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Some sawflies from Turkey with description of a new species

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Abstract: Fifty-four specimens of 21 species were collected from various areas of Turkey. *Pachycephus fatimae* **sp. n.** is described and compared to *Pachycephus smyrnensis* ssp. *smyrnensis* J.P.E.F. Stein, 1876.

Keywords: Hymenoptera, Symphyta, taxonomy, faunistic, Turkey.

Introduction

The present paper is the sixth one on the series on the sawflies of Anatolia after Kaplan, Haris & Kiliç 2023, Kaplan & Haris 2022, 2021a,b, Kaplan, Mart & Haris 2018. This time, we extended the scope of reserach towards some other territories of Turkey. Although, the number of collected specimens are low, there are some important records in point of view of population dynamics of sawflies and additionally a new Cephid sawfly species was captured in Bingöl and Diyarbakir provinces of Turkey.

Material and methods

Fifty-four specimens of 21 species were collected in Bingöl, Diyarbakir (Anatolia biogeographic region) and Çanakkale provinces (Mediterranean biogeographic region) by the first and second authors.

For identification, Zhelochovtsev's (1988) work on the Sawflies of the European part of the former USSR, the handbook of Lacourt (2020) on the identification of the European sawflies, the monograph of Benson (1968) on the Turkish Symphyta fauna, and Gussakovskij's (1935, 1947) monographs on the sawflies of the former USSR were used. We also consulted recent revision of Gyurkovics & Haris 2014. The general distribution of species are reported based on Roller & Haris (2008), Taeger et al. (2006), Sundukov (2017). Further, reference material was studied at the Hungarian

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Natural History Museum, Budapest. The nomenclature used in this paper, follows the latest monograph of European sawflies (LACOURT 2020) with special concern for the subfamily Nematinae. The higher classification of sawflies applied in this work follows the Hymenoptera part of Fauna Europaea (ACHTERBERG 2013). Host plant records are given according MACEK et al. (2020).

Results

Argidae

Arge ochropus (Gmelin, 1790): Diyarbakir: Dicle: Taşağıl, N 38° 22' 26.45", E 40° 01' 10.52", 1 025 m, 27. 05. 2023, 1 female. Pest of *Rosa* spp. Locally frequent.

Arge cyanocrocea (Forster, 1771): Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 female. Common species. Known host plants: *Rubus idaeus* and *Sanguisorba officinalis*.

Arge melanochra (Gmelin, 1790): Bayramiç/Çanakkale: Çuvuşköy, *Euphorbia* and white flowering plants, 29. 09. 2023, 1 female; Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 female; Bayramiç/Çanakkale: Çavuşköy, daisy and purple fig (Aster alpinus), 25. 05. 2023,1 female. Common. Hostplant: *Crataegus oxycantha*.

Tenthredinidae

Allantus (***Emphytus***) *cinctus* (Linné, 1758): Bingöl: Merkez: Kuşburnu, N 38° 54' 19.56", E 40° 48' 18.45", 1 582 m, 18. 05. 2023,1 male. Frequent. Hostplants: Fragaria and *Rosa* spp.

Allantus (***Emphytus***) ***laticinctus*** (Serville, 1823): Bayramiç/Çanakkale: Çavuşköy, daisy and purple fig (Aster alpinus), 25. 05. 2023,1 female. Sporadic. Hostplants: *Rosa* spp.

Athalia cordata Serville, 1823: Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 male; Çanakkale Onsekiz Mart University Campus, 08.05. 2023, 5 males; Çanakkale Onsekiz Mart University Campus, 20. 11. 2024, 5 males; Çanakkale Onsekiz Mart University Campus, 08. 05. 2023, 4 males, 1 female. Common. Larva on *Misopates orontinum, Antirrhinum majus, Ajuga reptans, Teucrium scorodonia* and *Plantago* spp. The 20. 11. date is the latest activity of sawfly imagos recorded from the Mediterranean region, therefore this data is important to draw the typical flight period pattern for the sawflies of this biogeographic region., therefore this data is important to draw the typical flight period pattern for the sawflies of the Mediterranean region.

Athalia circularis (Klug, 1815): Çanakkale Onsekiz Mart University Campus, 08. 05. 2023, 1 male. Frequent. Larva on *Glechoma hederacea, Plantago, Melampyrum* and *Veronica* spp.

Athalia ahngeri Kokujev, 1910: Çanakkale Onsekiz Mart University Campus, 08.05. 2023, 1 female. Sporadic. Hostplant unknown.

Athalia rufoscutellata Mocsáry, 1879: Bingöl: Merkez: Sancak, N 39° 05' 30.50", E 40° 22' 34.44", 1 587 m, 29. 05. 2023, 1 female; Diyarbakir: Lice: Bağlan, N 38° 19' 56.93", E 40° 42' 57.53", 951 m,14. 05. 2023,1 female; Diyarbakir: Hazro: Ormankaya, N 38° 17' 55.75", E 40° 46' 50.15", 965 m,15. 05. 2023, 2 males. Frequent. Hostplant unknown.

