



Urtica dioica subsp. cypria, with a re-evaluation of the U. dioica group (Urticaceae) in western Asia

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Source: Willdenowia, 36(2) : 811-822

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: <https://doi.org/10.3372/wi.36.36212>

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MAXIMILIAN WEIGEND

Urtica dioica subsp. *cypria*, with a re-evaluation of the *U. dioica* group (*Urticaceae*) in western Asia

Abstract

Weigend, M.: *Urtica dioica* subsp. *cypria*, with a re-evaluation of the *U. dioica* group (*Urticaceae*) in western Asia. – Willdenowia 36: 811-822. – ISSN 0511-9618; © 2006 BGBM Berlin-Dahlem. doi:10.3372/wi.36.36212 (available via <http://dx.doi.org/>)

An overview is provided over the perennial taxa in the *Urtica dioica* complex in Cyprus, Iran, Iraq, Lebanon, Syria and Turkey. The literature reports a variety of names for the taxa of this group in this region and the recognition and taxonomic status of taxa differ between the respective floristic treatments. On the basis of both living and herbarium material the tentative recognition of the following taxa for these countries is here proposed: *U. dioica* subsp. *cypria* (endemic to Cyprus), *U. dioica* subsp. *dioica* (syn. *Urtica haussknechtii*; Iran, Iraq, Lebanon, Syria, Cyprus and Turkey, Europe, E USA, W, N & Central Asia), *U. dioica* subsp. *pubescens* (Turkey, also SE Europe east of Italy and Hungary, Ukraine, Russia), *U. dioica* subsp. *kurdistanica* (syn. *U. xiphodon*, *U. dioica* var. *xiphodon*, *U. dioica* var. *subincisa*; Iran, Iraq, Syria, Turkey) and *U. fragilis* (Turkey, Lebanon). The subspecies of *U. dioica* show relatively weak morphological and ecological differentiation, comparable to that observed in Asian and North American subspecies of this group, but the recognition of subsp. *cypria* is recommended on the basis of weak, but highly consistent morphological characters, such as the distribution of stinging hairs and its exclusively monoecious character. *U. fragilis* can be considered as very distinct and likely only remotely related.

Key words: Greater Stinging Nettle, *Urtica fragilis*, *Urtica haussknechtii*, taxonomy, Cyprus, Turkey.

Introduction

The Greater Stinging Nettle (*Urtica dioica* L.) is widespread and has been reported from nearly all temperate regions of the world, from throughout Eurasia (Yarmolenko 1936, Chrtek 1974, Jiarui & al. 2003), from North America (Woodland 1982, Boufford 1997) and South America (Taylor 2003), from S Africa (Friis & Immelman 2001) and New Zealand (Cheeseman 1925). In Eurasia and North America the taxon is currently treated as a complex of geographically, ecologically and/or morphologically differentiated subspecies (Woodland 1982, Edmondson 1992, Jiarui & al. 2003, Weigend 2005).

A total of four subspecies is currently reported from Europe, including typical *Urtica dioica* subsp. *dioica*, which is a widespread weed, subsp. *sondenii* (Simmons) Hyl. from N Scandinavia, subsp. *pubescens* (Ledeb.) Domin from dry habitats in E and SE Europe to W Asia (W Turkey) and subsp. *subinermis* (R. Uechtr.) Weigend, from river banks throughout Central and E Europe (Edmondson 1992, Weigend 2005).

The Flora of Cyprus (Meikle 1985) recognizes a distinct subspecies on this island, *Urtica dioica* subsp. *cyprica* H. Lindb., but expresses doubts as to whether this subspecies is distinct from *U. dioica* subsp. *gracilis* (Aiton) Selander from North America. Obviously, the correct taxonomic status of *U. dioica* subsp. *cyprica* essentially depends on its relation to the forms of *U. dioica* present in the E Mediterranean and W Asia. Currently, most regional floras do not recognize any infraspecific taxa in *U. dioica* (Iraq: Townsend 1980a, Turkey: Townsend 1982, Lebanon and Syria: Mouterde 1966), but the Flora of Turkey (Townsend 1982) does accept an apparently rare segregate species, *U. haussknechtii* Boiss., of which only male plants are known so far. Moreover, in the Flora Iranica *U. dioica* subsp. *kurdistanica* Chrtek (Chrtek 1974) is described as a segregate taxon, from W Turkey *U. dioica* subsp. *pubescens* (Ledeb.) Domin has been reported recently (Weigend 2005) and in both countries the typical subspecies (subsp. *dioica*) is also present. Thus, the treatment of the infraspecific taxonomy of *U. dioica* is inconsistent between the different floras and the present article wants to investigate which infraspecific taxa can be tentatively recognized in the E Mediterranean and whether subsp. *cyprica* can be considered as a distinct taxon and can be segregated from North American subsp. *gracilis*. Furthermore, it has been generally overlooked that there is another perennial, monoecious taxon of *Urtica*, namely *U. fragilis* Thiébaud, from Lebanon and S Turkey, and this species is also compared to subsp. *cyprica*.

This study should be seen as a preliminary comparison based on cultivated material and a comparison of some herbarium specimens in combination with the literature. It primarily aims at providing the basis for more detailed studies in the field, preferably with the additional use of molecular studies to clarify the relationships between the different morphological and ecological forms found in the region. A key to the taxa tentatively recognized is here provided for that purpose, the problems are discussed and a more detailed description than hitherto published is provided for subsp. *cyprica*.

