

**FOUR NEW RECORDS OF OAK GALL WASP
(HYMENOPTERA: CYNIPIDAE, CYNIPINI)
FROM TURKEY**

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ABSTRACT: This study was carried out to contribute the oak gall wasps fauna (Hymenoptera: Cynipidae, Cynipini) of Turkey. Oak gall wasp specimens were collected in 2012 and 2013 from Istanbul, Turkey were examined for revealing the oak gall wasp species diversity. Finally four new records of oak gall wasp, *Andricus glandulae* (Hartig, 1840); *Andricus serotinus* (Giraud, 1859); *Cynips longiventris* Hartig, 1840 and *Trigonaspis megaptera* (Panzer, 1801) (Hymenoptera: Cynipidae, Cynipini) from Turkey were recorded. Data on host oak and phenology are given.

KEY WORDS: Cynipidae, Istanbul, new records, oak gall wasps, Turkey.

The Cynipidae is one of the largest families of the Cynipoidea and about 1400 species are known worldwide (Ronquist, 1999). The number of valid species recorded from Europe and contiguous territories including North Africa and Turkey is fewer than 300 (Dalla-Torre & Kieffer, 1910; Nieves-Aldrey, 2001; Stone et al., 2001; Melika, 2006). The western Palearctic contains around 140 species of oak cynipids (Abe et al., 2007).

Initially published studies concern mostly oak gall wasps (tribe Cynipini), as forest pests in Turkey (Fahringier, 1922; Bodenheimer, 1958; Acatay, 1943; Schimitschek, 1944; Alkan, 1952; Karaca, 1956; Çanakçıoğlu, 1956; Baş, 1973; Erdem, 1975).

In the south western of Turkey (Antalya, Burdur, Isparta, Denizli, Aydın, Muğla) 30 species of oak gall wasps (Cynipini) were found (Kıyak et al. 2008). Katılmış & Kıyak (2008) listed 81 gall-inducing wasps (Hymenoptera: Cynipidae), with a new record from Turkey (*Dryocosmus cerriphilus*). Ten galls inducing wasps on oaks were recorded as new to Turkey (Katılmış & Kıyak, 2009a, 2009b; Kıyak & Katılmış, 2010; Katılmış & Kıyak, 2011). Kemal & Koçak (2010) reported 87 gall wasp species with a new record (*Andricus moreae*) in South Van Lake area, Turkey. Mete & Demirsoy (2012) determined 24 species belonging to 5 genera from Kemal. Mutun & Dinç (2011) reported 17 oak gall wasps with a new record (*Cynips korsakovi*).

In the last decades, three new oak gallwasp species were described from Turkey: *Andricus askewi* Melika & Stone (Melika & Stone, 2001), *A. megalucidus* Melika (Melika et al., 2004), *A. shuhuti* Melika, Mutun & Dinç (Dinç et al., 2014). Tavakoli et al. (2008) described a new species (*Andricus megaltruncicolus* Melika) from Iran and its Turkey distribution (Beybeşli, Erzurum) was mentioned. Additionally, Mutun et al. (2014) described four new species (*Andricus ahmeti*, *A. anatolicus*, *A. bakrachus* and *A. turcicus*) also they listed two new records (*Andricus stoneli* and *Aphelonyx kordestanica*) from Turkey.

MATERIAL AND METHODS

All oak gall specimens were collected from Istanbul in 2012 and 2013. The coordinates and altitudes were recorded using a Garmin 62S model Geographic Positioning System (GPS). After collecting galls they were put in a plastic bag and brought into the laboratory. All oak gall specimens were taken photos. All oak gall specimens are deposited in the Pamukkale University, Faculty of Science & Letters, Department of Biology, Zoology Laboratory, Denizli, Turkey.

