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Notes on the typification of fourteen names published by A.R. Franchet in *Saussurea* DC. (Asteraceae)

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ABSTRACT
The typification of fourteen names in *Saussurea* DC., *viz. S. chetchozensis* Franch., *S. ciliaris* Franch., *S. compta* Franch., S. *delavayi* Franch., *S.eriocephala* Franch., *S. flexuosa* Franch., *S. macrota* Franch., *S. oligantha* Franch., *S.romuleifolia* Franch., *S. spatulifolia* Franch., *S. stricta* Franch., *S. sutchuenensis* Franch., *S. vestita* Franch., and *S. virgata* Franch., published by Franchet is discussed here. In addition, we also reviewed the typification of twenty-three accepted Franchet names in *Saussurea* for taxonomic reference. The protologues of these names are evaluated and the original collections preserved at P herbaria, where he worked, are designated here as lectotypes, isolectotypes or syntypes.

KEY WORDS
Asteraceae,
China,
eudicots,
lectotypifications,
nomenclatural notes.

RÉSUMÉ
Notes sur la typification de quatorze noms publiés par A.R. Franchet dans le genre Saussurea *DC. (Asteraceae).*
La typification de quatorze noms de *Saussurea* DC., à savoir *S. chetchozensis* Franch., *S. ciliaris* Franch., *S. compta* Franch., *S. delavayi* Franch., *S. eriocephala* Franch., *S. flexuosa* Franch., *S. macrota* Franch., *S. oligantha* Franch., *S. romuleifolia* Franch., *S. spatulifolia* Franch., *S. stricta* Franch., *S. sutchuenensis* Franch., *S. vestita* Franch. et *S. virgata* Franch., publiés par Franchet, est discutée ici. En outre, nous avons également revu la typification de vingt-trois noms de Franchet acceptés dans le genre *Saussurea* à des fins de référence taxonomique. Les protologues de ces noms sont évalués et les collections originales conservées dans l'herbier P, où il a travaillé, sont désignées ici comme lectotypes, isolectotypes ou syntypes.

MOTS CLÉS
Asteraceae,
Chine,
eudicotylédones,
lectotypifications,
notes nomenclaturales.

INTRODUCTION

Saussurea DC. (Candolle 1810: 156, 198), is one of the largest genera in the tribe Cardueae (Asteraceae), and comprises around 456 species (Lipschitz 1979; Shi & Raab-Straube 2011; Chen & Yuan 2015; Raab-Straube 2017), which are mainly distributed in Asia, Europe and North America, with the highest diversity in the Himalayas and central Asia (Shi & Raab-Straube 2011; Chen 2015). In the flora of China, 289 species are reported, of which 191 species are endemic (Shih & Jin 1999), with 45 new species recently described, especially from the Hengduan Mountains region of China (Xu *et al*. 2013a, b, c; Chen 2014a, b, c; Wang *et al*. 2014; Chen & Yuan 2015; Chen 2015; Raab-Straube 2017; Zhang *et al.* 2019a; Chen 2020; Chen & Xu 2020; Xu *et al.* 2020). Most species are small to medium-sized perennials and of economic importance for their ornamental value as well as medicine (Pandey *et al.* 2007; Chik *et al.* 2015; Hassan & Masoodi 2020).

The first complete infrageneric classification of *Saussurea* was proposed by Lipschitz (1979), who recognized a total of 390 species belonging to six subgenera (subg. *Saussurea* DC., *Jurinocera* (Baill.) Lipsch., *Eriocoryne* (DC.) Hook. f., *Amphilaena* (Stschegl.) Lipsch., *Theodorea* (Cass.) Lipsch., and *Frolovia* (DC.) Lipsch. This was revised by Shih & Raab-Straube (2011), and Chen (2015), who divided it into four subgenera: (*S.* subg. *Eriocoryne*, *S.* subg. *Amphilaena*, *S.* subg. *Theodorea*, and *S.* subg. *Saussurea*) because based on molecular evidence, the subgenera *Jurinocera*, *Frolovia* and the section *Elatae* of the subgenus *Saussurea* excluded from *Saussurea*, and treated them as independent genera: *Lipschitziella* R.V. Kamelin, *Frolovia* (DC.) Lipsch., and *Himalaiella* Raab-Straube (Raab-Straube 2003). Recent molecular phylogenetic studies to make *Saussurea* (s.s.) a monophyletic genus, resulted in a more natural classification. As a consequence, two new genera, *Himalaiella* Raab-Straube and *Shangwua* Yu J.Wang, Raab-Straube, Susanna & J.Quan Liu, were established, as well as three small generic segregates, *Frolovia* (DC.) Lipsch., *Lipschitziella* Kamelin and *Aucklandia* Falc. were resurrected (Raab-Straube 2003; Shih & Raab-Straube 2011; Wang *et al.* 2013). Despite this progress, the relationships among/or within these four subgenera have been poorly resolved due to a potentially rapid radiation, leaving insufficient phylogenetic signal at deeper nodes as well as insufficient informative site (Wang *et al.* 2009; Zhang *et al.* 2019). A well-supported phylogenetic framework has recently been established for *Saussurea* based on whole chloroplast genomes of 136 taxa plus 16 additional taxa of Cardueae (Xu *et al.* 2019). From the performed biogeographic analyses, it was inferred that the genus *Saussurea* arose during early-middle Miocene within the Hengduan Mountains.

Adrien René Franchet (1834-1900; Fig. 1), was a French botanist, who, while working at the Muséum national d'Histoire naturelle (MNHN) in Paris (L'Herbier du Muséum, Collectif 2013), devoted to the study of the flora of China and Japan, beginning with the *Enumeratio Plantarum in Japonia sponte Crescentium* (1875-1879), which he compiled in conjunction with Dr L. Savatier, who resided in Japan for some years. One of the merits of the Enumeratio for botanical and horticultural purposes consists in the references to the illustrations in the Japanese classical works Honzo Zufu, Somoku Zusetsu, and Kwa-wi. Dr Savatier had previously published a translation of the letterpress of the Kwa-wi, but the figures have not been reproduced (Collectif 2013). During French Catholic missionaries in China (Stafleu & Cowan 1976), Franchet described more than two thousands new species from the flora of China and Japan, based on the collections of A. David, P. J. M Delavay, F. G. Farges, and J. A. Soulié. One of them, Père Jean Marie Delavay (1834-1895), an avid plant collector, travelled in China in 1867 to Guangdong province, and then to Yunnan (Kunming), where he resided until his death. He sent back to France over 200 000 herbarium specimens, from which A.R. Franchet recongnized at least 1100 new species and a considerable number of new genera. The genera in which he described many species are *Carex*, *Gentiana*, *Lilium*, *Primula*, *Quercus*, *Rhododendron*, *Saussurea* and *Senecio*. Since his death, his last paper "Sur les Swertia et quelques autres Gentianées de la Chine" (in *Bulletin de la Société botanique de France*, fév., 1900) has reached Kew (Miscellaneous notes, Kew 1900).

Typification is an important starting point for nomenclatural stability and taxonomic research. In the course of an ongoing revision of the genus *Saussurea* in China, we reviewed 38 accepted Franchet names, listed in *Flora of China* (Shih & Raab-Straube 2011), and noticed that some names have not yet been typified. Hence, these names are typified here for nomenclatural stability. We studied the protologues and original herbarium material of fourteen names: *S. chetchozensis* Franch. (Franchet 1888: 359), *S. ciliaris* Franch. (Franchet 1888: 357), *S. compta* Franch. (Franchet 1896b: 422), *S. delavayi* Franch. (Franchet 1888: 355), *S.eriocephala* Franch. (Franchet 1894: 329), *S. flexuosa* Franch. (Franchet 1894: 341), *S. macrota* Franch. (Franchet 1894: 343), *S. oligantha* Franch. (Franchet 1896b: 421), *S.romuleifolia* Franch. (Franchet 1888: 339), *S. spatulifolia* Franch. (Franchet 1888: 338), *S. stricta* Franch. (Franchet 1894: 343), *S. sutchuenensis* Franch. (Franchet 1894: 353), *S. vestita* Franch. (Franchet 1888: 358), and *S. virgata* Franch. (Franchet 1894: 340), which are discussed here.

The relevant taxonomic literature of the names, including the original protologues of *Saussurea* described by Franchet from China & Japan were studied. The specimens (or their images) conserved at herbaria (acronyms according to Thiers 2016), A, E, G, K, P and MO were examined. The typified names are listed in alphabetical order, and accepted names are always in bold, with known synonyms also listed. The bibliographic citations of these names were verified from the original literature, as well as in online databases, i.e. IPNI (2022), POWO (2022), Tropicos (2022) and WFO (2022). According to the International Code of Nomenclature for algae, fungi and plants (Turland *et al.* 2018: Arts 9.12, 9.17), the original protologue has been compared with original herbarium material and the most complete and informative herbarium specimen was selected. In addition, it also came to know that for purposes of priority (Turland *et al.* 2018: Arts 9.19, 9.20, 10.5), designation of a type is achieved only if the type is definitely accepted as such by the typifying author, if the type element is clearly indicated by direct citation including the term "type" (typus) or an equivalent, and, on or after 1st January 2001, if the typification statement includes the phrase "designated here" (*hic designatus*) or an equivalent under Art. 7.11 of the Shenzhen code (Turland *et al.* 2018; hereafter ICN).