Material and methods

Approximately 150 accessions of *Urtica*, including c. 100 accessions of *U. dioica* s.l. from four continents and 25 countries (Argentina, Armenia, Austria, Bulgaria, Chile, China, Cyprus, Czech Republic, Finland, France, Germany, Guatemala, Italy [Sicily, Sardinia, N Italy to Tuscany], Japan, New Zealand, Norway, Peru, Poland, Romania, Spain, Sweden, Switzerland, Turkey, UK, USA, see Weigend 2005) were taken into cultivation to permit a comparison in the living stage and to prepare voucher specimens at the appropriate stage (entire, fully developed shoots in full anthesis and in fruit). Voucher specimens were prepared from all cultivated accessions and a complete set of the vouchers is being deposited in B. Herbarium loans from the following herbaria (abbreviations following Holmgren & Holmgren 1998-) were studied: B, BEI, BM, FI, G, G-DC, HBG, JE, K, KIEL, M, MO, W, herb. Hadjikyriakou. Data from the literature, herbarium material, field observations and cultivated material were compared.

Results

The literature reports a total of five infraspecific taxa and two evidently closely allied species from Iran, Iraq, Syria, Cyprus and Turkey: *Urtica dioica* var. *incisa* Wedd. (Weddell 1856: Syria), *U. haussknechtii* Boiss. (Boissier 1879: Turkey), *U. fragilis* Thiébaud (Mouterde 1966: Lebanon, Turkey), *U. dioica* subsp. *kurdistanica* Chrtek (Chrtek 1974: Iran, Iraq), *U. dioica* var. *xiphodon* (Stapf) Stapf (Stapf 1883, 1889: Iran), *U. dioica* subsp. *pubescens* (Ledeb.) Domin (Weigend 2005: Turkey) and *U. dioica* subsp. *cyprica* H. Lindb. (Meikle 1985).



Fig. 1. *Urtica dioica* subsp. *kurdistanica* – A: young shoots showing the typical very deeply serrate leaves (Bornmüller 8198); B: female shoot at the beginning of anthesis (Bornmüller 8199).

Urtica dioica subsp. *kurdistanica*: *U. dioica* var. *xiphodon* (Stapf) Stapf (\equiv *U. xiphodon* Stapf) was formally synonymised under *U. dioica* subsp. *kurdistanica* by Chrtek (1974), who stated that the type of the name *U. xiphodon* is close to that subspecies, but represents a transitional form to *U. dioica* subsp. *afghanica* Chrtek (from Afghanistan). Chrtek overlooked another name for the same taxon, namely *U. dioica* var. *subincisa* Wedd. (Weddell 1856, 1869) described from Syria and Dalmatia. On the basis of a comparison of the descriptions, cultivated plants and specimens seen from NW Iran, Syria and E Turkey (*Strauss 190, Coder 182, T. Kotschy* [exs. Iter Cilicicum] 7, *Weigend 7802*) it becomes clear that var. *subincisa* and var. *xiphodon* are indistinguishable and share deeply incised lower leaves, a prominent terminal tooth on the lamina ("*xiphodon*") and sparse cover of stinging hairs on the adaxial leaf surface on upper leaves (characters of *kurdistanica*), but have an abundant cover of stinging hairs throughout the stem (a character of *dioica* and *afghanica*). This material thus represents morphological intermediates between subsp. *afghanica*, subsp. *kurdistanica* and subsp. *dioica* as delimited by Chrtek (1974). The judgement of Chrtek (1974) in tentatively placing these specimens in subsp. *kurdistanica* is provisionally followed here. Typical material of subsp. *kurdistanica* is indeed very distinctive, but extensive field studies would evidently be required in NW Iran, N Syria and E Turkey to elucidate the exact delimitation – if any – of the three subspecies in that region.

Urtica dioica subsp. *dioica*: *U. haussknechtii* was tentatively accepted by Townsend (1982) and differentiated from *U. dioica* on the basis of its very small leaves ($< 6 \times 4.5$ cm), the sparse cover with stinging hairs and extensive ramification. However, Haussknecht (1904) already emphasized that he considered the type as an aberrant specimen of typical *U. dioica*. Strongly branched and small leaved forms have been repeatedly segregated from *U. dioica* ("var. *ramosa*", "var. *microphylla*", see Weigend 2005), but they just represent late ontogenetic stages of *U. dioica* and are generally found in late summer and autumn in Central Europe. Material kindly sent by Federico Selvi (Florence) shows striking similarity to the type of *U. haussknechtii* and consistently showed early and strong branching, sparse cover with stinging hairs and small leaves in cultivation (2003–06, *Weigend 7803*). Both our material and the type represent male individuals and no corresponding female specimens have so far been found. The differences to typical *U. dioica*, however, do not justify a separation at any taxonomic level, otherwise numerous late season specimens from Central Europe would key out as *U. haussknechtii* on the basis of these morphological characters. *U. haussknechtii* is here reduced to synonymy under *U. dioica* subsp. *dioica*.

Urtica dioica subsp. *cyprica*: *U. dioica* subsp. *cyprica* was studied both from herbarium specimens and individuals cultivated in Berlin. The taxon is superficially similar to shade forms of *U. dioica* subsp. *dioica* and to North American subsp. *gracilis* with its rounded leaf teeth, dark green leaves, sparse cover of stinging hairs on the adaxial leaf surface of the upper leaves and mostly rounded to truncate leaf bases. The indumentum, however, differs clearly between different organs: subspecies *cyprica* has very few (< 5), if any, stinging hairs on the abaxial leaf surface and very few on the upper internodes and the adaxial leaf surface (< 5), but several stinging hairs on the petioles (typically 5–10), whereas both shade forms of subsp. *dioica* and subsp. *gracilis* have at least some stinging hairs (> 10) on the abaxial leaf surface or very rarely altogether lack stinging hairs on both petiole and leaves. Moreover, the leaves of subsp. *gracilis* and the shade forms of subsp. *dioica* tend to be much larger and easily reach a length of over 12–16 cm, whereas those of the specimens of subsp. *cyprica* rarely reach more than 8 cm in length. Overall plant size also differs, with the tallest specimens of subsp. *cyprica* reaching approximately 80 cm, whereas subsp. *gracilis* and the shade forms of subsp. *dioica* are typically 100–180 cm tall. More importantly, subsp. *cyprica* is apparently consistently monoecious with male inflorescence branches on the basal nodes and female inflorescence branches on the upper nodes, whereas subsp. *dioica* is typically dioecious, although a considerable proportion of the clones in any individual population can be monoecious (Heemstrek & al. 1998). The male inflorescence branches of subsp. *cyprica* are roughly as long as the petioles and have very short branches, whereas they are much longer than the petioles and strongly branched in subsp. *dioica* and subsp. *gracilis*. Similarly, the female inflores-

