

# Typification of the Linnaean name *Rhamnus tinctoria*, the basionym of *Flueggea tinctoria* (Euphorbiaceae), an endemic plant to the Iberian Peninsula flora

P. Pablo Ferrer-Gallego

Servicio de Vida Silvestre y Red Natura 2000, Centro para la Investigación y Experimentación Forestal (CIEF), Generalitat Valenciana, Avda. Comarques del País Valencià 114, 46930 Quart de Poblet, Valencia, Spain.

**Author for correspondence:** [flora.cief@gva.es](mailto:flora.cief@gva.es)

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## Abstract

The name *Rhamnus tinctoria* was published in 1758 by Linnaeus in Loeffling's *Iter Hispanicum*. The work was published posthumously after Loeffling's death in Venezuela in 1756. Although Linnaeus received specimens from Loeffling's Iberian collections, several were lost, so Linnaeus relied on Loeffling's notes for these taxa. Since it was impossible to find original material of *Rhamnus tinctoria* in the various Linnaean and Linnaean-associated herbaria, a neotype has been designated for this Linnaean name. The neotype selected is a specimen preserved at MA, collected in central Spain (Talavera de la Reina, Toledo). This specimen belongs to the exsiccatum "*E. Bourgeau. Plantes d'Espagne*" (number 2492), which contains several duplicates (e.g., at P, barcodes P05595291, P05503187, P05502243).

**Keywords:** *Iter Hispanicum*, Loeffling, Linnaeus, neotype, nomenclature, Spain, tamujo.

## Resumen

### Tipificación del nombre linneano *Rhamnus tinctoria*, el basiónimo de *Flueggea tinctoria* (Euphorbiaceae), una planta endémica de la flora de la península ibérica

El nombre *Rhamnus tinctoria* fue publicado en 1758 por Linneo en el *Iter Hispanicum* de Loeffling. La obra fue publicada póstumamente tras la muerte de Loeffling en Venezuela en 1756. Aunque Linneo recibió ejemplares de las colecciones ibéricas de Loeffling, varios de ellos se perdieron, por lo que Linneo se basó en las notas de Loeffling para estos táxones. Dado que fue imposible encontrar material original de *Rhamnus tinctoria* en los diversos herbarios de Linneo que se han consultado, se ha designado un neotipo para este nombre. El neotipo seleccionado es un ejemplar conservado en MA, recolectado en el centro de España (Talavera de la Reina, Toledo), que pertenece al exsiccatum "*E. Bourgeau. Plantes d'Espagne*" (número 2492), que contiene varios duplicados (por ejemplo, en P, códigos de barras P05595291, P05503187, P05502243).

**Palabras clave:** *Iter Hispanicum*, Loeffling, Linnaeus, neotipo, nomenclatura, España, tamujo.



## Introduction

*Flueggea tinctoria* (L. in Loefl.) G.L. Webster (Euphorbiaceae) ( $\equiv$  *Rhamnus tinctoria* L. in Loefl.; basionym) (common name “tamujo”) is a dioecious shrub endemic to the Iberian Peninsula. It is distributed in scrub formations, mainly along rivers, in Portugal and western Spain. Complete descriptions of this plant were published by Webster (1984), Benedí (1997), López González (2001), and Ruiz de la Torre (2006). Despite its specific epithet “*tinctoria*”, this species is not a dyeing plant. The specific epithet is due to an error by Linnaeus, who inadvertently named the “*tamujo*” without knowing it (López González, 2001, 2011). In Spain, this species has been widely used for making brooms (López González, 2001; Blanco Salas *et al.*, 2018).

From a nomenclatural standpoint, this name has not yet been typified. In this paper, the name *Rhamnus tinctoria* is discussed and analyzed, proposing a solution to stabilize the use of the Linnaean name and its concept by designating a type in accordance with the *International Code of Nomenclature (Shenzhen Code, see Turland et al., 2018)*.

## Material and Methods

This work is based on the study of the protologue of the name *Rhamnus tinctoria*. The typification follows the International Code of Nomenclature of algae, fungi, and plants (ICN, Turland *et al.*, 2018). The designation of the type is based on the consultation of Linnaean and Linnaean-linked herbaria. The identity of the designated type is verified with the traditional concept and current usage of the name.

