

Type designation of *Helianthemum juniperinum* (Cistaceae)

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Abstract

TYPE DESIGNATION OF *HELIANTHEMUM JUNIPERINUM* (CISTACEAE).— The nomenclatural type of the name *Helianthemum juniperinum* (basonym of *Fumana juniperina*) is discussed. A specimen included in Candolle's collection at Geneva Herbarium (G-DC) and collected in Tunisia is designated as the lectotype of the name.

Key words: *Fumana juniperina*; Lagasca; lectotype; Mediterranean region; nomenclature.

Resumen

DESIGNACIÓN DEL TIPO DE *HELIANTHEMUM JUNIPERINUM* (CISTACEAE).— Se discute el tipo nomenclatural del nombre *Helianthemum juniperinum* (basónimo de *Fumana juniperina*). Se designa como lectotipo del nombre un espécimen incluido en la colección de Candolle en el Herbario de Ginebra (G-DC) y recolectado en Túnez.

Palabras clave: *Fumana juniperina*; Lagasca; lectotipo; nomenclatura; Región Mediterránea.

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INTRODUCTION

The genus *Fumana* Spach (1836: 359) (Cistaceae) is one of the most diverse and least studied genera of the Cistaceae family with about 20 recognized species with high morphological diversity (Arrington & Kubitzki, 2003; POWO, 2024). This genus is still little known, and an in-depth taxonomic study is needed for the entire western Mediterranean area which represents the main center of diversification of this genus, especially the Iberian Peninsula,

where 13 species (six endemics) occur (Güemes & Molero, 1993; Carrió *et al.*, 2020).

Fumana juniperina (Lagasca ex Dunal) Pau (1904: 265) [basonym: *Helianthemum juniperinum* Lagasca ex Dunal (1824: 275)] is a chamaephyte species distributed in North Africa (Morocco, Algeria, and Tunisia), Italy, France, and Spain (Battandier & Trabut, 1888; Güemes & Molero, 1993, 2002; Conti *et al.*, 2005; Le Floch *et al.*, 2010; Tison *et al.*, 2014; APD, 2024; PFI, 2024). Phylogenetic analyses and morphological data

show that *F. juniperina* is close to *F. laevis* (Cav.) Pau (1901: 209) and *F. thymifolia* (L.) Spach ex Webb (1838: 69) (Molero & Rovira, 1987; Carrió *et al.*, 2020). This fact led various authors to recognise *F. juniperina* as synonym of *F. laevis* (see e.g., Raynaud, 1999; Fennane & Ibn Tattou, 2005), or only at infraspecific rank of *F. laevis* (Bentham, 1826; Willkomm, 1862, 1880; Nyman, 1878; Battandier & Trabut, 1888; Rouy & Foucaud, 1895; Pau, 1898; Grosser, 1903; Sampaio, 1947; Molero & Rovira, 1987; Güemes, 1992; Gamisans, 2006). In this sense, Gamisans (2006) mentioned “Le rang d’espèce attribué à ce taxon par Tison & al. (Candollea, 54: 401, 1999) à la suite de Güemes & Molero (Fl. Iberica, 3: 433–435, 1993) nous paraît largement exagéré” [The species rank assigned to this taxon by Tison & al. (Candollea, 54: 401, 1999) following Güemes & Molero (Fl. Iberica, 3: 433–435, 1993) seems to us to be largely exaggerated].

Concerning nomenclature, Molero & Rovira (1987: 529) mentioned as the type of the name *Helianthemum juniperinum* [recognized as *F. thymifolia* f. *juniperina* (Lagasca ex Dunal) Grosser (1903: 130)], a specimen preserved at MPU (“Typus: in MPU, herb. Dunal (n.v.)”).

Michel Félix Dunal (24 October 1789 in Montpellier – 29 July 1856 in Montpellier) was a French botanist and professor of botany in Montpellier, France; his herbarium and types are preserved at MPU (see Stafleu & Cowan, 1976). However, Molero & Rovira (1987) admitted that they have not seen the material (“(n.v.)” = *non vidi* = not seen), so they mechanically mentioned as type. Unfortunately, I have not been able to locate any original material of *H. juniperinum* in the herbarium MPU. As a consequence, two possible cases should be considered: (1) the specimen mentioned by Molero & Rovira (1987) preserved at MPU is lost, and (2) the specimen never existed or was preserved at MPU.

After an enquiry to the MPU herbarium, I have been informed that there is no preserved material that could be considered original and used by Dunal for describe his species (Caroline Loup, pers. comm.). Therefore, if the specimen is lost, I can apply the Art. 9.11 of *International Code of Nomenclature for algae, fungi, and plants* (ICN, see Turland *et al.*, 2018) and, if the specimen never existed, the typification by Molero & Rovira (1987) is

ineffective. Anyway, a typification of *H. juniperinum* is necessary.

