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An extraordinary new host plant and first record of *Kokujewia ectrapela* Konow, 1902 (Hymenoptera: Argidae) from Turkey

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Abstract: An extraordinary new host plant and first record of *Kokujewia ectrapela* Konow, 1902 (Hymenoptera: Argidae) from Turkey. *Misc. Pap*. 219: 1-5, 10 figs.
In this study, *Kokujewia ectrapela* Konow, 1902 is newly recorded from Turkey. The medicinal plant, *Rheum ribes* L. (Polygonaceae) is identified for the first time as the larval food plant. Pictures of the larvae, pupae, and adults of the species are presented. Suitability of using *K. ectrapela* to combat *Rumex* as a weed is discussed.

Keywords: Sawfly, *Kokujewia ectrapela*, *Rheum ribes*, Turkey.

Introduction

Argidae is the second largest family of Symphyta with 200-250 species in the Palaearctic and includes over 8855 described world species (Taeger et al., 2010; 2018). The sawfly genus *Kokujewia* Konow, 1902 comprises only 3 species, *K. clement* Zirngiebl, 1949, *K. palestina* Benson, 1954, and *K. ectrapela* Konow, 1902 (Gussakovskii, 1935). *Kokujewia* is distributed in the north-eastern Mediterranean and Caucasian regions (Blank & Taeger, 1998). *K. ectrapela* occurs from Russia (Dadurian, 1962; Gussakovskij, 1935), to Georgia, Armenia, Azerbaijan, and Iran (Blank & Taeger, 1998).
The *K. ectrapela* is a multivoltine sawfly, taxonomically a well-defined species and its larvae are oligophagous on Polygonaceae (Blank & Taeger, 1998; Karimpour 2007a-b, 2015). The larvae feed on the leaves of the host plants and have been recorded as causing significant damage in the field (Karimpour, 2015). Until now, *K. ectrapela* was known to only feed on dock leaves since it eradicates a considerable part of the host plant's leaves in the process. Also, *Rumex* spp. were found to be the only appropriate host plants for this insect in host specificity tests. It is known that the species completed its life cycle mainly on the plants of *Rumex* and occasionally fed on *Polygonum persicaria*. Under laboratory conditions, it feeds on *Rumex obtusifolius*, *R. acetosa, R. crispus, R. acetosella* (Karimpour, 2007a-b, 2015). In this current paper, *Kokujewia ectrapela* is discovered in

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Turkey for the first time, and a new host plant record, *Rheum ribes* L. (Polygonaceae) is presented and debated.

Material and Method

The materials consist of larvae collected from southeastern Turkey (Şirvan district, Siirt Prov.), on *Rheum ribes* L. (Polygonaceae) plants on May 27, 2020, and June 1, 2020 (Figure 1) at 1400 m, 38°04'30" N 42°07'11" E. The collected 3 larvae, which were observed in high amounts on the *Rheum ribes* L. plant, were put in rearing boxes at Batman University, Faculty of Arts and Sciences, Department of Biology, Zoology Research Laboratory. The larvae were regularly fed and observed under laboratory conditions. Adults rearing out of the pupa were spread as in Fig. 3c, d. Specimen images were taken via a digital camera, Fujifilm Finepix HS30EXR. The classification, nomenclature, distribution data, and terminology of *K. ectrapela* were conducted based on Konow, 1902; Zirngiebl, 1949; Benson, 1968; Goulet, 1986, 1992; Goulet & Huber, 1993; Blank & Taeger, 1998; Çalmaşur & Özbek, 2006; Karimpour 2007a-b, 2015; Koçak & Kemal, 2015; Muche, 1977; Taeger et al., 2006, 2010, 2018.