## Results and discussion

***Flueggea tinctoria*** (L. in Loefl.) G.L. Webster in *Allertonia* 3(4): 302. 1984  
 $\equiv$  *Rhamnus tinctoria* L. in Loefl., *Iter Hisp.*: 18, 25, 302. Aug (sero)-Dec 1758 [“*tinctorius*”] [basionym]  
 $\equiv$  *Securinega tinctoria* (L.) Rothm. in *Repert. Spec. Nov. Regni Veg.* 49: 276. 1940

**Neotype (designated here)**: Spain, Toledo, Talavera de la Reina, “sables aux bords du Tage près le pont de Talavera la Reina”, 16 April 1863, *E. Bourgeau [Plantes d’Espagne*” (number 2492)], MA (barcode MA-01-00074321).

(image of the neotype available at <https://imagenes.rjb.csic.es/herbarioV/visorVCat.php?img=MA-01-00074321>). **Iso-neotypes**: P05595291, P05503187, P05502243 (Figure 1).

The name *Rhamnus tinctoria* [“*tinctorius*”] was published in 1758 by Linnaeus in the Loeffling’s *Iter Hispanicum* (1758: 25, 302). Linnaeus was the editor of the book, which was based on Loeffling’s manuscript of Spanish material, and the validating description was derived from this manuscript. The work was published posthumously after Loeffling’s death in Venezuela in 1756 (see Dorr & Wiersema, 2010a, 2010b, 2010c; López González, 2011).

In 1751, at the invitation of Ferdinand VI (1713–1759), Linnaeus sent Pehr Loeffling (1729–1756; also Löfning) to Spain (see Loeffling, 1758: 3–6). Over the next two years, Loeffling studied and collected Iberian flora (Loeffling, 1766; Lucena Giraldo *et al.*, 1987; Tellería, 2007). In November 1757, Daniel Scheidenburg (1720–?), chaplain of the Swedish legation in Madrid, had some of Loeffling’s manuscripts copied and translated into Swedish, which were then sent to Linnaeus (González Bueno & Basante, 2015). These materials, along with the letters Linnaeus received from Loeffling, form the basis of the posthumous *Iter Hispanicum* (1758), which summarizes Loeffling’s botanical work in Spain, Portugal, and Venezuela (Tellería, 2007; Dorr & Wiersema, 2010a, 2010b, 2010c).



**Figure 1.** Isonetype of *Rhamnus tinctoria* L. in Loef., P (barcode P05503187). Image courtesy of the herbarium P, reproduced with permission.

**Figura 1.** Isonetipo de *Rhamnus tinctoria* L. in Loef., P (código de barras P05503187). Imagen cortesía del herbario P, reproducida con permiso.

The name *Rhamnus tinctoria* appeared as an entry in the “*Index Plantarum rarior. Hispanicarum*” (on the first page, 302), which Linnaeus, as editor, supplied to *Iter Hispanicum* (Loebling, 1758). The index entry (see Loebling, 1758: 302) references Loebling’s discussion on page 25, with a name “LYCIUM *quorundam Clusii*” and a paragraph in Swedish (see below). In addition, the phrase “*Rhamnus qui Lycium quorundam Clusii*” appears on page 18; and, therefore, both of which were associated with Carolus Clusius (see Clusius, 1576).

The *Iter Hispanicum* of Loebling does not provide a morphological description for this species, only noting that the flower is small “Mr. Minuart says that its flower is small”. However, the name *Rhamnus tinctoria* (on page 302) is validly published according to the rules of the *Shenzhen Code* (Turland et al., 2018), because Loebling’s phrase “LYCIUM *quorundam Clusii*” is linked to a description of this plant published by Clusius (1576: 71-72). The Swedish paragraph on page 25 of *Iter Hispanicum* reads (translated: “*Lycium quorundam Clusii*. I saw it the first year in abundance, but no sign of fruiting. Mr. Minuart says that its flower is small; I hope to see it next spring”).

