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Vicia sabinarum (Fabaceae) a new species from El Hierro Island (Canary Islands)

JAIME GIL GONZÁLEZ[1], JORGE ALFREDO REYES-BETANCORT[2], MANUEL LUIS GIL GONZÁLEZ[3], PEDRO AGUSTÍN PADRÓN PADRÓN[4] & RICARDO MESA COELLO[5]

[1] Centro de Agrodiversidad de La Palma. Cabildo Insular de La Palma
Finca Miraflores s/n, E-38700 Santa Cruz de La Palma
Santa Cruz de Tenerife, España
[2] Jardín de Aclimatación de La Orotava (ICIA)
C. Retama 2, 38400, Puerto de la Cruz, Santa Cruz de Tenerife, España
[3] Departamento de Ciencias Naturales, I.E.S. Tinajo, C. Montaña Tenésar, 1
35560 Tinajo, Las Palmas, España
[4] Cabildo Insular de El Hierro, C/XXII de febrero, 11
38900, Valverde, Santa Cruz de Tenerife, España.
[5] C. Francisco Bermúdez, 6, E-38500 Güímar, Santa Cruz de Tenerife, España
Author for correspondence: J. Gil González (jgil@gmx.fr)

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ABSTRACT: *Vicia sabinarum* J. Gil (Fabaceae), sp. nova of subgenus *Cracca* Peterm., sect. *Cracca* Dumort. is described and illustrated from the isle of El Hierro, Canary Islands, north-west of Africa. It is related to and compared with *Vicia aphylla* C. Sm. ex Buch, *Vicia nataliae* U. Reifenberger & A. Reifenberger and *Vicia voggenreiteriana* J. Gil, R. Mesa & M. L. Gil, three endemic species from the western and central group of the Canary Islands. A dichotomous key to all recognized Macaronesian endemic species of *Vicia* is proposed.

Key words: *Cracca* / Taxonomy / Western Canaries / Macaronesia / Africa.

RESUMEN: Se describe e ilustra *Vicia sabinarum* J. Gil (Fabaceae), sp. nova, nuevo endemismo de la isla de El Hierro, Islas Canarias, perteneciente al subgénero *Cracca* Peterm., sección *Cracca* Dumort. Se encuentra relacionada y es comparada con *Vicia aphylla* C. Sm. ex Buch, *Vicia nataliae* U. Reifenberger & A.

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Reifenberger y *Vicia voggenreiteriana* J. Gil, R. Mesa & M. L. Gil, tres especies endémicas de las islas centrales y occidentales del archipiélago Canario. Se propone una clave dicotómica para todas las especies endémicas macaronésicas del género *Vicia* reconocidas.

Palabras clave: *Cracca* / Taxonomía / Canarias Occidentales / Macaronesia / África.

INTRODUCTION

The genus *Vicia* L. (Fabaceae) is primarily distributed throughout the temperate zone of the Northern Hemisphere and non-tropical South America (Gunn, 1979; Leht, 2009). The number of species recognized in the genus ranges from about 140 accepted by Kupicha (1976) up to 210 estimated by Hanelt & Mettin (1989).

Until now, 10 species were considered to be endemic to the Macaronesian archipelagos: the probably extinct *Vicia dennesiana* H. C. Watson from Azores (Schäfer, 2005); *Vicia capreolata* Lowe and *Vicia ferreirensis* Goyder from Madeira (Goyder, 1994); *Vicia aphylla* C. Sm. ex Buch, *Vicia chaetocalyx* Webb & Berthel., *Vicia filicaulis* Webb & Berthel., *Vicia nataliae* U. Reifenberger & A. Reifenberger, *Vicia scandens* R. P. Murray, *Vicia voggenreiteriana* J. Gil, R. Mesa & M. L. Gil (incl. *Vicia tenoi* Marrero-Rodr.) and *Vicia vulcanorum* J. Gil & M. L. Gil from the Canaries (Acebes Ginovés *et al*., 2010; Gil *et al*., 2012; Gil *et al*., 2013; Gil *et al*., 2018; Gil, 2020).

During the field work in the isle of El Hierro for the Jardín de Aclimatación de La Orotava Seed Bank Project (ORT/S), financed by the Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria and FEDER funds (Project RF2007-00015), a sample of *Vicia* seeds was collected in the summer of 2009 in the evergreen forest of the El Golfo edifice, between Fuente de Tincos and Bco. de Las Esquinas (municipality of La Frontera) and labelled as *Vicia cirrhosa* C. Sm. ex Webb & Berthel. (= *V. aphylla* C. Sm. ex Buch) (ORT/S-0485). In order to incorporate them to the Digital Seed Atlas of the Canary Islands Project, a duplicate was stored in the Seed Reference Collection of the Centro de Agrodiversidad de La Palma (CAP/SRC-595).

