

Peucedanum ozhatayiorum (Apiaceae), a new species from NE Turkey

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Peucedanum ozhatayiorum Akpulat & E. Akalın is described and illustrated as a new species from northeast Anatolia, Turkey. It is similar to *P. causicum* and *P. longibracteolatum* but differs from them by having a slender, scabroid stem; scabroid leaves; a fibrous collar; deciduous bracts; persistent unequal bracteoles; green-purple petals; and up to 10 vittae in the dorsal side of mericarps.

Key words: Apiaceae, new species, *Peucedanum*, taxonomy

Peucedanum is an heterogeneous genus of 100–120 species, distributed in the Old World, mainly in Eurasia and Africa. The North American genus *Lomatium* is fairly similar to *Peucedanum* (Pimenov & Leonov 1993).

Taxonomically *Peucedanum s. lato* is the most complex genus in the Apiaceae and it is usually defined in a broad sense, as in the majority of modern floras. Only few characters are common to all of the species and the genus exhibits a great diversity of life-forms, leaf structures and chemical constituents (Solov'eva *et al.* 1985). It is currently under revision by different botanists and it is reduced to only 8–10 Eurasian species, which are known as “true *Peucedanum*” species related to the type species *P. officinale*. Many satellite genera are separated from *Peucedanum*, including *Cervaria*, *Holandrea*, *Imperatoria*, *Oreoselinum*, *Pteroselinum*, *Thysselinum*, *Tommasinina* and *Xanthoselinum* (Spalik *et al.* 2004)

In Turkey *Peucedanum s. lato* is represented by 16 species, and 17 taxa, including six endemic taxa (Chamberlain 1972, Bernardi 1979, Davis *et al.* 1988, Pimenov & Leonov 2004, Parolly & North 2004, Parolly & North 2005).

We came across a new species during our fieldwork, which initiated a revision of *Peucedanum* in Turkey. The main objective of this project is to resolve the taxonomic problems in *Peucedanum* species, since the genus has not been studied in detail.

***Peucedanum ozhatayiorum* Akpulat & E. Akalın, *sp. nova* (Fig. 1)**

HOLOTYPE: Turkey. Hopa-Borçka, near Borçka, 500 m., 41°24'10"N, 41°31'09"E, 7.IX.2006 Akpulat 4216 (holotype ISTE 84194, in flower; isotype CUFH!).

Species characteribus; collo radice fibroso-



Fig. 1. *Peucedanum ozhatayiorum* (from the holotype). — a: Habit, postfloral. — b: Basal leaf. — c: Umbels, in flowering time.

comoso; caule superius sparsim scabridus; bracteae absens vel 1, caducu; bracteolis persistentibus inaequalibus, 3 majoribus subulatis, setaceis, 6–10 mm, 1–2 inconspicuis; petalis viridi-purpureis.

ETYMOLOGY. This species is named in honour of professors Neriman and Engin Özhatay who have contributed very much to the investigation of the Turkish flora.

Erect, green, glabrous, one-stemmed, perennial, 40–70 cm tall. Rootstock woody, with a long, dense, fibrous collar. Stems slender, 4–6 mm in diam. at base, angled or weakly sulcate and striated above, green, inflorescence-bearing branches in upper 1/3. Leaves green to glaucous. Basal leaves 4–6, lamina ovate or deltate in outline, 18–30 × 4–8 cm (with petiole), 2(–3) ternate, petiole long, 10–16 cm, striate, sheaths 1–2 cm long; segments deltoid to ovate, cuneate base 2–4 × 2–5 cm, ternate, terminal segments deeply incised to pinnatipartite, narrowed into 1–20 mm long petiole, terminal segments bigger than lateral segments. Terminal lobes oblong, oblong-ovate, ovate, cuneate at base, apex rounded to acute and hyaline-mucronulate. Cauline leaves similar to basal, becoming upwards smaller and simpler, ternate, 4–10 cm,

