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TYPIFICATION OF *CELTIS* (CANNABACEAE) NAMES DESCRIBED FOR ARGENTINA, BOLIVIA, AND PARAGUAY

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Abstract. Zamengo, H. B.; D. C. Chamorro, A. L. Gaglioti, D. E. Prado, L. C. Pederneiras & L. J. Oakley. 2023. Typification of *Celtis* (Cannabaceae) names described for Argentina, Bolivia, and Paraguay. *Darwiniana*, nueva serie 11(2): 485-489.

During the preparation of the treatment of the genus *Celtis* for the Neotropical region, some names from Argentina, Bolivia, and Paraguay were found in need of typification. In this context lectotypes are designated for six names (*Celtis tala* fo. *obtusata*, *Celtis tala* fo. *subtomentosa*, *Celtis tala* fo. *subpilosa*, *Celtis tala* fo. *velutina*, *Celtis williamsii*, and *Momisia flexuosa*) and second-step lectotypes for two names (*Momisia chichape* and *Momisia crenata*).

Keywords. Botanical nomenclature; Southern Cone; taxonomy; typification.

Resumen. Zamengo, H. B.; D. C. Chamorro, A. L. Gaglioti, D. E. Prado, L. C. Pederneiras & L. J. Oakley. 2023. Tipificación de nombres de *Celtis* (Cannabaceae) descriptos para Argentina, Bolivia y Paraguay. *Darwiniana*, nueva serie 11(2): 485-489.

Durante la preparación del tratamiento del género *Celtis* para la región neotropical, se constató que algunos nombres descritos para Argentina, Bolivia y Paraguay necesitan ser tipificados. En este contexto, se designan lectotipos para seis nombres (*Celtis tala* fo. *obtusata*, *Celtis tala* fo. *subtomentosa*, *Celtis tala* fo. *subpilosa*, *Celtis tala* fo. *velutina*, *Celtis williamsii* y *Momisia flexuosa*) y se llevan a cabo lectotipificaciones de segundo paso para dos nombres (*Momisia chichape* y *Momisia crenata*).

Palabras clave. Nomenclatura botánica; Cono Sur; taxonomía; tipificación.

INTRODUCTION

Celtis L. (Cannabaceae Martinov) was established by Linnaeus (1753) based on a previous description by Tournefort (1700). Members of the genus can be recognized mostly by the following morphological characters: monoecious trees or shrubs with alternate, trinervate leaves; inflorescences

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solitary or in pairs, bisexual or unisexual; calyx 5-merous; stamens 5, oppositisepalous; ovary 2-carpellate, uniovulate, stigma entire or bifurcate, and small drupes with petrous endocarp (Berg & Dahlberg, 2001; Zamengo et al., 2020; Chamorro et al., 2021; Zamengo et al., 2021). The genus is represented by ca. 64 species distributed in both hemispheres (Fu et al., 2022; POWO, 2023). Species of the genus were segregated into four subgenera by Planchon (1848): *Celtis* subg. *Celtis, C.* subg. *Mertensia* Planch., *C.* subg. *Solenostigma* (Endl.) Planch., and *C.* subg. *Sponiocelti*s Planch. For the recognition of subgenera, Planchon (1848) used the distribution of species (*Celtis* subg. *Celtis* in both hemispheres, *C.* subg. *Mertensia* endemic to the Neotropical region, *C.* subg. *Solenostigma* in Oceania, and *C.* subg. *Sponiocelti*s in the Caribbean) and morphological characters, the main ones being the absence (*C.* subg. *Celtis*, *C.* subg. *Solenostigma* and *C.* subg. *Sponiocelti*s) or presence of spines (*C.* subg. *Mertensia*) and the integrity (*C.* subg. *Celtis*, *C.* subg. *Solenostigma* and *C.* subg. *Sponiocelti*s) or division (*C.* subg. *Mertensia*) of the stigmatic lobes. All *Celtis* names described for Argentina, Bolivia, and Paraguay belong to subg. *Mertensia*.

