

TYPIIFICATION OF TWO CAVANILLESIAN NAMES IN THE GENUS *CISTUS* L. (*CISTACEAE*)

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ABSTRACT: The typification of the Cavanillesian names *Cistus strictus* and *C. linearis* (*Cistaceae*), is discussed. The designation of the nomenclatural type is based on the assessment of the protologue and the original elements used by the author to describe these species. The names are lectotypified using specimens preserved in the Royal Botanical Garden of Madrid at MA (Spain). **Keywords:** Cavanilles; *Helianthemum*; lectotype; nomenclature.

RESUMEN: Tipificación de dos nombres cavanillesianos en el género *Cistus* L. (*Cistaceae*). Se discute la tipificación de los nombres cavanillesianos *Cistus strictus* y *C. linearis* (*Cistaceae*). La designación de los respectivos tipos se basa en el análisis de los protólogos y los elementos originales utilizados por el autor para describir estas especies. Los nombres son lectotipificados utilizando ejemplares conservados en el herbario MA del Real Jardín Botánico de Madrid (España). **Palabras clave:** Cavanilles; *Helianthemum*; lectotipo; nomenclatura.

INTRODUCTION

The Old World genus *Helianthemum* Mill. (*Cistaceae*), constitutes a well-supported monophyletic group (GUZMÁN & VARGAS, 2009), that includes about 110 taxa of small herbs or subshrubs (at species and subspecies level) distributed in Macaronesia, N Africa, Europe, W and C Asia, with the higher diversity concentrated in the western Mediterranean, and particularly in the Iberian Peninsula (GREUTER *et al.*, 1984, LÓPEZ GONZÁLEZ, 1992, 1993, ARRINGTON & KUBITZKI, 2003, PAREJO-FARNÉS *et al.*, 2013). Some taxa first described by several authors in *Cistus* L., but currently included in *Helianthemum* Mill. (see BURTT & LEWIS, 1949, JAFRI, 1977, LÓPEZ GONZÁLEZ, 1992) are taxonomically very complex, and have already been typified in many cases (LÓPEZ GONZÁLEZ, 1992).

Antonio José Cavanilles described *Cistus strictus* Cav., Icon. 3: 32, tab. 263, fig. 2. 1795-1796 [inter 17-XII-1795 and 12-1-1796] and *Cistus linearis* Cav., Icon. 3: 8, tab. 216. 1795 (see below). These two names are currently treated as heterotypic synonyms of *Helianthemum violaceum* (Cav.) Pers., Syn. Pl. 2: 78. 1806 [≡ *Cistus violaceus* Cav., Icon. 2: 38, tab. 147. 1793]. *Helianthemum violaceum* is a very variable and diverse species, with a large number of synonyms (LÓPEZ GONZÁLEZ, 1993). It is distributed in C and W of the Mediterranean Region, Iberian Peninsula, France, Italy, Libya, Tunisia, Algeria, and Morocco (MAIRE, 1923; LÓPEZ GONZÁLEZ, 1993; LE FLOCH *et al.*, 2010; TISON *et al.*, 2014).

However, Linnaeus published in 1767 *Cistus racemosus* L. (Syst. Nat., ed. 12, 2: 368; Mant. Pl.: 76. 15–31 Oct 1767), a name also treated as the same identity and current concept that the plants described by Cavanilles as *C. violaceus*, *C. strictus* and *C. linearis*.

In summary, for the purpose of nomenclatural stability, a proposal to conserve the name *Cistus violaceus* Cav. against *C. racemosus* L. under Art. 14.1 of the *ICN* has been published by FERRER-GALLEGO (2021a).

Rejection of this proposal would have an undesirable consequence because the name *C. violaceus* would be included as a heterotypic synonym of the unknown and ignored Linnaean name *C. racemosus*, and therefore the well-known name *Helianthemum violaceus*, used in a large number of works, would need to be replaced by *Helianthemum racemosum* (L.) Desf. (Tabl. École Bot.: 153. 1804) a name little known and used.

Continuing our nomenclatural study of the *Cistaceae* names (see, e.g., FERRER-GALLEGO & LAGUNA, 2012; FERRER-GALLEGO *et al.*, 2013a, 2013b, 2020a, 2020b; FERRER-GALLEGO, 2015a, 2015b, 2020, 2021a, 2021b; FERRER-GALLEGO & BOISSET, 2015), the typifications of the names *Cistus violaceus* and *Cistus racemosus*, have been published by FERRER-GALLEGO (2021a), and in this paper I propose the lectotypification of the Cavanillesian names *C. strictus* and *C. linearis*. These typifications are based on the study of the protologues and consultation of Cavanilles's original material.

TYPIIFICATION OF THE NAMES

Cistus strictus Cav.

The protologue of *Cistus strictus* includes a description followed by a provenance “Florebat in monte Palomera mense Iunio”, and an excellent illustration of this plant and its explanation (CAVANILLES, 1795: 32, tab. 263, fig. 2). The drawing illustrates a plant with leaves and flowers, with several details of the leaves, stipules, flowers, and fruits (see fig. 1). Therefore, this illustration can be considered original material of *C. strictus*.