lamina 3–5 × 4–5 cm, deltate, apex rounded to acute and hyaline-mucronulate, sheaths long, 1/4 or half of petiole. Synflorescence composed of long pediculate compound umbels, sometimes narrowly winged, sparsely scabrid in upper part, green, somewhere purplish, unequally 4–12 rayed, rays 4–4.5 mm in fertile inflorescence, stout in flower. Bracts 0 or 1, 8–12 mm, deciduous. Flower small, 1–2.5 mm, pedicellate, 8–20 in each umbellule. Bracteoles 4–5, unequal, filiform to linear, 3 of them very long, 6–10 × 0.4–0.5 mm, 1–2 of them shorter, inconspicuous, 2–3 × 0.2–0.3 mm, persistent, spreading, scabrid, green, becoming purple with age. Pedicels stout, sulcate, unequal, 1–3 mm long, scabrid, green with purple lines. Sepals absent. Petals outside green, margins and tips purplish, glabrous, ovate or oblong, inflexed, with hyaline, truncate retuse tip, 0.5–1.2 × 0.4–0.6 mm. Stamen filaments yellowish, ca. 0.8 mm, arcuate; anthers brownish, oblong, 0.4–0.6 mm. Stylopodium conical, with undulate margin, greenish or creamy, glabrous. Style ca. 0.1 mm, yellowish or creamy. Ovary urn-shaped (conical), 0.5–0.8 × 0.2–0.4 mm, yellowish green to green. Fruits dark brownish except ribs and wing green, oblong-elliptic, flattened. Mericarps 5–7 × 3–4 mm, with lateral

wings, 0.5–0.8 mm wide, dorsal ridges filiform or narrowly winged, 0.2 mm, 5-ribbed; vittae prominent, 4 dorsal, 2 commissural, in transverse section vittae 4–10 dorsal, 4 commissural, but in some ridges rudimentary vittae associated to vascular bundles. Flowering August till September, fruiting October till November.

ADDITIONAL SPECIMENS EXAMINED (paratypes). Turkey. A7 Trabzon, around Hamsiköy, in forest, 691 m, 40°45'18"N, 39°37'20"E, 10.IX.2006 *Akpulat* 4232 (CUFH); A8 Artvin, Hopa-Borçka, near Borçka, 500 m, 41°24'10"N, 41°31'09"E, 20.XI.2007 *Akpulat* 4305 (ISTE 84194, in fruit); A9 Artvin, in Yalnızçam forest, 1700 m, 45°67'95"N, 38°28'51"E, 8.IX.2006 *Akpulat* 4223 (CUFH).

HABITAT. *Peucedanum ozhatayiorum* grows in forest of northeast Anatolia (between squares A7 and A9), with species such as *Sanicula europaea*, *Astrantia maxima* subsp. *maxima*, *Eryngium giganteum*, *Pimpinella rhodantha*, *Pastinaca sativa*, *Foeniculum vulgare*, *Heracleum apiifolium*, *Caucalis platycarpus*, and *Tanacetum macrophyllum*.

Peucedanum ozhatayiorum can be recognized by several characters (see Appendix).

Fruit anatomy is very important in Apiaceae taxonomy. In *Peucedanum ozhatayiorum*, the dorsal ribs of mericarps are fairly inconspicuous to almost absent. The testa is completely obliterated except in the funicular area. Of the vittae (oil ducts), 4–10 are situated between the vascular bundles and dorsal vallecules. The other vittae are associated with the vascular bundles.

