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On the nomenclature of *Chamaecytisus mollis* (Cav.) Greuter & Burdet (Fabaceae: Genisteae) and its distribution in the Canary Islands. Lectotypification of *Spartium molle* Cav. and *Cytisus albidus* DC.

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ABSTRACT

FRANCISCO-ORTEGA, J., M. FERNÁNDEZ-GALVÁN & A. SANTOS-GUERRA (1992). On the nomenclature of *Chamaecytisus mollis* (Cav.) Greuter & Burdet (Fabaceae: Genisteae) and its distribution in the Canary Islands. Lectotypification of *Spartium molle* Cav. and *Cytisus albidus* DC. *Candollea* 47: 1-9. In English, English and Spanish abstracts.

Both *Chamaecytisus mollis* (Cav.) Greuter & Burdet and *Cytisus albidus* DC. are valid names for this species endemic in Morocco. *Spartium molle* Cav. and *Cytisus albidus* DC. are here lectotypified. Herbarium specimens collected from cultivated plants in La Orotava Botanical Gardens and from one wild population in Tenerife in the 19th century suggested that this species could be part of the flora of the Canary Islands. However until further records are available the present status of *C. mollis* within the Canary flora is unknown.

RESUMEN

FRANCISCO-ORTEGA, J., M. FERNÁNDEZ-GALVÁN & A. SANTOS-GUERRA (1992). Sobre la nomenclatura de *Chamaecytisus mollis* (Cav.) Greuter & Burdet (Fabaceae: Genisteae) y su distribución en las Islas Canarias. Lectotipificación de *Spartium molle* Cav. and *Cytisus albidus* DC. *Candollea* 47: 1-9. En inglés, resúmenes en inglés y en español.

Tanto *Chamaecytisus mollis* (Cav.) Greuter & Burdet como *Cytisus albidus* DC. son nombres válidos para este endemismo de Marruecos. Se lectotipifica *Spartium molle* Cav. and *Cytisus albidus* DC. La existencia de pliegos de herbario recolectados en el siglo XIX, a partir de material cultivado en el Jardín de Aclimatación de La Orotava y de una población silvestre de Tenerife sugiere que esta especie pudo formar parte de la flora de las Islas Canarias. Sin embargo hasta que no aparezcan nuevas evidencias sobre su localización en las islas, la misma se debe considerar como de distribución desconocida.

Introduction

The genus *Chamaecytisus* (Fabaceae: Genisteae) comprises approximately 40 species which are found in Europe, the Near East, Morocco and the Canary Islands (POST, 1932; HEYWOOD & FRODIN, 1968; GIBBS, 1970; HANSEN & SUNDING, 1985; QUÉZEL, 1987). The centre with the highest taxonomic diversity occurs in the Balkans where there are more than 15 species (HEYWOOD & FRODIN, 1968). The number of species decreases from this area towards the rest of Europe, North Africa and Asia.

Within the tribe Genisteae, *Chamaecytisus* has been placed in the subtribe Genistinae (BISBY, 1981) where it forms part of what is known as "the *Cytisus* group" (ROTHMALER, 1944;

FRODIN, 1965; GIBBS, 1974; POLHILL, 1976; BISBY, 1981; CRISTOFOLINI & FEOLICHIAPELLA, 1984). The taxonomic position of the genus within this group has been confusing as there is only a single character which clearly differentiates *Chamaecytisus* from *Cytisus* (CRISTOFOLINI & FEOLICHIAPELLA, 1975); *Chamaecytisus* has a tubular calyx whereas *Cytisus* has a campanulate calyx. Nevertheless, after the "Working Party on Systematics of the Genisteae" held at the University of Southampton in 1977 it became accepted that *Chamaecytisus* was a distinct genus, separated from *Cytisus* (BISBY, 1981). In this paper these recommendations will be followed and it will be considered that *Chamaecytisus* is a separate genus within the "Cytisus group". However, as the controversy on the taxonomic validity of the genus *Chamaecytisus* may continue in the future we have also considered some aspects of the possible nomenclature within the genus *Cytisus*.

