



SAKARYA ÜNİVERSİTESİ

FEN BİLİMLERİ ENSTİTÜSÜ DERGİSİ

Sakarya University Journal of Science
SAUJS

ISSN 1301-4048 | e-ISSN 2147-835X | Period Bimonthly | Founded: 1997 | Publisher Sakarya University |
<http://www.saujs.sakarya.edu.tr/>

Title: Notes On A Rare Species From Turkey: *Opopanax chironius*

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Received: 2022-02-10 00:00:00

Accepted: 2022-05-31 00:00:00

Article Type: Research Article

Volume: 26

Issue: 4

Month: August

Year: 2022

Pages: 703-709

How to cite

Mehmet SAĞIROĞLU; (2022), Notes On A Rare Species From Turkey: *Opopanax chironius*. Sakarya University Journal of Science, 26(4), 703-709, DOI: 10.16984/saufenbilder.1071214

Access link

<http://www.saujs.sakarya.edu.tr/en/pub/issue/72361/1071214>

New submission to SAUJS

<http://dergipark.gov.tr/journal/1115/submission/start>

Notes On A Rare Species From Turkey: *Opopanax chironius*

Mehmet SAĞIROĞLU*¹

Abstract

The first Turkish record of *Opopanax chironius* (L.) W.D.J. Koch was firstly collected from Tekirdağ province in 1969. The morphological description of the species in “Flora of Turkey and the East Aegean Islands” was written based on these specimens. The species has not been collected for along time untilday. This species was re-collected by us during a flora study in 2014 at Malkara district, Karaiğdemir Dam road in Tekirdağ. The name of this species was misspelled. This situation has been corrected here. Its correct use is *Opopanax chironius*. Also, in this study, expanded description of the species, pictures, disdictive morphological characters from other species, ecology, fruit photographs and ethnobotanical usage were given.

Keywords: *Opopanax*, Apiaceae, Ethnobotanical use, Tekirdağ, Turkey

1. INTRODUCTION

Turkey shows a rich floristic structure with nearly 12 thousand seed plant species. Floristic research are studies that reveal the existence and diversity of plants in a region. Flora studies in Turkey have not been completed yet. In many floristic studies, interesting findings emerge for Turkey [1-8]. One of these studies was carried out by us in the Tekirdağ-Malkara region. In this study, *O.chironius* species belonging to the genus *Opopanax* were investigated.

Opopanax chironius (L.)W.D.J. Koch, was first defined by Linnaeus as *Laserpitium chironium* L. Later, in 1824 Wilhelm Daniel Joseph Koch conveyed it to *Opopanax* [9, 10]. *Opopanax chironius* has been added to Turkish flora by Asuman Baytop in the years 1969 and 1971,

depending upon the samples collected in Tekirdağ (Turkey). The species was listed as the number 1 species of the genus *Opopanax* in the Flora of Turkey and East Aegean Islands [11]. According to Güner et al. it has four species [12]. Asuman Baytop claimed that she collected the plant on the road of Tekirdağ-İncecik motorway. We have not found any of this species within this locality. However, we have collected it on the dam way between Tekirdağ city and Malkara province in 2014. *O.chironius* stays at the sideways of the road and its population is very rare and under human pressure. Its collection has been recorded only by Asuman Baytop and there is no record that could be encountered in any herbaria. Apart from the Asuman Baytop collections, there is no collection for the Flora of Turkey record. No record has been detected for the species in the herbaria searched. Furthermore, there is no any

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record related to *Opopanax chironius* amongst the plants collected by the herbalist researchers in the book of Turkish Botanic Investigations by Baytop [13]. There is no record related to that *O. chironius* in Edinburgh herbarium and other herbaria related to Turkish flora, except the collection of Baytop. In this case, this plant may have come to Turkey from Europe by trade caravans. The collection area of A. Baytop is a main route for the trade to Europe. Thus, it is likely that *O. chironius* has come from those caravans to Turkey and has been gone natural in those regions.