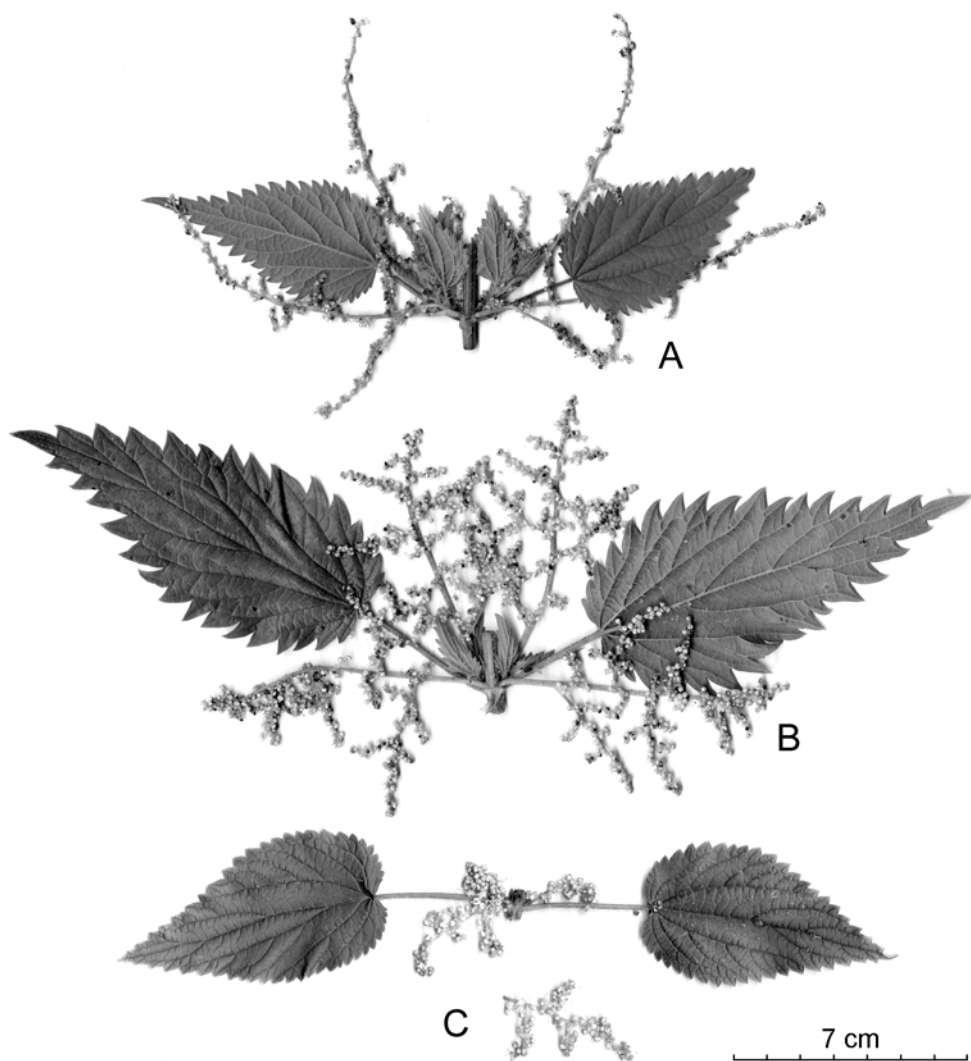


Fig. 2. *Urtica dioica* – male inflorescences and corresponding leaves – A: *U. dioica* subsp. *dioica*, small leaved form (“*U. haussknechtii*”, Weigend 7803); B: *U. dioica* subsp. *dioica*, “typical” form (Weigend 7803); C: *U. dioica* subsp. *cyprica* (Weigend 8229).

cence branches are weakly branched and up to $2 \times$ as long as the petioles and much shorter than the internode in subsp. *cyprica*, whereas they are up to $5 \times$ as long as the petioles and as long or considerably longer than the internode in subsp. *dioica*. Thus the combination of the smaller overall plant size with the more readily observed differences in indumentum and dimensional differences in the inflorescence sizes allows a clear delimitation of subsp. *cyprica* from all continental forms of subsp. *dioica* and from subsp. *gracilis* from North America. The differences appear to be consistent, but they are slight enough to warrant recognition at subspecies rank only. *U. dioica* subsp. *cyprica* is thus one of four island endemics in *Urtica* in the Mediterranean basin and the only island endemic in the eastern Mediterranean. The other three taxa are *U. bianorii* from Mallorca, *U. atrovirens* from Corsica, Sardinia and neighbouring Tuscany and *U. rupestris* from