Features of the seeds from El Golfo were very different from those of *V. aphylla* seeds (Leht, 2009; Gil *et al.*, 2012; Gil *et al,* 2013; Gil, 2020), the only endemic *Vicia* reported as present in the Island (Stierstorfer & Gaisberg, 2006); those related to seed shape and length and hilum shape and length were exceptionally different and only comparable to those previously reported for *V. voggenreiteriana* seeds (Gil *et al.*, 2013; Gil, 2020).

Figure 1. General view of type locality of *V. sabinarum*. In the background the dry green forest (*Visneo mocanerae-Arbutetum canariensis* Rivas-Martínez *et al.* 1993). El Camino del Risco de Jinama in the front.

In order to evaluate the stability and specificity of such characters, seeds removed from the original collection were sown in the Centro de Agrodiversidad de La Palma, together with eleven *V. aphylla* accessions from Tenerife, stored at CAP/SRC, TFMC & TFC and, also under very different edafoclimatic conditions, in the fields of the Asociación para la Defensa del Paciente Psíquico de la isla de Lanzarote (CRIBO), together with two *V. nataliae* and *V. voggenreiteriana* accessions stored at ORT/S and CAP/SRC [Table I].

Both, plants and seeds resulting from *ex horto* as those from the classical locus were checked in the herbaria B, FI, JE, ORT, TFC, TFMC, and CAP/SRC and against 'A Manual Flora of Madeira and The Adjacent Islands and Porto Santo and The Desertas.' (Lowe, 1868), 'Flora of Madeira' (Goyder, 1994), '*Flora Iberica*' (Romero Zarco, 1999), 'Nouvelle Flore de l'Algérie' (Quézel & Santa 1962), 'Flora of Lybia' (Jafri, 1980), 'Flora of Egypt' (Boulos, 1999) & 'Flora Palaestina' (Zohary, 1987). En-

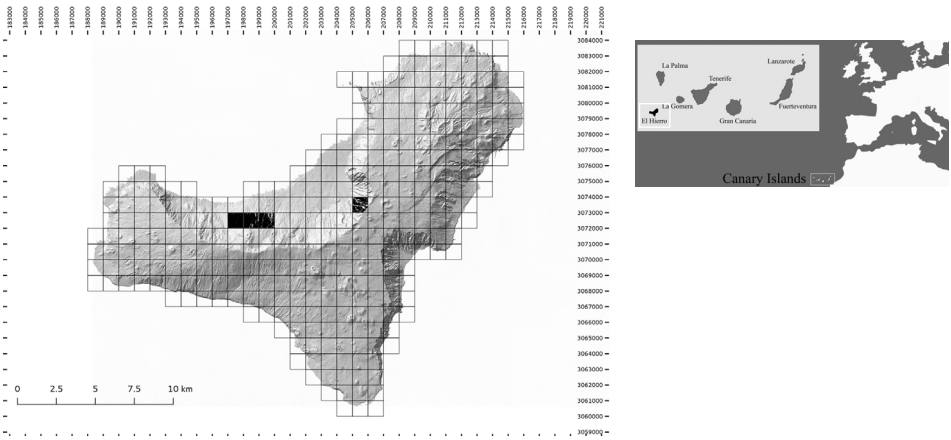

Figure 2. Map of El Hierro; highlighted the areas in the north of the island where *Vicia sabinarum* occurs.

demic *Vicia* (subgenus *Cracca*) from Morocco were carefully studied on the basis of their original descriptions, digitalized specimens provided by the herbaria of Universitat de Barcelona (BCN), Muséum National d'Histoire Naturelle (P) and Université Montpellier 2 (MPU) and 'Monographie et Iconographie du Genre *Vicia* L. au Maroc' (Raynaud, 1976).

As result of this work we concluded that seeds collected in the El Golfo edifice belong to a new species.

MATERIAL AND METHODS

All morphological data presented and used in the description of the new species were directly observed by the authors. Morphological characters traditionally used in the description of *Vicia* species were evaluated following Romero Zarco (1999) and Lersten & Gunn (1982). In order to determine their stability seeds gathered at the classical locus of the new species were sown at Centro de Agrobiodiversidad de la isla de La Palma (CAP) and Asociación para la Defensa del Paciente Psíquico de la isla de Lanzarote (CRIBO). Features of gross morphology were examined under a ZEISS Stemi 305 binocular stereoscopic microscope. Stylar features were photographed with a DSLR Nikon D300 attached with a LMscope C-Mount to a LEICA MZ95 binocular scope, using transmitted light. The new species was compared with *V. aphylla, V. nataliae* and *V. voggenreiteriana*.

Figure 3. *V. sabinarum* seeds nearly rhombic in outline due to the pressure from adjacent seeds in the legume.

