

Non-biting midges from Algeria, North Africa [Diptera, Chironomidae]

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Recent collecting in several oueds in Kabylie du Djurdjura, northern Algeria, allowed generating a list of 87 chironomid species: 8 belong to Tanypodinae, 3 to Diamesinae, 57 to Orthoclaadiinae and 19 to Chironominae. 10 species appear to be undescribed. 53 species are new records for Algeria, 25 of which being also new records for North Africa.

Espèces de Chironomes d'Algérie, Afrique du Nord [Diptera: Chironomidae]

Mots-clés : Diptera, Chironomidae, citations nouvelles, Algérie et Afrique du Nord.

De récentes récoltes de Diptères-Chironomidae dans quelques oueds algériens ont permis d'établir une liste de 87 espèces : 8 appartiennent aux Tanypodinae, 3 aux Diamesinae, 57 aux Orthoclaadiinae et 19 aux Chironominae. 10 espèces apparaissent non décrites. 53 espèces sont nouvelles pour la faune de l'Algérie, et 25 d'entre elles sont aussi nouvelles pour l'Afrique du Nord.

1. Introduction

North African Chironomidae are still poorly known. Basic pioneer references are AZZOUZI & LAVILLE (1987) regarding Morocco, and BOUMAIZA & LAVILLE (1988) regarding Tunisia. Concerning Algeria, preliminary results were provided by MOUBAYED et al. (1992), and LOUNACI et al. (2000).

Chironomidae adults, pharates, pupae and larvae were collected in several oueds and wadis in Kabylie du Djurdjura in northern Algeria in 1987 and from 1993 to 2001. Fourteen sampling sites covering a large range of habitats located at altitudes between 1480 and 100 m a.s.l. were investigated, mainly in the upper stream zone of the Sebaou river basin, near the city of Tizi-Ouzou. Temporary springs and epirhithral of mountain and lowland areas are well represented. The most typical are helocrenes, limnocrenes and small temporary streams, where low variation in temperature, and high heterogeneity of substrata and current speed provide a wide variety of refuges and microhabitats. For information on the physiography and environmental characteristics, see LOUNACI et al. (2000).

Recent taxonomic revisions of genera and keys for adults or pupal exuviae were used for the identification of the material (REISS & SÄWEDAL 1981; TUISKUNEN 1986; SÆTHER 1990; SOPONIS 1990; LANGTON 1991; SÆTHER & WANG 1995; KYEREMATEN & SÆTHER 2000; MIECHIELS & SPIES 2002; VÅRDAL et al. 2002; LANGTON & WISSER 2003; SÆTHER & SPIES 2004; STUR & EKREM 2006), and recent general recommendations on taxonomy and nomenclature (SÆTHER & FERRINGTON 2003; SPIES & SÆTHER 2004) were followed. The geographical distribution of the species is based on Fauna Europaea (SÆTHER & SPIES 2004).

2. Collecting methods and sampling sites

Larvae and pupae were collected using a standard surber net (mesh size 250 µm) and drift nets; adults were collected in nocturnal light traps. Slides mount in polyvinyl lactophenol solution.

For the designation of sampling sites and elevation a.s.l., see Figure 1 and here below:

- Aissi wadi, 1987 and 1993: site 1, 920 m a.s.l.; site 2, 810 m; site 3, 480 m; site 4, 200 m.
- Boubhir oued, 1993 and 2001: site 5, 220 m; site 6, 160 m.
- Sebaou oued, 1987 and 1993: site 7, 200 m; site 8, 150 m.
- Mekla, 1987 and 1993: site 9, 940 m.
- Tizi-N' Kouilal, 1987: site 10, 1300 m.
- Tikjda, 1993 and 2001: site 11, 1460 m; site 12, 1360 m.
- Thala-Guilef, 1993 and 2001: site 13, 1480 m; site 14, 1200 m.

3. Results and discussion

The species are listed hereafter. Altogether 87 species were recognized, of which 8 belong to Tanypodinae, 3 to Diamesinae, 57 to Orthocladiinae and 19 to Chironominae. Several species or subspecies appear to be undescribed, and the identification of some other ones needs to be confirmed.

3.1. The species and their distribution (Les espèces et leur répartition géographique)

* = new record for Algeria ; ** = new record for North Africa ;
? = Probable, to be confirmed
Im = imago; N = pupa or pharate; Pe = pupal exuvia; L = larva.