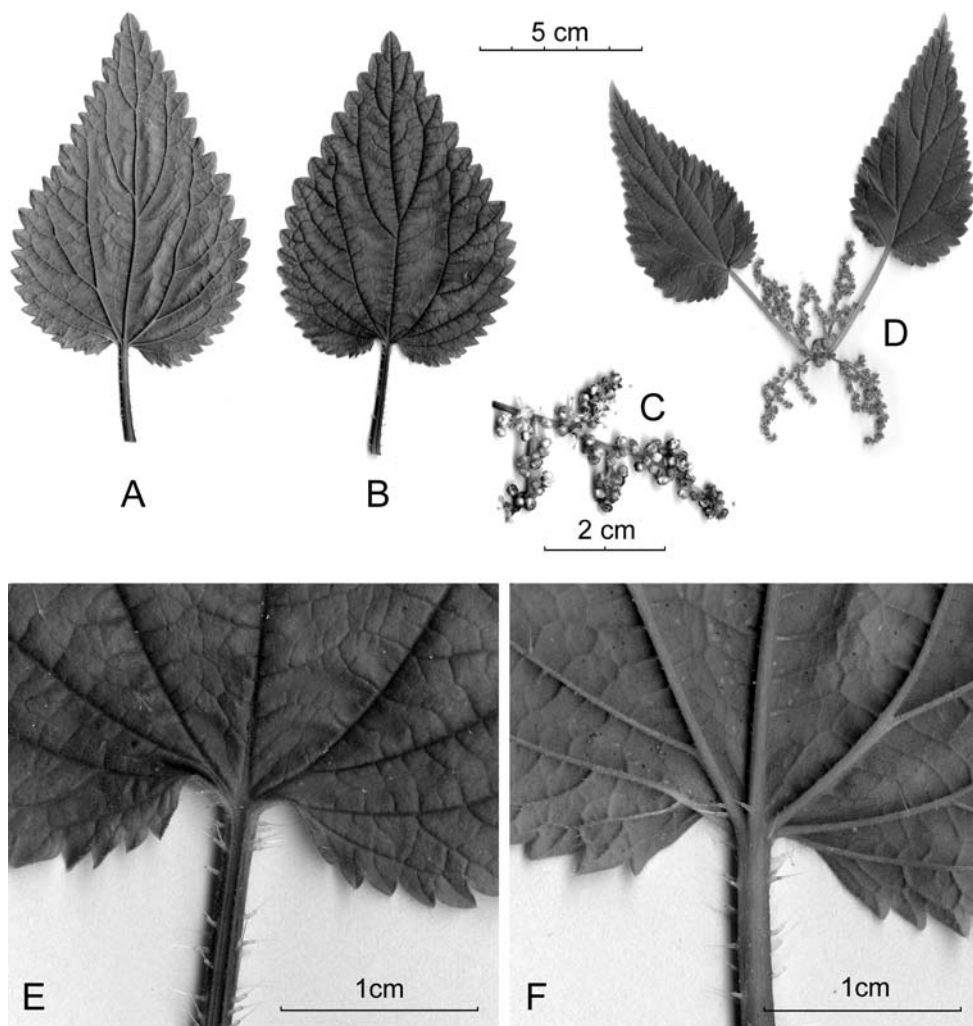


Fig. 3. *Urtica dioica* subsp. *cypria* (Weigend 8229) – A: abaxial leaf surface; B: adaxial leaf surface; C: individual male inflorescence; D: female inflorescence node; E: leaf base, adaxial surface, note the near-absence of stinging hairs; F: leaf base, abaxial surface, note the presence of stinging hairs at base of leaf veins.

Sicily. Morphological differentiation of the other three taxa from *U. dioica* is more pronounced and it thus seems warranted to recognize these three taxa as separate species (Corsi & al. 1999, Corsi & Masini 1997), whereas subsp. *cypria* is correctly recognized at infraspecific level only. There are reports of supposedly introduced subsp. *gracilis* in N Africa (Maire 1961, Pottier-Alapetite 1979, Quézel & Santa 1962), which actually refer to an unnamed monoecious form of *U. dioica*, but which is also clearly distinct from subsp. *cypria*. There are also reports of introduced subsp. *gracilis* in New Zealand (Cheeseman 1925), which are also due to taxonomic confusion and refer to native *U. incisa* Poir. In summary, there is so far no conclusive evidence that subsp. *gracilis* has ever been introduced anywhere outside the USA.

***Urtica fragilis*:** In the direct geographical vicinity of Cyprus another perennial, monoecious species of *Urtica* is found, namely *U. fragilis* from Lebanon and S Turkey. However, the taxon is