Fig. 1. — Portrait of A. R. Franchet (Photo from P herbarium library, Muséum national d'Histoire naturelle).

NOTES ON TYPIFICATIONS

Family Asteraceae Bercht. & J.Presl
Genus *Saussurea* DC.

Saussurea brachycephala Franch.

Bulletin de l'Herbier Boissier 5: 540 (Franchet 1897).

Type specimen. — **Japan**. Insula Nippon, Prov. Nambu, in monte Ganju, 28.VIII.1894, *U. Faurie 13684* (holo-, P[P00484374]!; iso-, P[P00484375]!, MO[MO-2140521]!).

Saussurea carduiformis Franch.

Journal de Botanique (Morot) 8: 343 (Franchet 1894).

Type specimen. — **China**. Su-tchuen (Sichuan) Oriental: dans les montagnes de Tchen-Keéou-tin, alt. 2500 m, *P.G. Farges 632* (holo-, P[P00602816]!).

Saussurea caudata Franch.

Bulletin annuel de la Société philomatique de Paris (Paris) sér. 8, 3: 147 (Franchet 1891).

Lectotype (designated by Yu *et al.* 2014). — **China**. Su-tchuen (Sichuan) Oriental: *c.* Ta-tsien-lou, 1893, *J.A. Soulié 74* (lecto-, P[P00289136]!; isolecto-, K[K000035689]!, P[P00289137, P00602817, P00602818]!).

Saussurea chetchozensis Franch.
(Fig. 2)

Journal de Botanique (Morot) 2: 359 (Franchet 1888).

Lectotype (here designated). — **China**. Yunnan, in umbrosis montis Che-tcho-tze, supra Tapin-tze, alt. 2000 m, 15.X.1886, *J.M. Delavay 2510* (lecto-, P[P00602821]!; isolecto-, P[P00602822, P00602823]!).

Remarks

In the protologue, Franchet (1888) mentioned the following locality information: "Yunnan, in umbrosis montis Che-tcho-tze, supra Tapin-tze, alt. 2000 m (*Delavay 2510* and *Delavay 605*)", without designating any specimen as holotype. Lipschitz (1964) selected the specimen "*Delavay* 2510" as type [first-step], which is considered an inadvertent lectotyification according to Art. 7.11 of ICN (Turland *et al.* 2018). Three original materials were traced in P (P00602821, P00602822, P00602823). According to ICN, Arts 9.6, and Art. 40, Note 1 (Turland *et al.* 2018), none of them can be treated as holotype, but should be regarded as syntypes. After careful examination of all the sheets deposited in P and labels with Red tag "TYPE", it is necessary to select one of them as the lectotype (ICN; Art. 9.17 Turland *et al.* 2018). We designate here the blooming specimen "*Delavay 2510*" in P (P00602821) as the lectotype [second-step]. Since P00602821 is morphologically complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea ciliaris Franch.
(Fig. 3)

Journal de Botanique (Morot) 2: 357 (Franchet 1888).

Lectotype (here designated). — **China**. Yunnan, ad collum Yen-tze-hay, supra Lankong, alt. 3500 m, 27.VIII.1886, *J.M. Delavay 2105* (lecto-, P[P00705417]!; isolecto-, A[A00011743]!, K[K000786459, K000786460]!, P[P00705415, P00705416, P00705418, P00705419, P00705420]!).

Remarks

In the protologue, Franchet (1888) cited one collection: "Yunnan, ad collum Yen-tze-hay, supra Lankong, alt. 3500 m, "*Delavay 2105*" as the type [first-step], without indicating the herbaria where the specimen was deposited. According to Stafleu & Cowan (1976), Franchet worked at P and Delavay's specimens were deposited in K and P. We located nine original materials of "*Delavay 2105*", which have been deposited in A, K and P, and should be regarded as syntypes (Arts 9.6, and 40 Note 1 of ICN, Turland *et al.* 2018). The original materials in P all bear the informations "Syntype *Saussurea ciliaris* Franch." as well as Delavay's annotation; hence it is necessary to select one of them as the lectotype (Art. 9.17 of ICN; Turland *et al.* 2018). We here designate the blooming specimen "*Delavay 2105*" in P (P00705417) as the lectotype [second-step]. The selected sheet is a perfect match to the description, locality and altitute that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea compta Franch.
(Fig. 4)

Journal de Botanique (Morot) 10: 422 (Franchet 1896b).

Saussurea chrysanthemoides F.H. Chen, *Bulletin of the Fan Memorial Institute of Biology, Botany* 6 (2): 97 (Chen 1935).

Lectotype (here designated). — **China**. Se-tchuen (Sichuan) occidentalis, *c.* Ta-tsien-lou, 1893, *J.A. Soulié 620* (lecto-, P[P00602826]!; isolecto-, G[G00301551]!, K[K000035714]!, P[P00602827, P00602828]!).

Remarks

In the protologue, Franchet (1896b) mentioned the following locality information: "Se-tchuen (Sichuan) occidentalis, circa Ta-tsien-lou, (*J.A. Soulié 620*) as the type, without indicating the herbaria where the specimen was deposited. Lipschitz (1966) cited TYPUS: Se-tchuen (Sichuan) occidentalis, circa Ta-tsien-lou "*J.A. Soulié 620*" in P [first-step], which is considered an inadvertent lectotyification according to Art. 7.11 of ICN (Turland *et al.* 2018). Three original materials were traced in P. According to ICN, Arts 9.6, and 40 Note 1 (Turland *et al.* 2018), none of them can be treated as holotype, but should be regarded as syntypes. After careful examination of all the sheets deposited in P and labels with Red tag "TYPE", it is necessary to select one of them as the lectotype (ICN; Art. 9.17 Turland *et al.* 2018). We

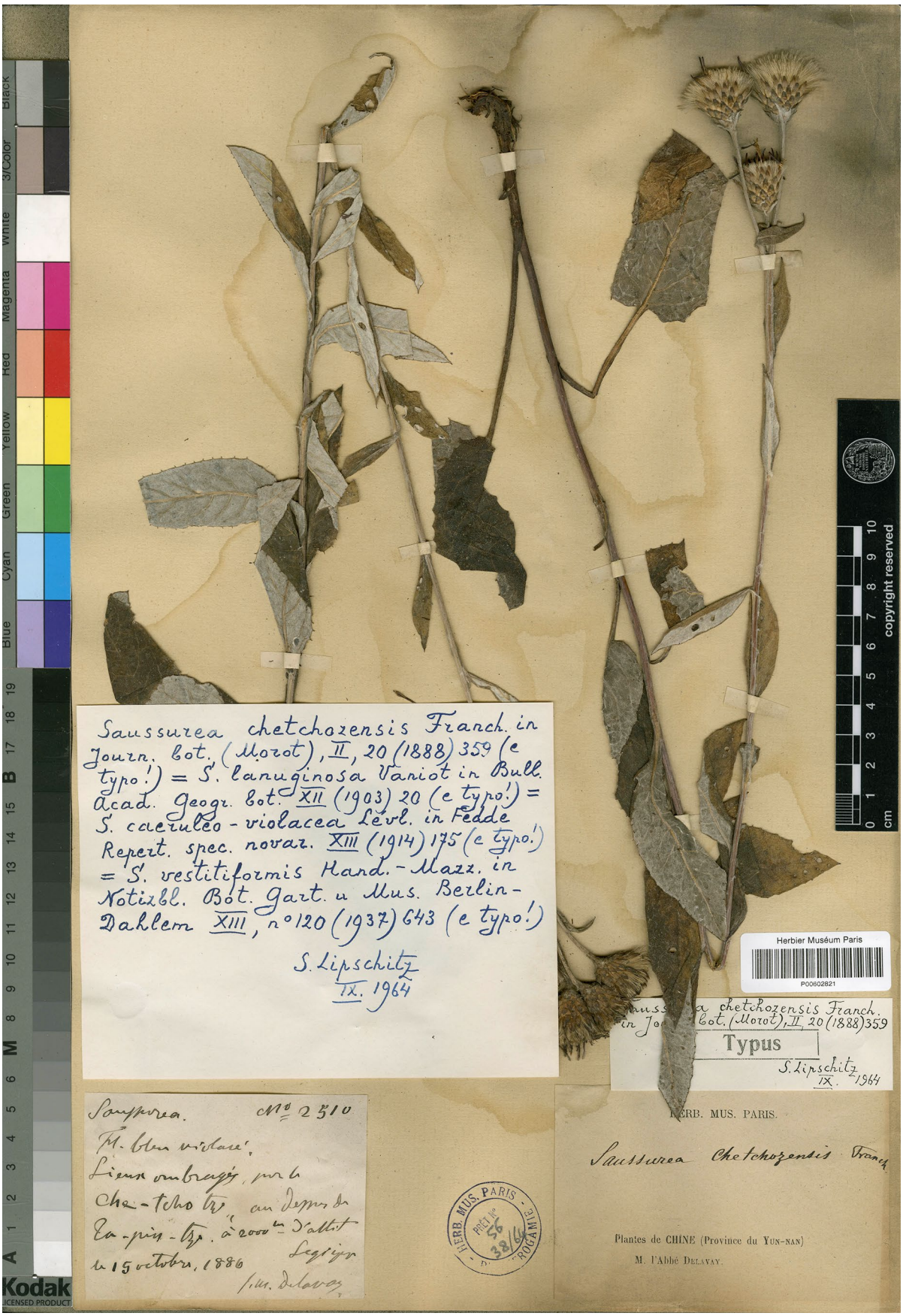

FIG. 2. — Lectotype of *Saussurea chetchozensis* Franch., *Delavay 2510* (P00602821).