RESULTS

***Andricus glandulae* (Hartig, 1840)**

Material examined: ISTANBUL, Beykoz, Cumhuriyet, 41°07' N, 29°15' E, 27 m, 29.IV.2013, 4 asexual galls; Beykoz, between Mahmutşevketpaşa-Öğümce 2. km, 41°08' N, 29°11' E, 120 m, 21.X.2012, 9 asexual galls; Beykoz, Polonezköy, Polonezköy Nature Park, 41°06' N, 29°11' E, 207 m, 29.IV.2013, 5 asexual galls; Silivri, between Seymen-Sinekli 6. km, 41°12' N, 28°09' E, 227 m, 25.XI.2012, 3 asexual galls; Şile, between Hasanlı-Sarıkavak 1. km, 41°01' N, 29°39' E, 189 m, 24.XI.2012, 6 asexual galls; Şile, between Sortullu-Hacıllı 1. km, Doğan Yuvası Fire Watch-Tower, 41°03' N, 29°43' E, 308 m, 24.XI.2012, 5 asexual galls; Şile, between Yeniköy-Yaylalı 2. km, Yeniköy creek, 41°07' N, 29°40' E, 61 m, 24.XI.2012, 4 asexual galls; Şile, between Yeniköy-Yaylalı 5. km, 41°06' N, 29°40' E, 150 m, 24.XI.2012, 5 asexual galls.

Host oak: *Quercus petraea* and *Quercus robur*.

Phenology: The asexual gall (Fig.1a) develops through the summer, matures in autumn and falls from the tree. At least some of the asexual adults overwinter and emerge the following April (Melika, 2006).

***Andricus serotinus* (Giraud, 1859)**

Material examined: ISTANBUL, Şile, Darlık, surroundings of Darlık cemetery, 41°02' N, 29°34' E, 263 m, 24.XI.2012, 3 asexual galls.

Host oak: *Quercus robur*.

Phenology: The gall (Fig. 1b) matures in the autumn. Some adults emerge the following June (Melika, 2006).

***Cynips longiventris* Hartig, 1840**

Material examined: ISTANBUL, Arnavutköy, Tayakadın, 41°16' N, 28°42' E, 112 m, 21.X.2012, 7 asexual galls; Sarıyer, Bahçeköy, Belgrad Forest, Falih Rıfka Atay, 41°11' N, 28°57' E, 115 m, 20.X.2012, 3 asexual galls.

Host oak: *Quercus robur*.

Phenology: The asexual generation (Fig. 1c) matures at the end of the summer, and falls with the leaves; the adult emerges in early spring (Melika, 2006).

***Trigonaspis megaptera* (Panzer, 1801)**

Material examined: ISTANBUL, Beykoz, Mahmutşevketpaşa, 41°08' N, 29°11' E, 66 m, 21.X.2012, 13 asexual galls; Beykoz, between Mahmutşevketpaşa-Öğümce 2. km, 41°08' N, 29°11' E, 120 m, 21.X.2012, 18 asexual galls.

Host oak: *Quercus robur*.

Phenology: The asexual gall (Fig. 1d) falls with the leaf, and can be collected from fallen leaves in the spring. Adults emerge in May and June, or after a year's diapause (Melika, 2006).

DISCUSSION

This study carried out in Istanbul contributed Cynipidae Fauna of Turkey with 4 new records. In this study, 4 species belonging to 3 genus from tribe Cynipini, are recorded first time in Turkey. Now, Cynipidae Fauna of Turkey have got 66

species belonging to genus *Andricus* Hartig and 8 species belonging to genus *Cynips* Linnaeus and 2 species belonging to genus *Trigonaspis* Hartig. We hope that number of species of Turkey cynipid fauna will increase following local faunistic studies in the future.