Athalia bicolor Serville, 1823: Çanakkale Onsekiz Mart University Campus, 08. 04. 2023, 1 female. Frequent. Host plant: *Ranunculus* spp.

Tenthredo (***Cephaledo***) ***costata*** Klug, 1817: Bayramiç/Çanakkale: Çuvuşköy, *Euphorbia* and white flowering plants, 29. 09. 2023, 2 females; Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 male. Frequent. Hostplant: *Chondrilla juncea* and *Ch. ramosissima*.

Tenthredo (***Zonuledo***) ***zonula*** Klug, 1817: Çanakkale Onsekiz Mart University Campus, 08.05. 2023, 1 female, 2 males. Common. Host plant: *Hypericum perforatum*.

Tenthredo (***Zonuledo***) ***distinguenda*** ssp. ***hyrcana*** Benson, 1968: Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 female. Frequent. Host plant unknown.

Macrophya (***Macrophya***) ***postica*** (Brullé, 1832): Bayramiç/Çanakkale: Çuvuşköy, *Euphorbia* and white flowering plants, 29. 09. 2023, 2 males, 1 female; Bayramiç/Çanakkale: Çavuşköy, daisy and purple fig (Aster alpinus), 25. 05. 2023, 2 males; Bozcaada/Çanakkale: Ayazma, 12. 05. 2023, 1 female, 1 male; Biga/Çanakkale: Karabiga, 02. 06. 2023, 1 male. Common. Hostplant unknown. Frequent. Larva on *Potentilla reptans, Origanum vulgare, Euphorbia, Rosa, Rubus* and *Sambucus* spp.

Macrophya (***Macrophya***) ***montana*** (Scopoli, 1763): Bayramiç/Çanakkale: Çuvuşköy, *Euphorbia* and white flowering plants, 29. 09. 2023, 2 females. Frequent. Host plant: *Rubus caesius*.

Macrophya (***Macrophya***) ***annulata*** (Geoffroy, 1785): Bozcaada/Çanakkale: Ayazma, 12. 05. 2023, 1 female. Frequent. Hostplants: *Rosa* spp., like *Rosa canina, Rubus* spp. and *Potentilla* spp.

Tenthredopsis annuligera (Eversmann, 1847) (*Tenthredopsis albopunctata* (Tischbein, 1852) sensu Benson, 1968): Bayramiç/Çanakkale: Çuvuşköy, *Euphorbia* and white flowering plants, 20. 04. 2023, 1 female. Frequent. Host plant: unknown.

Tenthredopsis albonotata (Brullé, 1832): Bingöl: Merkez: Yukaripinar, N 38° 51' 11.45", E 40° 28' 07.48", 1 470 m, 1 male. Frequent. Host plant: unknown.

Pteronidea myosotidis (Fabricius, 1804): Bozcaada/Çanakkale: Ayazma, 12. 05. 2023, 1 female. Common. Larval hosts: *Onobrychis* and *Trifolium* spp.

Cephidae

Pachycephus smyrnensis ssp. ***smyrnensis*** J.P.E.F. Stein, 1876: Çanakkale Onsekiz Mart University Campus, 08. 05. 2023, 1 female. Frequent. Hostplant: *Papaver* spp., especially *Papaver rhoeas*.

Pachycephus fatimae Haris, Kaplan & Efil spec. nov.: Bingöl: Merkez: Elmalı, N 38° 61' 30.18", E 40° 28' 07.48", 1 350 m, 31.05. 2023, 1 female; Diyarbakir: Dicle: Taşağıl, N 38° 22' 26.45", E 40° 01' 10.52", 1 025 m, 27. 05. 2023, 1 female.

Description of the new species

Pachycephus fatimae Haris, Kaplan & Efil **sp. n.**
https://zoobank.org/NomenclaturalActs/ca2f7afb-44e9-4a61-9ba8-4f6bafef63cb

Holotype: Bingöl: Merkez: Elmalı, N 38° 61' 30.18", E 40° 28' 07.48", 1 350 m, 31.05. 2023, 1 female (Rippl-Rónai Museum, Kaposvár). *Paratype*: Diyarbakir: Dicle: Taşağıl, N 38° 22' 26.45", E 40° 01' 10.52", 1 025 m, 27. 05. 2023, 1 female (Rippl-Rónai Museum, Kaposvár).