FIG. 3. — Lectotype of *Saussurea ciliaris* Franch., *Delavay 2105* (P00705417).

Fig. 4. — Lectotype of *Saussurea compta* Franch., *Soulié 620* (P00602826).

designate here the blooming specimen "*J.A. Soulié 620*" in P (P00602826) as the lectotype [second-step]. The selected sheet is morphologically complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea delavayi Franch.
(Fig. 5)

Journal de Botanique (Morot) 2: 355 (Franchet 1888).

LECTOTYPE (here designated). — **China**. Yunnan, in monte Tsang-chan, supra Tali, alt. 4000 m, 3.VIII.1884, *J.M. Delavay 996* (lecto-, P[P00602833]!; isolecto-, A[A00011748]!, K[K000786464]!, P[P00602834]!).

REMARKS
Franchet (1888) described *S. delavayi* without designating any specimen as holotype but cited two specimens (*Delavay 691* and *Delavay 996*) in the protologue, but, since then, no author has designated a lectotype, even inadvertently (Art. 7.11 of ICN, Turland *et al.* 2018) and all these collections should be regarded as syntypes (ICN; Art. 9.6, Turland *et al.* 2018). According to Stafleu & Cowan (1976), Franchet worked at P and Delavay's specimens were deposited in K and P. Eight original materials were traced, two of them "*Delavay 691*" deposited in P (P00602835, P00602836), and four of them "*Delavay 996*" in A (A00011748), K (K000786464), and P (P00602833, P00602834). According to Art. 9.12 of ICN (Turland *et al.* 2018) one of them should be chosen as the lectotype. Among these collections, the one sheet "*Delavay 996*" in P (P00602833) is a perfect match to the description given in the protologue, thus, this blooming specimen is selected here as the lectotype.

Saussurea dimorphaea Franch.

Journal de Botanique (Morot) 8: 340 (Franchet 1894).

TYPE SPECIMEN. — **China**. Se-tchuen (Sichuan) oriental, montagnes de Tchen-Kéou-Tin, *P.G. Farges s.n.* (holo-, P[P00602837]!).

Saussurea dzeurensis Franch.

Journal de Botanique (Morot) 8: 339 (Franchet 1894).

TYPE SPECIMEN. — **China**. Se-tchuen (Sichuan) oriental, dans les éboulis de rochers de la montagne de Dzeura, VIII.1891, *J.A. Soulié 158* (holo-, P[P00602841]!).

Saussurea eriocephala Franch.
(Fig. 6)

Journal de Botanique (Morot) 2: 329 (Franchet 1888).

Saussurea pallidiceps Hand.-Mazz., *Symbolae Sinicae* 7 (4): 1146 (Handel-Mazzetti 1936a).

LECTOTYPE (here designated). — **China**. Yunnan, sur les pentes rocailleuses de Long-tech-chan, au-dessus de Hee-gni-tang, *J.M. Delavay 4720* (lecto-, P[P00602842]!; isolecto-, P[P00602843, P00602844, P00602845, P00602846]!).

REMARKS
Franchet (1888) cited one collection: "*Delavay 4720*" as the type in the protologue. According to Stafleu & Cowan (1976), Franchet worked at P and Delavay's specimens were deposited in K and P. We located five original duplicate specimens of "*Delavay 4720*", deposited in P (syntypes) (Arts 9.6, and 40 Note 1 of ICN, Turland *et al.* 2018). After careful examination of five sheets, which have been deposited in P, it is necessary to select one of them as the lectotype in accordance with Art. 9.12 of ICN (Turland *et al.* 2018). We designate here the blooming specimen "*Delavay 4720*" in P (P00602842) as the lectotype. The selected sheet is morphological complete and presence of stem, leaves, and flower that fully agree with the protologue.

Saussurea fargesii Franch.

Journal de Botanique (Morot) 8: 344 (Franchet 1894).

TYPE SPECIMEN. — **China**. Se-tchuen (Sichuan) oriental, sur les montagnes de Tchen-Keéou-tin, *P.G. Farges s.n.* (holo-, P[P00602847]!).

Saussurea fauriei Franch.

Bulletin de l'Herbier Boissier 5: 542 (Franchet 1897).

TYPE SPECIMEN. — **Japan**. Insula Yeso, Saruma secus littora, 21.VIII.1892, *U.J. Faurie 8579* (holo-, P[P00484391]!).

Saussurea flexuosa Franch.
(Fig. 7)

Journal de Botanique (Morot) 8: 341 (Franchet 1894).

Saussurea tsinlingensis Hand.-Mazz., *Österreichische botanische Zeitschrift* 85: 223 (Handel-Mazzetti 1936b).

LECTOTYPE (here designated). — **China**. Su-tchuen (Sichuan) oriental, district de Tchen-Kéou-Tin, *P.G. Farges s.n.* (lecto-, P[P00602848]!; isolecto-, P[P00602849]!).

REMARKS
In the protologue, Franchet (1894) cited one collection: "Su-tchuen (Sichuan) oriental, district de Tchen-Kéou-Tin, *P.G. Farges s.n.*" as the type, without indicating the herbaria where the specimen was deposited. We located two duplicate sheets, deposited in P. from which a lectotype may be designated (Art. 9.17 of ICN). Thus, we designate here the sheet kept in P (P00602848) as the lectotype, since the sheet is a complete and well-preserved specimen that displays all the morphological diagnostic features in agreement with the protologue.

Fig. 5. — Lectotype of *Saussurea delavayi* Franch., *Delavay 996* (P00602833).

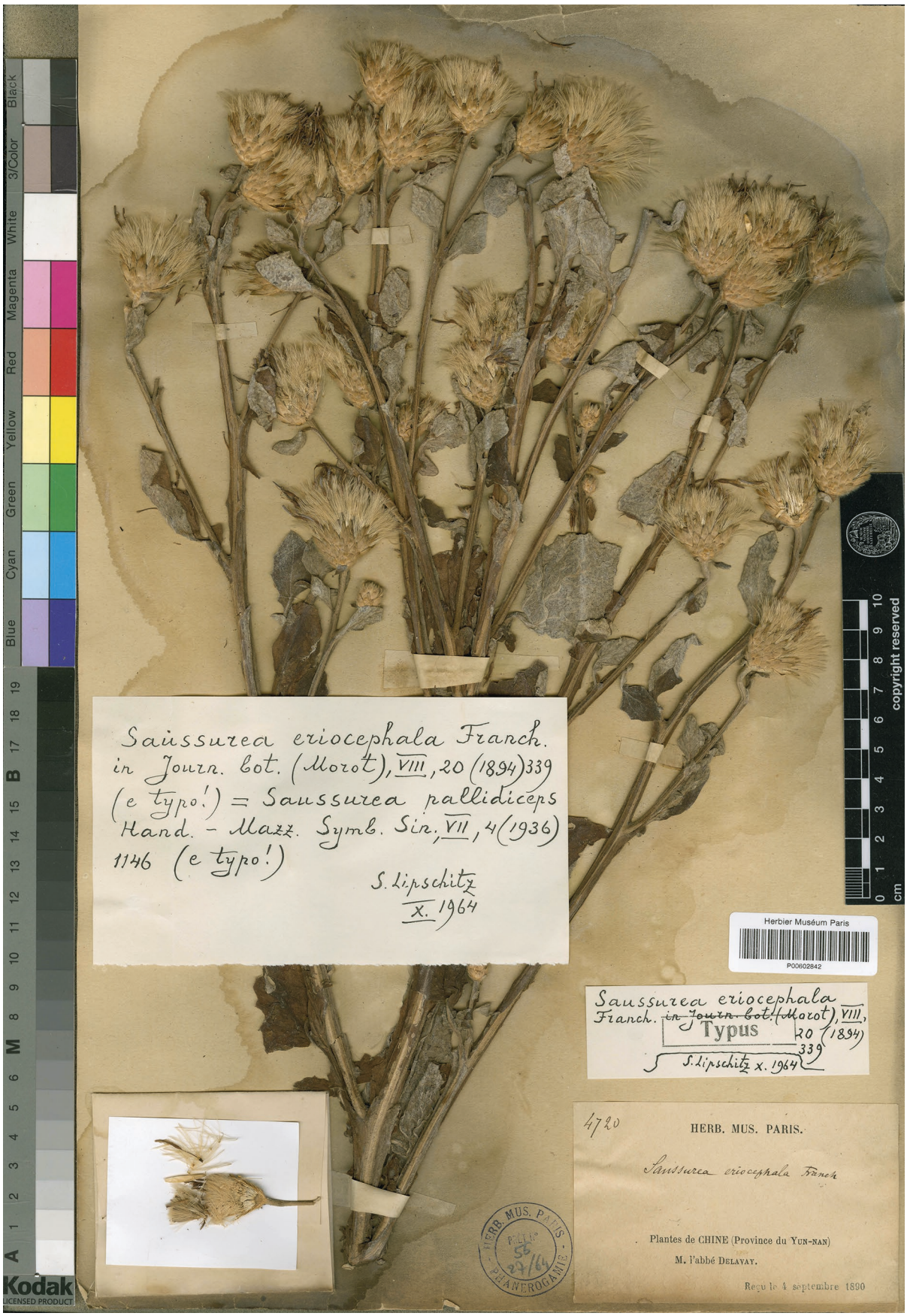

FIG. 6. — Lectotype of *Saussurea eriocephala* Franch., *Delavay 4720* (P00602842).