RESULTS AND DISCUSSION

Vicia sabinarum J. Gil sp. nov. (Figures 3-8).

- *V. cirrhosa* C. Sm. ex Webb & Berthel. f. *latifolia* Bornm. in sched., nom. inval.

Holotype: Canary Islands, Isle of El Hierro, Risco de Jinama, 900 m a. s. l., 15.V.1901 *J. Bornmüller* (Holotype: JE 24482).
Paratype: Canary Islands, Isle of Lanzarote: *ex horto* El Huerto, Teguise, 13.II.2019, *J. Gil 7707* (TFMC).

Description. — Robust annual up to 3 m or more, intricately branched, predominantly glabrous or puberulous. Stem often turning red as soon as the first leaves

arise upon the plant; lower part of the main stem sometimes becoming lignified and thickened, up to 1 cm thick at the base (Figure 6); middle and upper parts slender, grooved, 2-keeled. Leaves soon deciduous in the lower part of the stem, subglabrous, paripinnate, 47–67.5 (–77.5) mm long (excluding the tendril), with (3) 4–5 pairs of alternate, remote leaflets, usually with branched (usually bi- or trifid) or simple (rare) terminal tendrils; leaflets 15–38.5 mm long, 1–8.3 mm wide, dark green on adaxial surface, deep greyed-purple on abaxial surface, broadly lanceolate to oblong-elliptic in the basal leaves, narrowly oblong-elliptic to linear-elliptic, almost linear, in the upper leaves, retuse, mucronate, short-petiolulated (0.5–0.75 mm), petiolule puberulous, often turning wine-red. The pair of stipules usually unequal in size and shape, one markedly smaller than the other; the larger ones, 2.2–2.4 mm, elliptic or semi-hastate, toothed, the smaller ones, minute, 1–1,5 mm, linear-lanceolate or semi-hastate, acute, all anthocyanin-pigmented. Racemes mostly confined to middle and upper parts of stems, (1–)5–13(–18)-flowered, not bracteolate or with minute (0.15–0.2 mm) scale-like bracteoles, usually not or very short aristate (awn *c.* 0.5–0.6 mm), shorter or longer than the subtending leaves, sometimes ± equalling the leaves, peduncles (21–)50–95(–108) mm long, sparsely puberulous. Flowers slightly pendent, 12.5–14.5 mm long; pedicels *c.* 1.35–2.4 mm long at anthesis, glabrous, usually tinged wine-red. Calyx 2.6–3.75 mm long, glabrous, slightly gibbous at base, turbinate, zygomorphic, with well-marked principal veins and fine unequal teeth, the two upper minute, much shorter than the tube, broad, acuminate, their points curving upwards, soon turning purple; intermediate and lowest almost equal, triangular, apiculate, about 1/3 as long as the tube. Corolla glabrous, *c.* 4 times as long as calyx, mostly white, tinged with pink; standard 13–13.65 mm long, pandurate with the limb curving upwards, deeply emarginated, with purple or indigo veins; wings about as long as standard, 13–14.4 mm long, lamina oblong, auriculate at base, claw very slender, a little shorter than the lamina, often tinged with pink at tip; keel shorter than wings, 9–10.5 mm long, lamina little shorter than the claw, dark purple at the apex, the latest minutely apiculate. Ovary bearing 8–10 ovules; style curved, laterally compressed, hairy chiefly beneath the stigma with eglandular spreading hairs. Legume glabrous, reticulate, cinnamon-brown to red-brown colored without distinctly pigmented sutures when mature, flattened, 51–62 mm long, 4.7–6.60 mm wide, 3.13–4.1 mm thick, linear, stipitate (stipe 3–3.5 mm long), cuneate at base, abruptly truncate at apex, twisting loosely during dehiscence, with (5) 8–10 seeds, usually compressed with each other while maturing. Seeds very variable in shape according to position on legume and presence/number of unfertilized or aborted ovules: rhombic in outline at the middle by pressure from

adjacent seeds in the legume (Figure 3) or compressed ellipsoid when seeds mature without pressure; subconical at basal end, compressed ellipsoid at distal end, dull, smooth, grey and ivory marble, densely mottled with black spots and small greenish brown dots, 4.73–6.22 mm long, 2.9–3.2 mm wide, 2–2.24 mm thick; hilum 2.2–2.65 mm long, oblong to linear, slightly cuneiform, extending 1/5–1/6 of seed circumference; lens inconspicuous, with raised center about 0.9–1.1 mm from hilum.

Etymology. — The new species has been named *V. sabinarum* both on account of Sabina V. Gil Peña and the emblematic species *Juniperus turbinata* Guss. subsp. *canariensis* (Guyot & Mathou) Rivas Mart., Wildpret & P. Pérez —locally known as 'sabina'—, botanical symbol of the Isle of El Hierro.