* = citation nouvelle pour l'Algérie ; ** = citation nouvelle pour l'Afrique du Nord ;
? = Probable, à confirmer.
Im = imago; N = nymphe ou pharate; Pe = exuvie nymphale; L = larve.

Sub-Family Tanypodinae, 8 species:

<i>Conchapelopia pallidula</i> (Meigen, 1818)	**/ N, Pe/ Sites (St.): 6, 7, 8.
<i>C. triannulata</i> Goetghebuer, 1921	**/ Pe/ (St.): 2, 7, 8.
<i>Paramerina vaillanti</i> Fittkau, 1962	/ Im, N, Pe/ (St.): 1, 2, 5, 6, 9.

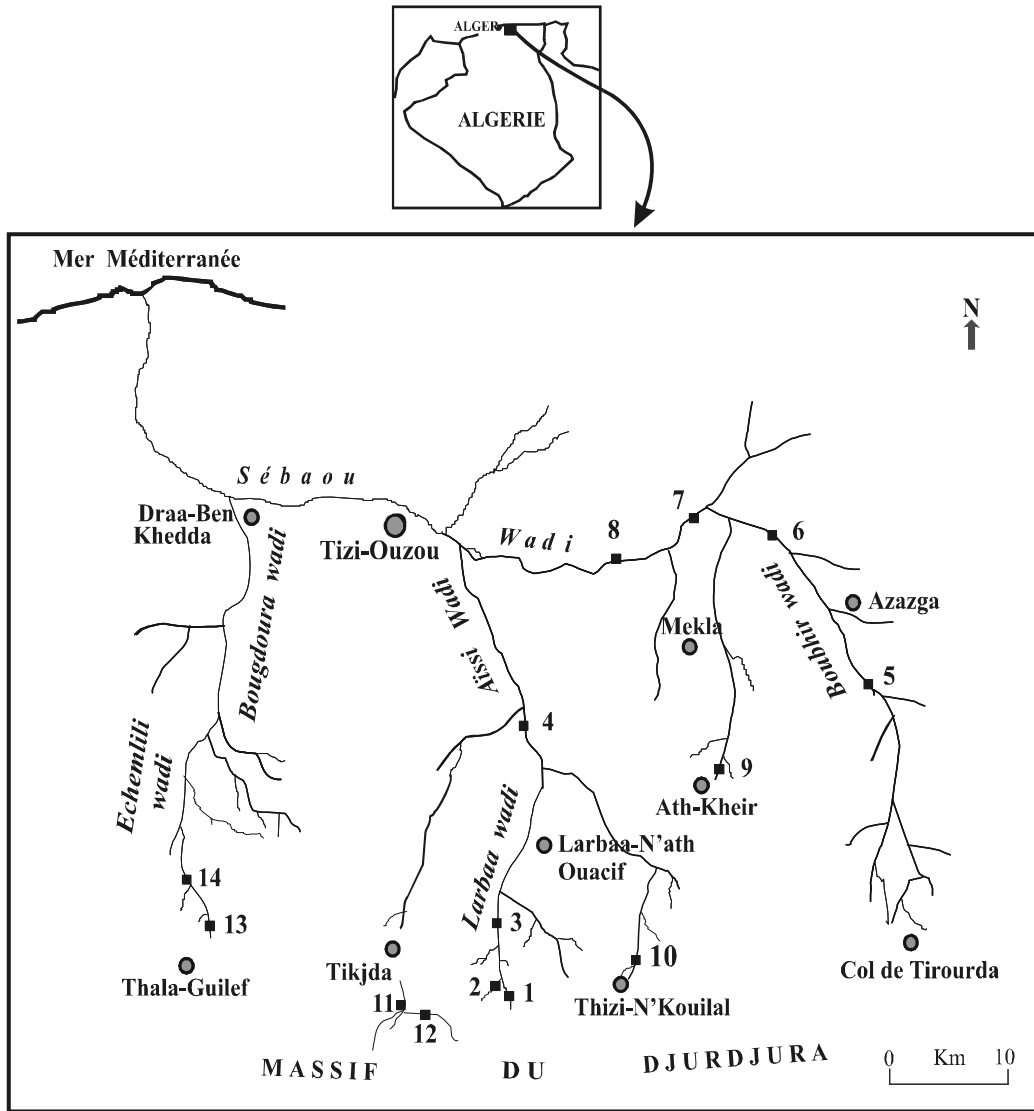


Figure 1. Map of Algeria showing the location of the study rivers and 14 sampling sites.