While the genus *Opopanax* is represented by 3 species in Turkish Flora, the amount of species number has been increased to 4 in the book of Turkish Plant List. Here *Crenascadium siifolium* Boiss. & Heldr. species of the genus *Crenascadium* has been transferred to *Opopanax* [12]. This species is an endemic one. There exists no any other endemic species in the genus *Opopanax*. Even though the *O. chironius* is not an endemic one, it is known as rare species in single locality. In this study, the expanded definition of *O. chironius*, its pictures, morphological properties which are discrete from other *Opopanax*, ecological features, the pictures of fruits with rosin channels, distribution map and, the plant's ethnobotanical usage are given.

2. MATERIALS AND METHOD

This work is carried out on the collected plant materials of *Opopanax chironius* (Figure 1). The collected samples have been arranged to be the herbarium material and then are being kept at the SAKU herbarium for further purposes. For the description of *O. chironius*, measurement number of 20 has been selected for every character of different specimen. We have also investigated the samples *O. chironius* collected by Asuman Baytop and kept at E herbarium. Samples of *O. chironius* have been collected only from one place, that was on Tekirdağ, Hayrabolu, Karaiğdemir dam way. That plant has not been found in the locality from where Baytop claimed to collect it. The flowery and fruity samples of the species have been collected from the

collection area, the population status has been determined and all investigations have performed on those collected samples. Turkish naming has been determined using the book “*Türkiye Bitkileri Listesi (Damarlı Bitkiler)*” (Turkish Plant List (Vascular Plants)) [12].

In addition, no new collection records from Turkey were found in ANK, GAZI, HUB, KNYA, AEF, ISTE, NGBB, SAKU, AIBU, VANF, DUOF, E, G, K, WU herbariums.

3. RESULTS AND DISCUSSION

Opopanax chironius has not been collected since 1969. It has been collected in the years 2014 and 2020 during a research in a place near the first collection locality. With this study it is aimed to complete some lack of information such as the polycarpicity, stem leaves' properties and the fruit rosin channel numbers as well as the plant distribution map. *O. chironius* is a plant generally distributed in Europe and Balkans. The eastern most border in Turkey for this plant is known to be Thrace region. *O. chironius* has not been observed and recorded in any other region except Thrace in Turkey. *O. chironius* differs with its habitus, base leaves and fruits from the other *Opopanax* species (*O. hispidus* (Friv.)Gris., *O. persicus* Boiss., *O. siifolius* (Boiss. & Heldr.) Menemen in Turkey.

3.1. Description

Opopanax chironius (L.) W.D.J. Koch, Nova Acta Acad. Leop.-Carol. 12{1}:96 (1824) (Figure 1).

Perennial, stout, erect, fibrous collar present to 10 cm. Rootstock oblong, 5-10 cm diameter. Stem terete, 3-4 m tall, weakly sulcate, weakly glaucescent, glabrous, 2-5 cm diameter at the base. Basal leaves triangular-ovate in outline, upto 140 cm long, 2 pinnate, petiole 15-20 cm long; ultimate segments broadly oblong-elliptic, (4-)6-30 cm long, subsessile, with crenate-serrate margins, stellate hairy, upper leaves sheated, Sheaths semiamplexicaul, weakly inflated, papery, glabrous, lamina reduced. Inflorescence long branches paniculate-corymbose. Central

umbel peduncled, 1.5- 4 cm long; lateral umbels 2-6 cm long, usually fertile, rays 2-3.5 cm, (9-) 14-22 (-28), umbellules (12-) 14-18 (-22) flowered. Bracts linear-lanceolate, 4-6, 6-10 mm long, setaceous, usually deciduous. Bracteoles linear-lanceolate, 1-2, 3-7 mm long, setaceous, deciduous. Sepal absent. Petal yellow, obovate-lanceolate, 1.5-2 x 0.5-1 mm, glabrous, deflexed. Pedicel 5-8 mm long, glabrous. Mericarps 5-8 x 3-4 mm, elliptic, glabrous, brown when ripe, dorsal ridges filiform, margins thickened, 1 mm wide; style 1-2 mm, persistent, stigma capitate; dorsal vittae 1-2, commissural 6-10. Fl. 6.



