

1-1-2002

Five New Chironomidae (Diptera) Species for the Turkish Fauna

NURCAN ÖZKAN

Follow this and additional works at: <https://journals.tubitak.gov.tr/zoology>



Part of the [Zooology Commons](#)

Recommended Citation

ÖZKAN, NURCAN (2002) "Five New Chironomidae (Diptera) Species for the Turkish Fauna," *Turkish Journal of Zoology*. Vol. 26: No. 2, Article 6. Available at: <https://journals.tubitak.gov.tr/zoology/vol26/iss2/6>

This Article is brought to you for free and open access by TÜBİTAK Academic Journals. It has been accepted for inclusion in Turkish Journal of Zoology by an authorized editor of TÜBİTAK Academic Journals. For more information, please contact academic.publications@tubitak.gov.tr.

Five New Chironomidae (Diptera) Species for the Turkish Fauna

Nurcan ÖZKAN

Trakya University, Faculty of Education, 22030 Edirne - TURKEY

Received: 29.02.2000

Abstract: Five species were identified as new for the Turkish potamofauna of Edirne and Tekirdağ provinces from Thrace region between August 1995 and August 1996 in this study. They are *Corynoneura scutellata* Thienemann, 1944 (in Ergene River), *Beckidia zabolotzkii* (Goetghebuer, 1938) (in Meriç River), *Robackia demeijerei* (Kruseman, 1933) (in Meriç River and Sazlıdere Stream), *Parachironomus arcuatus* Goetghebuer 1919 (in Meriç River and Ergene River) and *Parachironomus longiforceps* Kruseman, 1933 (in Meriç River).

Key Words: Diptera, Chironomidae, Turkey, Potamofauna

Türkiye Faunası İçin Beş Yeni Chironomidae (Diptera) Türü

Özet: Bu çalışmada, Trakya bölgesinde Edirne ve Tekirdağ il sınırları içinden, Ağustos 1995 - Ağustos 1996 yılları arasında, Türkiye potamofaunası için 5 yeni Chironomid türü tanımlanmıştır. Bu türler; *Corynoneura scutellata* Thienemann, 1944 (Ergene Nehri), *Beckidia zabolotzkii* (Goetghebuer, 1938) (Meriç Nehri), *Robackia demeijerei* (Kruseman, 1933) (Meriç Nehri ve Sazlıdere), *Parachironomus arcuatus* Goetghebuer, 1919 (Meriç ve Ergene Nehirleri) ve *Parachironomus longiforceps* Kruseman, 1933 (Meriç Nehri).

Anahtar Sözcükler: Diptera, Chironomidae, Türkiye, Potamofauna

Introduction

It is clearly vital to search for, identify and protect the biological wealth that is fast disappearing due to increasing pollution and other threats.

However, there are few faunistic, taxonomical or ecological studies on larval chironomids in Turkey. Until now, the numbers of the species recorded are as follows: 41 in Elazığ and its surroundings (1), 118 in lakes and rivers of Eastern and South Eastern Anatolian regions (2), 3 in Eastern Anatolia (3), 19 in Burdur, Beyşehir and Salda lakes (4), 145 in rivers of the Marmara, Aegean and Sakarya systems (5), 10 in Eğridir Lake (6), 19 in Gökçeada (7), 14 in Seyhan reservoir (8), 19 in Gala Lake (9), 195 in a study of Turkish Chironomidae potamofauna (10), 4 in Eğirdir Lake (11), 32 in Edirne region (12), 17 in Cip Dam Lake (Elazığ) (13), and 25 in Eskişehir and in stagnant water systems in its surroundings (14).

With this study, the number of recorded larval species is increased from 221 to 226.

Materials and Methods

Samples were collected between August 1995 and August 1996 from Meriç and Ergene Rivers and Sazlıdere, a side stream of the Meriç River (Figure 1). Following temporary preparation, species were identified; afterwards, they were prepared for permanent keeping according to Şahin (2). Parts of the body used as taxonomical characters were drawn and measured by means of an Aus Jena drawing apparatus.

For the identification of species, Pillot (16, 17) keys were used. Preparations and materials are stored in Trakya University, Faculty of Education, Edirne.

