Phytotaxa 512 (2): 117–124
https://www.mapress.com/j/pt/

Correspondence

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.512.2.5

Lectotypification of three names in *Cicer* (Fabaceae)

DENIS KRIVENKO[1,3]* & IVAN TATANOV[2,4]

[1] *Siberian Institute of Plant Physiology & Biochemistry, Siberian Branch, Russian Academy of Sciences, Lermontov Street 132, Irkutsk, 664033, Russia.*

[2] *Komarov Botanical Institute, Russian Academy of Sciences, Professor Popov Street 2, St. Petersburg, 197376, Russia.*

[3] *krivenko.irk@gmail.com; https://orcid.org/0000-0003-2658-1723*

[4] *tatanov@binran.ru; https://orcid.org/0000-0002-7914-8248*

**Author for correspondence: krivenko.irk@gmail.com*

Cicer Linnaeus (1753: 738), as currently established, includes about 50 species distributed from north to south from the Altai Mountains (C Asia) to the East African Rift (E Africa), and from west to east from the Canary Islands (W Africa) to the upper Irtysh River in Dzungaria (C Asia) (van der Maesen *et al.* 2007, Dönmez 2011, Toker *et al.* 2021). In the course of our revisionary work on this genus for *Caucasian flora conspectus* (Takhtajan 2003), we found the name *C. anatolicum* Alefeld (1861: 349) and its synonym *C. glutinosum* Alefeld (1861: 349), also the name *C. minutum* Boiss. & Hohen. in Boissier (1849: 130) that warrant lectotypification in accordance with the *Shenzhen Code* (Turland *et al.* 2018). The second-step lectotypification is made for *C. anatolicum* and *C. minutum*, while the lectotype is selected for *C. glutinosum* based on the analysis of their protologues and original herbarium material deposited in C, BM, G, LE, M, MO, P and WAG. Herbarium acronyms mentioned here follow Thiers (2021-onward).

Typification of *Cicer anatolicum* and its synonym *C. glutinosum*

Both species were described by the German physician and botanist Dr. Friedrich Georg Christoph Alefeld (1820–1872). *Cicer anatolicum* was based on plants from Turkey collected by the Swiss botanist and traveler Pierre Edmond Boissier (1810–1885) during his first expedition to the 'Orient' undertaken in 1842 (Charpin 2011). The complete set of Boissier's collections from his voyages to the 'Orient' in 1842 and 1845–1846 are kept in G-BOIS, duplicates can be found in the other combined Geneva herbaria (G-DC or G) and also at least 53 herbaria all over the world (Al-Shehbaz & Barriera 2019). *Cicer glutinosum* was based on plants from Iran collected by the French zoologist and botanist, Guillaume Antoine Olivier (1756–1814) who travelled in the Ottoman Empire including modern Egypt and Persia (Iran) in 1792–1798 jointly with the French physician, zoologist and diplomat, Jean Guillaume Bruguière (1750–1798) (Bernard 1997). Stafleu & Cowan (1981) report that material from this Middle East expedition can be found in B, FI, G-DC, H, L and P.

In the protologues, Alefeld (1861) clearly indicated that he based *C. anatolicum* and *C. glutinosum* exclusively on the specimens housed in the General herbarium at Berlin (B). However, the types and regular specimens of Alefeld, like most of the B herbarium materials, were destroyed by the bombing of the Herbarium building on the night of 1 to 2 March 1943 during World War II (Stafleu & Cowan 1976, Hiepko 1987). This is an unstable nomenclatural situation, in which case the destroyed types must now be replaced by lectotypes from original materials, whether as the correct name or as a synonym (Turland *et al.* 2018: Art. 7.2, Art. 9.11, Art. 9.12, Turland 2019).

Davis (1970) is the first author to indicate that he saw the type of *C. anatolicum* in G, at the same time he cited the abbreviated label "in dumosis Tmoli (Boz Da.), Boissier", as it was indicated in the protologue. Such citation may correspond to the designation of the lectotype, provided that only one type specimen is available in the combined Geneva herbaria. However, we found that in these combined herbaria there are two duplicates of the original collection of *C. anatolicum*, one specimen each in G-BOIS and G. These specimens are syntypes of *C. anatolicum* (Turland *et al.* 2018: Art. 9.6). In this regard, Davis's citation of the type of *C. anatolicum* in G must be considered as the first-step lectotypification of this name (Turland *et al.* 2018: Art. 9.17, Ex. 14). The same specimens are preserved in C, BM, LE and P. All these duplicates distributed by Boissier as *C. songaricum* are specimens of the same gathering, provided with the yellow printed labels "Herb. Boiss. *Cicer songaricum* Steph. in dumosis Tmoli, Jun. 1842".