Phenology. — Herborised and photographed both in flower and fruit in March-July.

Distribution, ecology and habitat. — *V. sabinarum* is endemic to the Isle of El Hierro, the south-westernmost of the Canary Archipelago (Figure 1). The Canary Archipelago is located off the north-western coast of Africa and it is included in the biogeographical region of Macaronesia. *V. sabinarum* occurs mainly between 450–900 m a. s. l., in El Golfo embayment, in the north of the Island, both on the lavas that constructed the El Golfo edifice and posterior sedimentary formations, and on the lavas from younger volcanism that filled the embayment. Only two populations of this new species has been found so far, both of them with a low number of individuals: one along the El Camino del Risco de Jinama, inside the dry evergreen forest (*Visneo mocanerae-Arbutetum canariensis* Rivas-Martínez *et al.* 1993) (Figure 1); the other one along the way to El Pino de la Gobernadora, in the surroundings of El Espigón del Chisgo, in the clearances of the fayal-brezal (*Morello fayae-Ericetum arboreae* Oberdorfer 1965) developed on the lava fields created by the Tanganasoga volcano (Figure 2). The first population is away from inhabited nucleus or farming and shepherding areas, but the main threat to this plant is the massive flow of runners through the path that penetrate into the forest starting from the Mirador de Jinama and ending in Tigaday. The population above Los Llanillos is more vulnerable since it could be affected by clearances for new vineyard plantations and removal of vegetation in the road margins. It has been observed growing inside the structure of *Todaroa aurea* (Ait.) Parl. subsp. *suaveolens* P. Pérez, *Cistus monspeliensis* L., *Bituminaria bituminosa* (L.) C. H. Stirt., *Phyllis nobla* L., *Erica arborea* L., *Sonchus hierrensis* (Pit.) Boulos, *Rubus ulmifolius* Schott, *Juniperus turbinata* subsp. *canariensis*, *Visnea mocanera* L.f., and *Hypericum ca-*

nariense L., where it can reach 3 m or more. It can also grow sprawled over the surface of the ground in the shade of the trees but under these conditions it hardly completes its life cycle. Associated species are showed in Table II.

Conservation status. — *V. sabinarum* is rare and is known from few localities. For this reason, we propose CR D status (Critically Endangered, criteria "D") according to the IUCN (2001) Red List Categories. Although the two populations are included within the nature reserve network of El Hierro (Ley 4/2006 de modificación del Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias), the low number of individuals demands its urgent inclusion in a rescue programme to preserve the genetic diversity of this new species.

Similar species. — *V. sabinarum* belongs to subgenus *Cracca* Peterm, sect. *Cracca* Dumort., and it is characterized by having a platonychioid vexillum and the style laterally compressed and evenly hairy all round (Figure 5c). This new species of *Vicia* was herborised by many botanists in the past century: J. Bornmüller in 1901; C. J. Pitard in 1905; E. R. Sventenius in 1958, Santos in 1977 and Stierstorfer in 1998 (see *Additional specimens examined*), but most of this previous collectors ascribed this taxon to *V. aphylla* (sub *V. cirrhosa*), maybe, due to the lack of mature fruits and seeds at the moment of the herborisations. Only J. Bornmüller (1903) noted certain differences respecting *V. aphylla* s. s. and labelled its exsiccatum as *V. cirrhosa* f. *latifolia*. Bornmüller also reported several features as flower color —«floribus roseis»— and erratic number of flowers per raceme —«nunc racemis 1–2-floris nunc 10-floris». Sventenius labelled all its sheets at genus level except ORT-18925 that was labelled originally as *V. scandens*.

The most similar species are *V. voggenreiteriana*, from the isle of La Gomera and Tenerife (Gil *et al*., 2013; Gil, 2020), which usually has racemes with shorter peduncles (up to 50 mm long), flowers containing a limited number of ovules per ovary (up to 6) with the wings longer than the standard, and seeds usually not compressed with each other, and *V. nataliae* from the isle of La Gomera and Tenerife (Gil, 2020), which has longer flowers (15–17 mm long) with longer pedicels (3–4 mm long), campanulate calyces, peduncles almost always longer than the subtending leaf (sometimes twice as long) and shorter pods (40–50 mm long) containing smaller seeds (3–3.5 mm long) provided with shorter hilums (1.7–2.1 mm). Table III summarizes the characters differentiating these three species and *V. aphylla*. Figure 8 illustrates legume features from seven endemic *Vicia* (subgenus *Cracca*, sect. *Cracca*) from Canary Islands.

Figure 4. Holotype of *V. sabinarum* [Risco de Jinama, El Hierro, Canary Islands, 900 m a. s. l., 15/V/1901, *J. Bornmüller 2256* (JE 24482)].