First reports on the occurrence of *Chamaecytisus* in Northern Africa were given by CAVANILLES (1801a) from material collected in Mogador, Morocco. He named this species *Spartium molle*. According to the protologue he based his description on material collected by the French botanist P. M. Broussonet in one of his expeditions to Northern Africa. Broussonet had a position as French Vice-consul in Mogador between 1797 and 1799, and he also visited Morocco in 1794 (MOTTE, 1970) so it remains uncertain in which year he collected the material studied by Cavanilles.

CAVANILLES (1801a, 1802) considered that the Linnean genera *Cytisus*, *Genista* and *Spartium* should be treated as one single genus: *Spartium*. Prior to the work of Cavanilles on Broussonet's collection from Northern Africa, the British botanist Salisbury changed the name of *Cytisus cajan* L. to *Cytisus mollis* Salisb. (SALISBURY, 1796). This name was validly and legitimately published and therefore has priority over later homonyms. The name *Spartium molle* Cav. is also legitimate as there are no previous reports on the use of this name by earlier taxonomists.

In 1803, and after his stay of four years in Tenerife as French commissioner of commercial relations, Broussonet was appointed director of Montpellier Botanical Gardens (MOTTE, 1970). Among the species which Broussonet introduced into the gardens, was material from his stay in the Canary Islands and Northern Africa (DE CANDOLLE, 1813). Nevertheless, in his catalogue of plants grown in these gardens for the year 1804 (BROUSSONET, 1805) there is no mention of any of the species he had previously collected in Morocco and the Canary Islands and which CAVANILLES (1801a, 1801b) described three years earlier.

In 1808 De Candolle succeeded Broussonet as director of the gardens. Five years later he published a new catalogue of the species grown there (DE CANDOLLE, 1813). In this catalogue, De Candolle gave as a new species the taxon previously described by CAVANILLES (1801a) as *Spartium molle*. He named it as *Cytisus albidus* with material from these gardens, and from its protologue it seems that De Candolle did not know Cavanilles' earlier description of this species. Neither was he aware of its actual range of distribution since it was given for "Europa australi?". This seems to be confirmed by the fact that later he proposed the new combination *Genista mollis* (Cav.) DC. for the species described by Cavanilles in 1801 (DE CANDOLLE, 1825).

Cytisus albidus DC. does not have any previous homonyms and therefore it is a legitimate name. However, *C. albidus* DC. is a taxonomic synonymy of *Spartium molle* Cav. Therefore, the specific epithet of the name *S. molle* Cav. has priority over that of *C. albidus* DC. This means that the combination *Chamaecytisus albidus* (DC.) Rothm. which was published by ROTHMALER (1944) is incorrect and cannot be used for this species (GREUTER & RAUS, 1989). In order to give a correct name to this taxon the combination *Chamaecytisus mollis* (Cav.) Greuter & Burdet was proposed in 1989 (GREUTER & RAUS, 1989).

According to EMBERGER & MAIRE (1941) the combination *Cytisus mollis* (Cav.) Pau was given by the Spanish botanist C. Pau in 1898. Despite an examination of the bibliography of C. Pau compiled by FONT-QUER & CUATRECASAS (1937), BELLOT (1942), DE BOLOS (1954), FERNÁNDEZ-GALIANO (1959), CARRASCO DE SALAZAR (1975), DE JAIME-LORÉN (1987), ESCRICHE-ESTEBAN (1987) and the taxon index compiled by CARRASCO DE SALAZAR (1977), we have found no mention of this combination in any of Pau's works. Nor is it in any of the issues of "The Index Kewensis", "The Kew Records of Taxonomic Literature" or "The Index Londinensis". Therefore, and until further information is available, it is considered that the

valid name for this combination is *Cytisus mollis* (Cav.) Pau in Jahandiez & Maire, as it is in the work of JAHANDIEZ & MAIRE (1932) where Pau is mentioned for the first time as the author who validly published it. However, if the taxonomist decides that this species should be part of the genus *Cytisus*, then it is not valid to use the name *Cytisus mollis* (Cav.) Pau as that is a homonym of *Cytisus mollis* Salisb. Consequently, in this case, he has to use the next valid published name, which is *Cytisus albidus* DC.

