

Ononis catalinae (Fabaceae), a new species from Canary Islands

J. Alfredo Reyes-Betancort^{1,*} & Stephan Scholz²

¹⁾ Jardín de Aclimatación de La Orotava (ICIA), C/Retama 2, 38400 Puerto de La Cruz, Tenerife. Canary Islands, Spain (*corresponding author's e-mail: areyes@icia.es)

²⁾ Casa Sick-Esquinzo, E-35626 Jandía, Fuerteventura. Canary Islands, Spain.

Received 11 May 2007, revised version received 31 July 2007, accepted 2 Aug. 2007

Reyes-Betancort, J. A. & Scholz, S. 2008: *Ononis catalinae* (Fabaceae), a new species from Canary Islands. — *Ann. Bot. Fennici* 45: 215–219.

Ononis catalinae Reyes-Betancort & Scholz *sp. nova* (Ononideae, Fabaceae) is proposed as a new species with a distribution restricted to the eastern Canary Islands of Lanzarote and Fuerteventura. Its morphological, biogeographical and ecological features are discussed, together with its relationship to, and differences from, the other species of *Ononis* subsect. *Biflorae*.

Key words: Fabaceae, new species, *Ononis*, taxonomy

The genus *Ononis* contains around 75 species distributed throughout Europe, the Atlantic islands and the Mediterranean, eastwards through western Asia to Iran and, in East Africa, south to Ethiopia (Boulos 1999). Until now four species were recognised in *Ononis* subsect. *Biflorae*: *O. biflora*, *O. hebecarpa*, *O. polysperma*, and *O. zygantha* (Širjaev 1932, Maire & Wilzeck 1935, Maire 1936, 1941). Of those *O. hebecarpa* occurs in the Canary Islands where it is endemic (Webb & Berthel 1842, Bramwell & Bramwell 1990, Acebes *et al.* 2004). *Ononis hebecarpa* was described on the basis of material collected from the Famara massif in northern Lanzarote, on cliffs near the way down to El Río in front of La Graciosa islet (cf. Webb & Berthel 1842). Due to its annual habit and morphological characteristics, such as 2-flowered primary branches of the inflorescence, this species has been included in the subsection *Biflorae* (Širjaev

1932). The smooth seeds of the species were used by Širjaev (1932) to define a monotypic series *Laeves* within subsection *Biflorae*.

Ononis hebecarpa was regarded as a Lanzarote endemic until Burchard collected it in Fuerteventura on the western slopes of the Jandía massif (Burchard 1929), after which it has been considered an eastern Canary Islands endemic (Burchard 1929, Kunkel 1977, Bramwell & Bramwell 1990, Hansen & Sunding 1994, Acebes *et al.* 2004). However, a detailed study of plant material from Fuerteventura (Burchard's material included), Lobos, and the south of Lanzarote showed that the plants from this area have a distinctive combination of characters, making assignment to *O. hebecarpa* impossible. Morphological evidence is provided here for the recognition of plants from Fuerteventura, Lobos and southern Lanzarote as a distinct species.