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LITERATURE CITED

- Abe, Y., Melika, G. & Stone, G. N.** 2007. The Diversity and Phylogeography of cynipid gallwasps (Hymenoptera: Cynipidae) of the Oriental and Eastern Palearctic regions, and their associated communities. *Oriental Insects*, Vol. 41: 169-212.
- Acatay, A.** 1943. İstanbul ve çevresi ve bilhassa Belgrad ormanındaki zararlı orman böcekleri, mücadeleleri ve işletme üzerine tesirleri [The battle against and the damage caused by harmful forest insects in İstanbul, its surroundings and especially in Belgrad forest]. Yüksek Ziraat Enstitüsü çalışmaları, Ankara. 142: 107-120.
- Alkan, B.** 1952. Türkiye'nin Zoosesid (Zoococid) leri (kökeni hayvansal bitki uların) üzerinde çalışmalar II [Investigation of Zoococid of Turkey]. A. Ü. Ziraat Fakültesi 1952 yılı, Ankara. 17: 259-279.
- Baş, R.** 1973. Türkiye'de orman ağaçlarında zarar yapan zararlı kanatlılar (Hymenoptera) üzerine araştırmalar [Investigation of harmful hymenopteran (Hymenoptera) in forests in Turkey]. T.C. Orman Bakanlığı, Orman Genel Müdürlüğü 570(23): 75-124.
- Bodenheimer, F. S.** 1958. Türkiye'de ziraat ve ağaçlara zararlı olan böcekler ve bunlarla savaş hakkında bir etüt [Investigation of the battle against harmful insects of forest and agriculture in Turkey]. Bayur matbaası, Ankara. 300-308.
- Çanakçıoğlu, H.** 1956. Bursa ormanlarında entomolojik araştırmalar [Entomological researches in the forest of Bursa province]. İstanbul Üniversitesi Yayınları. 690: 28-30.
- Dalla-Torre, K. W. & Kieffer, J. J.** 1910. Cynipidae, Verlag von R. Friedlander und Sohn, Berlin, Germany, 891.
- Diñç, S., Mutun, S. & Melika, G.** 2014. A new species of *Andricus* Hartig oak gallwasp from Turkey (Hymenoptera: Cynipidae, Cynipini). *North-western Journal of Zoology*, 10: 122-127.
- Erdem, R.** 1975. Ormanın faydalı ve zararlı Böcekleri [Useful and harmful insects of the forest]. İstanbul Üniversitesi Yayınları, Orman Fakültesi Yayınları. 2078 (217): 181-199.
- Fahringer, J.** 1922. Hymenopterologische Ergebnisse einer wissenschaftlichen Studienreise nach der Türkei und Kleinasien (mit Ausschluß des Amanusgebirges). *Arc. für Naturgesch A*, 88: 149-222.
- Karaca, I.** 1956. Orta Anadolu orman ve meyve ağaçlarında görülen menisei nebati ve hayvani önemli ularının amili ve morfolojileri hakkında araştırmalar [Galls of forest and agriculture trees and their morphological examinations]. Ankara Üniversitesi Ziraat Fakültesi Yayınları 84: 75-120.
- Katılmış, Y. & Kıyak, S.** 2008. Checklist of Cynipidae of Turkey, with a new genus record. *Journal of Natural History*, 42 (31-32): 2161-2167.
- Katılmış, Y. & Kıyak, S.** 2009a. The oak gallwasp *Aphelonyx persica*: a new record from Turkey, with some new host records. *Phytoparasitica*, 37: 95-97.
- Katılmış, Y. & Kıyak, S.** 2009b. Oak gallwasp Genus *Andricus* (Hymenoptera, Cynipidae) – new records from Turkey. *Zoology in the Middle East*, 48: 108-110.
- Katılmış, Y. & Kıyak, S.** 2011. Oak Gallwasps (Hymenoptera: Cynipidae) Fauna Of Inner-Western Anatolian. *Munis Entomology & Zoology*, 6 (2): 735-757.
- Kemal, M. & Koçak, A. Ö.** 2010. Winter trips to south Van Lake and the cynipid galls on oaks (Hymenoptera, Cynipidae). *Cesa News*, 56: 1-66.
- Kıyak, S., Kılıç, T. & Katılmış, Y.** 2008. A contribution to the knowledge of the Cynipini (Cynipidae: Hymenoptera) fauna of Turkey. *Munis Entomology and Zoology*, 3(1): 523-535.
- Kıyak, S. & Katılmış, Y.** 2010. Oak gallwasp *Dryocosmus mayri* (Hymenoptera, Cynipidae)- new record from Turkey. *Journal of the Entomological Research Society*, 12 (1): 67-70.
- Melika, G.** 2006. Gall Wasps of Ukraine. Cynipidae. *Vestnik zoologii*, 21 (1-2), 1-300, 301-644.
- Melika, G. & Stone, G. N.** 2001. A new species of cynipid gall wasp from Turkey (Hymenoptera: Cynipidae). *Folia Entomologica Hungarica*, 62: 127-131.
- Melika, G., Stone, G. N., Sadeghi, S. E. & Pujade-Villar, J.** 2004. New species of cynipid gallwasps from Iran and Turkey (Hymenoptera: Cynipidae: Cynipini). *Acta Zoologica Academiae Scientiarum Hungarica*, 50 (2): 139-151.
- Metç, Ö. & Demirsoy, A.** 2012. A Preliminary Study on The Gallwasp Fauna of Kemalîye (Erzincan, Turkey) and A New Record for Turkey. *Hacettepe J. Biol. & Chem., Special Issue*: 351-363.
- Mutun, S. & Diñç, S.** 2011. Contributions to the Gallwasp (Hymenoptera: Cynipidae) Fauna of Turkey with One New Record. *Journal of Applied Biological Sciences*, 5 (3): 83-85.
- Mutun, S., Diñç, S., Bozsó, M. & Melika G.** 2014. Four new species of *Andricus* Hartig oak gallwasp from Turkey (Hymenoptera: Cynipidae, Cynipini). *Zootaxa*, 3760: 241-259.
- Nieves-Aldrey, J. L.** 2001. Fauna Iberica Hymenoptera Cynipidae, Museo Nacional de Ciencias Naturales de Madrid, CSIC, Madrid, Spain.
- Ronquist, F.** 1999. Phylogeny, classification and evolution of the Cynipoidea. *Zoologica Scripta*, 28: 139-164.
- Schmitschek, E.** 1944. Forstinsekten der Türkei und ihre Umwelt, Berlin, Germany, Volk und Reich, 271-308.
- Stone, G. N., Atkinson, R. J., Rokas, A., Csoka, G. & Nieves-Aldrey, J. L.** 2001. Differential success in northwards range expansion between ecotypes of the marble gallwasps, *Andricus kollari*: a tale of two lifecycles. *Molecular Ecology*, 10: 761-768.
- Tavakoli, M., Melika, G., Sadeghi, S. E., Péñzes, Z., Assareh, M. A., Atkinson, R. S. et al.** 2008. New species of oak gallwasps from Iran (Hymenoptera: Cynipidae: Cynipini). *Zootaxa*, 1699: 1-64.