Results

The following five species of Chironomidae were recorded in the Thrace region:

Subfamily: Orthoclaadiinae

Genus: *Corynoneura* Thienemann, 1944

Species: *Corynoneura scutellata* Thienemann, 1944

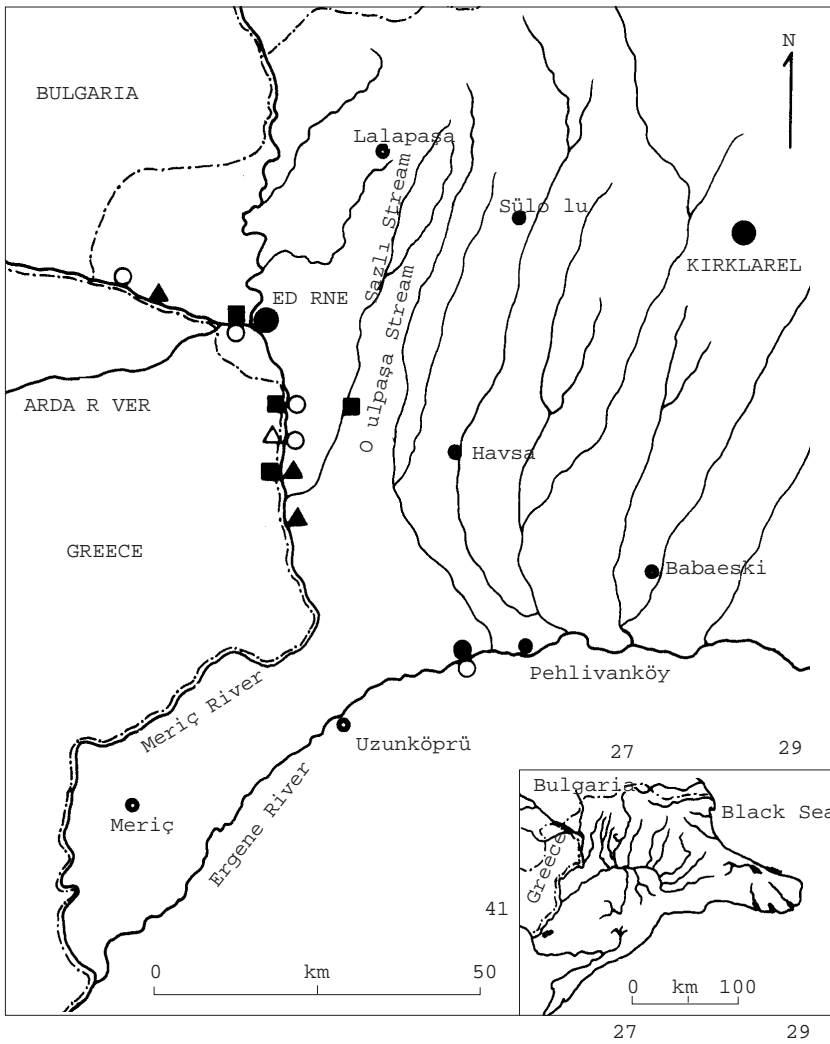


Figure 1. The map of the sampling sites: (●) *Corynoneura scutellata*, (▲) *Beckidia zabolotzkii*, (■) *Robackia demeijerei*, (○) *Parachironomus arcuatus*, (△) *Parachironomus longiforceps*.

Synonyms: *Corynoneura* sp. I; Lindegaard – Petersen, 1972

Corynoneura celeripes Thienemann, 1944

Corynoneura lacustris Cranston, 1982

The head capsule is light brown, index is 66%, there is a pair of eyes, one on either side (Figure 2a). The antennae are two times as long as the head, they have 4 joints, the index is 0.9. Joints I and IV of the antenna are yellow, joints II and III are light brown, the ring organ (RO) is close to joint I, and the breech stretches out as far as the middle of joint II. In the mandible, the external tooth is yellow, the internal one is brown, and there are 4 of them. The external tooth is shorter than the apical internal teeth (Figure 2b). The mentum has the shape of a triangle, it has 3 teeth in the middle, one of them is

small and two of them are large. The side teeth are in 5 pairs, and have the width of the lateral teeth (Figure 2c). Thorax segments II and III are enlarged. It has 4 anal gill brushes which do not have a clear base. Hind legs on their proximal part have thornlike bristles (Figure 2d). Live larvae are greenish and have a length of 3 mm.