Continuing my nomenclatural study of the Cistaceae names (Ferrer-Gallego & Laguna, 2012a, b; Ferrer-Gallego *et al.*, 2013a, b, c, 2015, 2020, 2021; Ferrer-Gallego, 2015a, b, 2021a, b; Ferrer-Gallego & Boisset, 2015), the type designation of the name *Helianthemum juniperinum* is investigated and discussed in this work as a good complement of the other published nomenclatural studies (Ferrer-Gallego, 2021a, b). The present type designation is made with the explicit purpose of stabilising the use of that name in the sense in which it has been and is being applied. For the nomenclatural purpose the name *Fumana bracteifera* Pau in Font Quer (1932: 450) is also investigated.

MATERIALS AND METHODS

This work is based on the analysis of the protologue, the examination of relevant literature, and on the study of the original elements. The identity of the designated type is verified with the current use of the name. The name in current use is set in bold italics typeface. The homotypic synonyms are indicated with the symbol $\equiv$; the heterotypic synonyms are indicated with the symbol $=$. Acronyms of the herbaria consulted are according to Thiers (2024).

RESULTS AND DISCUSSION

Dunal’s protologue (1824: 275–276) of *Helianthemum juniperinum* consisted of a description (“54. *H. juniperinum* (Lag! in litt.) caule suffruticoso adscendente ramoso, foliis lineari-subulatis ciliatis mucronatis planis margine subrevolutis oppositis, superioribus alternis, stipulis subulatis, superioribus longioribus, pedunculis racemosis calycibusque villosis-glutinosus”), followed by three annotations: 1) “in Galliâ australi, Italiâ, regno Tunetano. C. laevipes Durand! Gouan. fl. monsp. 263? C. mauritanicus Thib! ined.”; 2) “Barr. ic. t. 443”; 3) the diagnosis “Bracteae solitariae, lineares”; and 4) “(v.s.)” (*vidi siccum*, i.e., seen in herbarium sheet).

The reference of Barrelier (1714: ic. 443) refers to an illustration of “*Chamaecistus luteus* Thymi

folio polyanthos Seu maio” and can be considered as original element of the name *Helianthemum juniperinum*. This drawing illustrates as complete plant, and details of the leaves, flowers, fruits and seeds (Fig. 1). This image can be identified as belonging to a taxon of the *F. laevis* complex *sensu lato* based on the following characters: opposite leaves, linear to linear-lanceolate, acute; inflorescence with linear bracts and up to six flowers (see e.g., Molero & Rovira, 1987; Güemes & Molero, 1993; Raynaud, 1999; Tison *et al.*, 2014).

Among the herbarium material available to Dunal, a sheet that can be associated with *Helianthemum juniperinum* was fortunately found. The sheet is preserved in the Geneva Herbarium (included in Candolle’s collection; G-DC), with barcode G00208151, and bears a small stem, with

leaves, flowers and fruits, and a handwritten label, annotated by Lagasca as: “n. 36. / Helianth. juniperinum / Lag. / Helianth. suffruticosum patulum / stipulatum, foliis linearibus angustissimis, acutis, planis ciliatis, raemis / calycibusque villosoglanduliferis. / Cistus laevipes Durand - / Facie accedit. Cisto laevipes. L. Folia / fere Juniperi communis. – Plunta / 2-4-palmaris? / ex unico specimine à D. Phillippo / Durand dato. / Habitat Tuneti. Durand”. The label is also annotated on the base as “Lagasca 1819” (handwritten by Candolle). Philippe [l’abbé] Durand (1756–1832) was a French Priest and Botanist, collector of plants in Gibraltar, Morocco, and Spain.

I have not been able to locate any further original material. To note that the label of the sheet barcoded G00208151 is annotated “ex unico specimine à D. Phillippo / Durand”. Therefore, the only extant original material eligible for typification of the name *Helianthemum juniperinum* are the illustration of Barrelier (1714: ic. 443) and the specimen preserved at G-DC.

In conclusion, according to the Art. 9.12 (see Ex. 12) of *ICN*, occurrence in the protologue of syntypes have always precedence over illustrations in lectotype designation. Therefore, I designate as the lectotype of the name *Helianthemum juniperinum* the specimen G00208151 (Fig. 2). The information annotated on the label that accompanied the specimen match the protologue, and the specimen match with the traditional concept and current use of the name (e.g., lanceolate leaves, thickened margin, not revolute, acute; inflorescence up to five cm long, with triangular bracts and up to six flowers) (see e.g., Bentham, 1826; Willkomm, 1862, 1880; Nyman, 1878; Battandier & Trabut, 1888; Grosser, 1903; Pau, 1904; Sampaio, 1947; Güemes, 1992; Güemes & Molero, 1993, 2002; Tison *et al.*, 1999, 2014; Gamisans, 2006; Carrió *et al.*, 2008).

