.2478/v10086-011-0010-y

Bottari, T., Profeta, A., Rinelli, P., Gaglio, G., La Spada, G., Smedile, F., Giordano, D. (2017). On the presence of *Pontobdella muricata* (Hirudinea: Piscicolidae) on some elasmobranchs of the Tyrrhenian Sea (Central Mediterranean). *Acta Adriatica*, 58(2), 225-234. https://doi.org/10.32582/aa.58.2.3

Burreson, E., Martínez, A., Núñez, J., Moro, L. (2006). Primeros registros en Canarias de sanguijuelas marinas (Hirudinea, Piscicolidae). *Revista de la Academia Canaria de Ciencias*, XVIII (Núm. 4), 61-65.

Burreson, E.M. (2020). Marine and estuarine leeches (Hirudinida: Ozobranchidae and Piscicolidae) of Australia and New Zealand with a key to the species. *Invertebrate Systematics*, 34, 235-259. https://doi.org/10.1071/IS19048

Cruz-Lacierda, E.R., Toledo, J.D., Tan-Fermin, J.D., Burreson, E.M. (2000). Marine leech (*Zeylanicobdella arugamensis*) infestation in cultured, orange-spotted grouper, *Epinephelus coioides*. *Aquaculture*, 185(3-4), 191-196. https://doi.org/10.1016/S0044-8486(99)00356-7

Epshteĭn, V.M. (1973). New information on the structure, geographic distribution and hosts of the tropical marine leech *Trachelobdella lubrica* (Piscicolidae). *Parazitologiia*, 7(5), 427-436.

Gabel, M., Unger, P., Theisen, S., Palm, H.W., Rothman, S.B.S., Yitzhak, N., Morov, A.R., Stern, N. (2022). Parasites of pufferfish, *Lagocephalus* spp. and *Torquigener flavimaculosus* of the Israeli Mediterranean: A new case of Lessepsian endoparasites. *International Journal for Parasitology: Parasites and Wildlife*, 19, 211-221. https://doi.org/10.1016/j.ijppaw.2022.09.003

Garces, B.H.A. (1995). Primer informe de *Trachelobdella lubrica* (Piscicolidae) en *Sciaenops ocellatus* (Sciaenidae). *Revista Pradepesca*, 6/7. P. 54-55.

Ghion, F., Guidastri, R., Cittolin, G. (1982). New record of the leech *Trachelobdella lubrica* (Grube, 1840) from the sea bass (*Dicentrarchus labrax* L.) in the brackish water coastal ponds of the Po River delta, Northern Italy [(Anellida Hirudinea). *Rivista-Italiana-di-Piscicoltura-e-Ittiopatologia*, 17(4), 172-175.

Kabata, Z. (1985). Parasites and Diseases of Fish Cultured in the Tropics. Taylor & Francis, London & Philadelphia. ISBN: 0-85066-285-0

Kaygorodova, I.A., Dzyuba, E.V., Pronin, N.M. (2011). Leech-like parasites (*Clitellata, Acanthobdellida*) infecting native and endemic eastern Siberian Salmon fishes. *The Scientific World Journal,* 2012, 652827. https://doi.org/10.1100/2012/652827

Liuzzo, M., Alfonso, G., Beli, E., Arculeo, M., Marrone, F. (2018). First record of the alien leech *Myzobdella lugubris* Leidy, 1851 (Hirudinea, Piscicolidae) in the Palearctic. *Limnetica*, 37(2), 311-318. https://doi.org/10.23818/limn.37.25

Negm Eldin, M. (1995). Preliminary observation on leech (Hirudinea) infections in tilapia fish. *Alexandria Journal of Veterinary Sciences*, 11, 67-74.

Murwantoko, M., Negoro, S. L. C., Isnansetyo, A., Zafran, Z. (2018). Identification of marine leech and assessment of its prevalence and intensity on cultured hybrid groupers (*Epinephelus* sp.). *Biodiversitas*, 19(5), 1798-1804. https://doi.org/10.13057/biodiv/d190529

Oktener, A., Utevsky, S. Y. (2010). New information on the hosts and distribution of the marine fish leeches *Trachelobdella lubrica* and *Pontobdella muricata* (Clitellata, Hirudinida). *Vestnik Zoologii*, 44(4): e-33–e-36. https://doi.org/10.2478/v10058-010-0023-9

Opara, K. (2002). Population dynamics of *Piscicola geometra* (Hirudinea: Rhynchobdellida) on *Oreochromis niloticus* (cichlidae) cultured in a rainforest pond, South Eastern Nigeria. *Journal of Environmental Sciences*, 14, 536-540.

Saglam, N., Oguz, M. C., Celik, E.S., Doyuk, S.A., Usta, A. (2003). *Pontobdella muricata* and *Trachelobdella lubrica* (Hirudinea: Piscicolidae) on some marine fishes in the Dardanelles, Turkey. *Journal of the Marine Biological Association of the United Kingdom*, 83, 1315-1316. https://doi.org/10.1017/S0025315403008749

Sawyer, R.T., Lawler, A.R., Overstreet, R.M. (1975). Marine Leeches of the Eastern United States and the Gulf of Mexico with a Key to the Species. *Journal of Natural History,* 9(6), 633-667. https://doi.org/10.1080/00222937500770531

Schulz, C.A., Thomas, M.V., Fitzgerald, S., Faisal, M. (2011). Leeches (Annelida: Hirudinida) Parasitizing Fish of Lake St. Clair, Michigan, U.S.A. *Comparative Parasitology*, 78(1), 73-83. https://doi.org/10.1654/4439.1

Volonterio, O., López-de León, E., de León, R.P. (2004). Infestation dynamics and histopathology of two species of freshwater leeches (Hirudinea: Piscicolidae) on teleost fish from Uruguay. *Comparative Parasitology*, 71(1), 21-28. https://doi.org/10.1654/4087

Ernest, H., Williams, J. R., Bunkley-Williams, L., Burreson, E. M. (1994). Some New Records of Marine and Freshwater Leeches from Caribbean, Southeastern U.S.A., Eastern Pacific, and Okinawan Animals. *The Helminthological Society of Washington*, 61(1), 133-138.

Yanar, A., Özak, A. A., Başusta, N. (2019). A new record of *Pontobdella muricata* (Annelida: Hirudinea: Piscicolidae) from Iskenderun Bay, northeastern Mediterranean Turkey. *Biharean Biologist*, 13(1), 42-43.