In the Cavanilles herbarium at MA there is an original specimen of this species, barcoded MA 475543. This specimen, with leaves and flowers, is accompanied by a label handwritten by Cavanilles “*Cistus strictus* / Icon. Tab. 263. f 2 / Palomera” (fig. 2). I have been unable to locate any further original material.

GARILLETI (1993: 151) indicated that the specimen

MA 475544 is a “Material tipo”. However, unfortunately this “typification” is ineffective being contrary to the Art. 7.11 of the *ICN* (see TURLAND *et al.*, 2018). GARILLETI (1993) explicitly stated in the introduction to his work that his aim was to study the Cavanilles Herbarium and no to designated types. He wrote: “Nuestro objetivo ha sido estudiar el herbario de A. J. Cavanilles, en ningún caso se ha concretado una lectotipificación de sus táxones” [Our aim was to study the herbarium of A. J. Cavanilles, in no case has materialized a lectotipification of his taxa] (GARILLETI, 1993: 5). Inadvertent lectotypifications were permitted and common before 2011, usually when a specimen mistakenly believed to be a holotype was by that statement accidentally designated as a lectotype (*ICN* Art. 9 Ex. 11). However, Garilleti’s work is unusual in bearing an explicit statement that the work was to contain no lectotypifications. Further, “type material”, as opposed to “type specimen,” could refer to one or multiple syntypes or original material, so does not indicate that a single specimen mentioned was considered to be *the* type. Therefore, subsequent authorities have interpreted his mentions of “type material” as not constituting effective typifications (see e.g., KNAPP in *Anales Jard. Bot. Madrid* 64: 195–203. 2007; BUIRA *et al.*, in *Anales Jard. Bot. Madrid* 72: e024. 2015; IAMONICO & VALDÉS in *Taxon* 66: 441–444. 2017). Because similar mentions were made for over 1000 taxa, if those were to be interpreted as unintended typifications, it would be very disruptive to nomenclature. Therefore, we follow established practice in considering that no effective designation of type has been made.

I designate as the lectotype of *Cistus strictus* the specimen with barcode MA00475543 (fig. 2). This material can be identified as belonging to *Helianthemum violaceum*.

***Cistus linearis* Cav.**

The protologue of *Cistus linearis* includes a complete description followed by the provenance “Habitat copiose in Cortes de Arenoso, et Lucena”, followed by two comments, an excellent illustration of this plant and its explanation (CAVANILLES, 1795: 8, tab. 216). The drawing illustrates a plant with leaves and flowers, with several details of the flowers, petals, fruits and seeds (see fig. 3). Therefore, this illustration can be considered original material of *C. strictus*.

In the Cavanilles herbarium at MA there are several relevant specimens (see GARILLETI, 1993: 151). The sheet with barcode MA 475324 bears a specimen with flowers, and an original label handwritten by Cavanilles “*Cistus linearis* / Cortes de Arenoso” (fig. 4). The sheet with barcode MA 475537 bears four fragments plant with flowers, and an original label handwritten by Cavanilles “*Cistus linearis* / Habitat in monte Palomera. / Julio 1792” (image available at <http://161.111.171.57/herbarioV/visorVCat.php?img=MA-01-00475537>). Finally, the sheet with barcode MA475538 bears two fragments plant with leaves and flowers, and two labels, a printed label “HERBARIUM HORTI BOTANICI MATRITENSIS / Cavanillesii Typi” and a revision label annotated by an unidentified author “*Cistus linearis* - Cav. Ic. / vol. 3. p. 8. tab. 216. / este es el typo legi- / timo”.

On the other hand, there is a specimen of this species belonging to the Cavanilles collection and preserved in the herbarium of the Real Colegio Alfonso XII of San

Lorenzo de El Escorial at RCAXII (see CARRASCO & PEREA, 2014: 158). The sheet RCAXII 4386 bears three fragments plant, with leaves and flowers, and a label handwritten by Mariano Lagasca “*Cistus linearis*. Cav.”.

In conclusion, among the specimens mentioned, I consider that the specimens MA 475324 and MA 475537, and probably RCAXII 4386 can be treated as original material. However, the specimen MA 475537 was annotated by Cavanilles as collected in another locality different from the one mentioned in the protologue. On the other hand, although the specimen MA 475324 lacks the collection date, Cavanilles visited Cortes de Arenoso before IX-1795 (see CAVANILLES, 1795: 90-91), and this specimen can be considered as original material and used by the author to describe *Cistus linearis*.

Among the elements mentioned, the Cavanilles’s illustration included in the protologue, and the specimens at MA and RCAXII, I designate as the lectotype of *Cistus linearis* the specimen MA 475324 (fig. 4).

