J. Entomol. Res. Soc., 12(2): 15-19, 2010 *ISSN:1302-0250*

Halocladius (Halocladius) varians (Stæger, 1839), A New Chironomid Species for the Fauna of Turkey

Ayşe TAŞDEMİR

Ege University, Fisheries Faculty, Department of Hydrobiology 35100, İzmir, TURKEY
e-mails: ayse.tasdemir@ege.edu.tr, aysetasdemir71@hotmail.com

ABSTRACT

As a result of the samplings carried out at the Mediterranean coast of Turkey in 2005, *Halocladius (Halocladius) varians* was reported as a new species for Turkish fauna. Morphological characteristics of the species are described. Ecological notes on the habitat of the species are given.

Key words: Chironomidae, *Halocladius (Halocladius) varians*, Anatolia, Turkey, fauna.

INTRODUCTION

The family Chironomidae is one of the families of Diptera which includes taxa restricted to marine habitats (e.g. *Clunio* Haliday). Several other chironomid taxa tolerate brackish water in habitats influenced by sea water and saline sites inland resulting from water sources passing through salt deposits or drainage basins with high evaporation and little or no outflow (Colbo, 1996).

Halocladius Hirvenoja and *Thalassosmittia* Strenzke & Remmert have been reported also from inland saline enviroments but not in freshwater (Hirvenoja, 1973).

Halocladius is a small genus, only seven species have been reported as a member of it. According to the Catalogue of Life: 2009 annual check-list (http://www.catalogueoflife.org) and Fauna Europaea (Sæther & Spies, 2009), these species and their distributions were as follows:

Halocladius (Psammocladius) braunsi (Goetghebuer, 1942) (Western Europe); *Halocladius (Halocladius) fucicola* (Edwards, 1926) (Europe); *Halocladius (Halocladius) mediterraneus* (Hirvenoja, 1973) (Europe: Italy; Asia: Israel); *Halocladius (Halocladius) millenarius* (Europe: France, Germany, Spain; North Africa: Algeria; Canary Is.); *Halocladius (Halocladius) variabilis* (Staeger, 1839) (widespread in Europe; Manitoba; Greenland); *Halocladius (Halocladius) varians* (Staeger, 1839) (Europe; North Africa: Morocco, Azores) and *Halocladius vitripennis* (Meigen, 1818) (Quebec).

Up to date, *Halocladius (Halocladius) fucicola* and *Halocladius (Halocladius) millenarius* have been reported from the following localities in Turkey.

Halocladius fucicola was recorded from Şana Stream (Trabzon) (Baysal *et al*., 1994), Northern Aegean Region (Balık *et al*., 1999), Sazlıgöl (Ustaoğle *et al*., 2001),

Gümüldür Stream (Izmir) (Ustaoğlu *et al*., 2005), Thrace Region (Özkan, 2006a), Bozcaada (Özkan, 2006b), Tunca River (Çamur *et al*., 2006), Çanakkale Region (Özkan, 2007), Western Black Sea Region (Taşdemir *et al*., 2008). Caspers and Reiss (1989) and Laville and Reiss (1992) reported some Chironomid species from Turkey but none of them mentioned the existence of *H. varians* in Turkey.

Halocladius (Halocladius) millenarius was reported from Thrace Region (Özkan, 2006a).

In this paper *Halocladius (Halocladius) varians* (Staeger, 1839) is reported as a new species for Turkish fauna.

MATERIAL AND METHODS

In September 2005, chironomid specimens were collected from Kalamaki (St.1), Fethiye (St.2), Antalya Bay (St.3,4) and Anamur (St. 5) using a quadrat sampler (20×20) (Fig. 1).

Fig. 1. Map of the studied area with sampling stations.

The samples were fixed in 4 % formaldehyde in the field. Later they were preserved in 70% ethylalcohol after washing in the laboratory. After the permanent preparation of sorted chironomidae specimens with Euparal, larvae were identified using a stereomicroscope and a binocular microscope. The reference materials are being kept in the collection of the author as permanent whole mount.

The following papers were followed for the species identification: Hirvenoja (1973), Cranston (1982) and Klink & Moller Pillot (2003).

The photographs of the chironomids were taken by a digital camera (Olympus, Camedia, C-7070) attached to stereo and compound microscopes.

RESULTS

As a result of the identification of 31 chironomid specimens collected from Kalamaki, Fethiye Bay, Antalya Bay and Anamur (Antalya), southern Anatolia, *Halocladius* (*Halocladius*) *varians* Staeger, 1839 was reported as a new species for Turkish fauna. The description, distribution and differential characteristics of the species are presented below.

***Halocladius (Halocladius) varians* (Stæger, 1839)**

Synonyms: *Trichocladius halophilus* Kieffer, 1909, *Trichocladius flavicauda* Kieffer in Thienemann and Kieffer, 1916, *Trichocladius halophilus* var. *eusandalum* Kieffer in Thienemann and Kieffer, 1916

Description

Body: Living larvae light-green. The anterior and posterior parapods are separate and bear rows of claws. The smallest claw on the anterior parapod bearing more than one inner tooth has the apical tooth longer than any of the inner teeth (Fig. 2). The procercus is present but the anal tubules are absent.