Habitat: Near the water edge, on sandy bottoms with rotting vegetable matter.

Examined Materials: Ergene River, in 25.11.1995 (3 larvae).

Subfamily: Chironominae

Genus: *Beckidia* Saether, 1979

Species: *Beckidia zabolotzkii* (Goetghebuer, 1938)

Synonym: *Cryptochironomus zabolotzkii* Goetghebuer, 1938

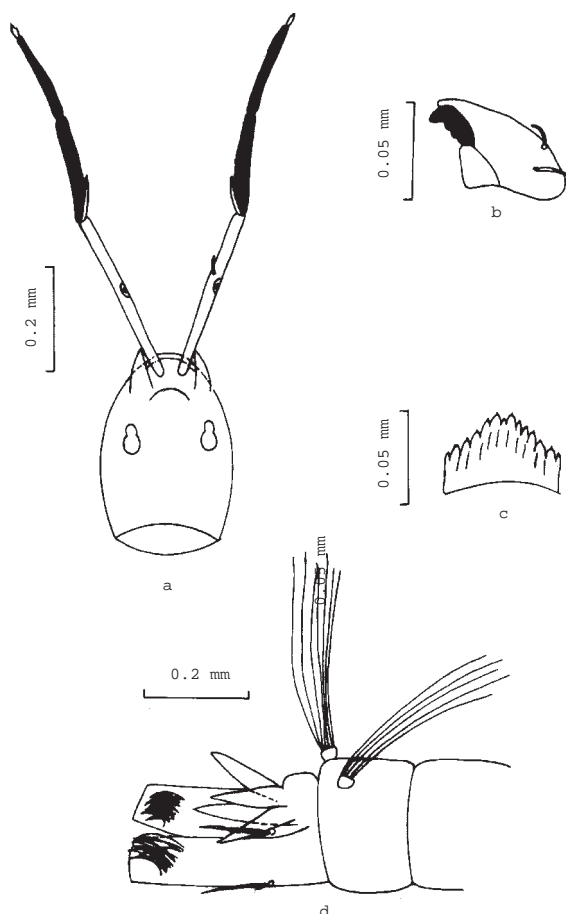


Figure 2. *Corynoneura scutellata* Thienemann 1944: a) Head capsule; b) Mandible; c) Labium; d) Last abdominal segments.

The head capsule is brown, in the labrum, premandibles have 4 arms and they are comb-like (Figure 3a). The antennae are $1/3$ the length of the head (Figure 3b), they have 7 joints and the index is 0.46. Antenna joint I is not so long. Antennal breeches are located alternately on segments II and V. (Figure 3c). In the mandible there are 3 internal teeth having brown colour, scallop and internal hair (Figure 3d). Mentum has a median with yellow colour in the middle, it has 5 pairs of lateral teeth that are concave. Paralabial plates have the shape of a bowl that is wide on the top and are notched rather than grooved (Figure 3e). The maxillary palp has 4 joints, joint I consists of 2 parts. The part below is wide the part at the top is narrow. From the distal of the part below, 2 units of palp that have 3 joints extend. Breech reaches the middle of joint III (Figure 3f). The abdomen segments are thin, long, have the shape of an arc, twisted and red. It does not have a brush base. It has an anal gill

that has the same length as the hind legs, but it is thinner and has an angle of 45 degrees (Figure 3g). Larva has a length of 5.5-6 mm.

Habitat: Relatively more common in clear slow-flowing or still water edges, with sandy or sandy-silty bottoms.

Examined Materials: Meriç River 23.12.1995 (2 larvae), 9.6.1996 (1), 18.6.1996 (4), 7.7.1996 (3), 10.7.1996 (8) and 7.8.1996 (8).