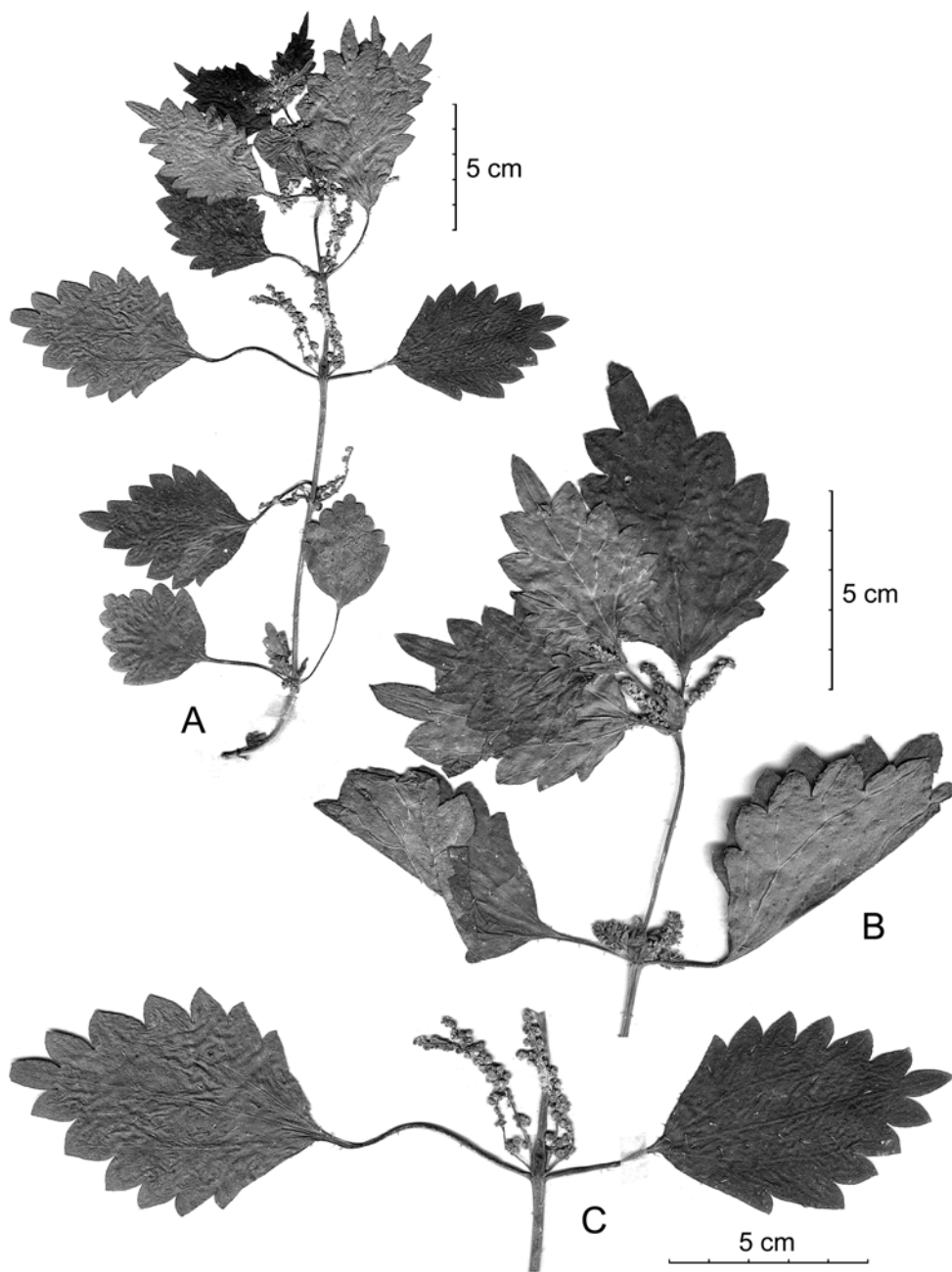


Fig. 4. *Urtica fragilis* – A: entire shoots with male inflorescences (Mousterde 2870); B: young shoot (Mousterde 11786); C: male inflorescences and corresponding leaves (Mousterde 2870).

readily distinguished from subsp. *cyprica*. It has leaves with at most seven teeth on each side (versus > 15 in subsp. *cyprica*) and has the female inflorescences at the base of the plant and the male inflorescences above (versus male below and female above in subsp. *cyprica*). Most importantly, it is the only perennial taxon of *Urtica* in this region with united stipules (free in all subspecies of *U. dioica*) and lacks a rhizome (present in all subspecies of *U. dioica*).

Key to the perennial taxa of *Urtica* from Cyprus, Turkey, Iran, Iraq, Lebanon and Syria

1. Rhizome absent, perennial herb from stout tap-root; stipules united or only apically divided; plants monoecious with female inflorescences below and male inflorescences above 2. *U. fragilis*
- Rhizome present, perennial herb from tap-root and diffuse rhizome; stipules free (very rarely basally united at uppermost nodes); plants dioecious or with male inflorescences below and female inflorescences above 2
2. Entire plant densely soft pubescent from white trichomes, appearing whitish or grey 1.4. *U. dioica* subsp. *pubescens*
- Plant not densely pubescent, never white or grey from dense pubescence. 3
3. Petioles with numerous stinging hairs, but upper internodes of stem and adaxial leaf surfaces of upper leaves with very few stinging hairs (less than 10 per leaf or internode), abaxial leaf surface of upper leaves without or with up to 5 stinging hairs; plants always monoecious; male inflorescence branches at lower nodes, roughly as long as the petioles (2-3.5 cm) and unbranched or with short branches (< 1 cm), female inflorescence branches at upper nodes, c. 2-3 cm long, weakly branched with branches < 1 cm, c. 1-2 × as long as the petioles and up to 1/3 as long as the internode 1.3. *U. dioica* subsp. *cyprica*
- Plant ± evenly covered with stinging hairs, few to numerous stinging hairs on stem, petioles and leaves, but often fewer on the upper parts of the plant, abaxial leaf surface always with stinging hairs at least on principal vein; plants mostly dioecious; male inflorescence branches much longer than petioles and leaves (3.5-9 cm) and strongly branched, triangular in outline with branches > 2-3 cm, female inflorescences c. 2.5-8 cm, strongly branched, triangular in outline with branches > 1 cm, c. 1-5 × as long as the petioles and 1-4 × as long as the internode 4
4. Plant densely covered with stinging hairs throughout (including adaxial leaf surface of upper leaves and distal portion of stem); leaves with relatively shallow serrations, tooth at leaf apex not distinctly constricted at base (W Asian specimens only!) 1.1. *U. dioica* subsp. *dioica*
- Plant densely covered with stinging hairs at base of stem and on lower leaves, but with few stinging hairs on adaxial leaf surface of upper leaves and on distal portion of stem; leaves with very deep and coarse serrations, tooth at leaf apex distinctly constricted at base 1.2. *U. dioica* subsp. *kurdistanica*

Formal taxonomy

1. *Urtica dioica* L.