Head: Antenna. The antenna consists of five segments. Antennal blade shorter than the flagellum. The blade reaches to fourth segment; third (5 units) and fourth (5 units) segments equal in size. Antenna 5 times longer of its width. Lauterborn organs are absent. (Fig.3).

Mentum. The mentum has one median tooth and 6 pairs of lateral teeth. The median tooth (7 units) is dome shaped and two times wider than the first lateral tooth (3 units). The median tooth is sligthly pale than lateral teeth. The second lateral tooth is normal and not fused with the first lateral tooth, and somewhat smaller than the first. The ventromental plates are narrow (Fig.4).

Labrum. The pecten epipharyngis consists of three subequal scales, SI is bifid, other S setae are simple. The premandible has 1 apical teeth (Fig.5 (Labrum) and Fig.6 (Premandible)).

Mandible. The mandible has one apical tooth and 3 inner teeth. Mandibular apical tooth shorter than combined width of 3 inner teeth. Seta subdentalis (10 µm) simple.

The seta interna has serrate branches (Fig.7).

Remarks: In brackish water the combination of missing anal tubules, a mentum with a normal 2nd lateral tooth and anterior parapods with small claws with an apical tooth longer than the inner teeth (Klink & Moller Pillot, 2003).

Distribution: Azores, British Island, Bosna- Hersek, Bulgaria, Croatia, Danish mainland, Faroe Is., France, Germany, Italy, Ireland, Madeira, Norway, Northern Ireland, Portugal, Spain, The Netherlands (Sæther & Spies 2009).

Material examined: Kalamaki (Kuşadası) (0-2 m) (37º42'32" N - 27º12'21" E) 9.10.2005 5 larvae; Fethiye Bay (0-1 m) (36º38'40" N - 29º05'30" E) 5.10.2005, 3 larvae; Antalya Bay (0,1 m, 0-1 m, 0,1- 3 m) (36º19'16" N - 32º14'07" E) 24. 09.2005, 12 larvae; Antalya Bay (0,3 m) (36º31'37" N - 30º33'08" E) 28.09.2005, 1 larvae; Anamur (0,2 m, 0,4 m) (36º01'17" N - 32º48'14" E) 22.09.2005, 10 larvae.

Habitat: Brackish water, for instance intidal creeks (Klink & Moller Pillot 2003).

ACKNOWLEDGEMENTS

I would like to thank Prof. Dr. M. E. Çınar for providing specimens. I am indebted to Assoc. Prof. Dr. Murat Özbek for his help and valuable comments on the early draft of the manuscript.

This work has been financially supported by TUBITAK (Project Number: 104Y065).

REFERENCES

Balık, S., Ustaoğlu, M. R., Sarı, H. M., 1999**,** Preliminary observations on the Fauna of Northern Aegean Region river. *Ege University Journal of Fisheries & Aquatic Sciences*, 16(3-4): 289-299.

Baysal, A., Akyol, F., Harman, H., Kutrup, B., 1994, Chironomidae Fauna (Diptera) of Şana Stream (Trabzon). *Ege University, Journal of Fisheries & Aquatic Sciences*, 11: 37-42.

Camur-Elipek, B., Arslan, N., Kırgız, T., Oterler, B., 2006, Benthic macrofauna in Tunca River (Turkey) and their relationships with environmental variables. *Acta Hydrochimica et Hydrobiologica*, 34: 360-366.

Caspers, N., Reiss, F., 1989, Die Chironomiden der Turkei. Teil I: Podonominae, Diamesinae, Prodiamesinae, Orthocladiinae (Diptera, Nematocera, Chironomidae). *Entomofauna*, 10: 105-160.

Catalogue of Life, 2009, Annual Checklist. *http://www.catalogueoflife.org/annual-checklist/2009/search.php*.

Colbo, H. M., 1996, Chironomidae from marine coastal enviroments near St. John's, Newfounland-Canada. *Hydrobiologia*, 318: 117-122.

Cranston, P. S., 1982, A *key to the larvae of the British Orthocladiinae* (*Chironomidae*). *Freshwater Biological Association Scientific Publications*, 45, The Ferry House, 152 p.

Hirvenoja, M., 1973, Revision der Gattung Cricotopus von der Wulp und ihrer Verwandten (Diptera, Chironomidae). *Annales Zoologici Fennici*, 10: 1-363.

Klink, A. G., Moller Pillot, H. K. M., 2003, *Chironomidae larvae. Key to the Higher Taxa and Species of the Lowlands of Northwestern Europe*. World Biodiversity Database, CD-ROM Series. Expert Center for Taxonomic Identification, University of Amsterdam.

Laville, H., Reiss, F., 1992, The Chironomid fauna of the Mediterranean Region reviewed. *Netherlands Journal of Aquatic Ecology,* 26(2-4): 239-245.