Figure 5. Floral features in *V. sabinarum*: a. Inflorescense in the field; b. Floral dissection on dry flower; c. Hairy style; d. Dry gynaecium.

Figure 6. Thickened and lignified main stem of *V. sabinarum*. Scale bar: 5 cm.

Figure 7. Reddish stem of *V. sabinarum* soon after the seedling stage.

Additional specimens examined. — *Vicia aphylla* C. Sm. ex Buch: Canary Islands, Tenerife: s.l., s.d., *Chr. Smith s.n.* (neo-: C [C10022099]); Adeje, Bco. del Infierno, 700 m a. s. l., 23/III/1962, *E. R. Sventenius s.n.* (ORT17730); Güímar, El Escobonal, Bco. Laja de Herques, 23/III/1981, *O. Rodríguez s.n.* (TFC12778); Arico, Bco. de Tamadaya, 1400 m a. s. l., 13/IV/1990, *Mesa Coello s.n.* (TFMC2870); Güímar, La Medida, Bco. del Calvario, 24/II/1991, *Mesa Coello s.n.* (TFMC2911); Arico, Bco. de Icor, 3/III/1991, *Mesa Coello s.n.* (TFMC3064); Granadilla, Malpaís de Chimiche, 150 m. a. s. l., 4/IV/1993, Mesa Coello *s.n.* (CAP/SRC650); Adeje, al sur de Las Moraditas, 350 m a. s. l., 13/II/2002, *J. A. Reyes-Betancort, S. García Ávila & M. V. Cabrera Lacalzada s.n.* (TFC49912); Arico, Bco. de Vijigua, 400 m a. s. l., 8/III/2011, *Mesa Coello* s.n. (BC913549); Adeje, Tijoco Alto, 23/III/2011, *J. Gil et al.* (BC877437); Arico, Bco. de la Magdalena, 8-10/IV/2011, *Mesa Coello s.n.* (BC918152); Arico, Bco. de Tama-

daya, 15/VI/2011, *Mesa Coello, J. Gil & A. Álvarez s.n.* (CAP/SRC093); Arico, Bco. del Río, 19/IV/2012, *Mesa Coello s.n.* (CAP/SRC*571*); Adeje, Tijoco Alto, c. 1000 m a. s. l., 27/IV/2013, *S. J. Lamdin-Whymark s.n.* (CAP/SRC626); Bco. del Pozo, c. 800 m a. s. l., 30/IV/2013, *S. J. Lamdin-Whymark s.n.* (CAP/SRC690); Bco. de Erques, c. 450 m a. s. l., 1/V/2013, *S. J. Lamdin-Whymark s.n.* (CAP/SRC665); Adeje, Bco. del Infierno, c. 400 m a. s. l., 20/V/2013, *Mesa Coello, s.n.* (CAP/SRC726); Arona, El Cabuquero, ?/IV/2014, *S. Scholz s.n.* (CAP/SRC700). *Vicia capreolata* Lowe: Archipelago of Madeira, Madeira: Pico Grande, 6/VI/1837, Lemann *s.n.* (FI/HW049858); Ribeiro Frio, 6/VII/1962, E. R. Sventenius s.n. (ORT1081). *Vicia denessiana* H. C. Watson: Archipelago of Azores, St. Michael, ?/?/184?, *T. C. Hunt s.n.* (FI/HW049940). *Vicia ferreirensis* Goyder: Archipelago of Madeira, Porto Santo: Pico de Ana Ferreira, ?/IV/1940, *Costa s.n.* (MADM2523); ibidem, 100 m a. s. l.,19/III/2007, *L. Medina et al. s.n.* (MA757844); Pico de Ana Ferreira, 4/V/2017, *G. García Díaz* s.n. (CAP/SRC588). *Vicia filicaulis* Webb & Berthel. Canary Islands, Gran Canaria: La Aldea de San Nicolás, Bco. de La Aldea, 250 m a. s. l., 21/IV/1990, *Mesa Coello s.n*. (TFMC2717); La Aldea de San Nicolás, Chira, 2/V/2010, *Mesa Coello s.n*. (CAP/SRC594bis); Ayagaures, 19/V/2010, *Mesa Coello s.n.* (TFMC/6471); Bco. Arguineguín, 450 m a. s. l., 19/V/2010, *Mesa Coello s.n.* (BC913551); Montaña del Cedro, 500 m a. s. l., *Mesa Coello* (CAP/SRC744); Degollada del Mulato, 9/III/2013. *J. Ojeda Cáceres, M. L. Gil & J. Gil, s.n.* (CAP/SRC640). *Vicia nataliae* U. Reifenberger & A. Reifenberger: Canary Islands, La Gomera: Agulo, Mocanal, 21/IV/1961, *E. R. Sventenius s.n.* (ORT6461); Hermigua, Taguluche, Los Poyatones, sobre Fuente Mocanera, 13/VIII/1968 *E. R. Sventenius s.n.* (ORT6471); Hermigua, Taguluche, El Rincón, 7/VI/1970, *E. R. Sventenius s.n.* (ORT6476) Vallehermoso, Tamargada, Lomo de La Culata, 350 m a. s. l., 11/II/1996, *U. Reifenberger & A. Reifenberger* s.n. (holo-: TFC [TFC41356]); Agulo, camino real de Agulo a Las Rosas, 29/III/1996, *Mesa Coello & J. P. Oval* s.n. (TFMC/7704); Agulo, inmediaciones del túnel de Agulo, 28/IV/1996, *Mesa Coello s.n.* (CAP/SRC320); Agulo, entre el túnel y Las Rosas, *J. A. Reyes-Betancort et al. s.n.* (ORT/S 0516); Vallehermoso, Cumbre de La Culata, 25/II/203, *D. Scriba s.n.* (TFMC6993). *Vicia sabinarum* J. Gil: Canary Islands, El Hierro, Riscos de Jinama, in regione silvatica, 700 m a. s. l., 1/IV/1905, *C. J. Pitard* 149 (P03148089); Jinama, 11/V/1949, *E. R. Sventenius s.n.* (ORT18914-18925); Camino al Tinco [sic], 450 m a. s. l., 8/IV/1958, *E. R. Sventenius s.n.* (ORT18906); Camino de la Fuente Tincos, 600 m a. s. l., 8/IV/1958, *E. R. Sventenius s.n.* (ORT18909); Bosques de *Visnea* sobre Los Llanillos, 21/IV/1977, *A. Santos Guerra s.n.* (ORT24644); Mirador-Wanderweg, bei Fuente Tincos, 800 m a. s. l., 14/V/1997, *Christian Stierstorfer 219* (*B10 0246193*); 225m 250ºWSW Wegeinfahrt, 570 m a. s. l., 6/VII/1998, *Christian Stierstorfer 698* (B10 0246197); Camino de Jinama, 23/II/2004, *M. A. Padrón Mederos s.n.* (TFC45334);