Figure 1. Carte de l'Algérie et localisation des cours d'eau étudiés et des 14 stations d'échantillonnage.

Tanytus kraatzi (Kieffer, 1912)

Thienemannimyia northumbrica (Edwards, 1929)

T. zousfana Dowling, 1987

Zavrelimyia berberi Fittkau, 1962

Z. melanura (Meigen, 1804)

*/ Pe/ (St.): 3, 5, 6, 7, 8.

*/ Im, Pe/ (St.): 1, 2.

/ Pe/ (St.): 1, 5, 10.

*/ Pe/ (St.): 1, 2, 5.

*/ Im, Pe/ (St.): 1, 10, 14.

Sub-Family Diamesinae, 3 species:

<i>Diamesa hamaticornis</i> Kieffer, 1924	*/ Pe, L/ (St.): 2, 9, 10.
<i>D. insignipes</i> Kieffer, 1908	*/ Pe, L/ (St.): 12, 14.
<i>D. latitarsis</i> Goetghebuer, 1921	*/ Pe, L/ (St.): 1, 2.

Sub-Family Orthocladiinae, 57 species:

<i>Chaetocladius acuticornis</i> (Kieffer, 1914)	[?*/ Pe/ (St.): 11, 12, 14.
<i>C. algericus</i> Moubayed, 1989	/ Pe/ (St.): 3, 5, 9.
<i>C. melaleucus</i> (Meigen, 1818)	**/ N, Pe/ (St.): 10, 12, 13, 14.
<i>C. perennis</i> Meigen, 1830	/ Im, Pe/ (St.): 11, 12, 13.
<i>C. piger</i> (Goetghebuer, 1913)	**/ Pe/ (St.): 10, 11, 13.
<i>Corynoneura carriana</i> Edwards, 1924	*/ N, Pe/ (St.): 5, 7, 10.
<i>C. scutellata</i> Winnertz, 1846	[?*/ Pe/ (St.): 1, 2, 9.
<i>Cricotopus beckeri</i> Hirvenoja, 1973	/ N, Pe/ (St.): 3, 4, 5, 7, 8.
<i>C. flavocinctus</i> (Kieffer, 1924)	**/ N, Pe/ (St.): 3, 4, 7, 8.
<i>C. ornatus</i> (Meigen, 1818)	*/ N, Pe/ (St.): 2, 3, 4.
<i>C. trifasciatus</i> (Meigen, 1810)	**/ N, Pe/ (St.): 3, 4, 7, 8.
<i>C. sp. 1</i> (near <i>levantinus</i> Moubayed & Hirvenoja, 1986)	/ N, Pe/ (St.): 5, 6.
<i>Eukiefferiella bedmari</i> Vilchez-Quero et Laville, 1987	*/ Pe/ (St.): 2, 9.
<i>E. brevicealcar</i> (Kieffer, 1911)	*/ Pe/ (St.): 9, 11, 13, 14.
<i>E. gracei</i> (Edwards, 1929)	*/ N, Pe/ (St.): 1, 2, 5, 6.
<i>Gymnometriocnemus brumalis</i> Edwards, 1929	**/ Im, Pe/ (St.): 5, 6.
<i>Heterotrissocladius</i> sp. 1	/ Im, N, Pe/ (St.): 5, 6.
<i>Hydrobaenus conformis</i> Holmgren, 1869	**/ N, Pe/ (St.): 5, 6.
<i>H. spinnatis</i> Sæther, 1976	**/ N, Pe/ (St.): 5, 7.
<i>Limnophyes gelasinus</i> Sæther, 1985	**/ N, Pe/ (St.): 1, 2.
<i>L. habilis</i> (Walker, 1856)	[?*/ N, Pe/ (St.): 5, 13.
<i>L. ninae</i> Sæther, 1975	*/ N, Pe/ (St.): 5, 14.
<i>L. pentaplastus</i> (Kieffer, 1921)	**/ N, Pe/ (St.): 9, 13, 14.
<i>Nanocladius parvulus</i> (Kieffer, 1909)	**/ N, Pe/ (St.): 2, 5.
<i>Orthocladius (Eudactyl.) fuscimanus</i> (Kieffer, 1908)	/ N, Pe/ (St.): 9, 10, 11, 13, 14.
<i>O. (Euorth.) calvus</i> Pinder, 1985	**/ N, Pe/ (St.): 6, 7.
<i>O. (Euorth.) luteipes</i> Goetghebuer, 1938	**/ Pe/ (St.): 10, 12.
<i>O. (Euorth.) rivulorum</i> Kieffer, 1909	/ N, Pe/ (St.): 1, 5, 9, 10.
<i>O. (Euorth.) saxosus</i> (Tokunaga, 1939)	[?*/ Pe/ (St.): 9.
<i>O. (Euorth.) sp. 1</i>	/ Im, N, Pe, L/ (St.): 6, 7.
<i>O. (O.) vaillantii</i> Langton et Cranston, 1991	/ Im, Pe/ (St.): 5, 16.
<i>O. (O.) sp. 1</i>	/ Im, N, Pe/ (St.): 5, 6, 7.
<i>Parakiefferiella wuelkeri</i> Moubayed, 1994	/ Im, N, Pe, L/ (St.): 5, 6, 7.
<i>Parametriocnemus valescurensis</i> Moubayed & Langton, 1999	**/ Im, N, Pe/ (St.): 10, 13.
<i>Paraphaenocladius pseud. pseudirritus</i> Strenzke, 1950	**/ Im, Pe/ (St.): 1, 11, 14.
<i>P. sp. 1</i>	/ Im/ (St.): 5, 12.
<i>Paratrichocladius lanzavecchiai</i> Rossaro, 1990	**/ Im, N/ (St.): 1, 5, 9, 12.
<i>P. micans</i> (Kieffer, 1918)	*/ Im, Pe/ (St.): 4, 7, 8.
<i>P. sp. 1</i>	/ Pe/ (St.): 5.
<i>Psectrocladius barbatipes</i> Kieffer, 1923	[?*/ Im, Pe/ (St.): 5.
<i>P. limbatellus</i> (Holmgren, 1869)	/ N, Pe/ (St.): 3, 6, 7.
<i>P. obvius</i> (Walker, 1856)	*/ Im, N, Pe, L/ (St.): 6.
<i>Pseudosmittia albipennis</i> Goetghebuer, 1921	**/ Im/ (St.): 9, 10, 13.