Female. Head and antenna shiny black; yellow: basal 2/3 of mandible, 3 large facial spots: 1-1 trapesoid spots starting from inner margin of eyes and one central subrectangular spot with rounded corners; other two large spots covering space between upper

margine of eye and lateral ocelli leaving temples black and narrow linear spot along the hind margin of eye. Thorax shiny black; yellow: wide margine of pronotum, tegula, large central spot on mesoscutellum and oval horizontal spot on upper part of mesepisternum. Legs black; yellow: all tibiae and anterior tarsus. Apical ring and ventral longitudinal line on middle and hind tibiae black. Cenchri blackish brown. Wings hyaline. Venation and stigma brown, basal 2/3 of costa yellow. Abdomen shiny black; yellow: latero-marginal spots of tergites 2-8 increasing in size towards the middle tergites, apical half of tergite 9. Ovipositor and cerci black. Number of antennal segment 15 (16)? 15th and 16th segments seems fused. Antennal segments 3 and 4 as 15 : 13. Flagellum : maximal width of head in dorsal view: 83 : 65. Antenna strongly widened between segments 6 and 15. OOL : POL : OCL: 18 : 7 : 11. Ratio of distance between antennal socket and antennal socket - anterior tentorial pit: 5 : 2. Head, including temples shiny, deeply and moderately densely punctured with siny interspaces about as large as a puncture. Frontal area flat, elongated pentagonal not bordered. Upper part of frontal area shiny with only sporadic deep punctures, lower part of frontal area densely punctured without shiny interspaces. Gena linear. Clypeus gently emarginated. Head moderately but clearly contracted behind eyes. Postoccipital carina reach up to 2/3 of the length of eye. Temples and vertex not carinated. Mesonotal lobes and mesoscutellum densely and deeply punctured with shiny interspaces about half as large as diameter of a puncture. Mesepisternum and mesosternum deeply and densely punctured with shiny interspaces about half as large as diameter of a puncture. All abdominal tergites with shallow coriaceous surface sculpture on entire surface, except tergite 1st, which covered with fine microstriation. Middle segments of abdomen strongly flattened horizontally. Length of complete ovipositor : length of hind tibia: 63 : 70. Length of valvula 3 : length of hind tibia: 3 : 7. Claw with short inner tooth about as long as apical. Hind tibia with 2 middle spines. Length: 4.6 mm (with ovipositor). Paratype: 6.1 mm (with ovipositor)

This species has intermediary position between two closely related genera namely *Pachycephus* J.P.E.F. Stein, 1876 and *Characopygus* Konow, 1899. The longer third antennal segment compared to fourth, the relatively short flagellum (shorter than 2x the maximal width of head in dorsal view and the ratio of the antennal pits compared to antennal and tentatorial pits (5 : 3) refer to *Pachycephus*. Opposite of this, the long postoccipital furrow reaching up to 2/3 of the length of eye clearly refers to *Characopygus*. Probably, these two genera are synonyms. Tribe Pachycephini definitely needs generic and species revision.

In MUCHE (1981) and GUSSAKOVSKIJ (1935), the new species runs to *Pachycephus aeneovarius* Kohl, 1905 which is presently synonym name of *Pachycephus smyrnensis* ssp. *smyrnensis* J.P.E.F. Stein, 1876.

Differencial diagnosis: *P. fatimae* has nine yellow spot on it's head (seven large spots on mandible, supraclypeal area and supra-frontal area and two smaller behind the eyes), while all colour variations of *P. smyrnensis* (including *P. aeneovarius* have completely black head). The new species has mesoscutellum with large central yellow spot, but it is completely black at all related species. In *P. smyrnensis*, abdominal tergites separately and deeply punctured except tergite 2, 3 which is smooth and shiny on their posterior halves. The new species has all abdominal tergites with shallow coriaceous surface sculpture on entire surface, except tergite 1st, which is covered with fine microstriation.

According to BENSON (1968): "*This species is common and very variable in size and colour pattern*". However, if the synonimisation is true, not only size (4.6–12 mm), colour but even surface sculpture is also very different which seems nearly impossible.

Fig. 1: ***Pachycephus fatimae*** **sp. n. holotype in dorsal view (Photo: Kaplan)**

Fig. 2: ***Pachycephus fatimae*** **sp. n. holotype in ventral view (Photo: Kaplan)**

Fig. 3: Head of *Pachycephus fatimae* sp. n. holotype in frontal view (Photo: Kaplan)

Fig. 4: Head of *Pachycephus fatimae* sp. n. holotype in dorsal view (Photo: Kaplan)

Conclusion: These species, synonimised under *P. smyrnensis*, form a species complex and this species complex needs revision with barcoding methods in generic and species level which is per moment is impossible. Since, *Pachycephus fatimae* sp. n. differs from *P. smyrnensis* and from all synonimised species under *P. smyrnensis* significantly, we propose separate name for this species till the genetic revision is completed. All authors are authors of the new species.

Etymology: This species is dedicated to the first author's grandmother Mrs. Fatima Kaplan, who died in a traffic accident in 1951.

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