Entre la Fuente de Tincos y el Bco. de Las Esquinas, 2/VII/2009, *M. A. Padrón Mederos s.n.* (ORT/S0485). *Vicia scandens* R. P. Murray: Canary Islands, Tenerife: Güímar, Fuga Cuatro Reales, Cabeceras del Bco. de Badajoz, 1050-1100 m a. s. l., 16/V/1981, *Wildpret, P. L. Pérez & del Arco s.n.* (TFMC1440); Güímar, 3/V/1984, *Mesa Coello s.n.* (CAP/SRC582); Güímar, Ladera de Güímar, 1000 m a. s. l., 12/IV/1991, *Mesa Coello s.n.* (TFMC3080); Santa Úrsula, altos del pueblo, 24/VII/1993, *Mesa Coello s.n.* (CAP/SRC581); La Orotava, La Caldera, Pista de Benijos, 16/VII/2013, *A. Álvarez s.n.* (CAP/SRC321); La Orotava, *M. L. Gil s.n.*(CAP/SRC616). *Vicia voggenreiteriana* J. Gil, R. Mesa & M. L. Gil: Canary Islands, Isle of La Gomera, Alajeró, Bco. de Guarimiar (canal), 10/V/2010, *Mesa Coello s.n.* (CAP/SRC149bis); Alajeró, Bco. de Guarimiar (canal), 630 m a. s. l., 27/IV/2013, Mesa Coello, C. Hérnández Montañez & M. L. Gil *s.n.* (holo-: TFMC [TFMC6872]); Tenerife, Buenavista, Masca, La Fortaleza, ?/IV/2018, B. Rodríguez (TFMC7703). *Vicia vulcanorum* J. Gil & M. L. Gil: Canary Islands, Lanzarote: Haría, Malpaís de La Corona, 9/IV/2011, *M. L. Gil s.n.*

Figure 8. Dry legumes in all Canarian endemic *Vicia* species of subgenus *Cracca* sect. *Cracca*. Scale bar: 5 cm. From left to right: *V. sabinarum* [TFMC7707], *V. voggenreiteriana* [CAP/SRC149bis], *V. nataliae* [TFMC7890)], *V. aphylla* [CAP/SRC150bis], *V. scandens* [CAP/SRC321], *V. filicaulis* [CAP/SRC751], and *V. vulcanorum* [CAP/SRC146bis)]. Scale bar: 5 cm.