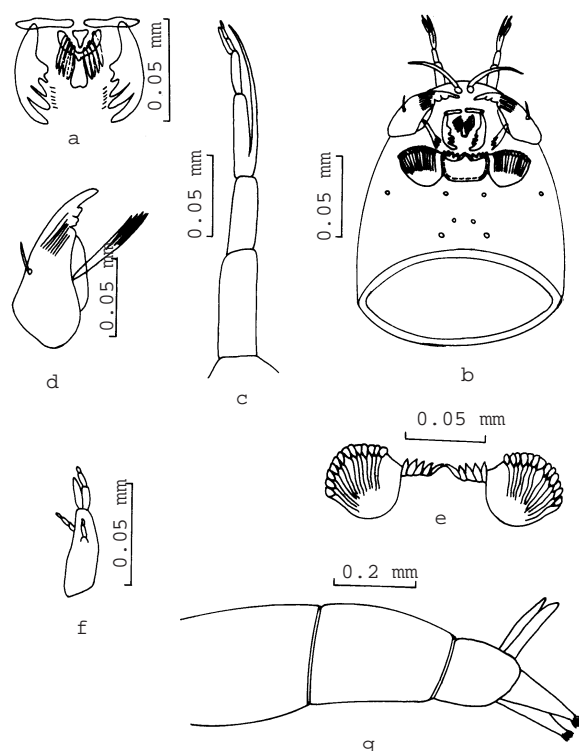


Figure 3. *Beckidia zabolotzkii* (Goetghebuer, 1938): a) Labrum; b) Head capsule; c) Antenna; d) Mandible; e) Labium and paralabial plates; f) Maxillary palp; g) Last abdominal segments.

Genus: *Robackia* Saether, 1977

Species: *Robackia demeijerei* (Kruseman, 1933)

Synonyms: *Robackia demeijerei* Seather, 1977

Tendipes (Parachironomus) demeijerei
Kruseman, 1933

Cryptochironomus demeijerei Tshernovskij,
1949

Head capsule is light brown. Labrum has 2 long palps that have 3 joints (Figure 4a). The antennae are slightly more than half the length of the head, they have 7 joints, the index is 0.44. There is RO in the middle of joint I. The first 3 joints of the antennae have lengths that are close to each other, the other ones are less than half the length of these joints. The breach of the antennae comes out from a joint towards the end of joint II and stretches as far as the middle of joint IV. (Figure 4b). The premandibles have 4 arms. Mandible has a large apical tooth together with 4 lateral teeth, subdental seta (Figure 4c). The mentum consists of 12 teeth that have the same length, has the shape of an arc and are concave. Paralabial plates have the shape of a bowl and they are notched rather than grooved (Figure 4d). Maxillary palp is half the length of the antennae. It has 5 joints, distal of joint I has a 2-segmented palp (Figure 4e). The abdomen segments are thin, long and red. The brush base is not so clear. There are 4 anal gills that are shorter than the back legs (Figure 4f). Larva has a length of 3-5mm.

Habitat: In flowing water with sandy bottoms.

Examined Materials: Meriç River 12.11.1995 (1), 7.7.1996 (2), 7.8.1996 (1); Sazlıdere stream 7.8.1996 (1).