The monographer of the genus *Cicer*, van der Maesen (1972, 1987) also as Davis cited an abbreviated label, as it was cited in the protologue, and indicated that the "holotype" is kept in G. Later, van der Maesen (1979) did not indicate where the "typus" was deposited, and listed BM, C, G, K, P and WU herbaria which contain syntypes. In a later publication, van

Accepted by Enrico Vito Perrino: 9 Jul. 2021; published: 22 Jul. 2021

der Maesen *et al.* (2007) indicated that the "holotype" is kept in G. However, none of the specimens in the combined Geneva herbaria can be regarded as the holotype (McNeill 2014, Turland *et al.* 2018: Art. 9.1).

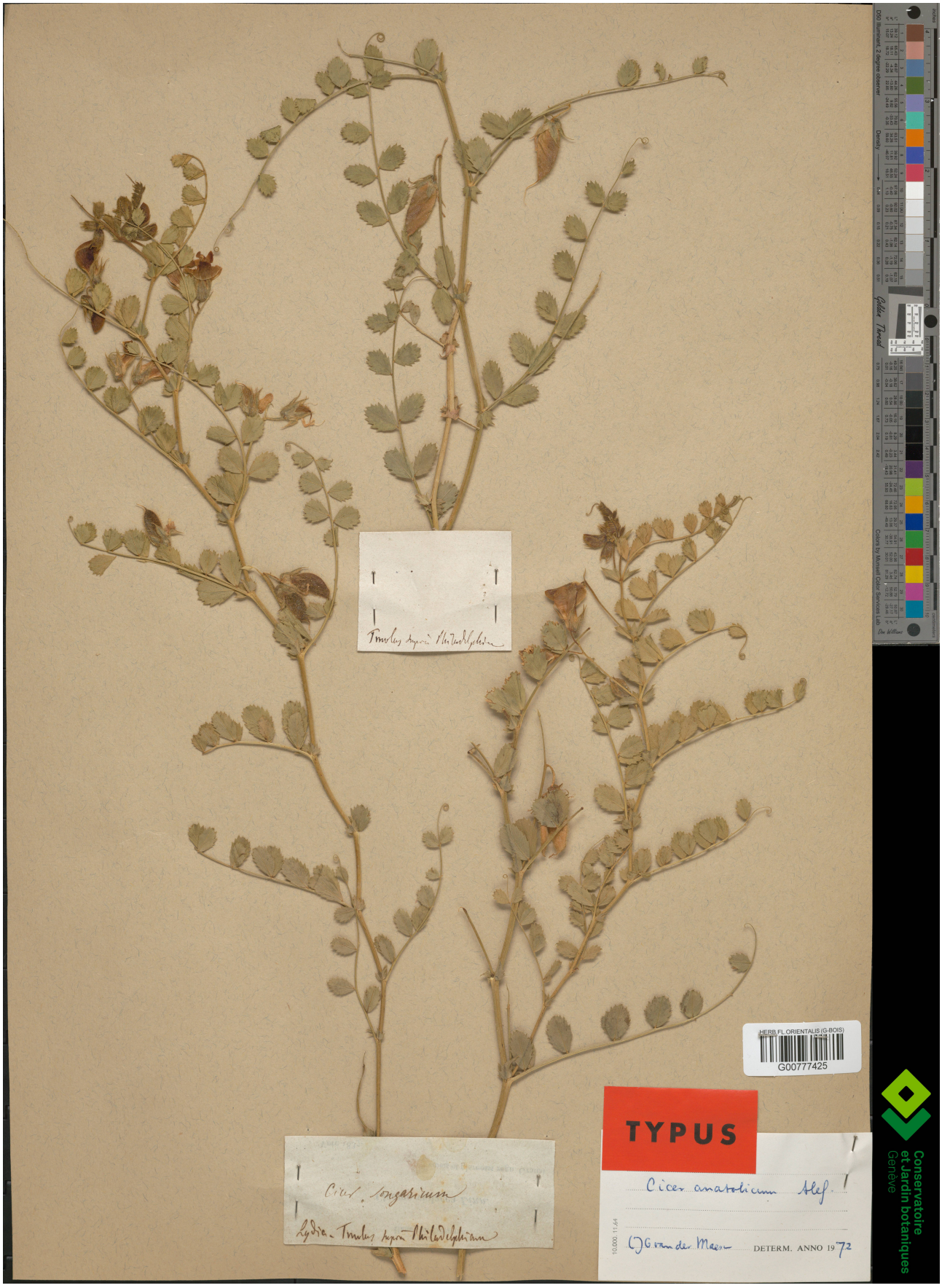

FIGURE 1. Lectotype of *Cicer anatolicum* Alef. in G-BOIS [G00777425].