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References

- Bernardi, L. 1979: Tentamen Revisionis Generis *Ferulago*. — *Boissiera* 30: 1–82.
- Chamberlain, D. F. 1972: *Peucedanum* L. — In: Davis, P. H. (ed.), *Flora of Turkey and the East Aegean Islands* 4: 473–481. Edinburgh University Press, Edinburgh.
- Davis, P. H., Mill, R. R. & Tan, K. (eds.) 1988: *Flora of Turkey and the East Aegean Islands* 10, Suppl. 1. — Edinburgh University Press, Edinburgh.
- Güner, A., Özhatay, N., Ekim, T. & Başer, K. H. B. (eds.) 2000: *Flora of Turkey and the East Aegean Islands* 11, Suppl. 2. — Edinburgh University Press, Edinburgh.
- Parolly, G. & North, B. 2004: *Peucedanum isauricum* (Apiaceae), a striking new species from S Anatolia. — *Willdenowia* 34: 135–144.
- Parolly, G. & North, B. 2005: A further new *Peucedanum* species (Apiaceae) from the Taurus Mts., Turkey — *Willdenowia* 34: 97–105.
- Pimenov, M. G. 1987a: *Leutea* M. Pimen. — In: Rechinger, K. H. (ed.), *Flora Iranica* 162: 445–450. Akademische Druck- und Verlagsanstalt, Graz.
- Pimenov, M. G. 1987b: *Cervaria* Gaertn. — In: Rechinger, K. H. (ed.), *Flora Iranica* 162: 451–454. Akademische Druck- und Verlagsanstalt, Graz.
- Pimenov, M. G. 1987c: *Johreniopsis* M. Pimen. — In: Rechinger, K. H. (ed.), *Flora Iranica* 162: 454–457. Akademische Druck- und Verlagsanstalt, Graz.
- Pimenov, M. G. & Leonov, M. V. 1993: *The genera of the Umbelliferae, a nomenclator*. — Whitstall Litho, Kent.
- Pimenov, M. G. & Leonov, M. V. 2004: The Asian Umbelliferae biodiversity database (ASIUM) with particular reference to South-West Asian taxa. — *Turkish Journal of Botany* 49: 219–223.
- Rechinger, K. H. 1987: *Peucedanum* L. — In: Rechinger, K. H. (ed.), *Flora Iranica* 162: 442–445. Akademische Druck- und Verlagsanstalt, Graz.
- Solov'eva, N. M., Pimenov, M. G., Vasil'eva, M. G., Žigareva, N. N. & Turkov, V. D. 1985: Karyotaxonomic study of some species of *Peucedanum* (Umbelliferae). — *Plant Systematics & Evolution* 151: 89–101.
- Spalik, K., Reduron, J. P. & Downie, S. R. 2004: The phylogenetic position of *Peucedanum* sensu lato and allied genera and their placement in Tribe Selineae (Apiaceae, subfamily Apioideae). — *Plant Systematics & Evolution* 243: 189–210.
- Tutin, T. G. 1968: *Peucedanum* L. — In: Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds.), *Flora Europaea* 2: 360–364. Cambridge University Press, Cambridge.
- Vural, M. & Adıgüzel, N. 1996: Türkiye Florası İlgili Notlar I: *Peucedanum graminifolium* ve *Olymposciadium caespitosum* (Apiaceae/Umbelliferae). — *Ot Sistematik Botanik Dergisi* 3: 59–64.

Appendix. Comparison of diagnostic characters of *Peucedanum ozhatayiorum*, *P. longibracteolatum*, *P. graminifolium* and *P. caucasicum*. Except for *P. ozhatayiorum* based on Davis *et al.* (1988).

| Characters | <i>P. ozhatayiorum</i> | <i>P. longibracteolatum</i> | <i>P. graminifolium</i> | <i>P. caucasicum</i> |
|----------------------------|---|---|---|--|
| Stem height | 40–70 cm | 180–250 cm | 50–115 cm | 40–100cm |
| Fibrous collar | present | absent | present | absent |
| Stem diam (mm) | 4–6 | 8–9 | – | – |
| Basal leaves | 4–6, 2(–3) ternate, petiole 10–16 cm | 5–8, 1(–2)–pinnate, petiole 6–18 cm | ternate or 1–2-pinnate, petiole up to 30 cm | 2-pinnate or 2-ternate |
| Leaf segments | deltoid to ovate, cuneate, ternate | deltoid to ovate, cuneate, triternate, deeply incised to subpinnatifid 25–80 mm | linear, 2–3 paired | cuneate rhomboid, 1–2-pinnatifid or trisect 30–50 mm |
| Cauline leaves length (cm) | 20–40 mm | 2–3 | 15 m | – |
| Bracts | 6–8 | absent | absent | absent |
| Bracteol | 0 or 1, 8–12 mm, deciduous | unequal 1–5 or 15–30 cm | unequal, 7–10, 2–20 cm, pubescent | setaceous, 1–3 |
| Ovary size | 0.5–0.8 × 0.2–0.4 mm | ca. 2 × 1.3–1.5 mm | – | – |
| Pedisel | 1–3 mm long, scabrid, green with purple lines | (2–)3–6(–7) mm long, glabrous | 3–5 mm long, pubescent | – |
| Petals | green-purple | green-purple | white | white, whitish-green |
| Mericaip | 5–7 × 3–4 mm with lateral wings, 0.5–0.8 mm wide, dorsal ridges filiform or narrowly winged, 0.2 mm | (4.5–)5–6 × (4–)5–5.6 mm, spongy wings ca. 0.7 mm wide | 5–6.5 × 3.5–4.5 mm, lateral wings 1 mm | 6 × 4 mm, wing ca. 0.2 mm |
| Pedicellata | 8–20 in each umbellule | (6–)8–9(10) in each umbellule | 20–25(–30) in each umbellule | 10–15 in each umbellule |
| Synflorescence rays | 4–12 | 5–9 | 7–10 | 6–10(–12) |
| Vittae | valleculae 1–3-vittate, commissures 4-vittate | valleculae 1-vittate, commissures 4-vittate | valleculae 1-vittate, commissures 2-vittate | valleculae 1-vittate, commissures 4-vittate |