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***Orobanche crinita* and *Orobanche foetida* (Orobanchaceae) in the West Mediterranean area**

Abstract

Pujadas-Salvà, A. J., Fraga i Arguinbau, P., Sánchez-Gullón, E., & Molina-Mahedero, N.: *Orobanche crinita* and *Orobanche foetida* (Orobanchaceae) in the West Mediterranean area. — *Boccone* 16(2): 737-744. 2003. — ISSN 1120-4060.

The taxonomical treatment of *Orobanche crinita* Viv. and *O. foetida* Poir. is controversial and very often these taxa are misidentified. A floristic survey has been carried out, together with a revision of the main national and regional herbaria. The differential morphological characteristics of both taxa and its distribution in the West Mediterranean area is afford.

Introduction

Orobanche crinita Viv. and *O. foetida* Poir. belong to the Section *Orobanche*, *Grex Cruentae* Beck characterized by the limb and inside of the corolla notably dull red. Both present some similar morphological characteristics, mainly the corolla colour, typically dull red (sanguineous) inside and outside, usually with a whitish or yellowish base. Besides in both cases the corolla presents very short hair covering, sometimes nearly glabrescent. Both taxa have often been misidentified due to the semblance of characters, and frequently are named "*O. sanguinea*" due to the colour of the corolla.

Both taxa are present in the Mediterranean area, *O. crinita* with a wide distribution in the coastal countries - from Aegean Islands to Balearic Islands (Minorca) - whilst *O. foetida* is distributed only in the western Mediterranean countries - Morocco, Algeria, Tunisia, Portugal and Spain.

Beck (1930), Coste (1937), Chater & Webb (1972), Pignatti (1982), Greuter & al. (1989), among others, have considered *O. crinita* Viv. synonym of *O. sanguinea* C. Presl. We separate *O. crinita* from *O. sanguinea* following Reuter (1847), Lojaccono-Pojero (1904), Bonnier (1926) and Foley (1999).

In some cases the presence of *O. crinita* in the Iberian Peninsula has been considered as doubtful, Beck (1890) points out its presence in Spain but with the comment "*nisi aliis confusa?*", and Chater & Webb (1972) indicate with an ? its presence in Portugal. Recently,

Foley (2001b: 71) cites *O. crinita* in the Iberian Peninsula - in the provinces of Cádiz, Huelva and Málaga, and in the province of Barcelona as bibliographical record - but we have found not a voucher neither a plant - in our floristic surveys - which can support its presence in the territory.

O. sanguinea, described on Sicilian plants, is a conflictive taxon, of badly known distribution and has also very often been misidentified as *O. foetida* in the western Mediterranean area. Its relationship with the other taxa of the *Grex Cruentae* - *O. gracilis*, *O. foetida*, *O. crinita* and *O. variegata* has to be clarified.

Distribution, ecology, and hosts of *O. crinita* and *O. foetida* are analysed. Main differences between the plants are pointed out.

Materials and methods

A critical revision, total or partial, of the existing herbarium material in the main national and regional herbaria: ARAN, BC, BCF, COA, COFC, GDA, GDAC, H. FRAGUENSE, HVR, JACA, LISI, LISU, MA, MAF, MARS, MPU, PI, SALA, SANT, SEV has been carried out.

A floristic survey in order to collect fresh material for a more accurate characterization of the plants and the determination of their hosts has also been done.

Results

Orobanche crinita Viv., Fl. Cors. Prodr.: 11 (1824)

=*Orobanche sanguinea* fma. *crinita* (Viv.) Beck in Biblioth. Bot. 19: 206 (1890)

=*Orobanche sanguinea* auct. non C. Presl

Plant (14)24-38(60) cm. Stem 3-9(11) mm wide at the middle, 8-11(17) mm wide at the base, purplish-red or rosy vinaceous. Basal leaves 18-23 x 3-4 mm, narrowly lanceolate. Upper leaves 18-21 x 2,5-3 mm, narrowly lanceolate. Inflorescence (4)11-18(30) x (2,2)2,5-3(3,4) cm, dense. Bracts 17-20 x 2-2,8 mm, subulate. Calyx 10-13 mm, segments shortly connate abaxially at base, bipartite. Corolla (8)13-17 mm, more or less patent, narrow tubular, uniformly curved, narrowing to the apex, subglabrous, vinaceous with dark red limb, white or yellowish at base, shining dark red inside; upper lip bilobed; lower lip small, not ciliate, with middle lobe usually a little larger, not ciliate. Filaments obliquely inserted, the adaxials at 1-3 mm above base of corolla, the abaxials at 0,5-1,5 mm, glabrous above and usually also below. Anthers 1,1-1,4 mm, glabrescens or scarcely hairy at base, whitish. Ovary glabrous, rarely with few glandular hairs. Stigma bright red, dark red when dry.