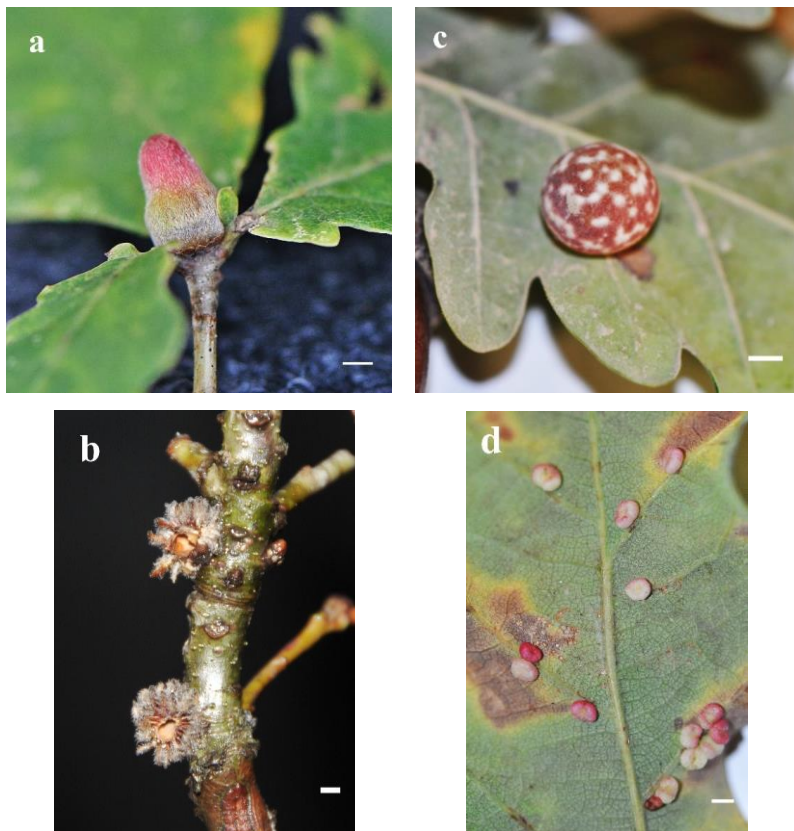


Figure 1. Oak galls (a scale bar 5 mm): a. *Andricus glandulae* asexual gall, b. *A. serotinus* asexual gall, c. *Cynips longiventris* asexual gall, d. *Trigonaspis megaptera* asexual gall.