Figure 1 *Opopanax chironius*: A- habitus; B- Flower; C-Fruit (Photo M.Sağiroğlu 6787).

Opopanax chironius shows distribution in Thrace region. *O. hispidus* (Friv.) Gris. and *O. persicus* Boiss are observed throughout Anatolia (Figure 2).

When the species of the genus *opopanax* are examined, it is seen that *O. chironius* is distinctly different from other species of *Opopanax*. The base leaves and lobes of *O.chironius* are bigger and oblong- elliptic. Bracts and bracteoles are not persistent and deciduous when the plant goes for fructify. *O.chironius*' commissural rosin channels are big in number when compared with other species (Table 3). Similar differences are valid for other characteristics as well (Table 1).

There exists a misuse for the name of *Opopanax chironius*. This species is named as *O.chironium* in Europe, Turkey and Iranian flora. Furthermore, it named as *O.chironium* the species *O.chironius* in various publications. According to "International Code of

Nomenclature for algae, fungi, and plants", it is not true to name it *O.chironium* [14]. This is because the Latin names are not spelled correctly. The gender of the genus *Opopanax* is masculine. Species epithet has to be in accordance with it, and the species masculine form has to be ended with letters 'us'. Hence the epithet should take 'us' letters at the end. This situation has been corrected in "The plantlist a working list of all plant species"[15] the true usage will be as follows: *Opopanax chironius* (L.). W.koch

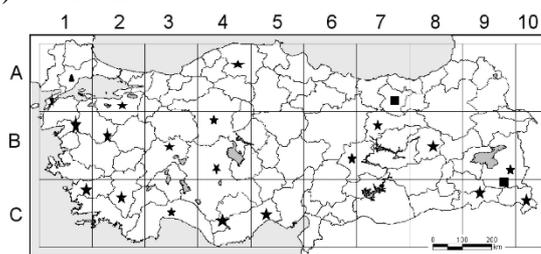


Figure 2 Distribution of the species *Opopanax chironius*(▲), *O. hispidus* (*), *O. persicus* (■).

3.2. Ecology and habitat

Opopanax chironius has been only collected from the Tekirdağ, Malkara, Karaiğdemir dam way. This species is grown in the altitude of 250-300 m. It is grown in brown forest soil at the pathways (Figure1 a,b,c), sideways of the streams and rocky hillsides together with *Eryngium creticum* Lam., *Eryngium campestre* L. var. *campestre*, *Oenanthe fistulosa* L.), *Daucus guttatus* Sibth. and Sm., *Conium maculatum* L., *Caucalis platycarpus* L., *Scandix pecten-veneris* L., *Torilis arvensis* Huds. and Link, *Turgenia latifolia* (L.) Hoffm., *Fraxinus angustifolia* Vahl, *Prunus spinosa* L., *Clinopodium vulgare* L. *Briza maxima* L., *Carduus nutans* L. subsp. *leiophyllus* (Petrovič) Stoj. and Stef., *Cirsium vulgare* (Savi.) Ten., *Centaurea solstitialis* L.subsp. *solstitialis*, *Raphanus raphanistrum* L. subsp. *raphanistrum*, *Carpinus betulus* L., *Quercus robur* L.subsp. *robur*, *Quercus frainetto* Ten., *Quercus petraea* Liebl.subsp. *petraea*, *Quercus cerris* L. subsp. *cerris*, *Ulmus glabra* Huds., *Rosa canina* L., *Salvia sclarea* L., *Chenopodium album* L.subsp. *album* var. *album*, *Rubus sanctus* Schreb., *Papaver dubium* subsp. *Lecoqii* Lamotte, *Poa*

bulbosa L., *Avena barbata* subsp. *Barbata* pottex Link, *Epilobium hirsutum* L., *Lolium rigidum* var. *rigidum* Gaudin, *Dactylis glomerata* subsp. *hispanica* (Roth) Nyman, *Datura stramonium* L., *Ecballium elaterium* (L.) A. Rich., *Xanthium spinosum* L., *Sambucus nigra* L.