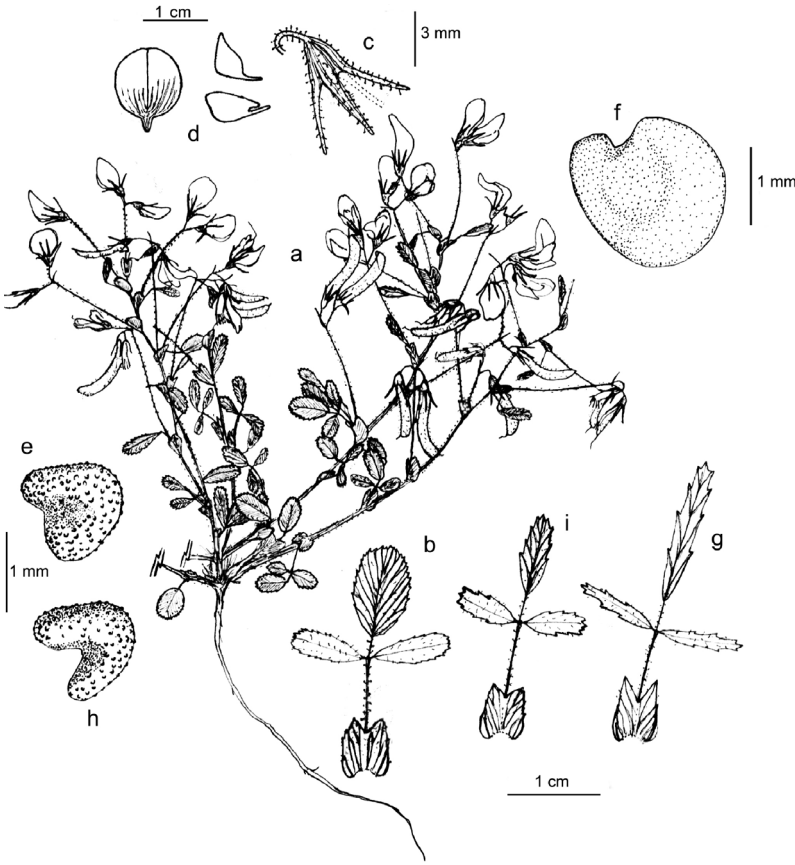


Fig. 1. *Ononis catalinae* (a–e). — a: Habit. — b: Leaf. — c: Calyx. — d: Petals. — e: Seed. — f: Seed of *O. hebecarpa*. — g–h: *O. polysperma*. g: Leaf. h: Seed. — i: Leaf of *O. zygantha*.

***Ononis catalinae* Reyes-Betancort & Scholz, sp. nova (Fig. 1)**

Ononis hebecarpa auct., non Webb & Berthelot 1842.

Annua. Caules a basi ramosi, procumbentes vel adscendentes (10–20 cm altae), laxi, breviter et patule glanduloso-pilosi et praeterea unilateraliter pilis simplicibus obsiti. Stipulae adnatae 4–8 mm longae, ovatae, breviter dentatae, subauriculatae, apice obtusae. Folia inferiora et superiora unifoliolata, caetera trifoliolata; foliolis suborbicularibus, elliptico-orbiculatis aut obovatis, plerumque 8–12 × 6–7 mm, basi excepto 5–13 inciso-dentatis. Inflorescentia laxa; pedunculi axillares solitarii, erecto-patuli, folio valde longiores, biflori, aristati (arista usque ad 4 mm longa). Calyx ca. 6 mm longus, undique glanduloso-pilosus, tubo 15-nervio, 2 mm longo, campanulato, laciniis usque ad 3 mm longis, subaequalibus, linearibus, acutiusculis,

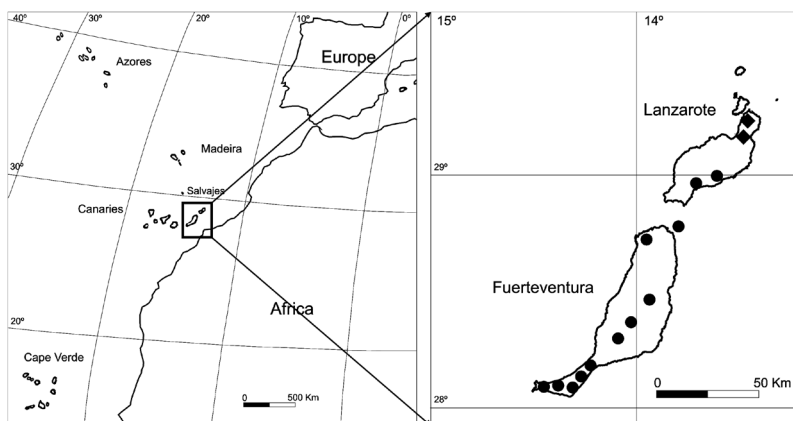
1-nerviis. Corolla flava, undique glabra; vexillo 12–14(15) mm longis, rotundato; alae oblongae, apice late emarginato, basi in unguem 2–2.3 mm longum contractae; carina ca. 8 mm longa, alas ca. aequans. Legumen 18–22 × 2.5–3(4) mm, lineare, compressum, pilis brevibus conicis glandulosis hispidulum, 30–50 spermum; semina ambitu triangulato-reniformia, glauca, sordide luteola vel brunnea, grosse tuberculata, 1.2–1.4 × 1–1.2 mm.