(holo-: TFMC [TFMC*6429*]); Haría, Malpaís de La Corona, 27/IV/2011, *J. Gil s.n.* (TFMC6430-32); Haría, Malpaís de La Corona, 8/III/2014, *J. Gil & R. García s.n.* (CAP/SRC146); Teguise, Rincón de La Paja, 17/IV/2015, *J. Gil s.n.,* (CAP/SRC146bis). Fuerteventura: Pájara, Bco. de Los Canarios, 300 m a. s. l., 10/IV/2007, *S. Scholz s. n.* (TFC47976); La Oliva, Malpaís de La Oliva, ?/I/2013, *L. Sánchez-Pinto s.n.* (TFMC6945); La Oliva, Malpaís de La Arena, 13/I/2013, *J. Gil & M. Peña s.n.* (TFMC7467); Pájara, Jandía, Bco. de Los Canarios, 6/IV/2016, *S. Scholz s.n.* (CAP/SRC009bis)

Key to the Macaronesian endemic species of *Vicia*.

1. Stipules with a nectariferous dark spot on abaxial surface. Inflorescence almost sessile, 1(2)-flowered ..... *V. chaetocalyx*
-. Stipules without a nectariferous dark spot. Inflorescence distinctly pedunculate, up to 30-flowered 2
2. Leaves of fertile part with up to 10 pairs of leaflets ..... *V. dennesiana*
-. Leaves of fertile part with up to 6 pairs of leaflets 3
3. Wings longer than the standard, distinctly protruding beyond the standard before the anthesis 4
-. Wings about as long the standard, the later enclosing the wings before the anthesis 5
4. Racemes usually much longer than the subtending leaf (sometimes twice as long or more). Ovary with up to 12 ovules, hilum less than 1.5 mm long, usually comprising 1/7–1/10 of the circumference of the seed, ... *V. aphylla*
-. Racemes shorter than or about equalling the subtending leaf. Ovary with up to 6 ovules, hilum usually more than 1.5 mm long, usually comprising 1/5–1/7 of the circumference of the seed, ... *V. voggenreiteriana*
5. Calyx hairy, intermediate teeth nearly equaling the tube ..... *V. scandens*
-. Calyx glabrous or sparsely pubescent. Intermediate teeth shorter than calyx ... 6
6. Flowers small, rarely longer than 12 mm. Length/width relationships of legume < 8.5 7
-. Flowers rarely shorter than 12 mm. Length/width relationships of legume > 8.5 9
7. Racemes longer than or about equalling the subtending leaf, 7–15-flowered. Hilum almost completely covering the ventral side of the seed ..... *V. capreolata*
-. Racemes usually shorter than the subtending leaf, 1–5(7)-flowered. Hilum covering about 1/2–2/3 of the ventral side of the seed 8
8. Leaflets truncate-emarginate. Corolla tinged with pale blue. Seeds 4.5–5.4 mm long; hilum linear, covering about 1/4–1/5 of the circumference ..... *V. ferreirensis*

-. Leaflets mucronate. Corolla tinged with pale pink. Seeds 3.3–4.3 mm long; hilum linear-oblong, covering about 1/6 of the circumference..... *V. vulcanorum*
9. Leaflets in 1-3 (4) pairs, constantly filiform. Hilum usually less than 1.5 mm long, comprising 1/8–1/9 of the circumference, ... *V. filicaulis*
-. Leaflets in (3) 4-5 pairs, very variable in outline in the same plant, Hilum usually more than 1.5 mm long, comprising 1/5–1/6 of the circumference 10
10. Stem usually turning red soon after the seedling stage, leaflets more or less greyed-purple-coloured on abaxial surface, dark green on adaxial surface. Flowers 12.5-14.5 mm long; calyx turbinate ..... *V. sabinarum*
-. Stem not turning reddish soon after the seedling stage, leaflets green on both sides. Flowers 15-17 mm long; calyx campanulate ..... *V. nataliae*

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Table I.

Species	*Loc.*	*Leg. & Dat.*	*Reference*
V. aphylla	Tenerife, Arico, Bco. de Tamadaya	*Mesa Coello, J. Gil & A. Álvarez*, 15/VI/2011	CAP/SR093
V. aphylla	Tenerife, Güímar, Punta Prieta	*M. L. Gil*, 10/III/2013	CAP/SRC750
V. aphylla	Tenerife, Guía de Isora, Bco. de Guairia	*S. Lamdin–Whymark*, 5/V/2013	CAP/SRC618
V. aphylla	Tenerife, Adeje, Taucho	*S. Lamdin–Whymark*, 24/IV/2013	CAP/SRC733
V. aphylla	Tenerife, Bco. del Pozo	*S. Lamdin–Whymark*, 30/IV/2013	CAP/SRC690
V. aphylla	Tenerife, Buenavista, El Fraile	*M. L. Gil*, 25/III/2013	CAP/SRC675
V. aphylla	Tenerife, Arafo, Bco. de Añavingo	*J. Gil*, ?/?/2013	CAP/SRC100
V. aphylla	Tenerife, Arico, Bco. Alonso	*R. Barone & F. Hernández*, 27/IV/2013	TFMC6814
V. aphylla	Tenerife, Buenavista, Montaña de Taco	*V. Lucía Sauquillo*, 23/V/1995	TFC-39422
V. aphylla	Tenerife, Arico, Ensenada de Montaña de Abades	*F. Hernández, sine data*	CAP/SRC069
V. aphylla	Tenerife, Bco. de Erques	*S. Lamdin–Whymark*, 1/V/2013	CAP/SRC665
V. nataliae	La Gomera, Agulo	*J. A. Reyes-Betancort et al.,*	ORT/S-516
V. voggenreiteriana	La Gomera	*R. Mesa Coello*, 10/V/2010	CAP/SRC149bis