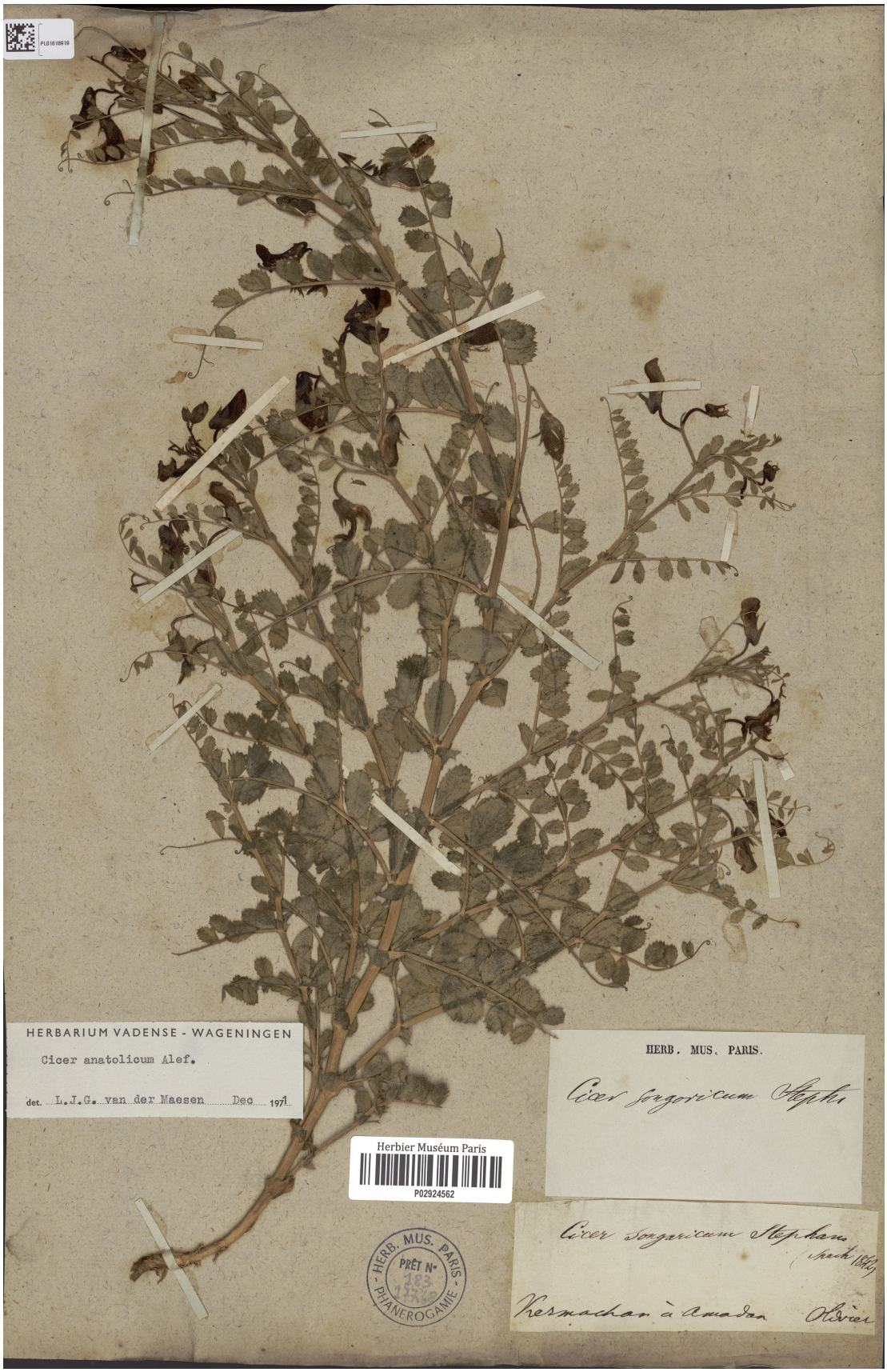

FIGURE 2. Lectotype of *Cicer glutinosum* Alef. in P [P02924562].

Van der Maesen (1987) indicated that the holotype of *C. glutinosum* is kept in B and the isotype in P. However, as confirmed by R. Vogt (pers. comm.) original material of Alefeld's names was lost in the fire at the Berlin Botanical Museum in World War II.