1.1. *Urtica dioica* L. subsp. *dioica* – see Weigend 2005 for other synonyms and discussion.
= *Urtica haussknechtii* Boiss., Fl. Orient 4: 1146. 1879. – Holotype: [Turkey, Malatya (Melitene)] “Iter Syriaco-Armeniacum, Hab. ad maenia urbis Eski Malatia Catatoniae”, 18.9.1865, *Haussknecht* (JE!). – Fig. 1A, B.

Distribution. – Iran and Iraq (Chrtek 1974), Turkey (Townsend 1982), Syria and Lebanon (Mourterde 1966); 500-2300 m.

Representative specimens seen. – TURKEY: Paphlagonia, Wilajet Kstambuli, Goekdschenris ad mt. Bellonra (?), Tossia (?), 9.7.1892, *Sinten* 4611 (B); E Anatolia, Amasia, 400-600 m, 7.1889, *Bornmüller* 1278 (B); Ankara, Gdl Ilgesi, Kirmiraya vadisi, 680 m, 40°13'18.4"N, 32°14'48.1"E,

29.4.2001, *Tarikahya 1138* (B); Trabzon, Kaçkar Daglari, Ouitdag Gezidi, 2700 m, source collection *Federico Selvi*, Florence, cultivated at Berlin, specimens prepared in July 2003, *Weigend 7803* (B, BM, KRAM, LE, M, P, W). — SYRIA: without precise locality, “Syria, Mai-July 1846,” *Bossier* (G-DC). — LEBANON: Baalbek, 23.8.1960, *Edgecombe A-19* (BEI); Qabbélias, 13.7.1932, *Mousterde 1389* (G, 2x, male and female); Jdita, 31.5.1936, *Mousterde 5304* (G, 2x, male and female).

1.2. *Urtica dioica* subsp. *kurdistanica* Chrtek in Rechinger, Fl. Iranica 105: 3. 1974.

Holotype: Iran, Kurdistan, Chehel Chashmeh, 44 km NE of Dezh-Shahpur (Merivan), ad rivulum, 2000 m, 7.7.1971, *K. H. Rechinger 43026* (W 1972-00387!).

= *Urtica xiphodon* Stapf, Bot. Erg. Polakschen Exp. 2/5: 272. 1885-86. ≡ *Urtica dioica* var. *xiphodon* (Stapf) Stapf in Verh. Zool.-Bot. Ges. Wien 39: 212. 1889. – Holotype (fide Chrtek 1974): [Iran: Hamadan, Mount Alvand] “in itinere ad Tusirkan ad rivulos Gendjname”, *Pichler* (WU?, not seen). – Fig. 2A, B.

= *Urtica dioica* var. *subincisa* Wedd. in Arch. Mus. Hist. Nat. Paris 9 [Monogr. Fam. Urticac.]: 78. 1856. – Type: “Hab. in Syria et Dalmatia”. – Lectotype (designated here): [Syria] “Syria orientalis, anno 1814, *Coder 182*” (G-DC [microfiche!]).

Distribution. – Iran and Iraq (Chrtek 1974), Syria and Turkey; (1300-)2000-3400 m.

Representative specimens seen. – TURKEY: Cappadocia, Mt Argaeus (= Erciyas Dâgi), 2100 m, 19.6.1890, *Bornmüller 2507* (B); [S Turkey, Taurus, I] Iter Cilicicum in Tauri alpes Bulgar Dag, in alpinis vallis Gusguta, 25.6.1853, *T. Kotschy exs. Iter Cilicicum 7* (G-DC [microfiche & scan]).

– IRAN: Mount Elburs, in valle Lur, ad pagum Getschesär, 2200 m, *J. & A. Bornmüller 8197* (B); Mount Elburs, prope Imamusade(?), 2600 m, 29.5.1902, *J. & A. Bornmüller 8198* (B, annotated as “vr *xiphodon* f. *perincisa*”); Mount Elburs, in valle Scheheristanek, 2600 m, 12.6.1902, *J. & A. Bornmüller 8199* (B, annotated as “v *xiphodon* f. *perincisa*”); Persia, Prov. Kerman, Salesar, 3400 m, 18.7.1892, *Bornmüller 4513* (B); W Persia, “Girni”(?), 3.7.1892, *Strauss 190* (B).

Unfortunately, I was unable to locate material annotated by Weddell as var. *subincisa*. Nevertheless, the specimen *Coder 182* at G-DC is here proposed as lectotype for the name var. *subincisa* Wedd., since it is the only specimen located that was likely seen by that author. It closely corresponds to the original diagnosis in having deeply and sharply serrate leaves. Another G-DC specimen, from Syria (*Boissier*, anno 1846), was likely also seen by Weddell, but clearly corresponds to subsp. *dioica*.

The specimen *Bornmüller 2507* from Turkey represents young shoots of the shade form, but shows the very deep leaf incisions and also the sparse indumentum typical of this subspecies. More material from E Turkey would be desirable.

1.3. *Urtica dioica* subsp. *cyprica* H. Lindb., Iter Cypr.: 12. 1946.

Holotype (fide Meikle 1985): Cyprus, distr. Nicosia, “M. Troodos, Milikouri prope monasterium Kykko, in umbrosis in cultis. Kambos, in ruderatis”, 15.7.1939, *H. Lindberg* (H; isotype: K!). – Fig. 2C, 3.