Table II.

Associated species	*Camino del Risco de Jinama population*	*Camino al Pino de La Gobernadora population*
Apollonias barbujana	•	-
Erica arborea	•	•
Ilex canariensis	•	-
Juniperus turbinata subsp. canariensis	•	•
Morella faya	•	•
Visnea mocanera	•	-
Andryala pinnatifida cf. subsp. *webbii*	•	-
Asparagus umbellatus subsp. *umbellatus*	-	•
Bituminaria bituminosa	-	•
Bystropogon canariensis	-	•
Canarina canariensis	-	•
Cistus monspeliensis	•	-
Crambe feuilleei	•	-
Cytinus hypocistis	•	-
Dracunculus canariensis	•	-
Euphorbia lamarckii subsp. *broussonetii*	•	-
Hypericum canariense	•	•
Jasminum odoratissimum	•	-
Pericallis murrayi	•	•
Phyllis nobla	•	-
Rubia fruticosa subsp. *fruticosa*	-	•
Rubia fruticosa subsp. *periclymenum*	•	-
Rubus ulmifolius	-	•
Rumex lunaria	•	•
Rumex maderensis	-	•
Sonchus hierrensis	•	•
Dioscorea communis	•	•
Teline stenopetala subsp. *microphylla*	•	-
Todaroa aurea subsp. *suaveolens*	•	-
Asphodelus ramosus	-	•
Cynosurus echinatus	•	-
Drusa glandulosa	•	•
Foeniculum vulgare subsp. *piperitum*	-	•
Fumaria coccinea	•	•
Galium sp.	•	-
Galium scabrum	-	•

→

Associated species	*Camino del Risco de Jinama population*	*Camino al Pino de La Gobernadora population*
Geranium cf. *molle*	•	•
Geranium purpureum	•	-
Mercurialis canariensis	•	•
Oxalis pes-caprae	•	•
Parietaria debilis	-	•
Phelipanche nana	•	•
Pteridium aquilinum	-	•
Silene vulgaris	-	•
Aeonium arboreum subsp. *holochrysum*	•	-
Aeonium canariense subsp. *christii*	•	•
Aichryson laxum	•	-
Asplenium hemionitis	•	-
Hemionitis marantae	-	•
Asplenium aureum	•	-
Davallia canariensis	•	•
Polypodium macaronesicum	•	•

Table III.

Characters	*V. sabinarum*	*V. voggenreiteriana*	*V. aphylla*	*V. nataliae*
Number of leaflet pairs per leaf	3–5	(1–)3–4	2–4	2–4
Leaflet apex shape (mostly...)	mucronate	apiculate	apiculate	obtuse
Leaflet length (mm) measured in the fertile part of stem (max.)	–36.5	–42	–43	–18
Number of flowers in a raceme	(1–)5–13 (–18)	(1–)4–8 (–10)	(1–)7–14 (–18)	3–18
Flower length (mm) measured in fresh flowers	12.5–14.5	14.3–14.5	13–15	15–17
Legume length (mm)	51–62	(22–)45–54.1	(33–)39–53	40–50
Legume width (mm)	4.7–6.22	(4–)4.5–5.6	2.9–4.35	4–5
Number of seeds per pod	(5–)8–10	(2–)3–6	(6–)8–12	6–9
Seed shape	(sub)rhombohedral / compressed ellipsoid	(sub)rhombohedral	(sub)cuboidal / subovoidal	compressed ellipsoid
Seed length (mm)	4.73–5.31	2.95–6	1.8–3.25	3–3.5
Hilum shape	oblong to linear	linear	oblong / cuneiform	Oblong to linear
Hilum length (mm)	2.2–2.65	1.5–2.5	0.6–1.23	1.7–2.1
Hilum length relative to the length of the seed circumference	1/5–1/6	1/5–1/7(–1/8)	1/7–1/10	1/5
Lens distance to hilum (mm)	0.9–1.1	0.7–1,8	0.5–0.9	0.5–0.9