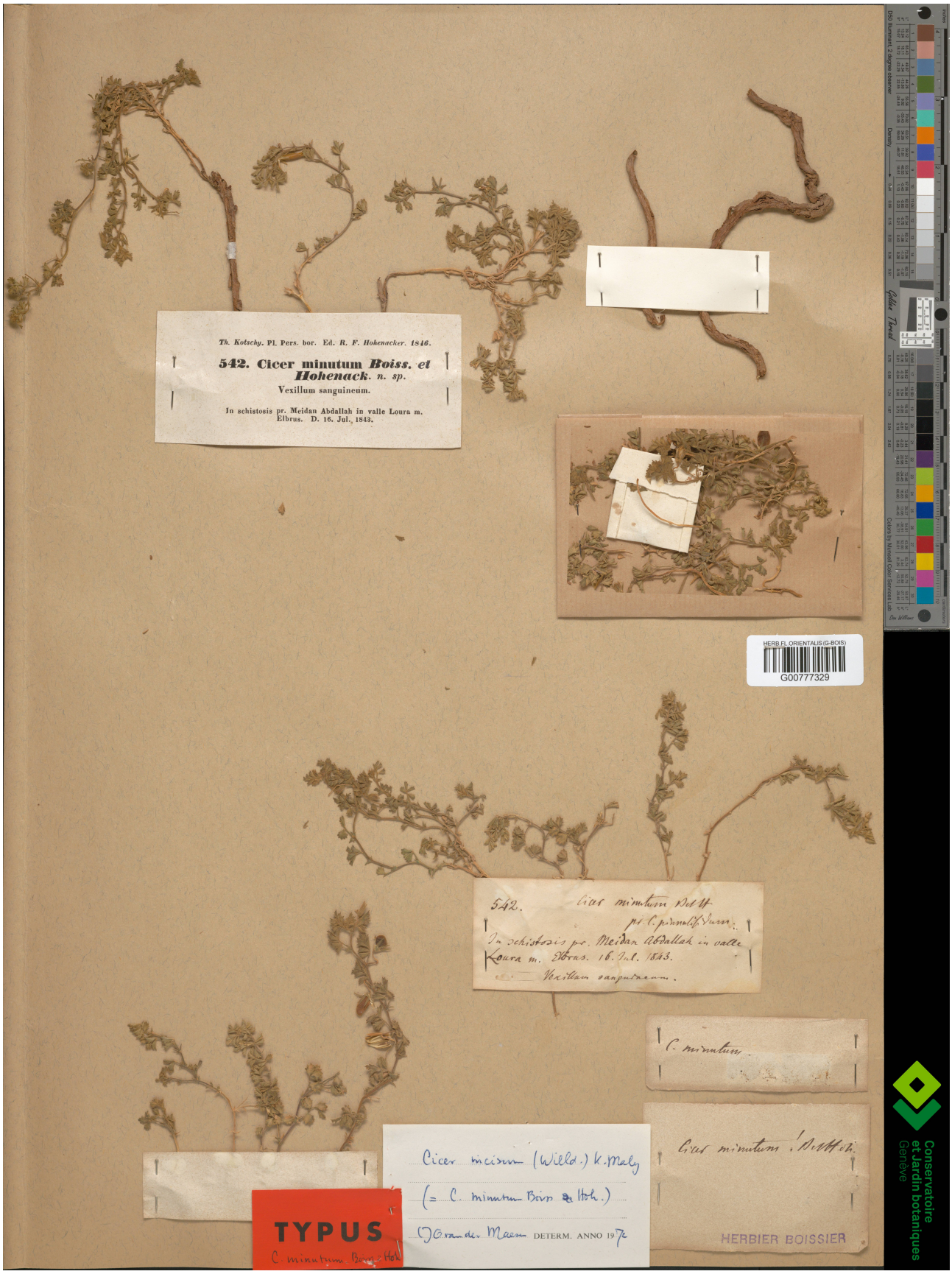

FIGURE 3. Lectotype of *Cicer minutum* Boiss. & Hohen. in G-BOIS [G00777329].

Cicer anatolicum Alefeld (1861: 349)

Type:—Lidia (= Turkey), [İzmir Province, Ödemiş District], Tmoli (= Boz Dağ) [Mount] dumosis supra Philadelphiam, Jun. 1842 [P.E.

Boissier] (**lectotype** first-step designated by Davis in Davis, Fl. Turkey 3: 270 (1970) (as "type"), second-step **designated here**, G-BOIS [G00777425 digital images!]; isolectotypes: C [C10012018 digital image!], BM [BM000946745 (plant on the right) digital image!], G [G00446784 digital images!], LE [LE01072649!, LE01072654!, LE01072656!, LE01072657!], P [P00708281 (plant on the left) digital image!, P00708282 digital image!)] (Figure 1).

Notes:—The lectotype in G-BOIS is a collection folder of five sheets. On all five sheets, the plants are fixed with pins passed directly through the label, or with strips of paper provided with annotations by Boissier of varying completeness, which allows them to be attributed to the same collection. However, all five sheets, as is customary in G-BOIS, are one specimen (see Jacquemoud 2011). The first sheet of the lectotype is provided with a barcode, the other sheets are marked by the letters a–d.

The isolectotype in G is on three sheets. The sheet with a barcode, as on all distributed by Boissier duplicates, has a yellow abbreviated label "Herb. Boiss. *Cicer songaricum* Steph. in dumosis Tmoli, June 1842". This isolectotype was originally kept in the collection of the Swiss botanist George François Reuter (1805–1872), which was curator of the Boissier herbarium and collaborator of Boissier accompanying him in travels and collecting trips, later in the collection of the Swiss philanthropist and botanist, Boissier's son-in-law William Barbey (1842–1914), and since 1966 in G. There are corresponding records about this on herbarium sheets (for more details, see Jacquemoud 2011).

