

Lectotypification of Two Names in The Family Asteraceae

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Abstract

Aim of study: Within the family Asteraceae, the names *Chamaemelum hygrophilum* Bornm., which is basionym of *Tripleurospermum hygrophilum* (Bornm.) Bornm. and *Crepis armena* DC. were described by Joseph Nicolaus Bornmüller (1862-1948) and Augustin Pyramus de Candolle (1788-1841) from the specimens collected from Türkiye, respectively. In the present study, these names in Asteraceae were typified.

Area of study: Yamanlar Mountain (Izmir), Mediterranean and Irano-Turanian regions.

Material and method: For the typification of the names *Chamaemelum hygrophilum* and *Crepis armena*, protologues of the names, the original materials in B, BM, E, G-BOIS, G-DC, JE, K, LY and P were examined.

Main results: The names *Chamaemelum hygrophilum* and *Crepis armena* are lectotypified herein on the specimens deposited at JE and G, respectively. Besides, description and distribution pattern of both species are presented.

Research highlights: The obtained data can be used for taxonomy of the species *T. hygrophilum* and *C. armena*.

Keywords: *Chamaemelum*, *Crepis*, Nomenclature, *Tripleurospermum*, Typification

Asteraceae Familyasındaki İki İsmiñ Lectotiplendirmesi

Öz

Çalışmanın amacı: Asteraceae familyasında, *Tripleurospermum hygrophilum* (Bornm.) Bornm. basionimi *Chamaemelum hygrophilum* Bornm. ve *Crepis armena* DC. isimleri, sırasıyla Joseph Nicolaus Bornmüller (1862-1948) ve Augustin Pyramus de Candolle (1788-1841) tarafından Türkiye’den toplanan örneklerden betimlenmiştir. Bu çalışmada, Asteraceae’deki bu isimler tiplendirilmiştir.

Çalışma alanı: Yamanlar Dağı (Izmir), Akdeniz ve İran-Turan bölgeleri.

Materyal ve yöntem: *Chamaemelum hygrophilum* ve *Crepis armena* isimlerinin tiplendirmesi için, isimlerin protologları, B, BM, E, G-BOIS, G-DC, JE, K, LY ve P’deki orijinal materyaller incelendi.

Temel sonuçlar: *Chamaemelum hygrophilum* ve *Crepis armena* isimlerinin lectotiplendirmesi, sırasıyla JE ve G-DC’de bulunan örnekler üzerinde yapıldı. Bununla birlikte, her iki türün betimi ve yayılış modeli sunuldu.

Araştırma vurguları: Elde edilen veriler *T. hygrophilum* ve *C. armena* türlerinin taksonomisinde kullanılabilir.

Anahtar Kelimeler: *Chamaemelum*, *Crepis*, Adlandırma, *Tripleurospermum*, Tiplendirme

Introduction

The Asteraceae (Compositae) is one of the largest families of flowering plants with 13 subfamilies, 44 tribes, 1600 genera and ca. 24000 species (Funk et al., 2009; Panero et al., 2014; Mandel et al., 2019). It has a cosmopolitan distribution in the world (Funk et al., 2009), and includes many useful economically important horticultural and crop plants.

Within Asteraceae, there are still some names for which nomenclatural types have not been designated. According to relevant

taxonomic literatures (Candolle, 1838; Bornmüller, 1908; Enayet Hossain, 1975; Lamond, 1975), the names *Chamaemelum hygrophilum* Bornm. and *Crepis armena* DC., which were described from Türkiye are still untypified and lectotypification is needed.

Within the tribe Anthemideae of Asteraceae, the name *Chamaemelum hygrophilum* Bornm., which is endemic to Türkiye, was firstly described by Bornmüller (1908: 24) from Yamanlar Mountain of Izmir provience in Türkiye on the basis of his collection (*Bornmüller 9637*). Later, it was



transferred by him into the genus *Tripleurospermum* Sch.Bip. as *T. hygrophilum* (Bornm.) Bornmüller (1944: 336). Likewise, within the tribe Cichorieae of Asteraceae, the name *Crepis armena* DC. was described by Candolle (1838: 168) from Türkiye based on the collection of *Aucher-Eloy* 3280. However, as Candolle (1838) and Bornmüller (1908) only referred to the gatherings not to a specific sheet, those duplicates are to be considered as the syntype according to Art. 9.6 of the *International Code of Nomenclature for algae, fungi, and plants* (Turland et al., 2018, hereafter ICN). Hence, lectotypification for these names in the family Asteraceae is necessary (Art. 40, Note 1, ICN).