Erect perennial herb, 0.3-0.8(-1?) m, monoecious, rhizome plagiotropic; *aerial stems* erect, initially simple, sometimes weakly and shortly branched later, covered with scattered (c. 5-10 per cm stem in upper part) stinging hairs 2-2.5 mm long, their feet c. 0.2-0.3 mm long, setae 1-1.2(-1.5) mm, and densely covered with simple, curved trichomes c. 0.1-0.2(-0.8) mm long. *Leaves* opposite, stipules free, 4 per node, ovate, 2-6(-7) mm long and 1-3 mm wide, subglabrous or with scattered, short, simple trichomes; *petioles* 1-3(-4) cm long, especially distally densely setose, lamina ovate-acuminate, median foliage leaves on main shoot 5 × 3-8 × 4.5(-9.5 × 5) cm, base truncate or rounded, rarely subcordate (sinus to 4 mm deep), margin simply and regularly serrate with 15-25 teeth on each side, teeth 3 × 4-5 × 7 mm, symmetrical or slightly curved across-copically, adaxial surface with very few stinging hairs scattered over the surface (0- < 1 per cm²) and sparsely covered with tiny, appressed, simple trichomes 0.1-0.4 mm long, very densely set

with oblong cystoliths, abaxial surface esetulose, sometimes 1-2 setae near leaf base. *Inflorescence* branches male below and female above, sometimes female at lowest node, half-erect to horizontally spreading during anthesis, weakly branched, tepals finely pubescent, esetulose, male branches roughly as long as petioles (2-3.5 cm) and unbranched or with short branches (< 1 cm), female inflorescence branches at upper nodes, c. 2-3 cm long, weakly branched with branches < 1 cm, c. 1-2 × as long as petioles and up to 1/3 as long internode, male flowers c. 1.5 mm in diameter, female flowers c. 0.3 mm long. *Infructescences* (2-)3-5 cm long and spreading to laxly pendulous, achenes enclosed in the persistent and slightly accrescent perigon, tepals united for c. 0.2 mm at base, smaller lobes c. 0.4 mm long, larger lobes c. 1 mm long, achene ovoidal, laterally compressed, c. 1-1.25 × 0.75-1 mm.

Distribution. – Cyprus (Meikle 1985).

Representative specimens seen. – CYPRUS: Kritou Tera, above waterfall NE of the village, in valley leading down to Choli, shaded orchard, c. 200 m, 28.4.2005, *Hand 4723, Christodoulou & Hadjikyriakou* (B); Alona, plantation of *Corylus avellana*, 1200 m, 6.9.2003, *Hadjikyriakou 5728* (herb. Hadjikyriakou); Platanin, Platys valley, roadside in shady place, diasbase, 750 m, 17.6.1998, *Hadjikyriakou 3514* (herb. Hadjikyriakou); Kalopanagiotis, margins of cultivated fields and banks, 600 m, 24.5.1989, *Papachristophorou in Hadjikyriakou 934* (herb. Hadjikyriakou); Diplopotamo, Platys valley, shady place by the road, diabase igneous rocks, 600 m, 21.4.1996, *Hadjikyriakou 1798* (herb. Hadjikyriakou); Gefyra Kelefou, NNW Agios Nikolaos, 29.9.2005, seeds and living plant collected by *Christodoulou*, cultivated in Berlin, *Weigend 8229* (B, BM, FI, KRAM, LE, M, MO, NY, P, W, WU).

A comparison to the isotype of *Urtica dioica* subsp. *cyprica* in Kew clearly shows that all collections here seen and the material cultivated from Cyprus evidently belong to the same, homogeneous taxon and are differentiated on the basis of weak, but highly consistent morphological characters from all continental forms of *U. dioica*.

1.4. *Urtica dioica* subsp. *pubescens* (Ledeb.) Domin – see Weigend 2005 for details and synonyms.

Distribution. – Hungary, Bulgaria, Italy, Greece, Turkey, Ukraine and Russia (Weigend 2005).

Representative specimens seen. – TURKEY: Lydia, Mount Mesogis above Tire, 600-700 m, 14.6.1906, *Bornmüller 9946* (B).

2. *Urtica fragilis* Thiébaud in Bull. Soc. Bot. France 82: 192. 1935 – see Mouterde 1966 for details. – Fig. 3.

Erect perennial herb, 0.2-0.4(-0.5) m, monoecious, rhizome absent; *aerial stems* erect, with lignescent and perennial base, largely simple, sometimes basally branched, covered with scattered (c. 1-5 per cm stem in upper part) stinging hairs 1-1.5 mm long, their feet c. 0.2-0.3 mm long, setae 0.8-1.3 mm, and very sparsely covered with simple, curved trichomes c. 0.1-0.2 mm long. *Leaves* opposite, stipules united, 2 per node, ovate, entire or apically cleft (< 1mm), 4-8 mm long and 2-3 mm wide, subglabrous, with very few tiny trichomes along the margin; petioles (0.5-)1.5-3(-4) cm long, especially distally densely setose, lamina ovate-acuminate, median foliage leaves on main shoot 2 × 1.5-6 × 4.5 cm, base cuneate to rounded, margin simply and regularly serrate with 5-7 teeth on each side, teeth 4 × 3-5 × 9 mm, symmetrical or slightly curved acroscopically, adaxial surface with very few stinging hairs scattered over the surface (0-2 per cm²) and sparsely covered with tiny, appressed, simple trichomes c. 0.1 mm long, densely set with linear cystoliths, abaxial surface with very few stinging hairs scattered over the surface (0-2 per cm²). *Inflorescence branches* female below and male above, half-erect to horizontally spreading during anthesis, unbranched, tepals finely pubescent, esetulose, male branches roughly as long as petioles (2-3.5 cm) and unbranched or with short branches (< 1 cm), female inflorescence

branches at lower nodes, only 0.3-0.5 cm long, unbranched, much shorter than petioles and $< 1/10$ as long as internode, male flowers c. 1.5 mm in diameter, female flowers c. 0.5 mm long. *Infructescences* 0.5-0.8 cm long and pendulous, achenes enclosed in the persistent and slightly accrescent perigon, tepals united for c. 0.2 mm at base, smaller lobes c. 0.4 mm long, larger lobes c. 1.5-2 mm long, achene ovoidal, laterally compressed, c. 1-1.25 × 0.75-1 mm.

