

# What is *Orobanche haenseleri* var. *deludens* Beck?

by

Antonio J. Pujadas Salvà & Laura Plaza Arregui

Departamento de Ciencias y Recursos Agrícolas y Forestales, ETSIAM, Universidad de Córdoba, Apartado 3048, E-14080 Córdoba, Spain

## Abstract

*Orobanche haenseleri* var. *deludens* Beck (Orobanchaceae), a problematic taxon described from Algeciras (Cádiz, S Spain) is here identified after studying the original material of Wolley-Dod (BM 4476). It is considered to be the same as *O. austrohispanica* M.J.Y. Foley and better included, as a variety, under *O. gracilis* Sm. The new combination *O. gracilis* var. *deludens* (Beck) A. Pujadas is consequently proposed. It mainly parasitizes *Ulex* (Fabaceae) in the western Mediterranean Region (Iberian Peninsula and NW Africa).

**Key words:** broomrape, *Flora iberica*, Iberian Peninsula, nomenclature, NW Africa, *Orobanche*, parasitic plants, taxonomy.

## Resumen

Se identifica *Orobanche haenseleri* var. *deludens* Beck (Orobanchaceae), un taxon conflictivo descrito de Algeciras (Cádiz, sur de España), a partir del análisis del material original de Wolley-Dod (BM 4476). Se considera que es lo mismo que *O. austrohispanica* M.J.Y. Foley, y se incluye en *O. gracilis* Sm. con rango varietal. Se propone la nueva combinación *O. gracilis* var. *deludens* (Beck) A. Pujadas. Parasita principalmente a especies del género *Ulex* (Fabaceae) en la Región Mediterránea Occidental (Península Ibérica y noroeste de África).

**Palabras clave:** *Flora iberica*, jopo, nomenclatura, noroeste de África, *Orobanche*, Península Ibérica, plantas parásitas, taxonomía.

## Introduction

Beck (1922: 38) described *Orobanche haenseleri* var. *deludens* on the basis of the material collected by Wolley-Dod near Algeciras. The following description was provided: “Validissima. Scapus 11-16 cm longus, crassus, copiose squamatus, bracteis ovalibus triangularibus copiose glandulosis. Spica –36 cm longa, densi in parte inferiore laxiflora. Calycis segmenta libera. Laciniae labii inferioris rotundatae, eae labii superi truncatae, dentatae et dente major apiculatae, omnes copiose glanduloso pilosae. Filamenta 1-2 mm supra basim corollae inserta, infra pilosa supra parce glanduloso pilosa. Stylus copiose glanduloso-pilosus. - Hispania ad aquas cadentes prope Algeciras m. Martio 1912 (Wolley-Dod)”.

The taxon has been largely ignored by subsequent authors. Only Foley (2001b: 54), after studying the original material, concluded that it was impossible to identify the specimen accurately, although he also stated that it did not fit *O. haenseleri* Reut. It is clear that *Orobanche haenseleri* var. *deludens* Beck constitutes a problematic taxon that remains as an unidentified en-

try in the current edition of *Flora iberica*. “*Deludens*”, from the latin verb “*deludo*” meaning to mock, to cheat, to simulate, to do trap, to be deceptive, is a very adequate name for this taxon, since it has been a confusing case during many years.

## Material and methods

The original material of *O. haenseleri* var. *deludens* (Wolley-Dod 370, BM) was studied and contrasted against Beck’s description. This specimen was compared with *Orobanche* specimens from ABH, ARAN, ALME, BC, COA, G, GDAC, JACA, La Salle Almería, LEB, LISI, LISU, LOU, MA, MAF, MGC, MPU, MUB, SALA, SANT and SEV.

## Results

### Type description and status

Leaves 14-16 × 9-11 mm, ovate to ovate-deltate, dense. Bracts 15-20 × 7-9 mm, ovate-lanceolate. Calyx (13)15-17 mm, unequally bipartite, densely glandular pubescent, veined. Corolla 20-25 mm, campanulate,

glandular pubescent, glabrescent at base, with lip margins clearly glandular ciliate (hairs 0.2-0.6 mm), ochre with reticulate veins externally and ochre or reddish –in some flowers- internally when dry. Filaments inserted very near the corolla base (adaxial filaments inserted 1.5-2 mm above the corolla base, abaxial filaments inserted at 1-1.5 mm), filaments very narrow, abruptly dilated at base, minutely pubescent only in the lowest part, with very few eglandular hairs (c. 0.5 mm) and with subsessile glandular hairs (<0.1 mm) at the apex; anthers c. 2.5 mm. Ovary glabrescent. Style with glandular hairs.