In their review of *Celtis* subg. *Mertensia,* Berg & Dahlberg (2001) recognized six species [*C. brasiliensis* (Gardner) Planch., *C. chichape* (Wedd.) Miq., *C. ehrenbergiana* (Klotzsch) Liebm., *C. iguanaea* (Jacq.) Sarg., *C. loxensis* C.C. Berg., and *C. orthacanthos* Planch.]. However, subsequent contributions (Marchiori et al., 2005; Novara, 2009; Henrickson, 2010; Torres, 2011; Asmus et al., 2018; Zamengo et al., 2020; Chamorro et al., 2021; Zamengo et al., 2021) disagrees with Berg & Dahlberg' (2001) treatment and resurrected *C. pallida* Torr. var. *discolor* Hunz. & Dottori, *Celtis pallida* Torr. var. *pallida*, *Celtis sericea* Romanczuk, and *Celtis tala* Gillies ex Planch.

Despite the effort of previous taxonomic contributions, the articles mentioned above lack clarification of the nomenclature on a vast number of names belonging to subg. *Mertensia*. Thus, as part of taxonomic treatment of Neotropical *Celtis* taxa, the present article provides a nomenclatural revision of names described for Argentina, Bolivia, and Paraguay.

MATERIAL AND METHODS

All types were analyzed using JSTOR Global Plants database (https://plants.jstor.org/), and with necessary, viewing high-resolution images available in the databases of herbaria BM, CORD, G, GOET, JE, K, L, LIL, MPU, NY, P, S, US and Z (acronyms according to Thiers (2023)). Protologues were studied from the Biodiversity Heritage Library (https://www.biodiversitylibrary.org/). To proceed with the typifications, the rules of the ICN (Turland et al., 2018) were followed. In selecting lectotypes, whenever choosing between syntypes (Art. 9.6), the one that showed the best quality of preservation of the important diagnostic features of the taxon was selected.

Before introducing the lectotypifications needed, it should be stressed that Berg & Dahlberg (2001) mention holotypes for all names considered in this contribution. Nevertheless, these specimens cannot be considered as holotypes since they were not treated as such in the protologues. In addition, Berg & Dahlberg's (2001) indications of holotypes cannot be considered an inadvertent lectotypifications since their contribution was published after January 1, 2001 and, therefore, it does not satisfy Art. 7.11 of the ICN (Turland et al., 2018).

RESULTS

Typifications are organized by accepted species names (following Berg & Dahlberg, 2001; Asmus et al., 2018; Oakley & Prado, 2013; Chamorro et al., 2021; Chamorro, 2022) in alphabetical order, for which we also provide accounts of heterotypic synonyms in need of typification and their proper notes. Following the herbaria acronym is the barcode number or the herbarium registration number.

Celtis brasiliensis (Gardner) Planch., Ann. Sci. Nat., Bot., sér. 3, 10: 310. 1848. *Mertensia brasiliensis* Gardner, London J. Bot. 2: 339. 1843. TYPE: Brazil. Rio de Janeiro, "near [Pudade] at the head of the Bay of Rio. Organ Mountains", Mar 1837, *G. Gardner 347* (BM 013718813!. Lectotype designated by H. B. Zamengo et al., Phytotaxa 579(3): 211. 2023; isolectotype, K 000512924!).

Momisia crenata Wedd., Ann. Sci. Nat., Bot. sér. 3, 18: 195. 1852. *Celtis crenata* (Wedd.) Miq., Fl. Bras. (Martius) 4(1): 181. 1853. TYPE: Bolivia, Santa Cruz de La Sierra, XI-1845, fl. and fr., *H. A. Weddell 3579* (first-step lectotype, P, designated by C. Baehni, Candollea 7: 558. 1936; second-step lectotype, P 00089373!, designated here; isolectotypes, P 00089372!, P 06781652!).

Momisia flexuosa Wedd., Ann. Sci. Nat., Bot. sér. 3, 18: 195. 1852. *Celtis flexuosa* (Wedd.) Miq., Fl. Bras. (Martius) 4(1): 181. 1853. TYPE: Bolivia, La Paz, Prov. Yungas, XII-1846, fr., *H. A. Weddell 4421* (P 00089369! lectotype designated here; isolectotypes P 00089370!, P 00089371!).