HOLOTYPE: Spain. Canary Islands, Fuerteventura: Jandía, between mouths of Esquinzo and Butihondo ravines (28R ES 68 05), 13.III.2006 S. Scholz 37935 (ORT; isotypes BM, MA).

ETYMOLOGY. Named after Prof. Dr. Catalina León Arenibia (University of La Laguna) in recognition of her educational work and its friendship.

Annual; procumbent or ascending up to 10–20 cm; stems branching from base, pubescent with eglandular and glandular hairs (in

Fig. 2. Distribution map of the Canary Islands endemic *Ononis catalinae* (black dots) and *O. hebecarpa* (black rhombuses).



basal parts with eglandular hairs in a row). Stipules adnate to petiole, 4–8 mm, toothed, obtuse, subauriculate. Upper and lower leaves 1-foliolate, middle 3-foliolate; leaflets 8–12 × 6–7 mm, suborbicular to elliptical or obovate with cuneate base (uppermost), glandular hairy, 5–13 toothed except in base. Inflorescence in lax panicle; primary branches erecto-patent, 10–40 mm long, (1–)2-flowered, aristate; arista 4 mm. Calyx glandular-pubescent, 6 mm long, with 5 subequal linear teeth. Corolla 12–14(15) mm, yellow; standard glabrous, 12–14(15) mm long, rounded, with a short claw; wings obovate, rounded or widely emarginate on tip; keel beaked, and curved in right angle. Legume linear, compressed, 18–22 × 2.5–3(4) mm, with conical glandular hairs. Seeds numerous (30–50), glaucous, yellowish to brownish, 1.2–1.4 × 1–1.2 mm, coarsely tuberculate. Flowering February to April, fruiting March to May (June).

HABITAT. Sandy and clay-stony soils of Canary Islands (Fuerteventura, Lobos and southern Lanzarote) (Fig. 2).

Ononis catalinae can be distinguished from *O. hebecarpa* by its glandular-hairy stem with unilateral, long, eglandular hairs (not intermixed glandular and eglandular hairs), legume with conical hairs (absent in *O. hebecarpa*) and numerous smaller, coarsely tuberculate (rather than smooth) seeds. From *O. biflora*, *O. catalinae* can be distinguished by its shorter stipules (4–6 mm long vs. 10–15 mm long), shorter calyx (6 mm long vs. 9 mm long), yellow corolla (not yellowish or whitish-pink), narrower legume (3.5–4.5 mm wide vs. 7–8 mm) and 1.2–1.4 mm

long seeds (not 2–4 mm). *Ononis polysperma*, the species morphologically most similar to *O. catalinae*, is distinguished by (i) its narrowly linear leaflets that are coarsely toothed with 3–6 teeth in contrast to the 5–13 toothed suborbicular to elliptical or obovate leaflets of *O. catalinae*, (ii) its smaller corolla (10–12 mm vs. 12–14(–15) mm), and (iii) its triangular rather than triangular-reniform shaped seeds. Leaflet and seed shape characters also distinguish *O. catalinae* from *O. zygantha* as the latter has sparsely 3–6 toothed leaflets that are oblong (middle) or linear (uppermost) and have subacute apices, and triangular V-shaped seeds. Corolla colour further distinguishes these two species: the corollas of *O. zygantha* are whitish-pink and those of *O. catalinae* are yellow. Table 1 summarizes the characters differentiating these five species. The close relationship between *O. catalinae* and the two endemic Moroccan species *O. polysperma* and *O. zygantha* requires further investigation.