In the present paper, a lectotype and isolectotypes of the names *Chamaemelum hygrophilum* and *Crepis armena* in the family Asteraceae are designated herein. Additionally, description and distribution pattern of the species are presented.

Material and Method

Protologues of the names, the related literatures and the herbarium sheets of *Bornmüller* 9637 at B, BM, E, JE, LY and P as well as *Aucher* 3280 at G-BOIS, G-DC, K and P were examined. When type specimens were seen by the author through personally visited to the herbarium, this is indicated by an exclamation mark (“!”), and when digital images of type specimens obtained from the corresponding herbaria through their own herbarium online databases or JSTOR Plant Science (2024) were seen by the author, this is indicated by “image!”. According to Raunkiaer (1934) and Takhtajan (1986), we followed life form and phytochoria, respectively.

Results and Discussion

Tripleurospermum hygrophilum (Bornm.) Bornmüller (1944: 336). (Figure 1).



Figure 1. General habit of *Tripleurospermum hygrophilum* from the type locality (Photograph: Hüseyin İnceer).

≡ *Chamaemelum hygrophilum* Bornmüller (1908: 24).

Lectotype (designated here): Türkiye. Prov. Izmir. “Lydia, Sinus Smyrnaeus, in cacumine montis *Yamanlar-dagh*”, 800-900 m, 22 May 1906, *Bornmüller* 9637 (JE [JE00017326] image!, Figure 2), isolecto: B [B100093720, B100093721, B100093722, B100093723]!, BM [BM000945955] image!, E [E00385810]!, LY [LY0343798, LY0343799] images!, P [P00704138, P00706165] images!.

– *Matricaria hygrophila* Bornm., nom. inval. (Art. 36.1b of the ICN)



Figure 2. Lectotype of *Tripleurospermum hygrophilum* (Bornm.) Bornm. (JE-00017326).
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Description

Perennial herb. Stems solitary or many from base, unbranched or branched above. Leaves two-three pinnatisect. Capitula heterogamous, radiate; involucre 1-2 cm broad; outer bracts pubescent or glabrescent, oblong or oblong-lanceolate, margins pale brown or whitish and membranous; inner bracts glabrous, obtuse or subobtuse, margins whitish and membranous. Receptacle noticeably large, elongate, ovoid-conical. Ray flowers female, limbs white, 5-8.5 mm. Disc flowers hermaphrodite, corolla lobes 0.2-0.5 mm, glandular at tips. Achenes oblong, compressed, 1-1.8 x 0.9-1.2 mm, incurved, profusely mucilaginous; corona lobate, white, 1/4-1/5 as long as achene.

Phenology

Flowering and fruiting from May to June.

Distribution

The species is found in west and north-west Anatolia (Enayet Hossain, 1975). The chorotypes of *T. hygrophilum* are East Mediterranean and Illyrian or Balkan provinces that indicate bi-regional distribution and Mediterranean element, which is line with previous results of Enayet Hossain (1975).

Habitat and Life Form

Tripleurospermum hygrophilum grows in montaine meadows, fields and roadsides. The life form of the species is hemicryptophyte.

Typification of The Name Chamaemelum hygrophilum

Only a single gathering was cited in the protologue. Bornmüller (1908) did not designate a single sheet among the separately mounted duplicates of *Bornmüller 9637* to serve as the lectotype. JE00017326 is designated here as the lectotype that shows all the relevant characters in regard to the protologue and the overall good conditions of the specimen.