Clusius (1576: 71-72) included the name “De Lycio quorundam. / CAP. XVII.” followed by a complete discussion of this plant in Latin. A rough translation of the Latin text is as follows: “It should be added that, in the upper parts, this shrub appears to have a very dense branching arrangement, with stems growing from the root, and in some cases, at right angles. The branches are larger, straight, beautiful, thin, and reddish, with many small twigs, most of which end in sharp thorns. However, some of its shoots are softer and shorter, sometimes oblong and strong, with many leaves, like the *Rhamnus primus*. The leaves have no defined order; they are thorny but much shorter than those of a myrtle or some type of boxwood. They have a thick texture, somewhat durable, with a slight touch of bitterness. I have not had the opportunity to see the flower or fruit of this plant. In November and at the beginning of spring, I found this shrub partially leafless. / I have observed this shrub near Complutum [Complutum was the ancient name for what is now Alcalá de Henares, Spain] and in other ancient places, on slopes and damp areas near streams, especially in areas commonly known as Extremadura, where it grows abundantly. / I still doubt whether this should be classified as *Lycium* or some other type. Some say it should be referred to as *Lycium*, and the people of Castile call it “tamujos” or “camuexos”, which are used as material for making brooms. It can also be used to make certain types of rods, as in ceramic kilns” (on page 71) / “Tamoxo. / CAETERUM, vox tamuëxo, It brings to mind a certain shrub that grows in uncultivated places, which the inhabitants call “tamoxo”. It is characterized by having a fibrous consistency, with many small twigs, whose leaves are so small and compact that the trunk cannot be distinguished. These leaves are gray-green in color and have an extremely bitter taste” (on page 72).

The lectotype of the name *Rhamnus tinctoria* must be selected from among Loebling’s Spanish material on which the validating description was based, if it exists. However, since Linnaeus (in Loebling, 1758) did not cite any illustrations in his account of *Rhamnus tinctoria*, no illustrations can be considered original material for this name. Webster (1984: 302) did not locate any original material for this name either, and he mentioned, “Reuter based his *Colmeiroa buxifolia* on specimens he collected near Alcalá de Henares, the same locality as that of Clusius. These specimens may serve as a sort of “topotype” for the species first collected by Clusius and finally given a binomial by Linnaeus”. Webster (1984: 304) included a specimen collected in 1901 by Ventura Reyes Prósper in Alcalá de Henares, Spain (MA 161880). An image of this sheet is available at <https://imagenes.rjb.csic.es/herbarioV/visorVCat.php?img=MA-01-00161880>.

However, Webster (1984) considered this specimen MA 161880 as a “topotype” of *Rhamnus tinctoria*. The term “topotype” is not defined in the *International Code of Nomenclature of algae, fungi, and plants* (ICN, Turland et al., 2018), and it has no official status. According to Thomas (1893) a “topotype” is a specimen collected at the exact locality where the original type was obtained. Webster’s type indication is confusing and therefore ineffective. However, can it be considered an inadvertent neo-typification? In my opinion no, because although the word “topotype” includes the term “type”, I do not believe there is a clear intention to typify Linnaeus’s by this author, as there is for other names in different sections of the article published by Webster (1984).

Loebling’s herbarium, which contained important specimens of plants collected during his expedition in the Iberian Peninsula, was lost due to an incident reported by Casimiro Gómez Ortega. According to a

letter he wrote, Gómez Ortega, who was in possession of the herbarium, lent it to a French botanist, but the botanist never returned it. This unfortunate event is significant because Loeffling's specimens, which were crucial for the validation of many scientific names published by Linnaeus in the *Iter Hispanicum* (1758), were lost in this exchange (see Cano-Maqueda & Talavera, 2011). This loss of original botanical material complicated the subsequent revision and validation of many species described by Loeffling.

There is no evidence that Linnaeus had access to Loeffling's specimens of *Flueggea tinctoria* when he edited the *Iter Hispanicum* (1758), although he did have specimens of other species from Loeffling's Iberian Peninsula collection. Thus, it seems that the interpretation of the name proposed by Loeffling could be based solely on his protologue. Unfortunately, I have not located any original specimens of *F. tinctoria* in the different Linnaean and Linnaean-linked herbaria.

## Conclusion

As an exhaustive search for original material of *Rhamnus tinctoria* failed to locate any extant specimens, a neotype is selected according to Art. 9.13 of the ICN (Turland *et al.*, 2018). I have located a well-preserved and complete specimen, with leaves and flowers, preserved at MA, with barcode MA-01-00074321. This material was collected by Eugène Bourgeau in 1863 in central Spain (Talavera de la Reina, Toledo province). It belongs to the exsiccatum "*E. Bourgeau. Plantes d'Espagne*" (number 2492), which contains several duplicates (e.g., at P, barcodes P05595291, P05503187, P05502243) (Figure 1). The specimen selected as the neotype was studied and identified by Webster in 1980; it matches unambiguously with the traditional concept and current use of the name (e.g., Webster, 1984; Benedí, 1997; López González, 2001; Ruiz de la Torre, 2006).

## Conflicts of interest

The author declares that he has no conflict of interest.

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