Therefore two different names can be used for this species depending on which genus it is placed in. If the taxonomist considers that it belongs to the genus *Cytisus* it will be *Cytisus albidus* DC., but if it is considered as part of *Chamaecytisus* then it will be *Chamaecytisus mollis* (Cav.) Greuter & Burdet.

Typification

The abbreviations given below have been used in the typification of the two names given by CAVANILLES (1801a) and DE CANDOLLE (1813). When there is more than one specimen in each herbarium sheet they are designed with upper cases (i.e. A, B...). Labels of each specimen are indicated with lower cases (i.e. a, b...).

- () Indications from the authors of this paper here.
- / Change to another line.
- // Change to another line with long space between them.
- loc. cl. Loco classico.
- ts. Typewritten text.
- impr. Printed text.
- prob. Handwriting assigned to one author.

1. *Spartium molle* Cav., Anal. Cienc. Nat. 4: 67, 1801.

loc. cl. Se cria en Mogador (leg. Broussonet).

Type material (syntypus)

- A. (MA 476370, herb. Cav., Fig. 1 in this paper).
- a) *Spartium molle* (prob. Cav.) / 60810 (impr. on the back) / anales Vol. 1 / ex Mogador. (prob. Cav.).
- b) (Drawing with flower details).
- c) Herbarium Horti Botanici Matritensis / Cavanillesi Typi. (impr.) / *Spartium molle* Cav. / Mogador (Marruecos) (ts.).
- d) HERB.HORT.REG.MATRIT. / 476370 / MA (stamped).
- e) Paper capsule enclosing leaf dissections.

Lectotypus

Specimen MA 476370, herb. Cav., Fig. 1 in this paper.

Typification

The specimen chosen as lectotype coincides with the loc. cl. of the protologue given by Cavanilles. There is no other specimen of *S. molle* in the Cavanilles collections held at G, LD, LINN, MO, P and UPS. Besides that the label seems to have been written by Cavanilles himself (BURDET, 1979) and it refers to the protologue as it states "anales Vol. 1". These data suggest that this specimen was the one which was collected by Broussonet in Mogador and which was the basis for Cavanilles' description of the species.