Sandy dunes and coastal soils. Parasitic on *Lotus*, mainly *Lotus cytisoides* (*Leguminosae*). 0-40 m. Flowering period April to May.

Mediterranean central coast from Aegean Islands to Minorca (Balearic Islands).

Material studied

SPAIN. BALEARIC ISLANDS, MINORCA: Isla del Rey, c. Mahón, 4-V-1913, *Font Quer*, BC 46650, MA 115174. Biniancolla, Sant Lluís, 13-VIII-2000, *P. Fraga*, *P. Poyato* & *A.*

Pujadas, COA 29572. Es Castell, 13-IV-2001, *P. Fraga* & *A. Pujadas*, COA 31046. Cala Sant Esteve, Es Castell, 13-IV-2001, *P. Fraga* & *A. Pujadas*, COA 31045. Es Grau, Maó, 13-IV-2001, *P. Fraga* & *A. Pujadas*, COA 31044. Cala Figuera, Maó, sobre *Lotus cytoides*, 13-IV-2001, *P. Fraga* & *A. Pujadas*, COA 31042. Biniancolla, St. Lluís, FEO77079, 30-IV-1996, *P. Fraga* i *Arguimbau*, H. FRAGUENSE 29396. Mahón, s.d., *Barrau*, MPU. Fort S. Phillipe, 21-V-1899, *G. Vinieix*, MPU.

FRANCE. CORSICA: Bonifacio, à Santa Manza, 30-V-1911, *E. Jahandiez*, MARS. Bonifacio, -V-1849, *Requien*, MPU. Bonifacio à Sta. Manza, 5-V-1896, *Revelève*, MPU.

ITALY. SARDINIA: Argentiera, aparcamiento cerca del mar, suelo arenoso, sobre *Lotus cytoides* L., 30-V-2003, *A. Pujadas*, COA 31112. Sorso, Marina di Sorso, dunas, sobre *Lotus cytoides*, 30-V-2003, *A. Pujadas*, COA. Instintino, Capo Falcone, arenas de playa, sobre *Lotus cytoides* L., 30-V-2003, *A. Pujadas*, COA. Santa Teresa Gallura, par Tempio, 10-V-1881, *Reverchon*, MPU. SICILIA: Palermo, -V-, *Todaro*, MPU, PI. Ronciglio, 20-IV-1855, *E. & A. Huet du Pavillon*, MPU. Mondello, -V-, *Lojacono-Pojero*, PI (sub var. *straminea*).

ALGERIA: Bou-Ismaël, 18-IV-1859, *Clauson*, PI, MPU. Aïn-el-Turck, Dept. Oran, 5-IV-1930, *R. le Cesve*, BCF 39898, MPU. La Calle, 23-IV-1930, *R. Maire*, MPU. Callo, 16-V-1874, *Pomel*, MPU. Bizerte, Rumel, 23-V-1956, *J. Serres*, MPU.

TUNISIA: Bordj Cedria, Potinville, 1-V-1921, *Boitel*, MPU. Prope Hipponem Zareptum, 8-V-1938, MPU.

Bibliographical references

(Middle and East Mediterranean area), Gilli (1982), Pignatti (1982), Foley (1999).

Orobanche foetida Poir., Voy. Barbarie 2: 195 (1789)

Plant (16)25-50(70) cm. Stem (2)4-12 mm wide at the middle, (7)14-32 mm wide at base. Basal leaves 9-20(25) x 3-8 mm, deltate, ovate or lanceolate; upper leaves (10)16-25(30) x 2-5 mm, narrowly lanceolate. Inflorescence (7)13-45 x (2,3)3-4,1 cm, dense, sometimes lax below. Bracts (10)15-20(24) x (1)2-3 mm, lanceolate to narrowly lanceolate. Calyx 8-15 mm, segments abaxially shortly connate, contiguous or free, bipartite. Corolla (11)15-20(22) mm, +/- erecto-patent, wide tubular, nearly straight, slightly infundibuliform to the limb, glandular-pubescent or subglabrous, dark red, yellowish or white at base, shining dark red inside; upper lip bilobed; lower lip with large lobes, middle lobe much larger, deflexed and till 3 times as big as the others, not ciliate. Filaments obliquely inserted, adaxials at 1,5-4,5 mm above base of corolla, abaxials at 0,5-3 mm, pubescent (very rare glabrous) at base, and with short glandular hairs at apex. Anthers 1,5-2 mm, yellowish. Ovary glandular hairy at apex. Stigma deep yellow at anthesis, dull purplish or maroon when dry. (This is a very important character, and to avoid confusion with *O. crinita* fresh material has always to be studied).