Notes. Weddell (1852), when describing *Momisia crenata*, cites a collection he made in Santa Cruz de La Sierra, Bolivia (no. *3579*) without mentioning the herbarium in which the material he used to describe the species was lodged. Baehni (1936: 199) designated a first-step of lectotypification by mentioning that the "type" is found at P. However, three duplicates were located there. Thus, we designate the sheet P 00089373 as a second-step lectotype given that it best represents the morphological features mentioned in the protologue; additionally, it has more leaves and pistillate flowers than the others at P.

Weddell (1852), when describing *Momisia flexuosa*, cites a collection he made in La Paz, Prov. Yungas, Bolivia (no. *4421*) without mentioning the herbarium in which the material he used to describe the species was lodged. Three duplicates of *Weddell 4421* were located at P. In this context, we designate the P 00089369 as lectotype of the name given that it best represents the morphological features mentioned in the protologue; additionally, it has more leaves and pistillate flowers than the others at P.

Celtis chichape (Wedd.) Miq., Fl. Bras. (Martius) 4(1): 181. 1853. *Momisia chichape* Wedd., Ann. Sci. Nat., Bot. sér. 3, 18: 193. 1852. *Celtis chichape* (Wedd.) Miq., Fl. Bras. (Martius) 4(1): 181. 1853. *Celtis tala* Gillies ex Planch. var. *chichape* (Wedd.) Planch., Prodr. [A. P. de Candolle] 17: 191. 1873. *Celtis pubescens* (Kunth) Spreng. var. *chichape* (Wedd.) Baehni, Candollea 7: 201. 1936. TYPE. Bolivia, Santa Cruz de La Sierra, Cordillera, XII-1845, fr., *H. A. Weddell 3610* (first-step lectotype, P, designated by C. Baehni, Candollea 7: 202. 1936; second-step, P 00089374!, designated here; isolectotypes MPU 012441!, P 00089375!, P 00089376!).

Celtis tala Gillies ex Planch. fo. *obtusata* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 3: 348. 1903. TYPE: Paraguay, Concepción, IX-1903, fl., *É. Hassler 7295* (G 00412639! lectotype designated here; isolectotypes G 00412637!, G 00412638!, G 00412640!, LIL 391920!, MPU 017539!, NY 00335507!, P 00089386!, P 00722009!, P 00722010!).

Weddell (1852) cites a collection he made in Santa Cruz, Bolivia (no. *3610*) without mentioning the herbarium in which the original material was studied. Baehni (1936: 202) proceeded with a first-step lectotypification by mentioning that the "type" is found at P. However, three duplicates were located there. Consequently, we designate the P 00089374 as a second-step lectotype, as this is the specimen that best represents the morphology referred to in the protologue; besides, it has more leaves and fruits than the other specimens found at P.

Chodat & Hassler (1903) cites the collection *Hassler 7295* without mentioning the herbarium in which it was studied. Thirteen duplicates were located at G, LIL, MPU, NY, and P. Considering that Chodat and Hassler worked at G, we designated G 00412639, mounted in two sheets, as lectotype of the name. We chose this specimen because it is complete and in full agreement with the protologue.

Celtis iguanaea (Jacq.) Sarg., Silva 7: 64. 1895. *Rhamnus iguanaea* Jacq., Enum. Syst. Pl.: 16. 1760. *Ziziphus iguanea* (Jacq.) Lam., Encycl. 3: 318. 1789. *Celtis rhamnoides* Willd., Sp. Pl., ed. 4, 4: 998. 1806, nom. illeg. superfl. *Mertensia iguanaea* (Jacq.) Schult., Syst. Veg. ed. 15(bis) 6: 312. 1820. *Momisia iguanaea* (Jacq.) Rose & Standl., Contr. U.S. Natl. Herb. 16: 8. 1912. TYPE: Commelin, Horti Med. Amstelod 1: 141, tab. 73. 1697 (lectotype designated by D.O. Wijnands, Bot. Commelins: 198. 1983).

Celtis williamsii Rusby, Bull. New York Bot. Gard. 6: 497. 1910. TYPE: Boliva, La Paz, San Buenaventura, 30-XI-1901, fl., *R. S. Williams 603* (NY 00133652! lectotype designated here; isolectotypes BM 013732979!, K 000575984!, NY 00133651!, US 00089699!).