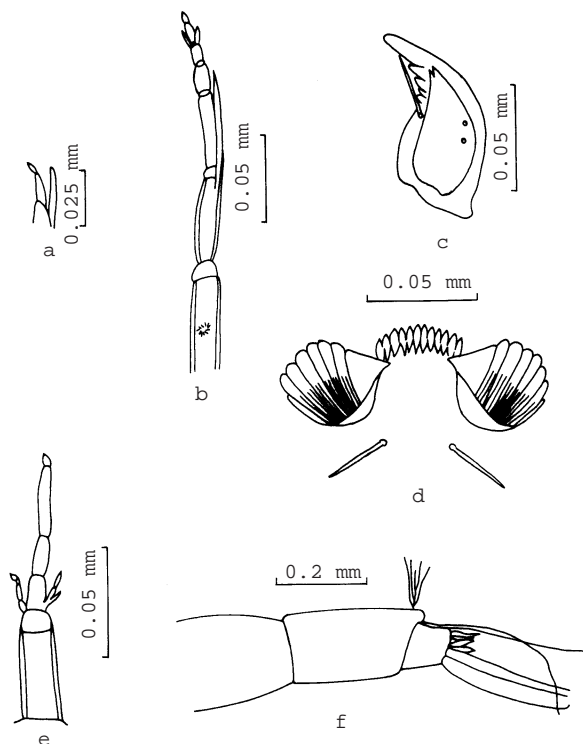


Figure 4. *Robackia demeijerei* (Kruseman 1933): a) Labrum palp; b) Antenna; c) Mandible; d) Labium and paralabial plates; e) Maxillary palp; f) Last abdominal segments.

Genus: *Parachironomus* Lenz, 1921

Species: *Parachironomus arcuatus* Goethebuer, 1919

Synonym: *Cryptochironomus pararostratus* Tshernovskij, 1949

The head capsule is yellow, on the sides there are 2 small eyes. The labrum palp has 3 joints (Figure 5a), premandibles have 2 arms, epipharynx scallop has 7 teeth (Figure 5b). Antenna is shorter than head length, it has 5 joints, the RO is close to the middle of joint I, the breach stretches out as far as joint V (Figure 5c). In the mandible there are 3 internal teeth that are all brown (internal hair, subdental seta and scallop) (Figure 5d). The mentum has 13 teeth, median is longer than teeth laterals and is wide. Paralabial plates have the shape of a wide fan that is not very long, grooves are rare and do not extend to the sides (Figure 5e). Maxillary palp is small, has a single joint and there are extensions in the distal. The red larva's abdomen segments are thin, long and twisted. Anal gills have the shape of a bulb there are four of them, they are less than half the length of the hind legs. The brush base is small and has a length of 7 mm.

Habitat: Mostly in stagnant water, sometimes in flowing parts, within vegetation or muddy-sandy bottoms.

Examined Materials: Meriç River 21.8.1995 (4), 21.4.1996 (3), 12.5.1996 (6), 10.7.1996 (1); Ergene River 16.5.1996 (1).

Species: *Parachironomus longiforceps* Kruseman, 1933

Synonyms: *Parachironomus frequens* Lehmann, 1970

Tendipes (Cryptochironomus) pectinatellae Dendy & Sublette, 1959

The head capsule has 2 pairs of eyes that have a light colour and normal size (Figure 6a). The labrum palp is small and has 3 segments (Figure 6b), distal of the sense hair has 3 segments. The epipharynx scallop has 3 teeth (Figure 6c), premandibles are wide and have 6 arms (Figure 6d). The antennae are less than half the length of the head, they have 5 joints. In joint I, there are 2 ROs, one of which is close to the bottom and the other close to the middle. Antennae breach extends to the end of joint III and it has an aiding antennae breach. In the distal of joint II, there are 2 reciprocal lauterborn organs (LO) (Figure 6e). In the mandible there are 3 internal teeth all of which are brown and there is a subdental seta (Figure