Fig. 7. — Lectotype of *Saussurea flexuosa* Franch., *Farges s.n.* (P00602848).

Saussurea grosseserrata Franch.

Journal de Botanique (Morot) 2: 311, 354 (Franchet 1888).

Lectotype (designated by Lipschitz 1964). — **China**. Yunnan: Likiang Suee-chan, in pascuis, alt. 3500 m, 14.VIII.1886, *J.M. Delavay 2102* (lecto-, P[P00602856]!; isolecto-, A[A00011754]!, P[P00602857, P00602858, P00602859]!).

Saussurea lampsanifolia Franch.

Journal de Botanique (Morot) 2: 357 (Franchet 1888).

Type specimen. — **China**. Yunnan: in silvaticis supra Tapin-tze, 7.IX.1882, *J.M. Delavay 604* (holo-, P[P00602863]!).

Saussurea likiangensis Franch.

Journal de Botanique (Morot) 2: 356 (Franchet 1888).

Accepted name. — *Saussurea przewalskii* Maxim., *Bulletin de l'Académie impériale des sciences de St.-Pétersbourg, série 7,* 27: 494 (Maximowicz 1881).

Lectotype (designated by Lipschitz 1962). — **China**. Province du Yun-nan, Les coôteaux du Li Kiang suee chan (Li Kiang), terrains dénudés, débris, 13.VIII.1886, *J.M. Delavay 2104* (lecto-, P[P00602867]!; isolecto-, P[P00602868, P00602869, P00602870]!).

Saussurea lingulata Franch.

Journal de Botanique (Morot) 10: 423 (Franchet 1896b).

Type specimen. — **China**. Yunnan occidentalis: in montibus ad vicinitatem fluvii Mékong, *H. d'Orléans s.n.* (holo-, P[P00602871]!).

Saussurea longifolia Franch.

Journal de Botanique (Morot) 2: 354 (Franchet 1888).

Lectotype (designated by Shi & Raab-Straube 2011). — **China**. Yunnan: ad collum Yen-tze-kay, prope Lankong, alt. 3200 m, 18.IX.1885, *J.M. Delavay 1659* (lecto-, P[P00836207]!; isolecto-, P[P00602872, P00602873]!).

Saussurea macrota Franch.
(Fig. 8)

Journal de Botanique (Morot) 8: 343 (Franchet 1894).

Saussurea auriculata Hemsl., *Journal of the Linnean Society. Botany* 29: 308 (Hemsley 1892). — *Saussurea macrota* var. *papyracea* S.Ju. Lipschitz, *Rod Saussurea*: 210 (Lipschitz 1979). — *Saussurea hemsleyana* Hand.-Mazz., *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 13: 647 (Handel-Mazzetti 1937). — *Saussurea otophylla* Diels, *Botanische Jahrbücher für Systematik* 36 (5, Beibl. 82): 109 (Diels 1905).

Lectotype (here designated). — **China**. Se-tchuen (Sichuan) oriental, sur les montagnes de Tchen-Kéou-tin, alt. 2500 m, *P.G. Farges s.n.* (lecto-, P[P00602874]!; isolecto-, P[P00602875]!).

Remarks

In the protologue, Franchet (1894) mentioned the following locality information: "Se-tchuen (Sichuan) oriental, sur les montagnes de Tchen-Kéou-tin, alt. 2500 m (*P.G. Farges s.n.*) as the type, without indicating the herbaria where the specimen was deposited. Lipschitz (1964) cited TYPUS: Se-tchuen (Sichuan) oriental, sur les montagnes de Tchen-Kéou-tin, alt. 2500 m "*P.G. Farges s.n.*" in P [first-step], which is considered an inadvertent lectotyification according to Art. 7.11 of ICN (Turland *et al.* 2018). We traced two duplicate specimens in P (P00602874, P00602875). According to ICN, Arts 9.6, and 40, Note 1 (Turland *et al.* 2018), none of them can be treated as holotype, but should be regarded as syntypes. After careful examination of two sheets deposited in P, it is necessary to select one of them as the lectotype (ICN; Art. 9.17, Turland *et al.* 2018). We designate here the blooming specimen "*P.G. Farges s.n.*" in P (P00602874) as the lectotype [second-step]. The selected sheet is morphologically complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea ussuriensis var. *mongolica* Franch.

Nouvelles Archives du Muséum d'Histoire naturelle (Paris), sér. 2, 6: 61 (Franchet 1883).

Accepted name. — *Saussurea mongolica* Franch. (Franchet 1883: 61), *Bulletin de l'Herbier Boissier* 5 (7): 539 (Franchet 1897).

Lectotype (designated by Smirnov 2004). — **China**. Hebei: Gehol [Chengde Co.], VIII.1864, *A. David 2141* (lecto-, P[P00602876]!; isolecto-, P[P00602877, P00602878, P00602879]!).

Saussurea nikoensis Franch. & Sav.

Enumeratio Plantarum in Japonia sponte Crescentium 2: 407 (Franchet & Savatier 1878).

Type specimen. — **Japan**. Alpes de Nikko, without date, *P.A.L. Savatier 2099* (holo-, P[P00484393]!).

Saussurea oligantha Franch.
(Fig. 9)

Journal de Botanique (Morot) 10: 421 (Franchet 1896b).

Saussurea oligantha var. *oligolepis* (Y.Ling) X.Y.Wu, *Flora Tsinlingensis* 1 (5): 361 (Wu 1985). — *Saussurea oligolepis* Y.Ling, *Contributions from the Institute of Botany. National Academy of Peiping* 6 (2): 81 (Ling 1949).

Lectotype (here designated). — **China**. Se-tchuen (Sichuan) occidentalis, *c.* Tchen-Keou-tin, alt. 2500 m, *P.G. Farges 35* (lecto-, P[P00602883]!; isolecto-, P[P00602884, P00602885]!).

Remarks

In the protologue, Franchet (1896b) provided the following localities information: "Se-tchuen (Sichuan) occidentalis, circa Tchen-Keou-tin, alt. 2500 m, (*P.G. Farges 35*)" and "Prov. Hupeh

Fig. 8. — Lectotype of *Saussurea macrota* Franch., *Farges s.n.* (P00602874).

(*A. Henry 6640a*)", but did not indicate a holotype specimen. We located five original materials, all of them deposited in P: "*P.G. Farges 35*" (P00602883, P00602884, P00602885), and "*A. Henry 6640a*" (P00705533, P00705534). According to Art. 9.6 of ICN (Turland *et al.* 2018), all these collections should be regarded as syntypes. According to Stafleu & Cowan (1976), Franchet' worked at P, and Delavay's specimens were deposited in K and P. The specimens of P all bear the information "Syntype *S. oligantha* Franch.", and it is necessary to select one of them as the lectotype (Art. 9.12 of ICN, Turland *et al.* 2018). We here designate the sheet "*P.G. Farges 35*" in P (P00602883) as the lectotype since it is morphologicaly complete with the presence of stem, leaves, and flowers that fully agree with the protologue.

Saussurea pachyneura Franch.

Journal de Botanique (Morot) 8: 354 (Franchet 1894).

Saussurea bodinieri H.Lév., *Bulletin de géographie botanique* 25: 19 (Léveillé 1915). — *Saussurea calophylla* Hand.-Mazz., *Acta Horti Gothoburgensis* 12: 332 (Handel-Mazzetti 1938). — *Saussurea leontodontoides* (DC.) Hand.-Mazz., *Symbolae Sinicae* 7 (4): 1155 (Handel-Mazzetti 1936a). — *Saussurea sikangensis* F.H.Chen, *Bulletin of the Fan Memorial Institute of Biology, Botany* 8: 122 (Chen 1938).

Type specimen. — **China**. Se-tchuen (Sichuan) occidentalis, montagnes de Tongolo, *J.A. Soulié 165* (holo-, P[P00602886]!).

Saussurea peduncularis Franch.

Journal de Botanique (Morot) 2: 357 (Franchet 1888).

Saussurea peduncularis var. *corymbosa* (Franch.) Lipsch., *Novosti Sistematiki Vysshikh Rastenii* 8: 250 (Lipschitz 1971a). — *Saussurea peduncularis* var. *lobata* (Franch.) Lipsch., *Novosti Sistematiki Vysshikh Rastenii* 8: 250 (Lipschitz 1971a).

Type specimen. — **China**. Yunnan: sur le Hee Chan men (Lankong), 21.IX.1885, *J.M. Delavay s.n.* (holo-, P[P00705538]!).

Saussurea romuleifolia Franch.
(Fig. 10)

Journal de Botanique (Morot) 2: 339 (Franchet 1888).