Distribution. – Lebanon and Turkey.

Representative specimens seen. – TURKEY: [Prov. Hatay, Amanus Mountains] “Bityas, été 1937”, *Delbés 81* (G). — LEBANON: Ghosta, 27.1.1934, *Gomabault 95* (G); Dlepta to Mohrab, 12.2.1934, *Mouterde 2870* (G); *ibid.*, 24.4.1957, *Mouterde 11786* (G); Mohrab, 28.5.1944, *Mouterde 8221* (G).

Acknowledgements

The author would like to express his particular gratitude to Ralf Hand for organizing the material of subsp. *cypria* here analysed, including the living material, to Nada Sinnu (BEI), Federico Selvi (FI), Georgios Hadjikyriakou (Trachoni/Cyprus) and Charalambos S. Christodoulou (Lefkosia/ Cyprus), who helped to obtain plant material, and the directors of the herbaria B, BM, FI, G, G-DC, HBG, JE, K, KIEL, M, MO, W for loans of material.

References

- Boufford, D. E. 1997: *Urticaceae*. – Pp. 400-405 in: Flora of North America Editorial Committee (ed.), *Flora of North America north of Mexico* **3**. – New York.
- Cheeseman, T. F. 1925: *Urticaceae*. – Pp. 380-382 in: Oliver, W. R. B. (ed.), *Manual of the New Zealand flora* **2**. – Wellington.
- Chen, C.-J., Lin, Q., Friis, I., Wilmot-Dear, C. M. & Monro, A. K. 2003: *Urticaceae*. – Pp. 77-189 in: Wu, Z. & Raven, P. (ed.), *Flora of China* **5**. – St Louis.
- Chrtek, J. 1974: *Urticaceae*. – Pp. 1-20 in: Rechinger, K. H. (ed.), *Flora iranica* **105**. – Graz.
- Corsi, G. & Masini, A. 1997: Anatomical and ecological aspects in Italian taxa of the genus *Urtica*. – *Atti Soc. Tosc. Sci. Nat. Pisa Mem., Serie B*, **104**: 1-8.
- , Garbari, F. & Maffei, F. 1999: Il genere *Urtica* L. (*Urticaceae*) in Italia. Revisione biosistemica. – *Webbia* **53**: 193-239.
- Edmondson, J. R. 1992: *Urticaceae*. – Pp. 79-81 in: Tutin, T. G., Burges, N. A., Chater, A. O., Edmondson, J. R., Heywood, V. H., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (ed.), *Flora europaea*, ed. 2, **1**. – Cambridge, etc.
- Friis, I. & Immelman, K. L., 2001: *Urticaceae*. – Pp. 2-7 in: Germishuizen, G. (ed.), *Flora of Southern Africa* **9**. – Pretoria.
- Heemstrek, M., Oliehoek, J. & Jong, T. de 1998: Eenhuizigheid en sex-ratio bij grote brandnetel (*Urtica dioica* L.). – *Gorteria* **24**: 88-89.
- Holmgren, P. K. & Holmgren, N. H. 1998- (continuously updated): Index herbariorum. – Published on the Internet <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>.
- Meikle, R. D. 1977: *Flora of Cyprus* **1**. – Kew.
- Maire, R. 1961: *Flore de l’Afrique du Nord*. – Paris.
- Meikle, R. D. 1977, 1985: *Flora of Cyprus* **1-2**. – Kew.
- Mouterde, P. 1966: *Nouvelle Flore du Liban et de la Syrie* **1**. – Beirut.
- Pottier-Alapetite, G. 1979: *Flore de la Tunisie* **1**. – Tunis.
- Quézel, P. & Santa, S. 1962: *Nouvelle Flore de l’Algérie* **1**. – Paris.
- Stapf, O. 1883: *Die Botanischen Ergebnisse der Polk’schen Expedition nach Persien im Jahre 1882*, Teil II. – Wien.
- 1889: *Beiträge zur Flora von Persien*. – *Verh. Zool.-Bot. Ges. Wien* **39**: 205-212.
- Taylor, C. 2003: *Urticaceae*. – Pp. 44-61 in: Marticorena, C. & Rodríguez, R. (ed.), *Flora de Chile* **2(2)**. – Concepción.

- Townsend, C. C. 1980: *Urticaceae* Juss. – Pp. 93-105 in: Townsend, C. C. & Guest, E. (ed.), Flora of Iraq **4(1)**. – Baghdad.
- 1982: *Urticaceae*. – Pp. 633-638 in: Davis, P. H. (ed.), Flora of Turkey and the East Aegean Islands **7**. – Edinburgh.
- Weddell, H. A. 1856: Monographie de la famille des urticacées. – Arch. Mus. Hist. Nat. Paris **9**.
- 1869: *Urtica*. – Pp. 39-67 in: Candolle, A. D. de (ed.), Prodrromus systematis naturalis regni vegetabilis **16(1)**. – Paris, etc.
- Weigend, M. 2005: Die Erben Pokornys – Ein Beitrag zur Abgrenzung der enigmatischen Sippen *Urtica galeopsifolia* und *Urtica pubescens* in Mittel- und Osteuropa. – Hoppea **66**: 101-117.
- Woodland, D. W. 1982: Biosystematics of the perennial North American taxa of *Urtica* II. Taxonomy. – Syst. Bot. **7**: 282-290.
- Yarmolenko, A. V. 1936: Krapiva - *Urtica* L. – Pp. 386-394 in: Komarov, V. L. (ed.), Flora SSSR **5**. – Leningrad. [English ed.: pp. 305-312. Jerusalem, 1970].

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