Cicer glutinosum Alefeld (1861: 349)

≡ *C. anatolicum* var. *glutinosum* (Alef.) Boisser (1872: 563) = ***C. anatolicum*** Alef.

Type:—[Iran, Kermanshah Province], Kermachan (= Kermanshah) à (= to) [Hamadan Province], Amadan (= Hamadan or Hamedan), [6–10 Jun. 1796, G.A.] Olivier (**lectotype designated here**, P [P02924562 digital image!]; isolectotype: P [P02924563 digital image!]) (Figure 2).

Notes:—In the protologue and on the original label of the lectotype there is no collection date. We analyzed Olivier's travel report (Olivier 1807), which is a detailed expedition diary. Olivier and his fellow travelers covered the path from Kermanshah to Hamadan in almost five days from June 6 to 10, 1796, including a night crossing over the Alvand peak. On June 6, the travelers left Kermanshah and reached Bisotun in the evening. The next day, June 7, the caravan crossed the Sahneh, on June 8 they camp behind Kangavar. On June 9, after an 8-hour march, travelers set up camp in a valley at the foot of the Central Zagros and on the same day they take a night break through Alvand and the next morning with a short stop they arrive at Amadan. In this text, we did not find any explicit mention of the collection of plants, except for information that on June 9, during a stop in the foothills of the Zagros, the plain on which they stopped abounded with a large variety of plants. Here Olivier first meets a rose, described by P.S. Pallas as *Rosa berberifolia* Pallas (1797: 379).