Ononis catalinae has a well-defined distribution not shared with any other species of subsect. *Biflorae*. It is known from Fuerteventura, Lobos and the southern half of Lanzarote (Fig. 2). Biogeographically, these territories belong to the eastern Canary Island Province (Rivas-Martínez *et al.* 1993), in which *O. catalinae* can be regarded as endemic. According to bioclimatical studies of these islands (Reyes-Betancort *et al.* 2001, Rodríguez-Delgado *et al.* 2005), this species has been observed in the Inframediterranean stage, under arid and semiarid ombroclimates. It grows in herbaceous communities of sandy or clayish-stony soils and is generally frequent in

Table 1. Morphological comparison of *Ononis* species in subsect. *Biflorae*.

	<i>O. catalinae</i>	<i>O. hebecarpa</i>	<i>O. biflora</i>	<i>O. polysperma</i>	<i>O. zygantha</i>
Leaflets	rounded, elliptical to obovate, 5–13 toothed	rounded, elliptical to obovate, 5–9 toothed	ovate, elliptical to obovate, 5–9 toothed	narrowly oblongo-linear, sparsely 3–6 toothed	oblongo-linear, sparsely 3–6 toothed
Corolla	12–14 mm long, yellow	10–12 mm long, yellow	13–16 mm long, yellowish to whitish-pink	10–12 mm long, yellow	10–12 mm long, whitish-pink
Conical hairs on legume	present	absent	absent	present	present
Seeds	30–50, 1.2–1.4 mm long, triangular-reniform, coarsely tuberculate	8–20, 2–2.5 mm long, orbicular-reniform, smooth	12–14, 2–4 mm long, orbicular reniform, acutely tuberculate	30–50, 1.2–1.4 mm long, V-shaped, coarsely tuberculate	number not known, 1.3–1.5 mm long, V-shaped, coarsely tuberculate

Fuerteventura, but rare in Lanzarote.

As with other therophytes from arid regions, the species experiences dramatic changes in the population size, related to the amount of rainfall. In the South of Fuerteventura, 2005 was a very rainy year and the increase of the population of *O. catalinae* was spectacular, giving large areas of the landscape a colourful yellow colour when the species was in bloom in March. It was scarcer in 2006, and very few plants were found.

SELECTED SPECIMENS EXAMINED. — *Ononis catalinae* (paratypes): **Spain.** Canary Islands. Fuerteventura: Pájara, Jandía, Risco del Paso, 02.IV.2005, *S. Scholz* 37887+ *dupl.* (ORT); Costa de Cofete 15 *m.s.m.* (28R ES 64 10), 18.IV.2005, *EjUSD.* 37925 + *dupl.* (ORT); 1 Km al S de Degollada Agua de Cabras (28R ES 52 06), 18.III.2005, *EjUSD.* 37934 (ORT); Al SE de Tesejerague (28R ES 88 27), 19.III.2005, *EjUSD.* 37926 (ORT); Jable de Jandía, IV.2005, *EjUSD.* 38528 + *dupl.* (ORT); Montaña de Tao, IV.2005, *EjUSD.* 39066 (ORT); La Oliva, salida de Cotillo (28R ES 99 73), 25.IV.2006, *A. Santos & J.A. Reyes-Betancort* 38999 (ORT); Cofete 350 *m.s.m.*, 02.IV.1957, *E. Svent.* 21409 (ORT); *Ibid.*, 1946, *EjUSD.* 21397 (ORT); Tiscamanita 300 *m.s.m.*, 29.III.1946, *EjUSD.* 21408 (ORT); Vinamar, 08.IV.1955, *EjUSD.* 21381 (ORT); *sine loc.*, *sine die*, *EjUSD.* 21382, 21384, 21388, 21389 (ORT); El Jable de Jandía, III.1912, *O. Burchard* 236 (ORT). Lobos: *sine loc.*, 28.III.1854, *R.T. Lowe* 000226876 (K); *Ibid.* 000056116 (BM); c. del Faro, 06.IV.1944, *E. Svent.* 24110 (ORT); dunas noroeste, 27.III.1956, *EjUSD.* 24109 (ORT); dunas parte S, 05.IV.1955, *EjUSD.* 24111 (ORT). Lanzarote: Tías, autovía Arrecife-Tías (28RFT 34 03), 15.II.1996, *J.A. Reyes-Betancort* 38658 (TFC); Yaiza, Vega de Temuime 150 *m.s.m.* (28RFT 21 01), 25.III.2005, *EjUSD.* 37886 (ORT).