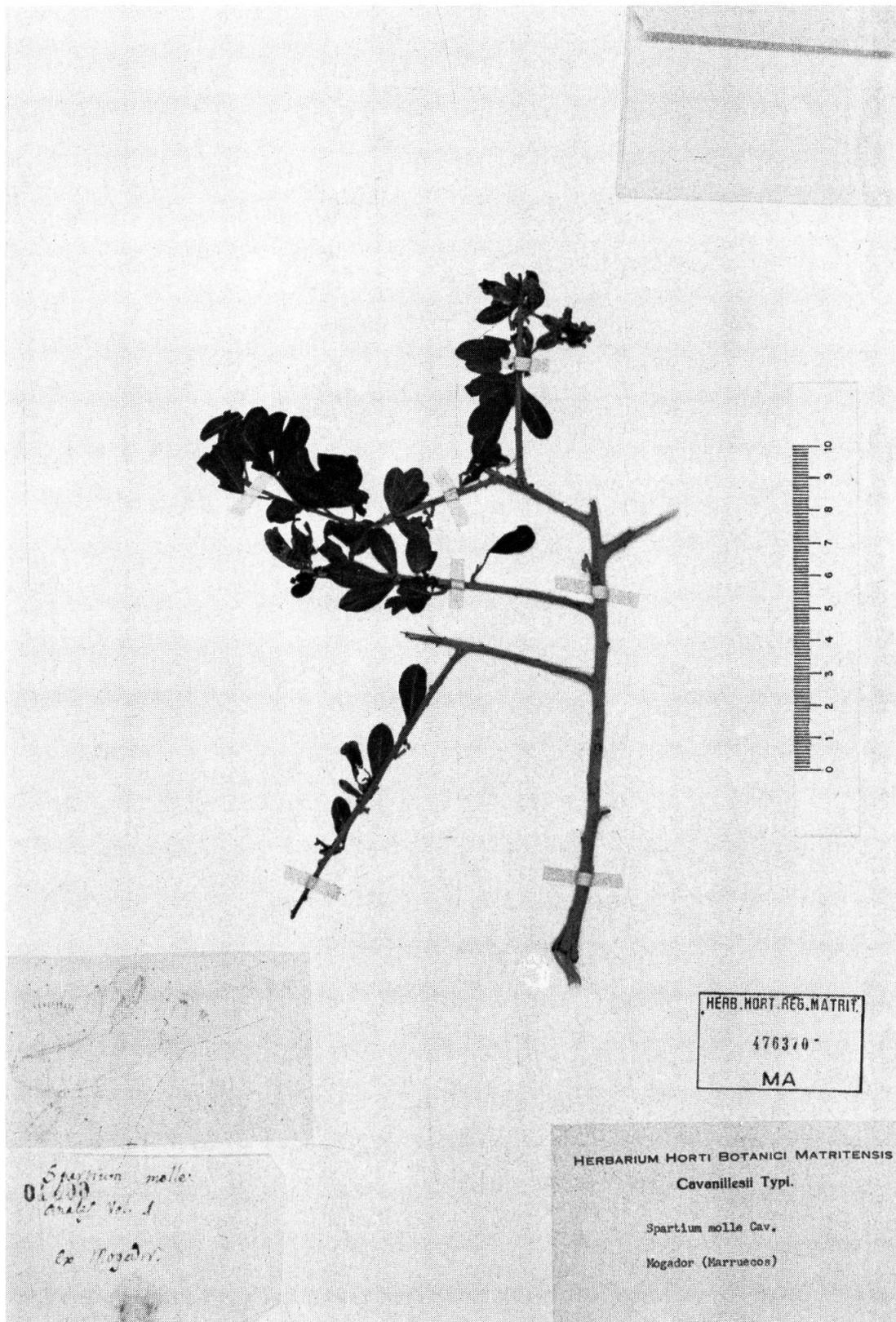


Fig. 1. — The lectotype of *Spartium molle* Cav. (MA 476370, herb. Cav.). (Photo: M. Velayos).

2. *Cytisus albidus* DC., Cat. Plant. Hort. Bot. Monspel.: 101, 1813.

loc. cl. Hab. in Europa australi? (ex Horti Botanici Monspeliensis).

Type material (syntypus)

- A. (G without number, herb. DC., Fig. 2 in this paper).
 a) *C. albidus* (prob. DC.) / (stamped with the symbol of poison).
 b) *Cytisus albidus* DC. // hort. M. 16 Mars. 1811 (prob. DC.).
 c) (stamped with the symbol of poison) / *Cytisus* / *albidus* / H. M. 25 aout (prob. DC.).

Lectotypus

Specimen A (G, without number, herb. DC., Fig. 2 in this paper, complete specimen on the right upper part).

Typification

It is the only specimen held at De Candolle's herbarium which follows the protologue. We have chosen specimen A, since its label states that it is "*Cytisus albidus*" which has been designated from material collected in Montpellier. It is assumed that the initials "H.M..." refers to Hortus Monspeliensis. The handwriting on the labels seems from A. P. De Candolle himself (BURDET, 1979).

Taxonomy

***Chamaecytisus mollis* (Cav.) Greuter & Burdet in Greuter & Raus, in Willdenowia 19: 31, 1989.**

Basionym: *Spartium molle* Cav., in Anal. Cienc. Nat. 4: 67, 1801.

Synonym: *Cytisus albidus* DC., in Cat. Plant. Hort. Bot. Monspel.: 101, 1813. — *Genista mollis* DC., in Prod. Syst. Nat. Reg. Veg. 2: 145, 1825. — *Cytisus mollis* (Cav.) Pau in Jahandiez & Maire, in Cat. Plant. Maroc 2: 363, 1932, nom. illegit.; non Salisb., in Stirp. Hort. Chap. Allert. Vig.: 330, 1796, nom. illegit.; nec Willd., in Enum. Plant. Hort. Reg. Bero. Supp.: 51, 1809, nom. illegit. — *Chamaecytisus albidus* (DC.) Rothm., in Fedd. Rep. Spec. Nov. Reg. Veg. 53: 143, 1944, nom. illegit.