The type of *O. haenseleri* var. *deludens* is similar to *O. gracilis* in calyx shape, hairy calyx and corolla, clearly ciliate corolla lip margins, and the insertion of the staminal filaments close to the corolla base. However, the ovate to ovate-deltate leaves, the ochre to (occasionally) reddish internal corolla when dry, and the narrow staminal filaments pubescent at the base, make it also similar to a taxon, relatively abundant in

the southern Iberian Peninsula, which has yellowish-brown corolla often reddish inside. This taxon was first recognized by Haenseler (1837), who found it growing on *Ulex baeticus* (“*Ulex australis*”) in Carratraca (Malaga, S Spain). Subsequently, it was included in *O. cruenta* Bertol. (Boissier, 1839: 475), *O. reticulata* Wallr.? [sic.] (Reuter, 1847: 16), *O. reticulata* sensu Reut. (including *O. cruenta*) (Willkomm, 1870: 621), *O. gracilis* var. *spruneri* sensu Willk. (non *O. spruneri* F.W. Schultz 1843) (Willkomm, 1893: 186), or even described as a new species, *O. ulicis* Haens. ex Willk., non Des Moul. (Willkomm, 1846: 313). In recent treatments it has been included in *O. gracilis* var. *spruneri* (F.W. Schultz) Beck (Pujadas-Salvà & Lora-González 1996: 218; Pujadas-Salvà 2002: 431), or considered conspecific with *O. austrohispánica* M.J.Y. Foley (Foley 2001a: 226).

Based on the similarity of morphological characters, the taxon in question, in our opinion, should be subordinated to *O. gracilis* at the varietal rank. Accordingly, the new combination is proposed here:



**Fig. 1.** *Orobanche gracilis* var. *deludens* (Beck) A. Pujadas, Algeciras (BM 44476), Holotype.



**Fig. 2.** *Orobanche gracilis* var. *deludens*, Grazalema, Cádiz (COA 33916) showing yellowish-brown internal corollas.

***Orobanche gracilis* var. *deludens* (Beck) A. Pujadas, comb. nov.**

- = *Orobanche haenseleri* var. *deludens* Beck in Repert. Spec. Nov. Regni Veg. 18: 38. 1922 [Basionym]
- = *Orobanche austrohispanica* M.J.Y. Foley in Anales Jard. Bot. Madrid 58(2): 224. 2001
- ≡ *Orobanche reticulata* auct. hisp., non Wallr., Orob. Gen.: 42. 1825
- ≡ *Orobanche gracilis* var. *spruneri* auct. hisp., non *Orobanche spruneri* F.W. Schultz in Flora (Regensburg) 26: 130. 1843

*Ind. loc.*: "Hispania ad aquas cadentes prope Algeciras m. Martio 1912 (Wolley-Dod)."

*Holotype*: *Orobanche Haenseleri* Reuter / v. *deludens* m. / [...] / Prof. Dr. G. v. Beck // FLORA CALPENSIS / EX HERB. A. H. WOLLEY-DOD, N° 370 / Algeciras / Waterfall / 16 th Mar. 1912 // (BM 44476!).

*Illustrations*: Figs. 1-3; Foley (2001b: 65, Lám. 20, as *Orobanche austrohispanica*); Pujadas Salvà (2002: 432, Foto 168, as *Orobanche gracilis* var. *spruneri*).



**Fig. 3.** *Orobanche gracilis* var. *deludens*, Grazales, Cádiz (COA 33917) showing reddish internal corollas.

**Identification key**

The var. *deludens* can be separate from the typical variety with the following key:

1. Upper leaves 3-7(9) mm width, lanceolate to ovate, scattered. Bracts 2.5-4(6) mm width. Calyx without conspicuous veins. Corolla yellow or yellowish-brown, rarely with reticulate veins, with red apex externally, dark shining red internally. Adaxial filaments inserted (1)2-4(6) mm above the corolla base, abaxial filaments inserted (0.5)1-2.5(3) mm the corolla base; filaments progressively wider to the base, more or less long hairy below ..... var. **gracilis**
1. Upper leaves (5)8-12(16) mm width, ovate to ovate-deltate, dense, sometimes subimbricate. Bracts (4)7-12 mm width. Calyx with conspicuous veins. Corolla yellowish-brown with reticulate veins (rarely with reddish apex or without reticulate veins) externally, yellowish-brown to reddish internally. Adaxial filaments inserted 1-2(3) mm above the corolla base, abaxial filaments inserted 0.5-1.5(2) mm the corolla base; filaments narrow, abruptly dilated below, minutely pubescent, sometimes glabrescent below ..... var. **deludens**

*Note.*—In *Orobanche gracilis* var. *deludens* the pigmentation of the corolla is very variable even in the same population as shown in Figs. 2 and 3.