Note. Rusby (1910) mentions in the protologue that the material he used to describe *C. williamsii* is found at NY. However, two duplicates were located there, with no clues allowing us to ascertain to which of the sheets at NY he was referring to. In this context, we designate the specimen NY 00133652 as lectotype of the name since it is the only one containing pistillate flowers.

Celtis pallida Torr., Rep. U.S. Mex. Bound. [Emory] 2: 203, pl. 50. 1859. *Celtis spinosa* Spreng. var. *pallida* (Torr.) M.C. Johnst., S. W. Naturalist 2(4): 172. 1958. TYPE: Estados Unidos de América. Texas. Rio Grande, 1851-1852, *C. Wright 1858* [lectotype, NY 00259704!, designated by M. C. Johnston, Notes Southw. Naturalist 2(4): 172. 1957; isolectotypes, GH 00267590!, US 01185195!].

Celtis pallida Torr. var. **pallida**

Celtis tala Gillies ex Planch. fo. *subpilosa* Kuntze, Revis. Gen. Pl. 3[3]: 294. 1898. TYPE: Argentina, Santiago del Estero, Pinto, X-1892, fl., *C. E. O. Kuntze s.n.* (NY 00259705! lectotype designated here; isolectotype NY 00259706!).

Note. Kuntze (1898) cites a collection he made in Santiago del Estero, Argentina, without further reference. Two specimens identified by Kuntze as *C. tala* fo. *subpilosa* were located in NY in agreement with the protologue and location. Thus, we chose NY 00259705 as the lectotype of the name given that this specimen is in concordance with the protologue.

Celtis pallida Torr. var. **discolor** Hunz. & Dottori, Kurtziana 9: 130. 1976. *Celtis ehrenbergiana* (Klotzsch) Liebm. var. *discolor* (Hunz. & Dottori) Oakley & D.E. Prado, Rojasiana 12(1-2): 127. 2013. TYPE: Argentina. Catamarca. Dpto. Capayán. Sierra de Ambato, Quebrada de San Jerónimo, 5 km NW de Chumbicha, 19 Feb 1975, *A. T. Hunziker*, *R. Subils & N. Dottori 22774* [holotype CORD 00002282!, CORD 00002283!; isolectotype, MA 771388!].

Celtis tala Gillies ex Planch. fo. *subtomentosa* Kuntze, Revis. Gen. Pl. 3[3]: 294. 1898. TYPE: Argentina, Salta, Orán, IX-1873, fl., *P. G. Lorentz & G. H. E. W. Hieronymus 3* (NY 00335497! lectotype designated here; isolectotypes CORD 00006985!, GOET 011251!, K 000648638!, S-R 8974!).

Celtis tala Gillies ex Planch. fo. *velutina* Herzog, Meded. Rijks-Herb. 27: 72. 1915. TYPE: Bolivia, Tarija, zwischen Ipaguassú (=Ipaguazu) und Fortín d'Ordigny, 8-XI-1910, fl., *T. C. J. Herzog 1071* (L 1585868!, lectotype designated here; isolectotypes, JE 00021281!, S-R 8975!, Z 000028631!).

Note. Kuntze (1898) cites a collection made by Lorentz & Hieronymus (*s.n.*) in Oran, Salta, Argentina, without further reference. Five specimens identified were located CORD, GOET, K, NY, and S-R; of these we chose NY 00335497 as the lectotype of the name given that this specimen is in agreement with the protologue and location.

Herzog (1915) described *C. tala* fo. *velutina* based on three syntypes he collected in Bolivia: *Herzog 1071* (Bolivia, Tarija), *Herzog 1096* (Bolivia, Tarija, Río Pilcomayo), and *Herzog 1805a* (Bolivia, "Palo"). Four sheets linked to the syntype *Herzog 1071* were found at JE, L, S and Z. Concerning the other syntypes, no material was found. In this context, from among the material available for typification purposes, the sheet lodged at L is preferred because it shows the best quality of preservation of the diagnostic features of the taxon Thus, it is selected as lectotype of the name.

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