Saussurea romuleifolia f. *pumila* Lipsch., *Byulleten' Moskovskogo Obshchestva Ispytatelei Prirody, Otdel Biologicheskii* 76 (4): 79 (Lipschitz 1971b).

Lectotype (here designated). — **China**. Yunnan: in dumetis montis Che-tzo-tze, supra Tapin-tze, 23.VIII.1883, *J.M. Delavay 490* (lecto-, P[P00705566]!; isolecto-, P[P00705567]!).

Remarks

Franchet (1888) mentioned three localities in the protologue "Yunnan, Likiang in collibus calcareis (*Delavay s.n.*); "in dumetis montis Che-tzo-tze, supra Tapin-tze (*Delavay 490*); "in pratis siccis calcareis montis Hee-chan-men, prope Lankong, alt. 2300 m (*Delavay 1005* and *Delavay 58*)" in the protologue, but did not indicate any holotype specimen. The online database such as Tropicos (http://legacy.tropicos.org/Name/50005742, accessed 30 Dec. 2021) cited "*G. Forrest 12*" kept in E as "Type", which is considered an inadvertent lectotyification according to Art. 7.11 of ICN (Turland *et al.* 2018). We located six original materials deposited in K & P and all these collections should be regarded as syntypes (Art. 9.6 of ICN; Turland *et al.* 2018). After careful examination of all these collections, which have been deposited in P, it is necessary to select one of them as the lectotype, in accordance with Art. 9.12 of ICN (Turland *et al.* 2018). We designate here the blooming specimen "*Delavay 490*" in P (P00705566) as the lectotype. The selected sheet bears a complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea saligna Franch.

Journal de Botanique (Morot) 8: 345 (Franchet 1894).

Type specimen. — **China**. Se-tchuen (Sichuan) oriental: Hankésé, près de Tchen-Kéou-Tin, alt. 2000 m, 3.IX.1892, *P.G. Farges 1139* (holo-, P[P00602898]!; iso-, P[P00602899, P00602900, P00602901]!).

Saussurea scabrida Franch.

Bulletin annuel de la Société philomatique de Paris sér. 8, 3: 146 (Franchet 1891).

Saussurea leontodon Dunn, *Journal of the Linnean Society. Botany* 35: 509 (Dunn 1903). — *Saussurea pseudoleontodon* F.H.Chen, *Bulletin of the Fan Memorial Institute of Biology, Botany* 6: 99 (Chen 1935).

Lectotype (designated by Yu *et al.* 2014). — **China**. Se-tchuen (Sichuan), *c.* Ta-tsien-lou, *J.A. Soulié 209* (lecto-, P[P00602902]!; isolecto-, P[P00602903, P00602904, P00602905]!).

Saussurea scaposa Franch. & Sav.

Enumeratio Plantarum in Japonia sponte Crescentium 2: 480 (Franchet & Savatier 1878).

Saussurea reinii Franch., *Bulletin de l'Herbier Boissier* 5: 539 (Franchet 1897). — *Theodorea scaposa* Kuntze, *Revisio generum plantarum* 1: 368 (Kuntze 1891).

Type specimen. — **Japan**. Kiusiu: in principatu Satzuma, in monte Kiri Shima, 1.V.1875, *P.A.L. Savatier 3545* (holo-, P[P00484376]!).

Saussurea semilyrata Bureau & Franch.

Journal de Botanique (Morot) 5: 76 (Bureau & Franchet 1891).

Saussurea lanata Y.L.Chen & S.Yun Liang, *Acta Phytotaxonomica Sinica* 19 (1): 96 (Chen *et al.* 1981). — *Saussurea stoetzneriana* Diels, *Repertorium Specierum Novarum Regni Vegetabilis* 12: 513 (Diels 1922). — *Saussurea viridibracteata* F.H.Chen, *Bulletin of the Fan Memorial Institute of Biology, Botany* 8: 125 (Chen 1938).

Type specimen. — **China**. Province de Se-tchuen (Sichuan), sur les montagnes près de Ta-tsien-lou, *P.G.E. Bonvalot 559* (holo-, P[P00289140]!; iso-, P[P00602907]!).

FIG. 9. — Lectotype of *Saussurea oligantha* Franch., *Farges 35* (P00602883).

Fig. 10. — Lectotype of *Saussurea romuleifolia* Franch., *Delavay 490* (P00705566).

Saussurea souliei Franch.

Bulletin annuel de la Société philomatique de Paris (Paris), sér. 8, 3: 147 (Franchet 1891).

LECTOTYPE (designated by Yu *et al.* 2014). — **China**. Se-tchuen (Sichuan), *c.* Ta-tsien-lou, *J.A. Soulié 95* (lecto-, P[P00602908]!; isolecto-, K[K000786473]!, P[P00602909, P00602910, P006029011]!).

Saussurea spatulifolia Franch. (Fig. 11)

Journal de Botanique (Morot) 2: 338 (1888).

LECTOTYPE (here designated). — **China**. Yunnan: in rupibus regionis altissimae tractus Likiang Suesschan, alt. 4500 m, 14.VIII.1886, *J.M. Delavay 2101* (lecto-, P[P00602912]!; isolecto-, P[P00602913]!).

REMARKS

S. spatulifolia was described by Franchet (1888) who cited one collection (*Delavay 2121*) as type in the protologue, without indicating the herbaria where the specimen was deposited. Lipschitz (1962) cited TYPUS: (*Delavay 2101*), in P [first-step], which is considered an inadvertent lectotyification according to Art. 7.11 of ICN (Turland *et al.* 2018). We located two duplicate specimens in P (barcode 00602912-00602913). According to ICN, Arts 9.6, and 40 Note 1 (Turland *et al.* 2018), none of them can be treated as holotype, but should be regarded as syntypes. We designate here the blooming specimen "*Delavay 2101*" in P (P00602912) as the lectotype [second-step], in accordance with Art. 9.17 (ICN; Turland *et al.* 2018), since it is morphologically complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea stricta Franch. (Fig. 12)

Journal de Botanique (Morot) 2: 343 (Franchet 1888).

Saussurea subcordata F.H.Chen, *Bulletin of the Fan Memorial Institute of Biology, Botany* 6: 98 (Chen 1935).

LECTOTYPE (here designated). — **China**. Yunnan: Se-tchuen (Sichuan) oriental, montagnes de Han-Ky-sé, près de Tchen-kéou, alt. 2000 m, 3.IX.1892, *P.G. Farges 1140* (lecto-, P[P00602914]!; isolecto-, P[P00602915]!).

REMARKS

In the protologue, Franchet (1894) provided only the locality information: "Se-tchuen oriental, montagnes de Han-Ky-sé, près de Tchen-kéou, alt. 2000 m". Lipschitz (1966) selected the specimen "*P.G. Farges 1140*" kept in P as the type [first-step]. We located two duplicate specimens of "*P.G. Farges 1140*", in P, from which a lectotype may be chosen. We here designate one of the specimen "*P.G. Farges 1140*" in P (P00602914) as the lectotype [second-step] (Art. 9.17 of ICN (Turland *et al.* 2018).

Saussurea sutchuenensis Franch. (Fig. 13)

Journal de Botanique (Morot) 8: 353 (Franchet 1894).

Saussurea dutaillyana Franch. var. *macrocephala* (Ling) X.Y.Wu, *Flora Tsinlingensis* 1 (5): 360 (Wu 1985). — *Saussurea rufostrigillosa* Ling, *Contributions from the Institute of Botany. National Academy of Peiping* 3: 168 (Ling 1935).

LECTOTYPE (here designated). — **China**. Se-tchuen (Sichuan) oriental, montagnes de Tchen-kéou, *P.G. Farges s.n.* (lecto-, P[P00602916]!; isolecto-, P[P00602917]!).

REMARKS

In the protologue, Franchet (1894) mentioned the locality information: "Se-tchuen (Sichuan) oriental, montagnes de Tchen-kéou (*P.G. Farges s.n.*)". When describing *S. sutchuenensis* Franch. Lipschitz (1966) cited the specimen "*P.G. Farges s.n.*" kept in P as the type [first-step]. We located two duplicate specimens of "*P.G. Farges s.n.*", in P, and the name *S. sutchuenensis* needs lectotypification, according to Art. 9.17 of ICN (Turland *et al.* 2018). Among these duplicate sheets, the one sheet "*P.G. Farges s.n.*" in P (P00602916) is a perfect match to the description given in the protologue, thus, this blooming specimen selected here as the lectotype.

Saussurea tatsienensis Franch.

Bulletin annuel de la Société philomatique de Paris (Paris), sér. 8, 3: 148 (Franchet 1891).

LECTOTYPE (designated by Yu *et al.* 2014). — **China**. Se-tchuen (Sichuan), *c.* Ta-tsien-lou, *J.A. Soulié 163a* (lecto-, P[P00245388]!).

Saussurea vestita Franch. (Fig. 14)

Journal de Botanique (Morot) 2: 358 (Franchet 1888).

LECTOTYPE (here designated). — **China**. Yunnan, in calcareis ad collum montis Hee-chan-men, prope Lankong, alt. 3000 m, 30.VIII.1886, *J.M. Delavay 2145* (lecto-, P[P00602923]!; isolecto-, K[K000035680, K000035681]!, P[P00602924]!).