The specimen P02924563 does not have an original label, but there is a label handwritten by É. Spach "Perse Olivier et Bruguière". It is common knowledge that Olivier and Bruguière travelled together in the Middle East (Olivier 1807, Bernard 1997). We believe that the lectotype and this specimen belong to the same gathering, since they have the same habit and features.

Typification of *Cicer minutum*

Cicer minutum was described by Boissier and the German missionary, physician and botanist Rudolph Friedrich Hohenacker (1798–1874) in Boissier's series *Diagnoses plantarum orientalium novarum* (Boissier 1849: 130). It was based on plants collected by the Silesian botanist Carl Georg Theodor Kotschy (1813–1866) during his expedition to the Alborz (also Alburz, Elburz or Elborz) mountains undertaken in 1843 (Kotschy 1861). In the protologue is reported the number 542 of the Kotschy's collection, which often has up to one hundred duplicates (Lack 2020).

The Kotschy's collections were bought by Hohenacker. After completing his Transcaucasia mission, Hohenacker earned his living by selling exsiccatae of other collectors. Boissier received a set of duplicates by Hohenacker and subsequently communicated him his determinations. He also validated many new names based on Kotschy's specimens (Lack 2020). After that, the Kotschy's collections were divided into sets and distributed to a large number of herbaria by Hohenacker (Edmondson & Lack 2006).

Linczevski (1948), who accepted *C. minutum*, was the first to indicate that the type of this species is kept in G and the cotype (= isotype) in LE ("Described from Elburz. Type in Geneva, cotype in Leningrad"), though he did not examine nor annotate the specimens in G. In the combined Geneva herbaria there are four duplicates of the original collection of *C. minutum*, one specimen in G-BOIS and three specimens in G. These specimens are syntypes of *C. minutum* (Turland *et al.* 2018: Art. 9.6). Consequently, Linczevski's citation of the type of *C. minutum* in G should be considered as the first-step lectotypification of this name (Turland *et al.* 2018: Art. 9.17, Ex. 14).

Van der Meissen (1972, 1979), who synonymized *C. minutum* with *C. incisum* (Willd.) K.Malý in Ascherson & Graebner (1909: 900), indicated that he examined the type specimens of *C. minutum* in BM, G, K, M, OXF, P, WAG, but he did not indicate in which of the listed herbaria the type of this name was stored. Later, van der Maesen (1987) indicated that the "holotype" is kept in P and isotypes in BM, G, K, M, OXF, W, WAG. In the Paris herbarium there are five duplicates of the original collection of *C. minutum*, with specimens P00708287 and P00708289 annotated by van der Maesen as "type". However, none of the specimens in P can be a holotype, because at least two specimens were annotated by Boissier as "*Cicer minutum* B. et H." before the date of the publication of this name: specimen G00777329 in his own collection G-BOIS and specimen P00708287 in P (on a paper strip glued to the handwritten label).

Cicer minutum Boiss. & Hohen. in Boissier (1849: 130)

≡ *C. pimpinellifolium* Jaub. & Spach subsp. *minutum* (Boiss. & Hohen.) Ponert (1973: 633) = *C. caucasicum* Bornmüller (1941: 139), *nom. inval.* (Turland *et al.* 2018: Art. 39.1), **syn. nov.**

Type:—IRAN. [Alborz Province, Karaj County] In schistosis pr[ope]. Meidan Abdallah in valle Loura m[ontes]. Elbrus (= Albors, Alburz, Elburz or Elborz), 16.Jul.1943, Th. Kotschy 542 (**lectotype** first-step designated by Linczevski in Komarov, Fl. URSS 13: 391 (1970) (as "type"), second-step **designated here**, G-BOIS [G00777329 digital image!]; isolectotypes: G [G00421039–G00421041 digital images!], LE [LE00014538!, LE01072269!], M [M0240368 digital image!], MO [MO149567 (plants are top left, center and bottom far right) digital image!], P [P00708287–P00708289 digital images!, P03602994 digital image!, P00708297 digital image!], WAG [WAG0001916 digital image!]) (Figure 3).

Note:—The lectotype is one sheet with two labels, one of which is printed as on the isolectotypes, and the other has the species name and the taxon being compared ("pr. *C. pimpinellifolium*") handwritten by Boissier, number of the Kotschy's collection, location, date, and corolla color.