**Geographical distribution and habitat**

*Orobanche gracilis* var. *deludens* is distributed in the western Mediterranean Region (Fig. 4). It grows in three discontinuous regions: NW Iberian Peninsula, with just a few populations; S Spain, where it seems to be relatively abundant; and NW Africa, in the Rif and High Atlas mountains of Morocco, where it seems to be undercollected. It grows in rocky areas, often on dry grasslands or degraded scrubland. It parasites perennial Fabaceae, namely species of *Ulex* (*U. parviflorus*



**Fig. 4.** Distribution of *Orobanche gracilis* var. *deludens*.



Pourr. and *U. baeticus* Boiss.), but sometimes on *Anthyllis cytisoides* L. or *Dorycnium pentaphyllum* Scop. Flowering from February to June (July). Fructification from April to July. Altitudinal range from 200-1400 m.

### Relationships with *Orobanche gracilis*

*Orobanche gracilis* var. *deludens* has often been confused with *O. gracilis* var. *gracilis*, to which it is very close morphologically. We believe that the varietal rank –the same established by Beck– is the more appropriate for this plant because there is no clear-cut geographical separation between both varieties. In addition, the two are linked by forms intermediate in leaf width, corolla color, and hairiness and width of the staminal filaments.

Biomolecular analyses further justify the use of the varietal rank for this taxon and its subordination to *O. gracilis*. Thus, RAPD analysis (Román & al., 2003) revealed very short genetic distances among the four *O. gracilis* populations studied. The first population of *O. gracilis* to appear in the dendrogram sequence corresponded to var. *deludens* from Sierra de Cabra (Córdoba, Spain, COA 29293) and the other three to var. *gracilis* (Román & al., 2003: 640). Likewise, results by Schneeweiss & al. (2004), repeatedly included var. *gracilis* and var. *deludens* (as *O. austrohispánica*) within the same small clade based on the short genetic distances found.

### Specimens examined

#### *Orobanche gracilis* var. *deludens* (Beck) A. Pujadas

SPAIN. **Almería:** San José, Sierra Cabo de Gata, Barranco del Sabinar, 200-350 m, 2-VI-1967, *Ball & al.* (ABH 32918). Sierra Cabo de Gata, Barranco del Sabinar, N facing side of Monte de la Revancha, 2-VI-1967, *Ball & al.* (ALME 1707). Rambla de La Alcazaba, Adra, 31-III-1989, *Fernández* (COA 13875). Del Llano de Balsa Nueva a Castala, 30SWF0985, 1500 m, 16-VI-1991, *Pujadas & al.* (COA 17418). Fuente de la Parra, Sierra de Gádor, 30SWF1389, 1600 m, 17-VI-1992, *Pujadas & al.* (COA 17417). Barranco del Sabinar, 30SWF7468, 7-II-1994, *Pujadas* (COA 17412). Cerro Santa Fe, mina Santa Bárbara, 30SWF7670, 400 m, 23-II-1994, *Pujadas* (COA 17420). Cerro Majada Redonda, 30SWF8176, 300 m, 13-IV-1994, *Pujadas* (COA 17377). Rellana, 30SWF8277, 400 m, 16-IV-1994, *Pujadas* (COA 17415). Cortijo El Rincón de Martos, 30SWF7470, 300 m, 19-IV-1994, *Pujadas & Jiménez* (COA 17410). El Garbanzal, 30SWF7874, 250 m, 6-V-1994, *Pujadas* (COA 17413). Félix, 30SWF3181, 9-V-1994, *Pujadas & Pallarés* (COA 17406). Puerto de la Virgen, Benizalón, 30SWG7020, 1000 m, 25-IV-1994, *Pujadas* (COA 17414). Rodalquilar, 30SWF8579, 9-IV-1995, *Pujadas* (COA 17407). Subida al Cerro Revancha, 12-V-1995, *Lora & Pujadas* (COA 17378). Sierra de Gádor, La Parra de Fondón, 1400 m, 14-VI-1992, *Hervás* (GDAC 38287). Castala, 12-V-1960, *Sagredo* (La Salle Almería). Sierra de Cabrera, La Carraca, 9-V-1970, *Fernández Casas* (MA 412355). **Cádiz:** Grazalema, Sierra del Pinar, entre Pico San Cristóbal y El Pinar, 30STF8571, 1360 m, 12-VI-1991, *Pujadas & Lora* (COA 22093). Los Alcornocales, subida al Aljibe desde el Refugio del Picacho, 6-V-1995, *Pujadas & Lora* (COA 17396). Grazalema,