The altitude and the date of Bornmüller's collection no. 9637, cited in the protologue and the description the species with his handwriting in B (B100093724)! as 850 m and 13 May 1906, are not consistent with the altitude and the date given as 800-900 m and 22 May 1906 on the labels of the specimens. On the other hand, 850 m and 13 May 1906 as in the protologue were also cited by Enayet Hossain (1975) in the account of *T. hygrophilum* in the *Flora of Turkey and the East Aegean Islands*. Dr. Robert Vogt from the herbarium B informed that Bornmüller used two types of labels for the exsiccata 9637 "Lydiae et Cariae Plantae Exsiccatae 1906" (pers. comm). As seen in the label of two specimens (B100093721 and B100093723) at B, the altitude and the date in the printed labels of the sheets were corrected by Bornmüller with his handwriting as "800-900" and "1906.V.22" from "1906.V.13", respectively. Hence, in the designation of the lectotype, the altitude and the date corrected by Bornmüller are superseded herein as 800-900 m and 22 May 1906, respectively.

Additional specimens examined: Türkiye. A1(E) Tekirdağ: from Naipköy to Işıklar, 30 April 1967, A. Baytop & T. Baytop (E); A1(E) Tekirdağ: from Naipköy to Işıklar, insides cultivated field, 30 April 1967, A. Baytop & T. Baytop, (HUB 29758); B1 Izmir: Yamanlar Da. N. of Izmir, 970-980 m, 22 May 1962, Hub.-Mor. 16679 (HUB); B1 Izmir: Yamanlar Mountain, above Karagöl,

meadows, 820 m, 14 April 2007, Inceer 271 (KTUB); B1 Izmir: Yamanlar Mountain, near Karagöl, roadsides, 900 m, 24 May 2011, Inceer 810 (KTUB).

***Crepis armena* de Candolle (1838: 168).** (Figure 3)



Figure 3. General habit of *Crepis armena* from Palandöken Mountain in Erzurum (Photograph: Hüseyin İnceer).

Lectotype (designated here): Türkiye. "Armenia", 1837, *Aucher-Eloy 3280* (G-DC [G00492142] image!, Figure 4); isolecto: G-BOIS [G00781201] image!, K [K000808187] image!, P [P00691206] image!.

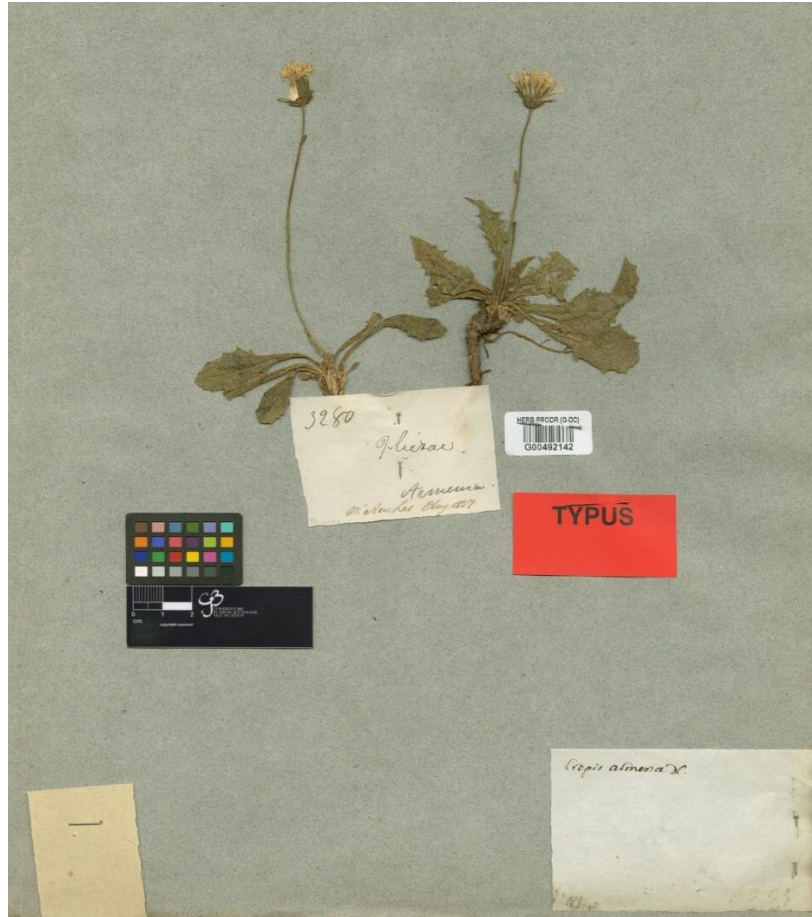


Figure 4. Lectotype of *Crepis armena* DC. (G00492142). © Conservatoire et Jardin botaniques de la Ville de Genève, reproduced with permission.