Acknowledgements

We are grateful to Dr. Fred Stauffer and Laurence Loze (G) for sending the images of type specimens of *Cicer anatolicum* and *C. minutum*, and Dr. Robert Vogt (B) for providing information about Alefeld's collections. The reported study was funded by Russian Science Foundation for Basic Research according to the research project No. 19-04-00658. The herbarium work of Ivan Tatanov in LE was supported by the institutional research project of the Komarov Botanical Institute, AAAA-A18-118022090078-2.

References

Alefeld [F.G.C.] (1861) Ueber *Cicer soongoricum* Stephan. *Bonplandia* 9: 348–349.

Al-Shehbaz, I.A. & Barriera, G. (2019) Typification of Edmond Boissier's Cruciferae (Brassicaceae) names enumerated in Flora Orientalis. *Boissiera* 72: 1–192.

Ascherson, P. & Graebner, P. (1909) *Synopsis der mitteleuropaïschen flora* 6 (2). W. Engelmann, Leipzig, 1093 pp. https://doi.org/10.5962/bhl.title.35810

Bernard, P. (1997) Le voyage dans l'Empire othoman, l'Égypte et la Perse de Guillaume-Antoine Olivier, naturaliste et envoyé de la République (1792–1798). *Comptes rendus des séances de l'Académie des Inscriptions et Belles Lettres* 141: 1157–1244. https://doi.org/10.3406/crai.1997.15811

Boissier, E. (1849) *Diagnoses plantarum orientalium novarum*. ser. 1, 9. Typis Marci Ducloux et Cons, Parisiis [Paris], 131 pp.

Boissier, E. (1872) *Flora Orientalis: sive, Enumeratio plantarum in Oriente a Graecia et Aegypto ad Indiae fines hucusque observatarum* 2. H.Georg, Genève, Basel & Lyon, 1159 pp. https://doi.org/10.5962/bhl.title.20323

Bornmüller, J. (1941) Bemerkenswerte floristische Funde im Ala Dag II. *Repertorium specierum novarum regni vegetabilis* 50: 133–150.

Charpin, A. (2011) Les voyages d'Emond Boissier: en Grèce et au Moyen-Orient. *Archives des sciences* 64: 25–42. http://doi.org/10.5169/seals-738418

Davis, P.H. (1970) *Cicer* L. *In:* Davis, P.H. (Ed.) *Flora of Turkey and the East Aegean Islands* 3. Edinburgh University Press, Edinburgh, 267–274.

Dönmez, A.A. (2011) *Cicer uludereensis* Dönmez: a new species of *Cicer* (Chickpea) (Fabaceae) from around the Fertile Crescent, SE

Turkey. *Turkish Journal of Botany* 35: 71–76.
https://doi.org/10.3906/bot-1001-283

Edmondson, J.R. & Lack, H.W. (2006) Karl Georg Theodor Kotschy's itinerary in southern Iran, 1841–42. *Willdenowia* 36: 579–588.
https://doi.org/10.3372/wi.36.36154

Hiepko, P. (1987) The collections of the Botanical Museum Berlin-Dahlem (B) and their history. *Englera* 7: 219–249.
https://doi.org/10.2307/3776724

Jacquemoud, F. (2011) Sur l'herbier d'Edmond Boissier et la création d'un Herbier du Flora Orientalis (G-BOIS): conservation, exploitation et actualité d'un patrimoine scientifique et culturel de valeur universelle. *Archives des sciences* 64: 57–76.
http://doi.org/10.5169/seals-738420

Kotschy, T. (1861) Der westliche Elbrus bei Teheran. *Mittheilungen der Kaiserlich-Königlichen Geographischen Gesellschaft in Wien* 5: 65–110.