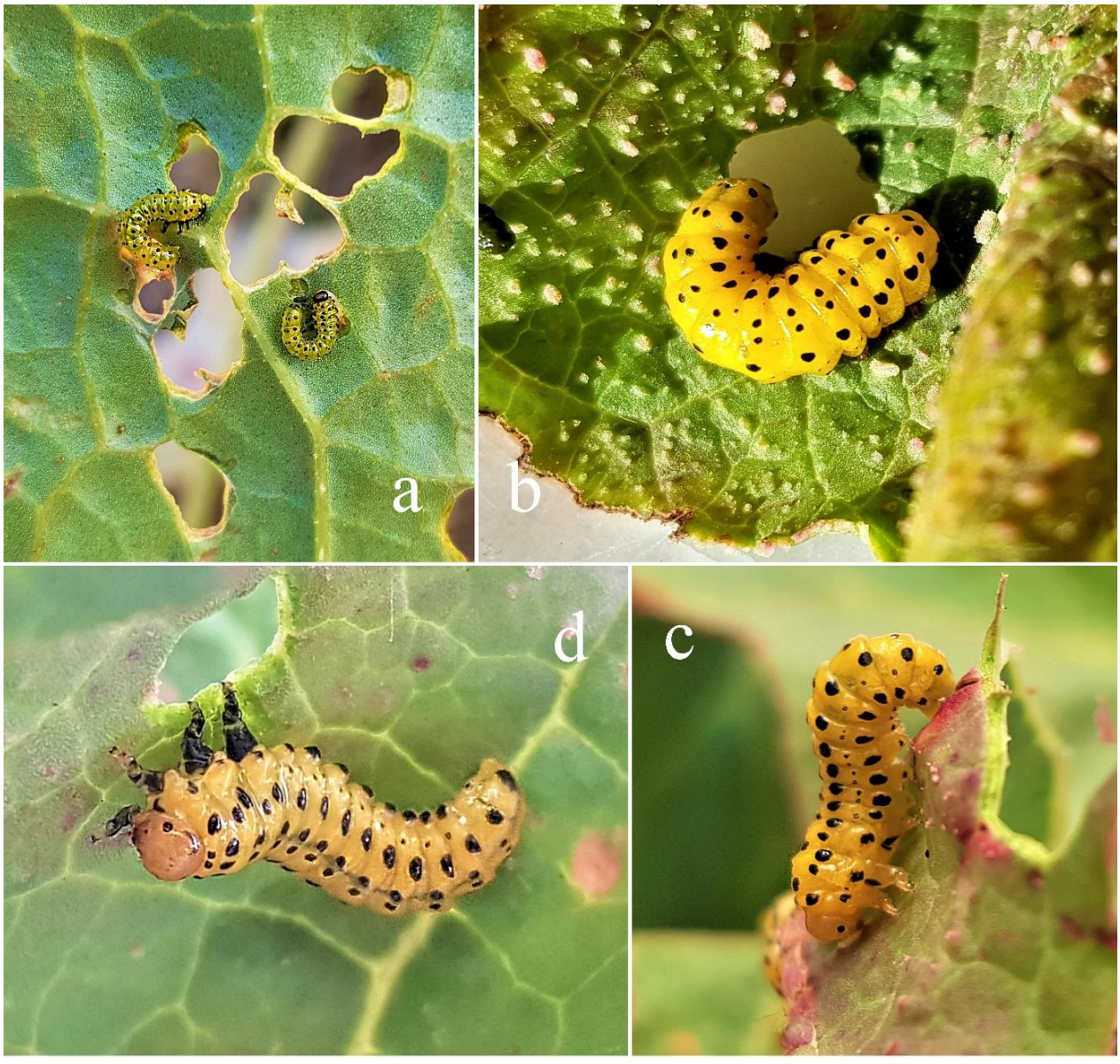

Figure 1. Larvae of *Kokujewia ectrapela,* a. Early instar, b-d. Full grown larvae.