REMARKS

In the protologue, Franchet (1888) provided the following localities information: "Yunnan, in calcareis ad collum montis Hee-chan-men, prope Lankong, alt. 3000 m (*Delavay 2145*); "ad collum Pi-iou-se, supra Tapin-tze (*Delavay s.n.*); "ad pedem montis Yang-in-chan (*Delavay s.n.*)" but did not indicate any holotype specimen. Since then, no author has designated a lectotype, even inadvertently (Art. 7.11 of ICN, Turland *et al.* 2018). We located seven original materials deposited in K & P, and all these collections should be regarded as syntypes (Art. 9.6 of ICN; Turland *et al.* 2018). After careful examination of all these collections, which have been deposited in P, it is necessary to select one of them as the lectotype in accordance with Art. 9.12 of ICN (Turland *et al.* 2018). We designate here the

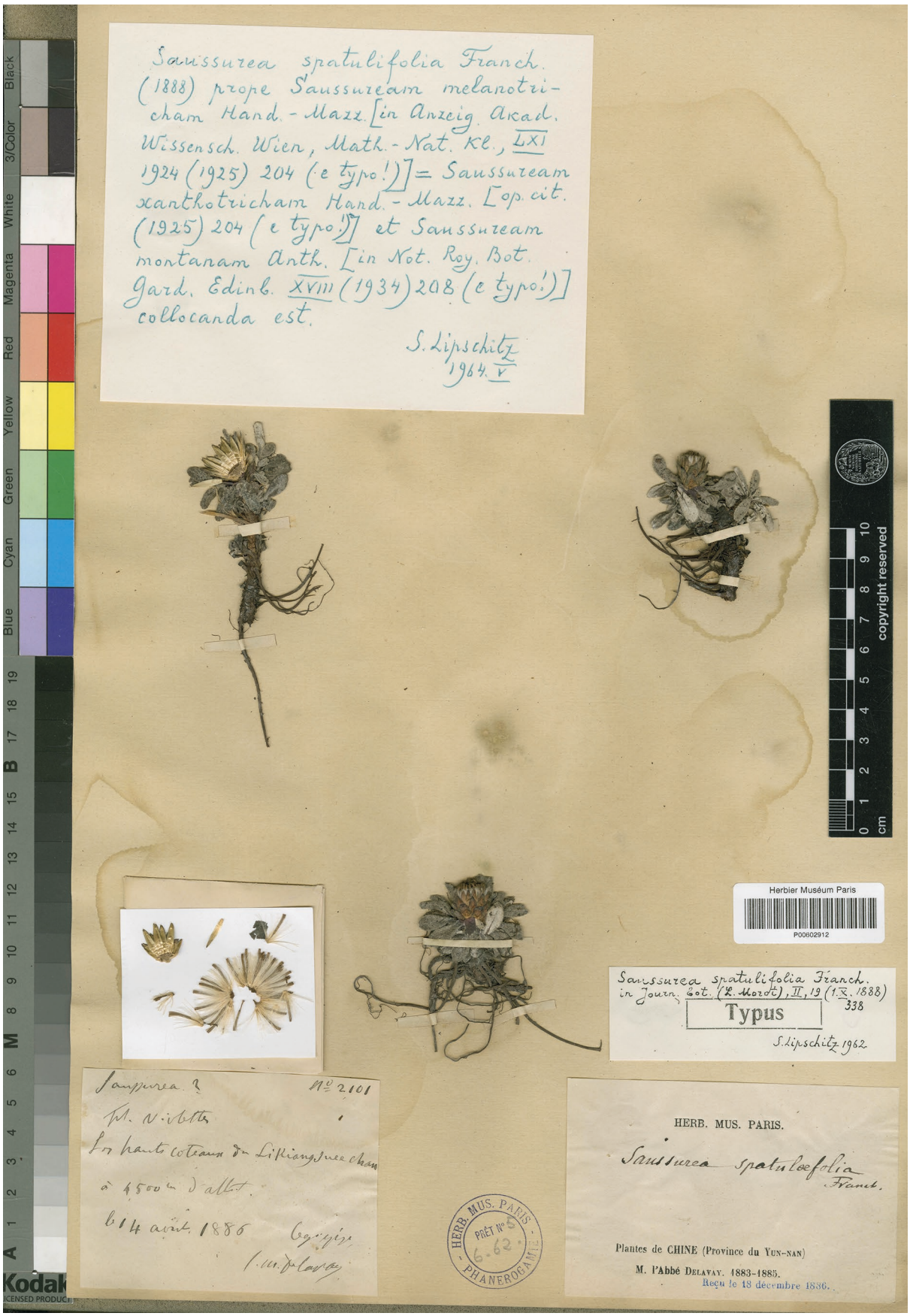

Fig. 11. — Lectotype of *Saussurea spatulifolia* Franch., *Delavay 2101* (P00602912).

FIG. 12. — Lectotype of *Saussurea stricta* Franch., *Farges 1140* (P00602914).

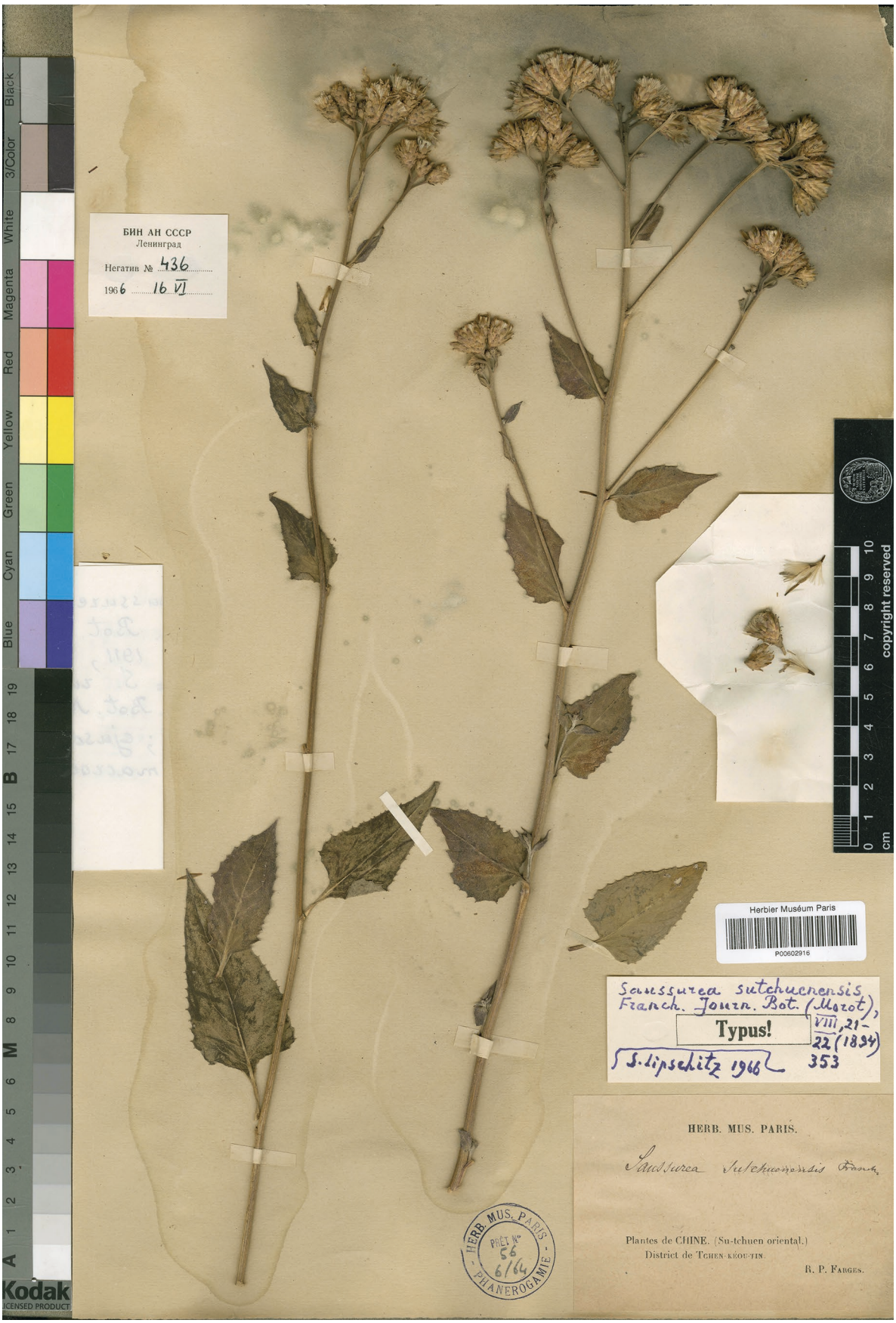

FIG. 13. — Lectotype of *Saussurea sutchuenensis* Franch., *Farges s.n.* (P00602916).

FIG. 14. — Lectotype of *Saussurea vestita* Franch., *Delavay 2145* (P00602923).

blooming specimen "*Delavay 2145*" in P (P00602923) as the lectotype. The selected sheet bears a complete and well-preserved specimen that displays all the morphological diagnostic traits in agreement with the protologue.

Saussurea virgata Franch.
(Fig. 15)

Journal de Botanique (Morot) 2: 340 (1888).