***Helianthemum violaceum* (Cav.) Pers.**, *Syn. Pl.* 2: 78. 1806 (nom. cons. prop.; see Ferrer-Gallego in *Taxon*. 2021b)

≡ *Cistus violaceus* Cav., *Icon.* 2: 38, tab. 147. 1793

≡ *H. pilosum* var. *violaceum* (Cav.) Boiss., *Voy. Bot. Espagne* 2: 70. 1839

≡ *H. pilosum* subsp. *violaceum* (Cav.) Borja & Rivas Mart. in *Publ. Inst. Biol. Aplicada* 42: 117. 1967

≡ *C. apenninum* subsp. *violaceum* (Cav.) O. Boldó & Vigo in *Bull. Inst. Catalana Hist. Nat.* 38: 80. 1974

Lectotype (designated by Ferrer-Gallego in *Taxon*. 2021): [Spain] “Quart collibus” [perhaps Quart de les Valls (Valencia province)], March 1792, A.J. Cavanilles, MA (barcode MA00475544!) (fig. 5).

= *Cistus racemosus* L., *Systema Naturae*, ed. 12, 2: 368; *Mant. Pl.* 76. 1767; ≡ *Helianthemum racemosum* (L.) Desf., *Tabl. École Bot.*: 153. 1804; ≡ *H. variabile* var. *racemosum* (L.) Steud., *Nomencl. Bot.* ed. 2, 1: 736. 1840; ≡ *H. pilosum* var. *racemosum* (L.) Nyman, *Consp. Fl. Eur.*: 74. 1878; ≡ *H. strictum* var. *racemosum* (L.) Rouy in *Bull. Soc. Bot. France* 31: 74. 1884

Lectotype (designated by Ferrer-Gallego in *Taxon*. 2021): *Louis-Guillaume Le Monnier*, s.d., *Herb. Linn.* No. 689.56 (LINN [digital image!]) (image available at <http://linneanonline.org/6476/>).

= *Cistus strictus* Cav., *Icon.* 3: 32, tab. 263, fig. 2. 1795-1796 [inter 17-XII-1795 and 12-I-1796]; ≡ *Helianthemum strictum* (Cav.) Pers., *Syn. Pl.* 2: 79. 1806; ≡ *H. virgatum* var. *strictum* (Cav.) Ball in *J. Linn. Soc. Bot.* 16: 347. 1877; ≡ *H. pilosum* var. *strictum* (Cav.) Nyman, *Consp. Fl. Eur.*: 74. 1878; ≡ *H. pilosum* subsp. *strictum* (Cav.) Nyman, *Consp. Fl. Eur. Suppl.* 2: 43. 1889; ≡ *Helianthemum polifolium* var. *strictum* (Cav.) Rouy & Foucaud, *Fl. France* 2: 301. 1895; ≡ *H. thymifolium* var. *strictum* (Cav.) Pau in *Treb. Mus. Ci. Barcelona* 12: 360. 1929; ≡ *H. violaceum* var. *strictum* (Cav.) Samp. in *Bol. Soc. Brot. ser. 2* 7: 132. 1931

Lectotype (designated here): [SPAIN] Valencia, Palomera, A.J. Cavanilles, s.d., MA (barcode MA00475543!) (fig. 2).

= *Cistus linearis* Cav., *Icon.* 3: 8, tab. 216. 1795; ≡ *Helianthemum lineare* (Cav.) Pers., *Syn. Pl.* 2: 78. 1806; ≡ *H. pilosum* var. *lineare* (Cav.) Loisel., *Fl. Gall.* ed. 2, 1: 384. 1828; ≡ *H. pilosum* subsp. *Lineare* (Cav.) Nyman, *Consp. Fl. Eur. Suppl.* 2: 43. 1889; ≡ *H. polifolium* var. *lineare* (Cav.) Rouy & Foucaud, *Fl. France* 2: 301. 1895; ≡ *H. violaceum* var. *lineare* (Cav.) Samp. in *Bol. Soc. Brot. ser. 2*, 7: 132. 1931

Lectotype (designated here): [SPAIN] Castellón, Cortes de Arenoso, A.J. Cavanilles, s.d., MA (barcode MA 00475324!) (fig. 4).

ACKNOWLEDGEMENTS. Thanks to Dr. Mats Hjertson (UPS, Museum of Evolution, Botany Section, Uppsala University, Sweden), Eva García Ibáñez (MA, Royal Botanic Garden of Madrid, Spain) for the images of the herbarium sheets. Thanks to Dr. Ricardo Garilletei (Valencian University, Spain) for his help in the study of the Cavanilles herbarium. Thanks also to Dr. John Wiersema and Dr. John McNeill for their advice, assistance, and valuable comments.

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(Recibido el 10-II-2021)
(Aceptado el 28-IV-2021)



Fig. 1. Illustration of *Cistus strictus* Cav., Icon. 3: tab. 263, fig. 2. 1795.



Fig. 2. Lectotype of *Cistus strictus* Cav. (MA 475543). Image by courtesy of the Royal Botanic Garden of Madrid (Herbarium MA), reproduced with permission.



Fig. 3. Illustration of *Cistus linearis* Cav., Icon. 3: tab. 216. 1795.



Figure 4. Lectotype of *Cistus linearis* Cav. (MA 475324). Image by courtesy of the Royal Botanic Garden of Madrid (Herbarium MA), reproduced with permission.



Figure 5. Lectotype of *Cistus violaceus* Cav. (MA 475544). Image by courtesy of the Royal Botanic Garden of Madrid (Herbarium MA), reproduced with permission.