<i>P. oxoniana</i> (Edwards, 1922)	* / Im, Pe / (St.): 11, 12.
<i>P. trilobata</i> (Edwards, 1929)	** / Im / (St.): 6, 9, 10, 11.
<i>P. sp. 1</i>	/ Im / (St.): 5, 11, 14.
<i>P. sp. 2</i>	/ Im / (St.): 5, 10.
<i>Rheocricotopus gallicus</i> Lehmann, 1969	** / Im, N / (St.): 5, 9, 10.
<i>R. glabricollis</i> ssp. 1	/ N, Pe / (St.): 3, 5, 6, 7.
<i>R. tirolus</i> Lehmann, 1969	** / Im / (St.): 5.
<i>Smittia alpicola</i> Goetghebuer, 1941	** / Im / (St.): 11, 14.
<i>S. aterrima</i> Meigen, 1818	** / Im / (St.): 5, 9, 10, 13.
<i>S. sp. 1</i>	/ Im / (St.): 5, 12.
<i>Thienemanniella acuticornis</i> (Kieffer, 1912)	* / N, Pe / (St.): 2, 3, 7.
<i>T. clavicornis</i> (Kieffer, 1911)	/ N, Pe / (St.): 3, 4, 5, 8.
<i>T. majuscula</i> (Edwards, 1924)	* / N, Pe / (St.): 9, 12, 14.
<i>T. vittata</i> Edwards, 1924	* / N, Pe / (St.): 4, 6, 7, 8.