Acknowledgements

We are grateful to Dr. Juan Ramón Acebes (Univ. of La Laguna, Canary Islands), Dr. Mark Carine (Natural History Museum, London), and Dr. Arnoldo Santos-Guerra (Inst. Canar. Invest. Agrarias, Canary Islands) for valuable corrections and recommendations.

References

- Acebes, J. R., Del Arco, M. J., García-Gallo, A., León, M. C., Pérez, P. L., Rodríguez, O. & Wildpret, W. 2004: Divisiones Pteridophyta, Spermatophyta. — In: Izquierdo, I., Martín, J. L., Zurita, N. & Arechavaleta, M. (eds.), *Lista de especies silvestres de Canarias (hongos, plantas y animales terrestres)* 2004: 96–143. Consejería de Política Territorial y Medio Ambiente del Gobierno de Canarias, S/C de Tenerife.
- Boulos, L. 1999: *Flora of Egypt 1 (Azollaceae–Oxalidaceae)*. — Al Hadara Publishing, El Cairo.
- Bramwell, D. & Bramwell, Z. 1990: *Flores silvestres de las Islas Canarias*. — Editorial Rueda, Alcorcón, Madrid.
- Burchard, O. 1929: *Beiträge zur Ökologie und Biologie der Kanarenpflanzen*. — Bibliotheca Botanica 98. Stuttgart, E.Schweizerbart'sche.
- Hansen, A. & Sunding, P. 1993: *Flora of Macaronesia*. Checklist of vascular plants, 4th rev. ed. — *Sommerfeltia* 17: 1–295.
- Kunkel, G. 1977: *Endemismos Canarios. Inventario de las Plantas Vasculares Endémicas en la Provincia de Las Palmas*. — ICONA-Monografías 15, Ministerio de Agricultura.
- Maire, R. & Wilczek, E. 1935: *Ononis zygantha*. — *Bulletin Société d'Histoire Naturelle l'Afrique Nord* 26: 128.
- Maire, R. 1936: *Ononis zygantha*. — *Bulletin Société d'Histoire Naturelle l'Afrique Nord* 27: 220–221.

- Maire, R. 1941: *Ononis zygantha*. — *Bulletin Société d'Histoire Naturelle l'Afrique Nord* 31: 102.
- Reyes-Betancort, J. A., Wildpret, W. & León, M. C. 2001: The vegetation of Lanzarote (Canary Islands). — *Phytocoenologia* 31: 185–247.
- Rivas-Martínez, S., Wildpret, W., del-Arco, M., Rodríguez, O., Pérez-de-Paz, P. L., García-Gallo, A., Acebes, J. R., Díaz, T. E. & Fernández-González, F. 1993: Las comunidades vegetales de la Isla de Tenerife (islas Canarias). — *Itinera Geobotanica* 7: 169–374.
- Rodríguez Delgado, O., García-Gallo, A. & Marrero Gómez, M. V. 2005: El bioclima y la biogeografía. — In: Rodríguez Delgado, O. (ed.), *Patrimonio Natural de la Isla de Fuerteventura*: 91–100. Excmo. Cabildo de Fuerteventura, Gobierno de Canarias y Centro de la Cultura Popular Canaria.
- Širjaev, G. 1932: Generis *Ononis* L. revisio critica. — *Beihfte Botanischen Centralblatt* 49(2): 381–665.
- Webb, P. B. & Berthelot, S. 1842: *Phytographia Canariensis* 2: 25–26, tab. 52. — Béthune éditeur, París.