base de la Sierra del Pinar, cerca Benamahoma, 12-VI-1996, *Lora & Pujadas* (COA 22116). De Ubrique a Cortes, km 47.5, 15-IV-2001, *Rubiales* (COA 33912). Los Alcornocales, Finca La Molineta, 24-IV-2002, *Plaza* (COA 33911). Grazalema, Grazalema a Ronda, ctra. A 372, 30STF8770, 860 m, 26-IV-2004, *Pujadas & Plaza* (COA 33916, COA 33917). Algodonales, Sierra de Lijar, 500-1000 m, 29-III-1980, *Aparicio* (MA 313722). Chiclana, 31-III-1882, *Pérez Lara* (MAF 36246). Sierra del Aljibe, Puerto Gáliz, 18-IV-1977, *Silvestre* (SEV 162878). Pozo Amargo, 4-V-1979, *Candau & Fernández* (SEV 162886). Entre Ubrique y cruce de Jimena, 17-V-1979, *Candau & Fernández* (SEV 162885). Grazalema, La Camilla, 6-V-1990, *Arista & Ortiz* (SEV 136901). Cerros de Bornos, 7-IV-1993, *Talavera* (SEV 136803). **Córdoba:** Base Pico Bermejo, 9-V-1989, *Pujadas & Gálvez* (COA 13878). Cabra, Sierra de Cabra, Ermita, 12-V-1999, *Pujadas & al.* (COA 29293). Ermita de la Sierra de Cabra, 26-III-2000, *Pujadas* (COA 29917). Rute, Fuente Alta, 30SUG8033, 850 m, 10-V-2002, *Pujadas & Triano* (COA 33913). Iznájar, Loma del Santísimo, 30SUG8927, 850 m, *Triano* (COA 29289). **Granada:** Sierra Nevada, base del Dornajo, 9-VII-1987, *Pujadas* (COA 13886). Almuñécar, Sierra del Chaparral, 1-VII-1988, *Hernández & Clemente* (COA 17389). Órjiva, 23-VII-1991, *Pujadas* (COA 17426). Huéneja, 30SWG0510, 1500 m, 21-VI-1994, *Pujadas & Pallarés* (COA 17409). Padul, 19-VI-2003, *Sánchez Gullón & Camacho* (COA 33914). Laroles, VF9995, 18-V-1984, *Guirado* (GDAC 28829). Fuente de la Teja, 7-V-1977, *Valle* (GDAC 9309). Huétor-Santillán, Sierra de Alfacar, fuente de la Teja, 30SWG5524, 1340 m, 20-VI-1992, *Aedo & al.* (MA 508636). **Jaén:** Castillo de Locubín, km 3 a Valdepeñas de Jaén, 23-V-1996, *Pujadas & Lora* (COA 22086). Sierra Mágina, Huelma, 18-V-2003, *Plaza & Dorda* (COA 33915). **Málaga:** Sierra de Las Nieves, Ronda, 1325 m, 18-VII-1991, *Pujadas & Lora* (COA 17423). Sierra Blanca, Ojén, 15-V-1992, *Balaguer* (COA 17632). Marchamona, 24-VI-1992, *Prados & al.* (COA 17422). Cuevas del Moro, 30SUF2161, 1200 m, 19-V-1996, *Lora & Plaza* (COA 22119). Ardales, 302UF4090, 15-V-1997, *Plaza & al.* (COA 23363). Antequera, cara norte Sierra Huma, 39SUF4488, 6-VI-1997, *Plaza & al.* (COA 24144). Alhaurín de la Torre, senda de Arroyo de Zambrano a Abarcuza, 30SUF6157, 250 m, 14-VI-1998, *Rubio & Rubio* (COA 27235). Carratraca, Sierra de Aguas, 30SVF3881, 10-VII-1999, *Plaza & Burgarella* (COA 29884). Sierra de Ronda, Almargen, 22-VII-2000, *Martínez* (COA 30479). Sierra de Aguas, 12-V-1979, *Cantó & al.* (MA). Sierra de Ojén, Dehesa de Boornoque, 1-VI-1983, *Cabezudo & al.* (MGC 11782). Montes de Málaga, Venta Galwey, 27-IV-1988, *Martín Osorio* (MGC 33277). Sierra Bermeja, Ojén, 450 m, 20-IV-1973, *Talavera & Valdés* (SEV 162950). Entre Ronda y San Pedro de Alcántara, cruce a Igualaja, 4-V-1989, *Díaz & al.* (SEV 162954). **Ourense:** Santalla, *Merino* (LOU 781/2). Queija, *Merino* (LOU 782/7). A Veiga Reboleira Centenaria, 6-VII-1995, *Louzán & al.* (SANT 32236). **Sevilla:** Osuna, Cerro del Calvario, 12-IV-2001, *Plaza & Salcedo* (COA 33916).