Lack, H.W. (2020) Theodor Kotschy in Iran, 1841–1843. Botanical collections and an early printed vegetation profile. *Candollea* 75: 31–43.
https://doi.org/10.15553/c2020v751a3

Linczevski, I.A. (1948) *Cicer* L. *In:* Komarov, V.L. (Ed.) *Flora SSSR* [*Flora of the USSR*] 13. Izdatel'stvo Akademii nauk SSSR, Moscow & Leningrad, pp. 386–406. [in Russian]

Linnaeus, C. (1753) *Species plantarum*. Impensis Laurentii Salvii, Holmiae [Stockholm], 1200 pp.
https://doi.org/10.5962/bhl.title.669

McNeill, J. (2014) Holotype specimens and type citations: General issues. *Taxon* 63: 1112–1113.
https://doi.org/10.12705/635.7

Olivier, G.A. (1807) *Voyage dans l'empire Othoman, l'Égypte et la Perse, fait par ordre du gouvernement, pendant les six premières années de la république* 5. Chez H. Agasse, Paris. 485 pp.

Pallas, P.S. (1797) Plantae novae ex herbario et schedis defuncti Botanici Iohannis Sievers. *Nova Acta Academiae Scientiarum Imperialis Petropolitanae. Praecedit Historia ejusdem Academiae* 10: 369–383.

Ponert, J. (1973) Neue taxonomische Kombinationen, Kategorien und Taxa vor allem der Türkischen Arten. *Feddes Repertorium* 83: 617–644.
https://doi.org/10.1002/fedr.19730830902

Stafleu, F.A. & Cowan, R.S. (1976) *Taxonomic literature: a selective guide to botanical publications and collections with dates, commentaries and types* (Ed. 2) 1. Bohn, Scheltema & Holkema, Utrecht, 1136 pp.
https://doi.org/10.5962/bhl.title.48631

Stafleu, F.A. & Cowan, R.S. (1981) *Taxonomic literature: a selective guide to botanical publications and collections with dates, commentaries and types* (Ed. 2) 3. Bohn, Scheltema & Holkema, Utrecht, 980 pp.
https://doi.org/10.5962/bhl.title.48631

Takhtajan, A.L. (Ed.) (2003) *Caucasian flora conspectus* 1. St. Petersburg University Press, St. Petersburg, 204 pp. [in Russian]

Thiers, B. (2021 [continuously updated]) *Index Herbariorum. A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium.* Available from: http://sweetgum.nybg.org/science/ih (accessed 11 January 2021)

Toker, C., Berger, J., Eker, T., Sari, D., Sari, H., Gokturk, R.S., Kahraman, A., Aydin, B., von Wettberg, E.J. (2021) *Cicer turcicum*: a new *Cicer* species and its potential to improve chickpea. *Frontiers in Plant Science* 12: 1–17.
https://doi.org/10.3389/fpls.2021.662891

Turland, N. (2019) *The Code Decoded. A user's guide to the International Code of Nomenclature for algae, fungi, and plants* (Ed. 2). Sofia, Pensoft Publishers, 196 pp.
https://doi.org/10.3897/ab.e38075

Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (Eds.) (2018) *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. [Regnum Vegetabile 159]. Koeltz Botanical Books, Glashütten, 254 pp.
https://doi.org/10.12705/Code.2018

van der Maesen, L.J.G. (1972) *Cicer* L., a monograph of the genus, with special reference to the chickpea (*Cicer arietinum* L.), its ecology and cultivation. *Mededelingen van de Landbouwhogeschool Wageningen* 72–10. pp. 1–342.

van der Maesen, L.J.G. (1979) *Cicer*. *In:* Rechinger, K.H. (Ed.) *Flora Iranica: Flora des iranischen Hochlandes und der umrahmenden Gebirge, Persien, Afghanistan, Teile von West-Pakistan, Nord-Iraq, Azerbaidjan, Turkmenistan* 140. Akademische Druck- und Verlagsanstalt, Graz, 1–15.

van der Maesen, L.J.G. (1987) Origin, history and taxonomy of Chickpea. *In:* Saxena, M.C. & Singh, K.B. (Eds.) *The chickpea*. C.A.B. International, Wallingford, pp. 11–34.

van der Maesen, L.J.G., Maxted, N., Javadi, F., Coles, S. & Davies, A.M.R. (2007) Taxonomy of the genus *Cicer* revisited. *In:* Yadav, S.S., Redden, R.J., Chen, W. & Sharma, B. (Eds.) *Chickpea breeding and management*. CABI Publishing, Wallingford, pp. 14–46. https://doi.org/10.1079/9781845932138.002