3.2. Distribution

Opopanax chironius is a limited species in Thrace region in Turkey. It is known from two localities. In the researches carried out in the locality specified in the flora of Turkey, no any population encountered due to the lack of habitat and destroying the area to create cultivated area. However, it was collected from the observation area of the Karağdemir dam road, which is close to this first area (Figure 1). In that area the plant grows in the sideways of the road, in the rocky areas and hill sides in an altitude of 280 m. It could be collected solely from one location and has been represented by 25 individuals. Since it stays close to the cultivated area its generation is under imperilement.

The definition of the species *O. chironius* at European, Italian and Turkey Floras is very short and insufficient [11, 16, 17]. In this study we have given a wide definition by increasing the information related to the characters of the species. Being polycarpic, presence of fibrous collars, properties of stem leaves, inflorescence state, status of petals and the number of the mericarp vittae are given for the first time with the current study. Furthermore, properties of the stem, base leaves measures, ray number and similar other characteristics are widely discussed in that work

Both species related to genus *Opopanax* (*O. hispidus*, *O. persicus*) and the other plant species are well known by Anatolian indigenes. So, a condensed ethnobotanical cultural heritage is naturally created [18-29]. Even though there exists limited usage of the species *Opopanax chironius* in that region by local indigenes, some special applications have been detected during our survey. The reason for that limited usage may be attributed to the limited area at which the plant is grown.

In our survey it has been found that the indigenes use the plant (*Opopanax chironius*) for headache and arthralgia. In the villages Kımıklar and Evciler it used to apply widely than today. The villagers uproot the plant, cut it when it is fresh, boil it and drink it, it was good for headaches and arthralgia.

Opopanax chironius has widespread ethnobotanic usage in the world. The extracts obtained from the water, coming from the cut stem of the plant, dried under the sun light is used in falk medicine. Charming and persistent odour rosin has antispasmodic activity. In addition to those it can be used in the healing processes of menstrual disorders, asthma and cronic visceral illnesses.



Figure 3 *Opopanax chironius*:A- fruit dorsal vittae; B- Commissural vittae

Table 1 Discrete properties of the species *Opopanax chironius*, *O.hispidus* and *O. persicus*.

| Character s | <i>O. chironiu s</i> | <i>O. hispidus</i> | <i>O.persi cus</i> |
|-------------------|---------------------------------|--------------------------|--------------------|
| Ultimate segments | Stellate hairs, oblong-elliptic | Stellate hairs, elliptic | glabrous, elliptic |

| | | | |
|---------------------------|------------------------------------|---|-------------------------|
| Inflorescence | Long branches paniculate-corymbose | paniculate-corymbose | paniculate-corymbose |
| Birakete ve biraketeoller | Undistinct deciduous | distinct, persistent | distinct, persistent |
| Mericarps | elliptic, 5–8 × 3–4 mm | obovate, oblong-elliptic, 7–12 × 6–9 mm | elliptic, 8–10 × 6–8 mm |
| Lateral wings | 1 mm wide, thick | 2–3 mm wide, thin | 1–1.5 mm wide, thin |
| Dorsal vittae | 1–2 | 1 | 1 |
| Commissural vittae | 6–10 | 2–6 | 2–4 |