Özkan, N., 2006a, Fauna of Chironomid (Chironomidae; Diptera) in Turkish Thrace Region (Kırklareli, Tekirdağ, Istanbul and Çanakkale). *Ege University, Journal of Fisheries & Aquatic Sciences*, 23: 125-132.

Özkan, N., 2006b, The larval Chironomidae (Diptera) fauna of Bozcaada (Tenedos). *Gazi University Journal of Science*, 19(2): 57–67.

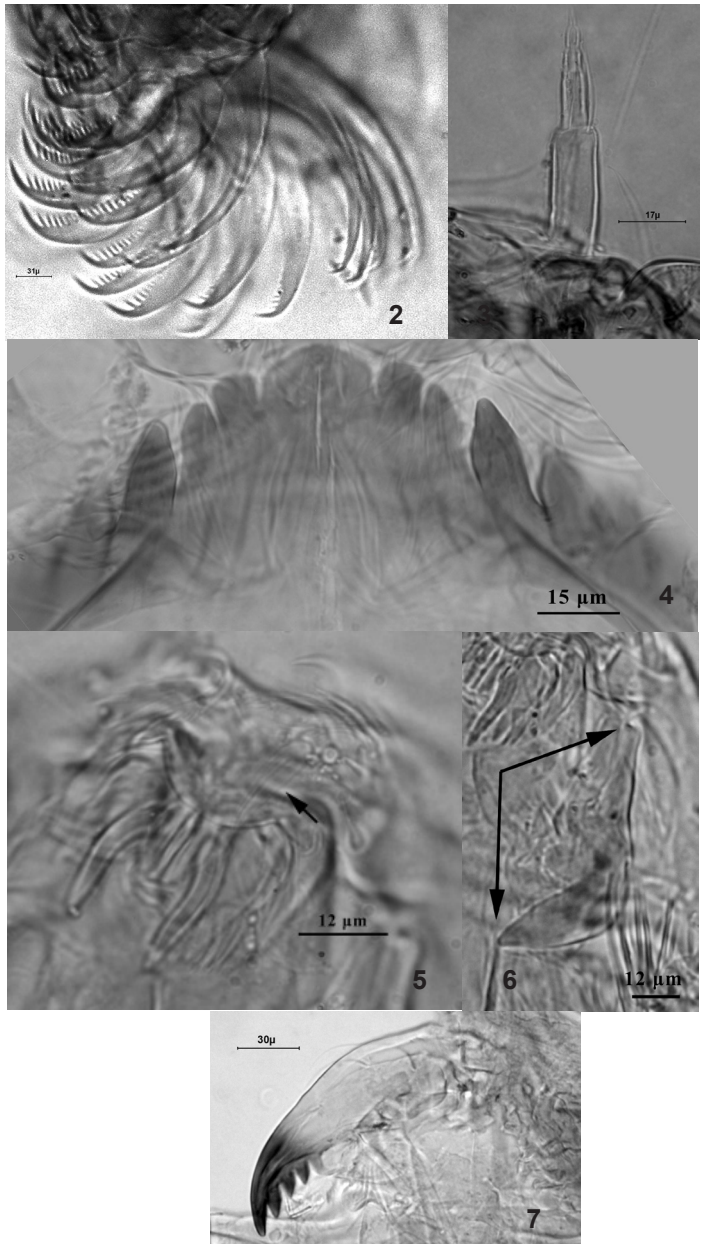
Özkan, N., 2007, Chironomidae (Diptera) larvae of Çanakkale Region and their distribution, *Trakya University, Journal Sciences*. 8(2): 123-132.

Sæther, O. A., Spies, M., 2009, Fauna Europaea: Chironomidae. *In:* de Jong, H. (Ed). Fauna Europaea: Diptera, Nematocera. Fauna Europaea version 1.3. Available from: *http://www.faunaeur.org* [22.12.2009]

Taşdemir, A., Ustaoğlu, M. R., Balık, S., Sarı, H. M., 2008, Diptera and Ephemeroptera fauna of some lakes in Western Black Sea Region (Turkey). *Journal of Fisheries Sciences.com*, 2(3): 252-260.

Ustaoğlu, M. R., Balık, S., Yıldız, S., Taşdemir, A., 2001, Benthic fauna (Oligochaeta-Chironomidae) of Sazlıgöl (Menemen-İzmir). *XI. Ulusal Su Ürünleri Sempozyumu*, 04-06 September 2001, Hatay, 1: 181-188.

Ustaoğlu, M. R., Balık, S., Taşdemir, A., 2005, Chironomidae fauna (Diptera-Insecta) of Gümüldür Stream (İzmir). *Turkish Journal of Zoology*, 29: 269-274.



Figs. 2-7. *Halocladius (Halocladius) varians*. 2. Anterior parapods*, 3.* Antenna, 4. Mentum*, 5.* Labrum*,* 6. Premandible*,* 7. Mandible*.*

Received: April 13, 2009 Accepted: February 02, 2010