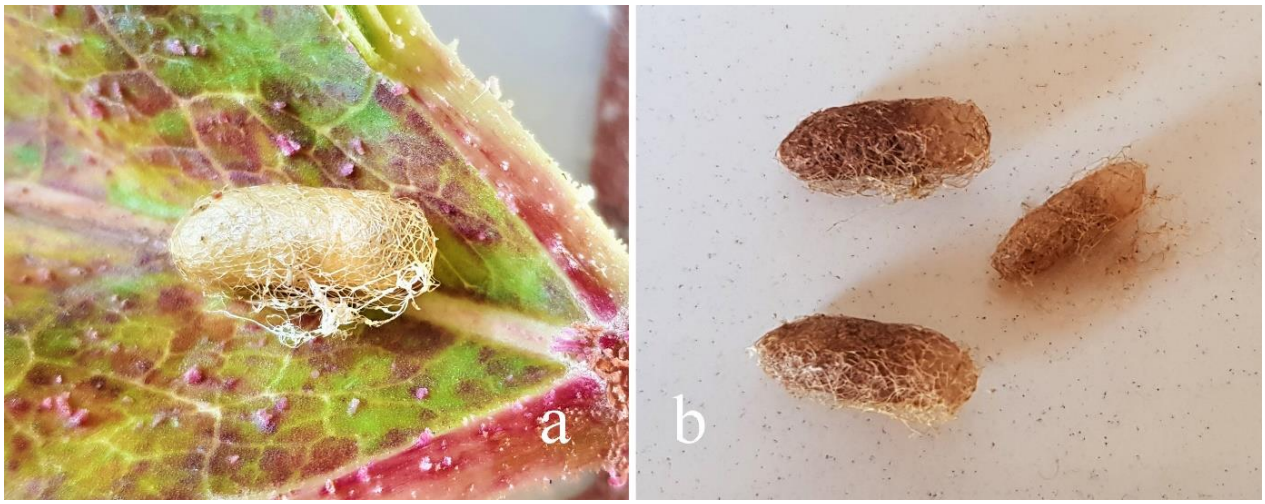

Figure 2. Cocoons of *Kokujewia ectrapela,* a. currently formed cocoon, b. post formed cocoons.