3.3. Searched samples

Opopanax chironius. A1 Tekirdağ: The way from Tekirdağ to Hayrabolu, riverside, 24.vii.1969, A. Baytop 15790 E!; between Tekirdağ and Hayrabolu, 19 km from Tekirdağ, riverside, 15. vii. 1971, A. Baytop 20676 E!; ibid; 21.v.1971, A. Baytop 19813 E!; between Tekirdağ and İncik, 20 from Tekirdağ, under *Fraxinus* trees, 31.vii. 1971, A. Baytop 20716 E!. Tekirdağ, Malkara Karaiğdemir baraj yolu, 3. km, 280 m, 27.05.2014. M. Sağiroğlu 4439; ibid; 02.10.2014, M. Sağiroğlu 4883; ibid;

03.07.2020, M. Sağiroğlu 6787, A.B. Semerci and D. Karaduman.

Opopanax hispidus. A7 Gümüşhane: Kızılcık köyü, Kuşakkaya mevki, *P. sylvestris* ormanı, 2050 m, 11.07.1989, Z. Aytaç 2812 GAZI!.

B4 Ankara: Kayaş, vadi içi, 6.7.1947, Davis 13150, E!. B4 Ankara, Tuz Gölü kenarı, 905 m, 25. july. 1969, J. Darrah 180, E!.

B4 Ankara: Çankaya, Dikmen, korunmuş step, 1000 m, 26.06.1985, A. Koçak, V.3393 GAZI!.

B4 Kırıkkale, Keskin, Böbrek dağı, Tıkkılı köyü, step, 650 m, 19.07.1992, U. Güler 1981 GAZI!.

C1 Muğla: Köyceğiz, Sultaniye, taşlık alanlar, 100-300 m, 16.06.1991, A. Güner 9417 GAZI!.

C3 Antalya: Akseki Gidefi dağı, Evlek boğazı güneyi, kayalıklar, 1780 m, 5.7.1994, A. Duran 1883 GAZI!.

C3 Antalya: Akseki, Çukurköy yaylası, Toptaş mevki, 1950-2050 m, 19.07.1995, A. Duran 2933 GAZI!.

C3 Antalya : Manavgat to Akseki 40. miles, 800 m, 14. June. 1962, Davis 35790, E! Malatya: Malatya- Maraş 40. km, 1400 m, 9. June. 1960, Stainto and Henderson 5464, E!.

C4 Konya: Hadim, Gevne vadiisi, Beyrekli köyü, 1600 m, 22.07.2021, M. Sağiroğlu 7051 SAKU C4 Konya: Hadim, Gevne vadiisi, Tasmur yaylası-Beyreli arası, 1800 m, 10.06.1999, H. Duman 6976 GAZI!.

C10 Van: distr. Hoşap, Başkale, 2400 m, 30. july. 1954, Davis 23341 and O. Polunin, E!.

C9 Van: Çatak, Atlıhan köyü çevresi, meşe açıklığı, 1350 m, 30.06.2003, B. Bani 1980 GAZI!.

Van: Gürpınar, Sarıyaprak-Güleçler köyü arası, step, 18.07.2001, 2300 m, M. Ünal 6111 VANF!.

Bitlis: Adilcevaz, Süte yaylası, alpin çayır, kayalık yamaçlar, 2000 m, 11.08.1993, Y. Altan 5509 GAZI!.

Opopanax persicus. örnek No: K 00109718 [Photo!]. Van: Gürpınar, Giyimli- Güleçler köyü arası, step, 01.08.2002, 2400 m, M. Ünal 7893 VANF!.

Acknowledgements

The author would like to thank for latin rules Prof. Dr. Hayri Duman, Alican Bahadır Semerci

and Didem Karaduman for their assistance in fieldwork, and grateful to the curators ANK, GAZI, HUB, KNYA, AEF, ISTE, NGBB, SAKU, AIBU, VANF, DUOF, E, G, K, WU.

Funding

The author has no received any financial support for the research, authorship or publication of this study.

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