***Chamaecytisus mollis* in the Canary Islands**

The species of *Chamaecytisus* from Morocco and the Canary Islands have been considered as relic elements of the flora which spread along the Mediterranean region during the Miocene (BRAMWELL & RICHARDSON, 1973; POLHILL, 1976). *Chamaecytisus pulvinatus* (Quézel) Raynaud has also been considered as endemic to Morocco (QUÉZEL, 1954) whereas *Chamaecytisus proliferus* (L. f.) Link has been regarded as an endemic to the Canary Islands (HANSEN & SUNDING, 1985). However, in 1841 *C. mollis* was reported as *C. albidus* in the Canary Islands by Webb & Berthelot (STEARNS, 1937). These two botanist regarded the species as extremely rare in the archipelago and they were able to record it only as one of the cultivated species of La Orotava Botanical Gardens. Nevertheless, WEBB & BERTHELOT (1841) clearly stated that these plants were previously sent to the founder of these gardens, Juan de Nava Grimón, by farmer peasants from a remote valley of the islands. Furthermore, they also mentioned that De Candolle's description of this species was based on material collected by Broussonet in the Canary Islands but cultivated in Montpellier. It is clear that Cavanilles described *S. molle* from plants found in Mogador by Broussonet. However there is a possibility that the plants cultivated in Montpellier Botanical Gardens were collected in Tenerife by Broussonet, who lived in this island just before he became director of this botanic garden (MARTINS, 1854). It is also possible that Broussonet himself introduced *C. mollis* in La Orotava Botanical Gardens from the material which he collected in Morocco.