Sub-Family Chironominae, 19 species:

Chironomini, 7 species:

<i>Chironomus aprilius</i> Meigen, 1918	* / Im, Pe / (St.): 4, 6, 7, 8.
<i>C. calipterus</i> Kieffer, 1908	* / Im, Pe / (St.): 5, 7, 8.
<i>C. luridus</i> Strenzke, 1959	* / Im, Pe / (St.): 4, 6.
<i>C. riparius</i> Meigen, 1804	* / Im, N, Pe / (St.): 3, 4, 8.
<i>Cryptochironomus supplicans</i> (Meigen, 1830)	* / Im, N, Pe / (St.): 5, 7.
<i>Demicryptochironomus (Irmakia) neglectus</i> Reiss, 1988	** / Pe / (St.): 4.
<i>Harnischia fuscimanus</i> Kieffer, 1921	* / Im, Pe / (St.): 5, 6, 7.

Tanytarsini, 12 species:

<i>Micropsectra bavarica</i> Stur et Ekrem, 2006	/ Im / (St.): 10, 13, 14.
<i>M. longicrista</i> Stur et Ekrem, 2006	/ Im / (St.): 14.
<i>M. notescens</i> (Walker, 1856)	* / N, Pe / (St.): 1, 9, 10, 11, 12, 13.
<i>M. pallidula</i> (Meigen, 1830)	/ Im, N, Pe / (St.): 2, 3, 6, 7, 8.
<i>M. schrankelae</i> Stur et Ekrem, 2006	** / Im, N, Pe / (St.): 3, 4, 5, 6, 7, 8.
<i>M. zernyi</i> Marcuzzi, 1950	/ Im, N, Pe / (St.): 2, 3, 5, 7.
<i>Paratanytarsus mediterraneus</i> Reiss et Säwedal, 1981	/ Im / (St.): 4, 8.
<i>Rheotanytarsus reissi</i> Lehman, 1970	/ N, Pe / (St.): 10, 13.
<i>Tanytarsus brundini</i> Lindeberg, 1963	* / N, Pe / (St.): 3, 4, 7, 8.
<i>T. palettaris</i> Verneaux, 1969	* / N, Pe / (St.): 3, 7.
<i>Virgatanytarsus arduennensis</i> (Goetghebuer, 1922)	/ N, Pe / (St.): 3, 4, 5, 6, 7, 8.
<i>V. triangularis</i> (Goetghebuer, 1928)	/ N, Pe / (St.): 4, 7, 8.

3.2 Discussion

The highest species richness (69 species) was found in the upper basin with its springs and small tributaries. The lowest species richness (43 species) was encountered in the region of Tizi-Ouzou city and is undoubtedly the consequence of pollution and other anthropic activities.

The list includes 53 new records for Algeria, of which 25 (+ 5 to be confirmed) are also new for the North African fauna. 10 correspond to undescribed species or subspecies.

68 of the 87 listed species (78 %) are Palaearctic elements (LANGTON & VISSER 2003; SÆTHER & SPIES 2004).

Cricotopus levantinus was described from the Near East but is actually recorded from Europe. Identification of associated material including male pharates and pupal exuviae from oued Boubhir shows that our specimens appear to belong to a new species or subspecies.

Limnophyes gelasinus was described from Korea and recently recorded from Europe, in Continental France (MOUBAYED-BREIL 2007).

Parametrioctenemus valescurensis was known only from southern France. Unexpectedly, this species shows a large geographical distribution southward along the South Mediterranean region.

Rheocricotopus glabricollis ssp. 1 is possibly considered as a new geographical subspecies on the basis of some characters (big sized species, unusual long spines on abdominal segments of pupal exuviae, etc.).

Micropsectra schrankelae Stur & Ekrem, 2006 was described from Europe and recently reported from the Near Eastern region (MOUBAYED-BREIL & DIA 2007). It can be easily confused morphologically in the male adult or pupal exuviae with *M. atrofasciata*. Therefore, many specimens previously believed to belong to *M. atrofasciata* probably key in a different species in the *atrofasciata* group.

In addition to the three recorded Afrotropical elements (*Thienemannimyia zousfana*, *Zavrelimyia berberi* and *Micropsectra zernyi* a few listed new species (*Heterotrissocladius* sp. 1, *Orthocladius* (*E.*) sp. 1, *Orthocladius* (*s. str.*) sp. 1, *Paraphaenocladius* sp. 1, *Paratrichocladius* sp. 1, *Pseudosmittia* sp. 1 and sp. 2, *Smittia* sp. 1) are believed to characterize the North African subregion.

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