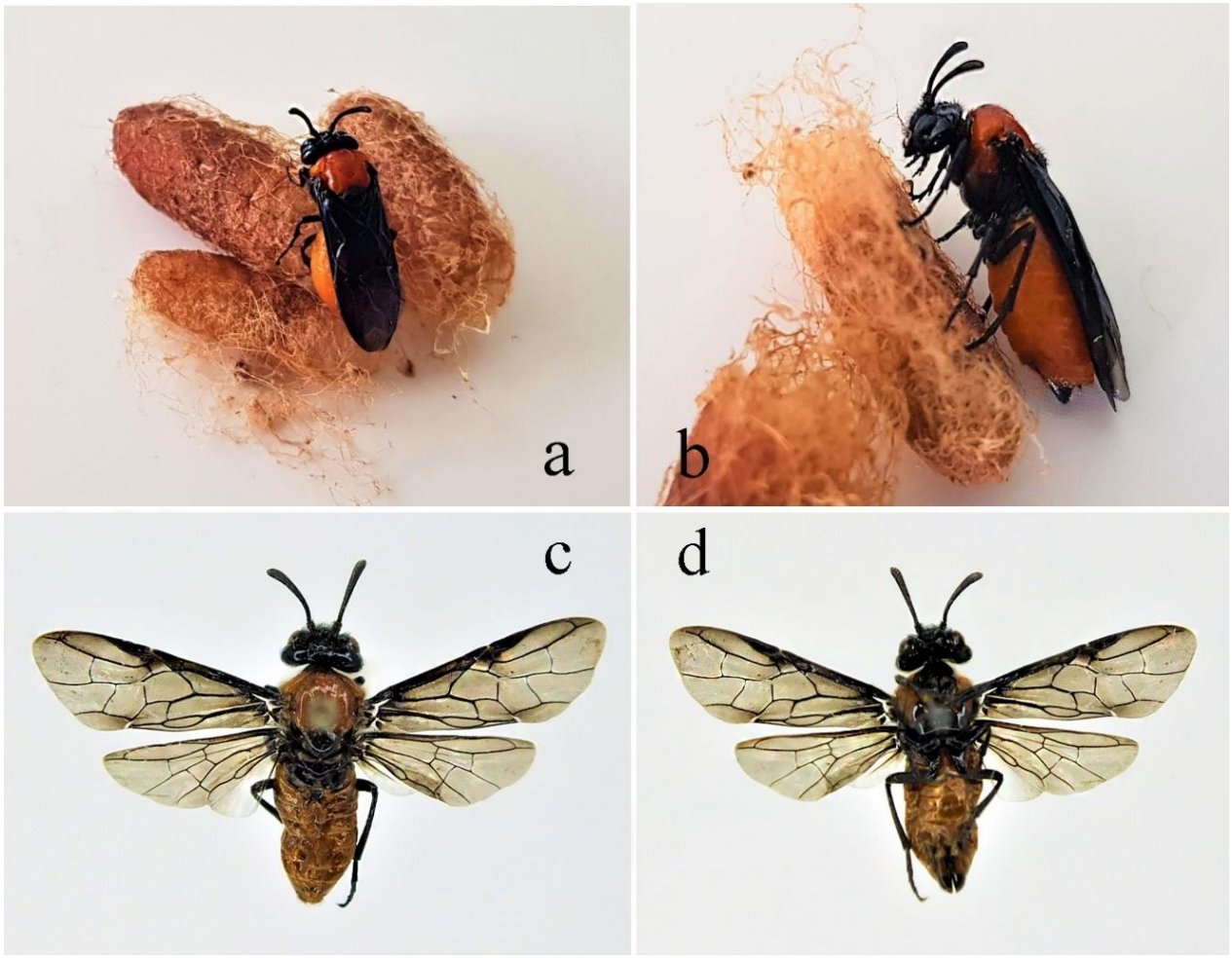

Figure 3. Adult of *Kokujewia ectrapela* Konow, 1902 a-b. Reared adult (a. dorsal, b. lateral), c-d. Spread specimens (c. upperside, d. underside).

Results

Genus *Kokujewia* Konow, 1902

Kokujewia Konow, 1902: 2-3. Type species: *Kokujewia ectrapela* Konow, 1902, designation by monotypy.

***Kokujewia ectrapela* Konow, 1902**

Kokujewia ectrapela Konow, 1902: 3, ♀♂. Type locality: Transcaucasia.
Kokujewia ectrapela var. *clarescens* Zirngiebl, 1949: 284, ♀. Type locality: Transcaucasia.

Examined material: Three larvae were collected from Şirvan, Siirt, southeastern Turkey between May 27, 2020, and June 1, 2020 (Figure 1). All of them turned into the form of pupae respectively on June 8, 2020, June 9, 2020, and June 11, 2020 (Figure 2). Two adults individually reared out on April 17, 2021, and April 21, 2021 (Figure 3).

Diagnosis: The upper side of the thorax is extensively red while the mesoscutellum is black (Figure 3). The following data are employed for defining this group mediated by the key to the species of *Kokujewia* as in Blank & Taeger (1998).
Male: As the abdomen of the first one is red, most of the second tergum is extensively brown, and some of the other following terga are marked brown medially.
Female: Mesoscutellum is black, and median lobes of the mesoscutellum are completely red. The abdomen is red with 1st and 2nd terga including a large brown spot medially, frequently the following terga have smaller brown spots medially.

Distribution: The aforementioned species is known to be available in the following areas. Iran (Ardabil, East Azerbaijan, West Azarbaijan, Lorestan) (Blank & Taeger, 1998, Khayrandish & Ebrahimi, 2018; Taeger et al., 2018; Ghahari et al., 2019), Russia (Stavropol, North Ossetia) (Gussakovskij, 1935; Dadurian, 1962), Georgia, Armenia, Azerbaijan (Transcaucasia) (Blank & Taeger, 1998), and Turkey (newly recorded).

Conclusion

The determination of *K. ectrapela* posits the first report for the Turkish fauna (Blank & Taeger 1998). Çalmaşur & Özbek (2006) and Koçak & Kemal (2015) listed *K. ectrapela* for Turkey (Ankara and Konya provinces) based on the outdated taxonomy of Benson (1968). Benson (1968) had regarded *K. clementi* (western to central Turkey, Bulgaria, Greece), *K. ectrapela* (southern Russia, Caucasus, north-western of Iran), and *K. palestina* (Israel) as a single species and united these species under the older name *ectrapela*; however, Blank & Taeger divided it up into three species again in 1998. The type locality of *K. clementi* was found by Zirngiebl in Akşehir, Turkey in 1949. With the new record of *K. ectrapela*, two of the defined 3 species of *Kokujewia* Konow species have been determined in Turkey.

Known hosts of *K. ectrapela* are *Rumex* species. *Polygonum persicaria* might also be a host, for the control of *Rumex* spp. as indicated by host-choice experiments under rearing conditions (Karimpour, 2007b, 2015). *Rheum ribes* L. (Polygonaceae) is an extraordinary host record for *K. ectrapela*. *R. ribes* is a perennial herbaceous wild plant species, holds medicinal importance (Baytop, 1999), and is distributed in the Iran-Turan Region and Eastern Anatolia Region of Turkey (Cullen, 1996). Since this is a member of Polygonaceae, it fits the known hosts' *Rume*x spp. and *Polygonum persicaria*. It may also arouse doubts about the appropriateness of utilising *K. ectrapela* to combat Rumex as a "weed" (Karimpour, 2015). In addition, it is observed that the larvae of *K. ectrapela*, which feed on the leaves of the host plant of *R. ribes* with a high population, lead to significant damage in plenty of host plants in the field.

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