MOROCCO. Xauen, VI-1930, *Mas Guindal* (MA 435400). Tetouan, Besene Bab, 29-V-1981, *Castroviejo & al.* (MA 436924, 436927). Alto Atlas, Jbel Siroua, cerca de Amassine, entre Anzal (Anezal) y Askaoun, 30°46'37"N y 7°38'20"W, 30-VI-1997, *Aedo & al.* (MA 561082). Chefchaouen, Bab Taza, cumber de Bab el Karn, 19-VI-1993, *Montserrat & Vicens* (SEV 162992). Ouezzane, 8,5 km from Zoumi to Mokrisset, 660 m, 21-IV-1995, *Jury & al.* (SEV 163000).

### Acknowledgements

The authors wishes to thank the keepers and the staff of the Herbaria ABH, ALME, ARAN, BC, BM, G, GDAC, JACA, La Salle Almería, LEB, LISI, LISU, LOU, MA, MAF, MGC, MPU, MUB, SALA, SANT, SEV for the loan of the material, Prof. Juan Devesa and Dr. Jurgen Püsch for bibliographical information.

## References

- Beck, G. 1922. *Orobancha* novae. *Repertorium specierum novarum regni vegetabilis* 18: 33-45.
- Boissier, P.E. 1839-1845. *Voyage botanique dans le midi de l'Espagne pendant l'année 1837*. Paris.
- Foley, M.J.Y. 2001a. Orobanchaceae in the Flora iberica area: new taxa, excluded taxa, and typification. *Anales del Jardín Botánico de Madrid* 58(2): 223-233.
- Foley, M.J.Y. 2001b. *Orobancha* L. In: Paiva, J. & al. (eds.), *Flora iberica* 14: 32-72. Madrid.
- Haenseler, F. 1837. *Florula carratracensis*. Unpublished manuscript.
- Pujadas Salvà, A.J. 2002. *Orobancha* L. In: López-Sáez, J.A. & al. (eds.), *Plantas Parásitas de la Península Ibérica e Islas Baleares*: 348-440. Madrid.
- Pujadas Salvà, A.J. & Lora González, A. 1996. El género *Orobancha* L. (Orobanchaceae) en la provincia de Almería. *Acta Botanica Malacitana* 21: 199-220.
- Reuter, G.F. 1847. Orobanchaceae. In: Candolle, A.P. de (ed.), *Prodromus systematis naturalis regni vegetabilis* 11: 1-45. Paris.
- Román, B., Alfaro, C., Torres, A.M., Moreno, M.T., Satovic, Z., Pujadas, A. & Rubiales, D. 2003. Genetic relationships among *Orobancha* species as revealed by RAPD analysis. *Annals of Botany* 91: 637-642.
- Schneeweiss, G.M., Colwell, A., Park, J.M., Jang, C.G. & Stuessy, T.F. 2003. Phylogeny of holoparasitic *Orobancha* (Orobanchaceae) inferred from nuclear ITS sequences. *Molecular phylogenetics and evolution* 30: 465-468.
- Willkomm, H.M. 1846. Ueber das Leben und Wirken des in Malaga verstorbenen Naturforschers Felix Hänseler. *Botanische Zeitung (Berlin)* 4(18): 305-313.
- Willkomm, H.M. 1870. Orobanchaceae. In: Willkomm, H.M. & Lange, J., *Prodromus florum hispanicae* 2: 620-632. Stuttgart.
- Willkomm, H.M. 1893. *Supplementum Prodromi florum hispanicae*. Stuttgart.

Received: 28-IV-2004  
Accepted: 26-XI-2004