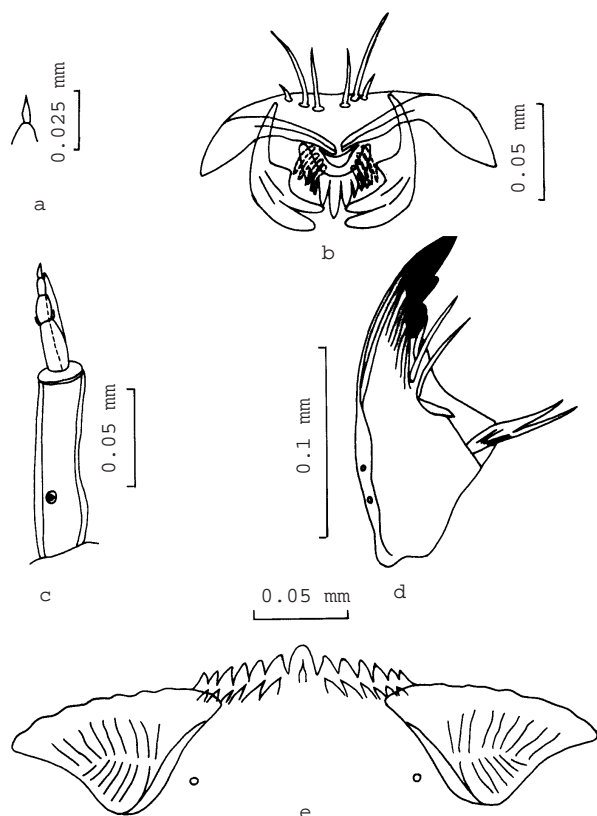


Figure 5. *Parachironomus arcuatus* Goetghebuer 1919: a) Labrum palp; b) Labrum; c) Antenna; d) Mandible; e) Labium and paralabial plates.

6f). The mentum is divided into two by a notch that has 16 teeth, 2 middle teeth are not very deep. All of the mentum and mandible teeth have a light colour. The paralabial plates have the shape of a fan, the grooves are clear, they do not extend to the sides. (Figure 6g). The maxillary palp is simple and has a single segment (Figure 6h). The larva is red and has a length of 6 mm.

Habitat: In sand in slow-flowing turbid parts of waters.

Examined Material: Meriç River 7.7.1996 (1).

Discussion and Conclusion

In this study, 5 species from 4 different genera were determined. Among these genera, *Parachironomus*, *Robackia*, and *Beckiella* are new for Turkey. The genus *Corynoneura* is the most diverse with 28 species, most of which do not have a wide distribution. However, *C. scutellata* has a wide distribution in Europe. The species *Beckiella zabolotzkii* was first included under

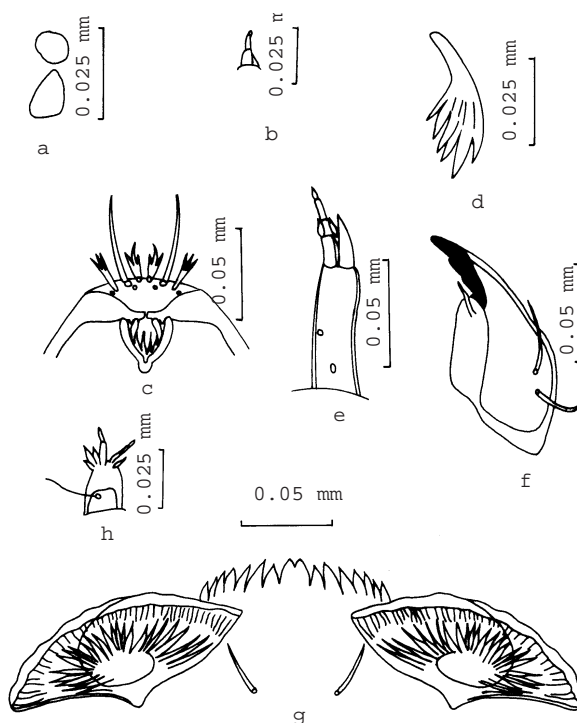


Figure 6. *Parachironomus longiforceps* Kruseman 1933: a) Eye; b) Labrum; c) Epipharynx scallop; d) Premandible; e) Antenna; f) Mandible; g) Labium and paralabial plates; h) Maxillary palp.

Cryptochironomus, but was later excluded (15). Today, the genus *Beckiella* is represented by 2 species and has a limited distribution. *B. zabolotzkii* was previously recorded only from conifer forests in Russia and in the Carpathian Mountains in Europe (15). *Robackia demejerei* was also previously included in the genus *Parachironomus*. The genus *Robackia*, represented by 2 species, was recorded in only a few regions. European records are from the Carpathians, Hungary, Holland, North Germany, Denmark, south Sweden and Poland. The genus *Parachironomus* has 21 species and (including *P. arcuatus*) is widespread in Europe and Russia (15). However, *P. longiforceps* was only recorded in Russia and Holland (18).

Acknowledgements

I would like to thank Prof. Dr. Timur Kırgız (Trakya University) and Prof. Dr. Yalçın Şahin (Osmangazi University) for helping me with the identifications and Assc. Prof. Dr. Beytullah Özkan (Trakya University) for drawing the figures.