= *Crepis armena* DC. subsp. *longibractea* Babcock (1947: 523).

Description

Scapigerous, rarely \pm caulescent perennial herb with a woody rootstock; leaves all caudical, oblanceolate or lanceolate, obtuse or acute, densely hispidulous with glandular setae; stems erect, usually \pm leafless, 1-2(-3), slender, striate, pubescent near base and near head, bearing 1 or 2 small bracts; heads erect in flower, and fruit; involucre campanulate; receptacle glabrous at fruiting stage. Ligules yellow. Style branches yellow. Achenes unbeaked, finely ribbed. Pappus \pm included in or slightly exerted from involucre. White tinged with yellow soft, rather fine, 3-seriate, persistent.

Phenology

Flowering and fruiting from June and July.

Distribution

Crepis armena is mainly distributed in alpine regions of central and east Anatolia such as Erciyes Mountain, Sipikör Mountain, Binboğa Mountain and Munzur Mountain as well as in alpine regions of north-west Iran (Lamond, 1975; POWO, 2024). The chorotypes of *C. armena* are East Mediterranean, Euxine, Central Anatolian and Armeno-Iranian provinces that indicate cosmopolitan distribution. On the other hand, the majority of its locations is found in Central Anatolian and Armeno-Iranian provinces, i.e Irano-Anatolian that indicate Irano-Turanian (IT) element, which is line with previous results of Lamond (1975).

Habitat and Life Form

Crepis armena grows in rocky limestone slopes. The life form of the species is hemicryptophyte.

Typification of The Name Crepis armena

Candolle (1838) did not designate a single sheet among the separately mounted duplicates of *Aucher-Eloy* 3280 to serve as the lectotype. G00492142 is designated here as the lectotype that shows all the relevant characters in regard to the protologue and the overall good conditions of the specimen. On the other hand, Candolle (1838) cited 1-capitulated specimens in the protologue, whereas the specimen in K (K000808187) bears 2-capitula.

Additional specimens examined: Türkiye. B6 Kahramanmaraş: Göksun, Binboğa Mountain, 2600 m, 15 July 1952, *Davis* 20022, *Dodds & Çetik* (E) ; B7 Tunceli: Munzur Mountain, above Ovacık, 2700 m, 17 July 1957, *Davis* 31244 & *Hedge* (E); B8 Erzurum: South of Erzurum on road to Çat, 1950 m, 1972, *D.M. Brown* 820 (E); Erzurum: Palandöken Mountain, 2985 m, 13 July 2014, *Inceer* 1102 (KTUB); Erzurum: Between Palandöken Mountain and Erzurum, 2900 m, 13 July 2014, *Inceer* 1104 (KTUB); B9 Bitlis/Van: 10 km south-east Pelli, c. 2745 m, 8 July 1954, *Davis* 22576 & *Polunin* (E); B9 Van: Gevas, Artos Mountain, 10.000 ft, 15 July 1954, *Davis* 22819 & *Polunin* (E); Van: Başkale, Ispiriz Mountain, 3400 m, 31 July 1954, *Davis* 28692 & *Polunin* (E); Van: Pelli Mountain, 2500-3000 m, 9 July 1971, *Edmondson* 664 (E); Van: Gürpınar, Başet Mountain, 2600 m, 14 July 2001, M. Unal 5190 (VANF).

Conclusions

The typification of the names *Chamaemelum hygrophilum*, basionym of *Tripleurospermum hygrophilum*, and *Crepis armena* is lectotypified herein according to the ICN. In addition, the present results show that *T. hygrophilum* and *C. armena* have bi-regional and cosmopolitan distribution patterns, respectively.

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Ethics Committee Approval

N/A

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Author Contributions

Conceptualization: H.I.; Investigation H.I.; Material and Methodology: H.I.; Visualization: H.I.; Writing-Original Draft: H.I.; Writing-review & Editing: H. I; Other: H.I. Author has read and agreed to the published version of manuscript.

Conflict of Interest

The authors declare that they have no conflict of interest.

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