LECTOTYPE (here designated). — **China**. Yunnan, dans les prairies humides au pied du Tsang-Chan, alt. 2800 m, 25.IX.1888, *J.M. Delavay 3617* (lecto-, P[P00602943]!; isolecto-, P[P00602944, P00602945]!).

REMARKS

Franchet (1888) described *S. virgata* without designating any specimen as holotype, but cited two collections (*Delavay 3617* and *Delavay 3201*) in the protologue, but, since then, no author has designated a lectotype, even inadvertently (Art. 7.11 of ICN, Turland *et al.* 2018). Six original materials were traced in P, three of them "*Delavay 3617*" in P (P00602928, P00602929, P00602942), and three of them "*Delavay 3201*" in P (P00602943, P00602944, P00602945). According to Art. 9.6 of ICN (Turland *et al.* 2018), all these collections should be regarded as syntypes. All the original materials in P bear the informations "Syntype *S. virgata* Franch." as well as Delavay annotations, from which lectotype could be chosen (Art. 9.12 of ICN, Turland *et al.* 2018). Herein, we designate the sheet "*Delavay 3617*" in P (P00602943) as the lectotype. The selected herbarium specimen is well preserved and comprises a stem, many leaves with numerous flowers and inflorescence which fully agree with both the description and the current application of the name.

Saussurea yunnanensis Franch.

Journal de Botanique (Morot) 2: 340 (Franchet 1888).

Saussurea mairei H.Lév., *Repertorium novarum specierum regni vegetabilis* 11: 493 (Léveillé 1913). — *Saussurea vaginata* Dunn, *Journal of the Linnean Society. Botany* 35: 510 (Dunn 1903).

TYPE SPECIMEN. — **China**. Se-tchuen (Sichuan) occidentalis, montagnes de Tongolo, *J.A. Soulié 165* (holo-, P[P00602886]!).

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REFERENCES

BUREAU E. & FRANCHET A. 1891. —Plantes nouvelles du Thibet et de la Chine occidentale. *Journal de Botanique* 5: 69-77. https://www.biodiversitylibrary.org/page/3042517

CANDOLLE A. P. DE 1810. — Observations sur les plantes Composées ou Syngenèses (I). *Annales du Muséum national d'Histoire naturelle* 16: 135-208. https://www.biodiversitylibrary.org/page/14757255

CHEN F. H. 1935. — The study of Chinese *Saussurea* III. *Bulletin of the Fan Memorial Institute of Biology, Botany* 6: 96-102.

CHEN F. H. 1938. — The study of Chinese *Saussurea* IV: *Saussurea novae Sinensis*. *Bulletin of the Fan Memorial Institute of Biology, Botany* 8: 119-128.

CHEN Y. L., LIANG S. Y. & PAN K. Y. 1981. — Taxa nova compositarum e flora Xizangensi (Tibetica). *Acta Phytotaxonomica Sinica* 19 (1): 85-106. https://www.jse.ac.cn/EN/Y1981/V19/I1/85

CHEN Y. S. 2011. — *Saussurea megacephala* (Asteraceae), a new species from Xizang, China. *Annales Botanici Fennici* 48: 142-144. https://doi.org/10.5735/085.048.0206

CHEN Y. S. 2014a. — The identity of *Saussurea rhytidocarpa*, and a new species of *Saussurea* (Asteraceae) from China. *Phytotaxa* 172 (2): 123-128. https://doi.org/10.11646/phytotaxa.172.2.8

CHEN Y. S. 2014b. — Five new species of *Saussurea* (Asteraceae, Cardueae) from the Hengduan Mountains region, southwestern China. *Phytotaxa* 170 (3): 141-154. https://doi.org/10.11646/phytotaxa.170.3.1

CHEN Y. S. 2014c. — Six new species of *Saussurea* (Asteraceae) from eastern Himalaya. *Phytotaxa* 177 (4): 191-206. https://doi.org/10.11646/phytotaxa.177.4.1

CHEN Y. S. 2015. — Asteraceae II: *Saussurea* DC., *in* HONG D. Y. (ed.), *Flora of Pan-Himalaya* 48 (2). Science Press, Beijing, 340 p.

CHEN Y. S. 2020. — *Saussurea yilingii* (Asteraceae, Cardueae), a new species from Sichuan, China. *Phytotaxa* 452 (3): 236-240. https://doi.org/10.11646/phytotaxa.452.3.7

CHEN Y. S. & YUAN Q. 2015. — Twenty-six new species of *Saussurea* (Asteraceae, Cardueae) from the Qinghai-Tibetan Plateau and adjacent regions. *Phytotaxa* 213: 159-211. https://doi.org/10.11646/phytotaxa.213.3.1

CHEN Y. S. & XU L. S. 2020. — *Saussurea xinjiangensis* sp. nov. (Asteraceae, Cardueae), a new species from Xinjiang, China. *Nordic Journal of Botany* 38 (9): eo2711. https://doi.org/10.1111/njb.02711

CHIK W. I., ZHU L. FAN L. L., YI T., ZHU G. Y., GOU X. J., TANG Y. N., XU J., YEUNG W. P., ZHAO Z. Z., YU Z. Y. & CHEN H. B. 2015. — *Saussurea involucrata*: A review of the botany, phytochemistry and ethnopharmacology of a rare traditional herbal medicine. *Journal of Ethnopharmacology* 172: 44-60. https://doi.org/10.1016/j.jep.2015.06.033

COLLECTIF 2013. — *L'Herbier du Muséum, l'aventure d'une collection*. Muséum national d'Histoire naturelle, Artlys, Paris, 160 p.

DIELS F. L. E. 1905. — Beiträge zur Flora des Tsin ling shan und andere Zusätze zur Flora von Central-China. *Botanische Jahrbücher für Systematik* 36 (Beibl. 82): 1-142. https://www.biodiversitylibrary.org/page/5182881

DIELS F. L. E. 1922. — Aufzählung der von Dr. Limpricht in Ostasien gesammelten Pflanzen. *Repertorium Specierum Novarum Regni Vegetabilis* 12: 298-515. https://www.biodiversitylibrary.org/page/33526306

DUNN S. T. 1903. — Descriptions of new Chinese plants. *Journal of the Linnean Society. Botany* 35: 483-518. https://doi.org/10.1111/j.1095-8339.1903.tb00699.x

FRANCHET A. 1883. — *Saussurea* DC. *Nouvelles Archives du Muséum d'Histoire naturelle,* sér. 2, t. 6: 59-62. https://www.biodiversitylibrary.org/page/37043593

FRANCHET A. 1888. — Note sur les *Saussurea* du Yunnan. *Journal de Botanique (Morot)* 2: 309-359. https://www.biodiversitylibrary.org/page/3072498

Fig. 15. — Lectotype of *Saussurea virgata* Franch., *Delavay 3617* (P00602943).

Franchet A. 1891. — Diagnoses d'espèces nouvelles provenant d'une collection de plantes du Thibet chinois envoyée au Muséum par M. L'Abbe Soulié. *Bulletin de la Société philomatique de Paris* 3: 140-150.

Franchet A. 1894. — Plantes nouvelles de la Chine Occidentale. *Journal de Botanique (Morot)* 8: 353-364. https://www.biodiversitylibrary.org/page/2164062

Franchet A. 1896a. — Compositae novae e flora sinensi. *Journal de Botanique (Morot)* 10 (22-23): 368-381. https://www.biodiversitylibrary.org/page/8856224

Franchet A. 1896b. — Compositae novae e flora sinensi. *Journal de Botanique (Morot)* 10: 409-423. https://www.biodiversitylibrary.org/page/8856269

Franchet A. 1897. — Exposé synoptique des *Saussurea* de la flore du Japon, *in* Autran E. (ed.), *Bulletin de l'Herbier Boissier.* Vol. 5. Imprimerie Romet, Genève: 534-546. https://www.biodiversitylibrary.org/page/33657344

Franchet A. & Savatier L. 1878. — Compositeae *Aster* L., *in* Franchet A. & Savatier L. (eds), *Enumeratio plantarum: in Japonia sponte crescentium hucusque rite cognitarum, adjectis descriptionibus specierum pro regione novarum, quibus accedit determinatio herbarum in libris japonicis So mokou zoussetz xylographice delineatarum.* Vol. 1 (2). F. Savy, Paris: 219-225. https://doi.org/10.5962/bhl.title.75

Handel-Mazzetti H. 1936a. — *Saussurea* DC., *in* Brotherus V. F. & Handel-Mazzetti H. (eds), *Symbolae Sinicae* 7 (4). J. Springer, Wien: 1145-1162. https://doi.org/10.5962/bhl.title.878

Handel-Mazzetti H. 1936b. — Kleine Beiträge zur Kenntnis der Flora von China. *Österreichische Botanische Zeitschrift* 85 (3): 213-228. http://www.jstor.org/stable/43338976

Handel-Mazzetti H. 1937. — Neue und bemerkenswerte chinesische Compositen, besonders aus dem Berliner Herbar. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 13: 607-661. https://doi.org/10.2307/3994954

Handel-Mazzetti H. 1938. — Plantae sinenses a Dre. H. Smith annis 1921-1922, 1924 et 1934 lectae, XXXII. Compositae 2. *Acta Horti Gothoburgensis* 12: 203-359.