References

1. Şahin, Y., Elaziğ ve Kısmen Çevre İllerinin Chironomidae (Diptera) Limnofaunasının Tespiti ve Taksonomik İncelenmesi. Fırat Üniv. Vet. Fak. Derg., 5, 1: 180-182, 1980.
2. Şahin, Y., Doğu ve Güneydoğu Anadolu Bölgeleri Akarsu ve Göllerindeki Chironomidae (Diptera) Larvalarının Teşhisi ve Dağılımları. Anadolu Üniv. Yay. No:57, Fen Ed. Fak. Yay. No: 2, Eskişehir, 1984.
3. Şahin, Y., Doğu Anadolu'da Tespit Edilen Yeni Chironominae (Chironomidae, Diptera) Türleri. Doğa Tu. Biyol. D. 11, 2: 51-58, 1987.
4. Şahin, Y., Burdur, Beyşehir ve Salda Gölleri Chironomidae (Diptera) Larvaları ve Yayılışları. Doğa Tu. Biyol. D. 11, 2: 59-70, 1987.
5. Şahin, Y., Marmara, Ege Bölgeleri ve Sakarya Sistemi Akarsuları Chironomidae (Diptera) Larvaları ve Yayılışları. Doğa TU. Zooloji D. 11, 3: 179-188, 1987.
6. Şahin, Y., Eğirdir Gölü Chironomidae (Diptera) Larvaları ve Yayılışları. Doğa Tu. Zooloji D. 11, 1: 60-66, 1987.
7. Şahin, Y., Tanatmış, M. ve Küçük, A., Gökçeada Faunası. Kısım 1. Chironomidae Larvaları. Anadolu Üniv. Fen-Ed. Fak. Derg. 1: 1-15, 1988.
8. Kırgız, T., Seyhan Baraj Gölü Bentik Hayvansal Organizmaları ve Bunların Nicel ve Nitel Dağılımları. Doğa Tu. Zooloji D. 12, 3: 231-245, 1988.
9. Kırgız, T., Gala Gölü Chironomidae (Diptera) Larvaları Üzerinde Bir Ön Çalışma. IX. Ulusal Biyoloji Kongresi, Sivas. 1988: 489-498, 1990.
10. Şahin, Y., Türkiye Chironomidae Potamofaunası. TÜBİTAK, Temel Bil. Araş. Grubu. Proje No: TBAG-869. 88s., 1991.
11. Kubilay, A. ve Timur, G. Eğirdir Gölü Köprü Avlağı Chironomidae Larvaları ve Bu Larvaların Mevsimsel ve Zonlara Göre Dağılımı Üzerine Bir Araştırma. XI. Ulusal Biyoloji Kongresi, Elaziğ. 1992, 155-165, 1992.
12. Özkan, N. ve Kırgız, T., Edirne Bölgesi Chironomidae (Diptera) Larvaları ve Yayılışları. Doğa Tr. J. of Zoology 19 3: 51-58, 1995.
13. Akıl, A., Ayvaz ve Şen, D., Cip Baraj Gölü (Elaziğ) Chironomidae (Diptera) Larvaları ve Yayılışları. Doğa Tr. J. of Zoology 20, 3: 51-58, 1996.
14. Polatdemir, N. ve Şahin, Y., Eskişehir ve Çevresi Durgunsu Sistemleri Chironomidae (Diptera) Larvaları. Tr. J. of Zoology, 21, 3: 315-319, 1997.
15. Fittkau, E. J. und Reiss, F., Chironomidae, in Illies, J. (ed) - Limnofauna Europaea, Gustav Fischer Verlag, Stutt. 404-440, 1978.
16. Moller Pillot, H. K. M., De Larven der Nederlandse Chironomidae (Diptera). Leiden. I, I-IX. 2. 7, 1978-1979.
17. Moller Pillot, H. K. M., De Larven der Nederlandse Chironomidae (Diptera) (Orthoclaadiinae Sensu Lato), Leiden, 1-164, 1984.
18. Chernovskii, A., 1961. Identification of Larvae of the Midge Family Tendipedidae. Fauna USSR, 31, (Trans. from Russian by Natl. Lending Library for Sci. Tech. Boston), 1 - 279.