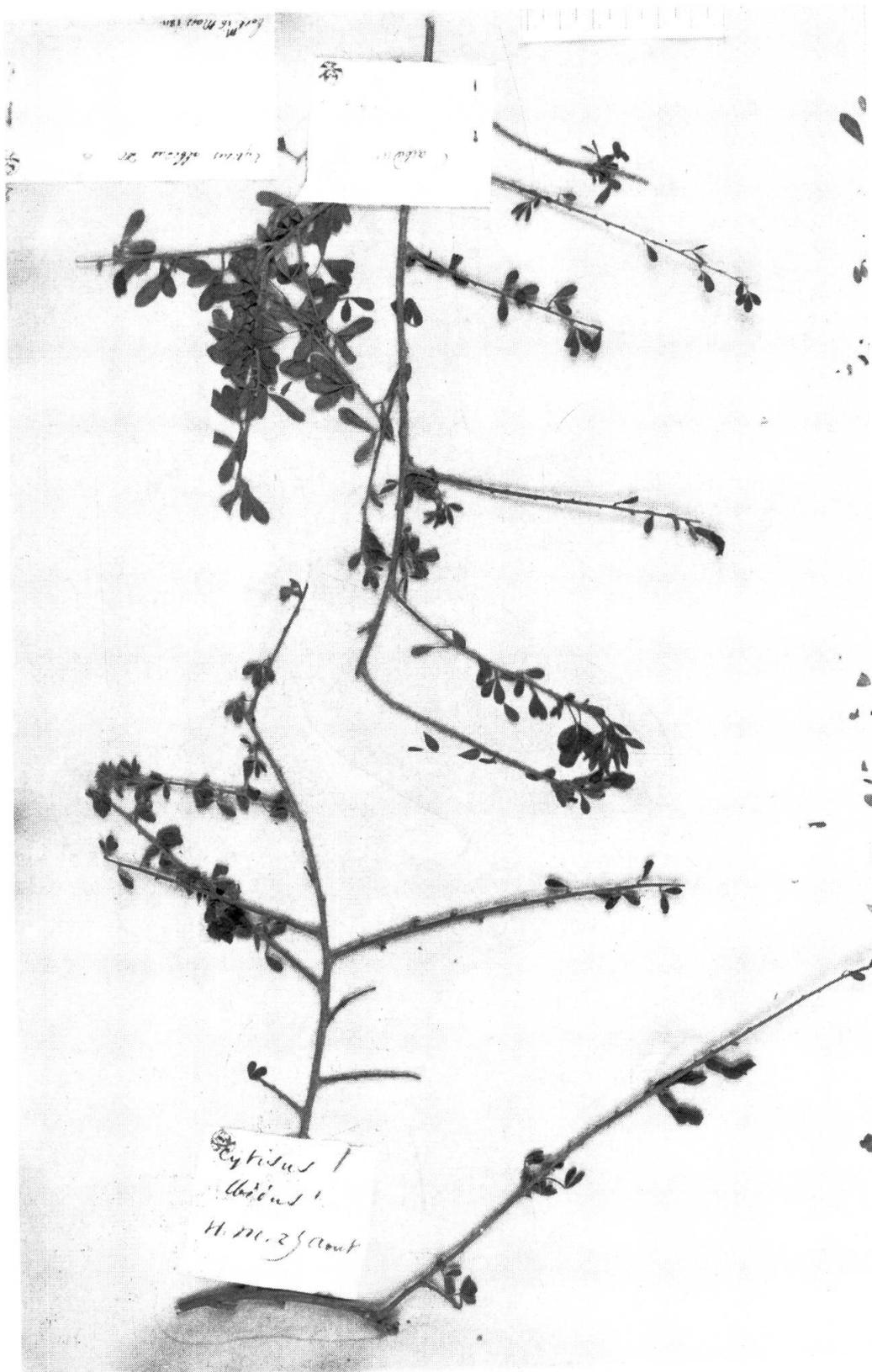


Fig. 2. — The lectotype of *Cytisus albidus* DC. (G without number, herb. DC.). The specimen placed on the right top was selected as lectotype. (Photo: H. M. Burdet).



Fig. 3. — Specimen of *Chamaecytisus mollis* (Cav.) Greuter & Burdet (= *Cytisus albidus* DC.) apparently collected in "Barranco de Montijo... Tenerife" which represents the only known evidence on the occurrence of this species in the wild in the Canary Islands. (K, herb. Hook., George Mann 2517).

We have found a total of eight different herbarium specimens of *C. mollis* from the plant(s) cultivated in La Orotava Botanical Gardens. These specimens are held at BM, F, G and K, of which the most recent is found in Firenze (F 040941, herb. Webb.). It was collected by the French botanist E. Bourgeau in 1855. The occurrence of this herbarium evidence appears to prove that *C. mollis* was one of the cultivated species of La Orotava Botanical Gardens during the first half of the 19th century. Nevertheless, it seems that shortly afterwards, the species disappeared from the gardens as BENÍTEZ DE LUGO & WILDPRET (1879) did not report it in its catalogue for the year 1878. Nowadays there are no vouchers of these plants in the herbarium of La Orotava Botanical Gardens.

Besides these few herbarium specimens from material cultivated in La Orotava Botanical Gardens there is another voucher which represents the only clear confirmation that this species existed in the wild in the Canary Islands. This specimen of *C. mollis* (Fig. 3) is held in the Herbarium Hookerianum at Kew. It has a label with the number 2517, and this specimen was collected at "Barranco del Montijo... Tenerife" by the English botanist George Mann in 1863 (POLHILL, pers. comm.). Whether this specimen was really collected in the wild or whether it also comes from La Orotava Botanical Gardens is uncertain. However, it represents the only real evidence which indicates that at least in the past this species might have been part of the Canarian flora.

These results suggest that the status of *C. mollis* within the Canary Island flora is similar to *Teline monspessulana* (L.) Koch. This species, also referable to Genisteae, was reported for Tenerife by Webb & Berthelot in 1842 as *T. candicans* Lam. (STEARN, 1937). However, the only confirmation on the occurrence of this species in Tenerife comes from one single herbarium specimen which was originally cultivated in La Orotava Botanical Gardens. This specimen was reported in Kew by GIBBS & DINGWALL (1971). Furthermore, these authors also found two other specimens with intermediate characters between *T. monspessulana* and the Canarian endemic *Teline canariensis* (L.) Webb & Berth.

The present distribution range of some of the Canarian endemics is unknown as they have not been reported again after their original descriptions. Examples of these endemics are *Solanum nava* Webb & Berth. in Gran Canaria and Tenerife (KUNKEL, 1977) or *Orobanche berthelotii* Webb & Berth. in Tenerife (BARRENO, 1984). Results shown in this paper suggest that it is likely that *C. mollis* has been one of the elements of the flora of the Canary Islands. However, until further evidence concerning its actual distribution in the archipelago is available this species should be considered either as extinct or as having an unknown status.

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