Finally, with the here proposed typification of *Helianthemum juniperinum*, the name is threatened by the previously published name by Linnaeus as *Cistus pilosus* (Linnaeus, 1753: 528). As *C. pilosus* predates *H. juniperinum*, the Linnaean name has priority. Therefore, in order to preserve the widely used name *F. juniperina*, a proposal under Art. 56 of the *ICN* (Turland *et al.*, 2018) to reject the obscure Linnaean name *C. pilosus* has been sent to



Figure 1. Original element of *Helianthemum juniperinum* Lagasca ex Dunal, illustration “Chamaecistus luteus Thymi folio polyanthos Seu maio” published by Barrelier (1714: ic. 443).

the Nomenclatural Committee for Vascular Plants (NCVP) (Ferrer-Gallego, 2024).

Fumana juniperina (Lagasca ex Dunal) Pau, Bol. Soc. Aragonesa Ci. Nat. 3: 265. 1904

≡ *Helianthemum juniperinum* Lagasca ex Dunal, Prodr. (A. P. de Candolle) 1: 275. 1824 [basionym]

≡ *Helianthemum glutinosum* var. *juniperinum* (Lagasca ex Dunal) Benth in Cat. Pyrénées: 85. 1826

≡ *Fumana viscidula* var. *juniperina* (Lagasca ex Dunal) Willkomm in Icon. Descr. Pl. Nov. 2: 160. 1862

≡ *Helianthemum thymifolium* var. *juniperinum* (Lagasca ex Dunal) Nyman in Consp. Fl. Eur.: 76. 1878

≡ *Fumana glutinosa* f. *juniperina* (Lagasca ex Dunal) Battandier in Battandier & Trabut, Fl. Algérie, Dicot.: 102. 1888

≡ *Fumana viscida* var. *juniperina* (Lagasca ex Dunal) Rouy & Foucaud in Fl. France 2: 313. 1895

≡ *Fumana thymifolia* f. *juniperina* (Lagasca ex Dunal) Grosser in H. G. A. Engler (ed.), Pflanzenr., IV, 193: 130. 1903

≡ *Fumana thymifolia* var. *juniperina* (Lagasca ex Dunal) Sampaio in Fl. Port, ed. 2: 205. 1947

≡ *Fumana laevis* subsp. *juniperina* (Lagasca ex Dunal) Güemes & Molero in Güemes, Anales Jard. Bot. Madrid 50: 135. 1992

≡ *Fumana thymifolia* subsp. *juniperina* (Lagasca ex Dunal) Gamisans, Candollea 61: 117. 2006

Lectotype (designated here): [Tunisia] Habitat in Tuneti, *Durand*, s.d. [Lagasca, 1809] (G barcode G00208151!, image available at <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=185494&base=img&lang=en>).

= *Fumana bracteifera* Pau in Font Quer, Exsicc. (Iter Marocc.) 1930: n° 450. 1932

Lectotype (designated by Molero & Rovira (1987: 529): [Morocco] Cuesta Colorata, 50 m, *P. Font Quer* “*Iter Maroccanum* 1930: 450”, 1 Apr. 1930 (BC 98415! [two herbarium sheets], image available at <https://www.ibb.csic.es/herbari/JPEG/BC98415.jpg>) “ejemplar del ángulo superior izquierdo: ‘Hab. in quercetis suberis juxta Cuesta Colorata, 50 m al, 1 apr. ’. ≡ *Fumana thymifolia* var. *bracteifera* (Pau) Font Quer, l.c.”. **Isolectotypes**: GDA no. 3195, MA no. 81850! [two herbarium

sheets], MPU barcode MPU006727!, S no. 07–8627!, S-G no. 2729!.

Note: *Fumana bracteifera* was described by Pau in *shedula* in the *Iter Maroccanum* 1930 (in Font Quer, 1932) (see also González Bueno, 1988: 131). The lectotype (BC no. 698415) is composed by two herbarium sheets. Molero & Rovira (1987: 529) mentioned that the lectotype is “ejemplar del ángulo superior izquierdo” [specimen on the upper left corner]. However, all material mounted in two herbarium sheets belonging to the same species. Therefore, there is no reason under Art. 8 of the ICN (see Turland *et al.*, 2018) to justify the choice of a single plant as the lectotype. Accepting these typifications means considering that, in the same herbarium sheet and “also in the same specimen”, a duplicate (in this case an isolectotype), has the same barcode that the lectotype. These confusing situations should be avoided, since if all herbarium material belongs to the same species and gathering, the complete specimen must be considered as the type, regardless of the selection and restriction made by the author who designates the type.

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