Hassan R. & Masoodi M. H. 2020. — *Saussurea lappa*: A comprehensive review on its pharmacological activity and phytochemistry. *Current Traditional Medicine* 6 (1): 12-23.

Hemsley W. B. 1892. — Observations on a botanical collection made by Mr. A. E. Pratt in western China, with descriptions of some new Chinese plants from various collections. *Journal of the Linnean Society. Botany* 29: 298-321. https://www.biodiversitylibrary.org/page/227385

IPNI 2022. — *International Plant Name Index*. Available online: http://www.ipni.org/ (accessed on 1 January 2022).

Kew 1900. — Miscellaneous Notes. *Bulletin of Miscellaneous Information* (Royal Botanic Gardens, Kew) 1900 (157/168): 15-32. https://www.jstor.org/stable/4111308

Kuntze O. 1891. — *Revisio generum plantarum: vascularium omnium atque cellularium multarum secundum leges nomenclaturae internationales cum enumeratione plantarum exoticarum in itinere mundi collectarum* 1. A. Felix, Leipzig: 1-374. https://doi.org/10.5962/bhl.title.327

Léveillé H. 1913. — LXXVIII. Decades plantarum novarum. CI-CIII. *Repertorium novarum specierum regni vegetabilis* 11: 492-496. https://www.biodiversitylibrary.org/page/237664

Léveillé H. 1915. — Flora missionnaria asiatica. *Bulletin de géographie botanique* 25: 13-26. https://www.biodiversitylibrary.org/page/2931952

Ling Y. 1935. — Les Composées chinoises de l'herbier de l'académie de Peiping. *Contributions from the Institute of Botany, National Academy of Peiping* 3: 123-220.

Ling Y. 1949. — Compositae Sinensis novae vel minuscognitae. II. *Contributions from the Institute of Botany. National Academy of Peiping* 6: 65-103.

Lipschitz S. (ed.) 1962. — Saussurea DC., *in* Flora of USSR. Vol. 27. Leningrad: 356-530.

Lipschitz S. 1964. — Ad cognitionem generis *Saussurea*, 1. *Novitates Systematicae Plantarum Vascularium* 1: 314-328 [in Russian].

Lipschitz S. 1966. — A contribution to the knowledge of the genus *Saussurea*, 2. *Botanicheskii Zhurnal* 51: 1494-1499 [in Russian].

Lipschitz S. 1971a. — *Novosti Sistematiki Vysshikh Rastenii*. Vol. 8. Moscow, Leningrad, 250 p.

Lipschitz S. 1971b. — *Saussurea romuleifolia* f. *pumila* Lipsch. *Byulleten' Moskovskogo Obshchestva Ispytatelei Prirody, Otdel Biologicheskii, Moscow* 76 (4): 79.

Lipschitz S. 1979. — Genus *Saussurea* DC. (Asteraceae). *Nauka, Sectio Leninopolitana, Leningrad*: 1-283 [in Russian].

Maximowicz C. J. 1881. — *Saussurea* species novae. *Bulletin de l'Académie impériale des Sciences de St.-Pétersbourg,* sér. 3, 27-28: 488-495. https://www.biodiversitylibrary.org/page/34582431

Pandey M. M., Rastogi S. & Rawat A. K. 2007. — *Saussurea costus*: botanical, chemical and pharmacological review of an ayurvedic medicinal plant. *Journal of Ethnopharmacology* 110 (3): 379-390. https://doi.org/10.1016/j.jep.2006.12.033

POWO 2022. — *The Plants of the World Online Database*. Available online: https://powo.science.kew.org/ (accessed on 1 January 2022).

Raab-Straube E. von. 2003. — Phylogenetic relationships in *Saussurea* (Compositae, Cardueae) sensu lato, inferred from morphological, Its and trnL-trnF sequence data,with a synopsis of *Himalaiella* gen. nov., *Lipschitziella* and *Frolovia*. *Willdenowia* 33: 379-402. https://doi.org/10.3372/wi.33.33214

Raab-Straube E. von 2017. — *Taxonomic Revision of* Saussurea *Subgenus* Amphilaena *(Compositae, Cardueae)*. Botanischer Garten und Botanisches Museum Berlin, Berlin, 274 p. (*Englera*; 34).

Stafleu F. A. & Cowan R. S. 1976. — *Taxonomic Literature: a Selective Guide to Botanical Publications and Collections with Dates, Commentaries and Types*. Volume I: A-G. *Regnum Vegetabile* 137. Bohn, Scheltema & Holkema, Utrecht. https://doi.org/10.5962/bhl.title.48631

Shih C. & Jin S. Y. 1999. — *Saussurea* DC., *in* Chen Y. L. & Shih C. (eds), *Flora Reipublicae Popularis Sinicae* 78 (2). Science Press, Beijing:1-213 [in Chinese].

Shih C. & Raab-Straube E. von 2011. — *Saussurea* Candolle, *in* Wu Z.Y. & Raven P. H. (eds), *Flora of China.* Vols 20, 21. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis: 56-149.

Smirnov S. V. 2004. — Notes on the genus *Saussurea* DC. (Asteraceae) in Altai. *Turczaninowia* 7 (4): 11-17 [in Russian].

Thiers B. 2016. — *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 1 Dec. 2021).

Tropicos 2022. — *Tropicos Database*. Missouri Botanical Garden. Available online: http://www.tropicos.org (accessed 1 January 2022).

Turland N. J., Wiersema J. H., Barrie F. R., Greuter W., Hawksworth D., Herendeen P. S., Knapp S., Kusber W. H., Li D. Z. & Marhold K. 2018. — *International Code of Nomenclature for Algae, Fungi, and Plants (Shenzhen Code) Adopted by the Nineteenth International Botanical Congress Shenzhen, China*, July 2017. Koeltz Botanical Books, Glashütten. https://doi.org/10.12705/Code.2018

Wang Y. J., Susanna A., Raab-Straube E. von, Milne R. & Liu J. Q. 2009. — Island-like radiation of *Saussurea* (Asteraceae: Cardueae) triggered by uplifts of the Qinghai-Tibetan plateau. *Botanical Journal of Linnean Society* 97 (4): 893-903. https://doi.org/10.1111/j.1095-8312.2009.01225.x

Wang Y. J., Raab-Straube E. von, Susanna A. & Liu J. Q. 2013. — *Shangwua* (Compositae), a new genus from the Qinghai-Tibetan Plateau and Himalayas. *Taxon* 62: 984-996. https://doi.org/10.12705/625.19

Wang Y. F., Li Q. J., Du G. Z. & Lian Y. S. 2014. — *Saussurea pseudograminea* sp. nov. (Asteraceae) from the Qinghai-Tibetan plateau, China. *Nordic Journal of Botany* 31: 1-5. https://doi.org/10.1111/j.1756-1051.2013.00200.x

WFO 2022. — *World Flora Online*. Available online: http://www.worldfloraonline.org (accessed on 1 January 2022).

Wu X. Y. 1985. — *Saussurea oligantha* Franch. var. *oligolepis* (Y. Ling) X.Y. Wu. *Flora Tsinlingensis* 1 (5): 361.

Xu B. Q., Hao G. & Xia N. H. 2013a. — *Saussurea wenchengiae* (Asteraceae), a new species from Qinghai, China. *Annales Botanici Fennici* 50: 83-86. https://doi.org/10.5735/085.050.0115

Xu B. Q., Xia N. H. & Hao G. 2013b. — *Saussurea bijiangensis* (Asteraceae), a new species from Yunnan, China. *Annales Botanici Fennici* 50: 103-106. https://doi.org/10.5735/085.050.0120

Xu B. Q., Hao G. & Xia N. H. 2013c. — *Saussurea haizishanensis* sp. nov. (Compositae, Cardueae) from Sichuan, China. *Nordic Journal of Botany* 30: 1-5. https://doi.org/10.1111/j.1756-1051.2012.01735.x

Xu L. S., Herrando-Moraira S., Susanna A., Galbay-Casals M. & Chen Y. S. 2019. — Phylogeny, origin and dispersal of *Saussurea* (Asteraceae) based on chloroplast genome data. *Molecular Phylogenetics and Evolution* 141: 106613. https://doi.org/10.1016/j.ympev.2019.106613

Xu R., Zhao L. Q. & Qing H. 2020. — *Saussurea yiwuensis* (Asteraceae), a new species from Xinjiang, China. *Annales Botanici Fennici* 57 (1-3): 159-161. https://doi.org/10.5735/085.057.0121

Yu W. B., Wang H. & Li D. Z. 2014. — Typification of sixteen plant names described by Franchet in 1891. *Plant Diversity & Resources* 36 (5): 590-594.

Zhang Y. Z., Rong T., Huang X. H., Sun W. G., Ma X. G. & Sun H. 2019a. — *Saussurea balangshanensis* sp. nov. (Asteraceae), from the Hengduan Mountains region, Sw China. *Nordic Journal of Botany* 37 (4): e02078. https://doi.org/10.1111/njb.02078

Zhang X., Deng T., Moore M. J., Ji Y., Lin N., Zhang H., Meng A., Wang H., Sun Y. & Sun H. 2019b. — Plastome phylogenomics of *Saussurea* (Asteraceae: Cardueae). *BMC Plant Biology* 19: 290. https://doi.org/10.1186/s12870-019-1896-6

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