Meadows, pastures, scrubland and coastal sandy dunes. Parasitic on herbaceous Leguminosae as *Anthyllis polycephala*, *A. tetraphylla*, *A. vulneraria*, *Astragalus lusitanicus*, *Cicer arietinum*, *Ebenus pinnata*, *Lotus arenarius*, *L. creticus*, *Medicago polymorpha*, *Ononis crispa*, *O. ramosissima*, *Scorpiurus muricatus*, *S. subvillosus*, *S. sulcatus*, *S. vermiculatus*, *Trifolium pratense*, *T. repens*, *Vicia faba*. 0-1700 m. Flowering period March to August.

Iberian Peninsula, Balearic Islands, and North Africa (Portugal, Spain, Balearic Islands, Morocco, Algeria, Tunisia).

Morphologically is a very variable taxon, we can recognize two varieties linked by many forms:

1. Plant to 70 cm high, stem robust. Corolla to 22 mm. Adaxial filaments inserted at 2,5-4,5 mm above base of corolla, abaxial filaments at 1,5-3 mm var. *foetida*
1. Plant smaller to 35 cm high, stem thin. Corolla to 17 mm. Adaxial filaments inserted at 1,5-3 mm above base of corolla, abaxial filaments at 0,5-2 mm var. *broteri* (J. A. Guim.) Merino, Fl. Galicia 2: 49 (1906) [*O. foetida* var. *lusitanica* (Cout.) Beck in Engl., Planzenr. 96: 295 (1930); *O. foetida* subsp. *broteri* J. A. Guim. in Broteria 3:105 (1903); *O. foetida* subsp. *lusitanica* Cout., Fl. Portugal 568 (1913); *O. crinita* var. *occidentalis* M. J. Y. Foley in Anales Jard. Bot. Madrid 58(2): 226 (2001)]

Comments: var. *broteri* has often been misidentified as *O. sanguinea* C. Presl or *O. crinita* Viv. due to the filament insertion near the base of the corolla and also to the colour of the stigma, deep yellow at anthesis (fresh plants), dull purplish or maroon when dry.

Foley (2001a: 226 & 2001b: 70, Lám. 23, f-j) describes *O. crinita* var. *occidentalis* with characters that fit with *O. foetida* var. *broteri*, except for the colour of the stigma lobes "usually deep maroon". We have visited the holotypic place of the var. *occidentalis* and we have found fresh plants with stigmas deep yellow besides other dryer plants with stigmas darker, deep maroon, with corollas wide tubular +/- straight and apex slightly infundibuliform. These plants have clearly been identified as *O. foetida* var. *broteri* (herb. reference: Zahara de los Atunes, COA 31111). We think that Foley (2001: 226) did not see the correct colour of the stigma and included the plant under *O. crinita*. We point out that the best character to separate *O. crinita* from *O. foetida* on dry material is the shape and apex of the corolla, as shown in Table 1.

Material studied

var. *foetida*

SPAIN. A CORUÑA: Playa de Finisterre, 15-V-1975, J.M. Losa, GDA 14330. AVILA: Arenas de San Pedro, río Pelayo, 10-VII-1988, Aizpuru & Catalán, ARAN 34804. BALEARIC ISLANDS, MINORCA: Mezquita, Mahón, Menorca, 9-VI-1893, J. Rodríguez, BC. Cala Mesquida, Maó, Menorca, 10-V-1952, P. Montserrat, BCF 39862 & JACA 11452. Sa Mesquida, Maó, Menorca, sobre *Ononis crispa*, 13-VIII-2000, P. Fraga, P. Poyato & A. Pujadas, COA 29574. BARCELONA: Baix Llobregat, Castelldefels, -III-1876, S. Vayreda, BC. Castelldefels, 22-V-1911, J. Cadevall, BC 821724. Castelldefels, -VI-1916, Fre. Sennen, BC 46607. Castelldefels, 2-VI-1929, C. Pau, MAF 36194, MAF 36276. CÁCERES: Pantano del Tajo, 1-IV-1985, J. Santano, COA 13528. Cargüera, Cerro Maribáñez, 20-V-1988, A. Amor, SALA 77739. CÁDIZ: Los Barrios, 1-V-1988, A. Pujadas & J. Oliveira, COA 7603. Punta Camarinal, Bolonia, 19-VI-1996, A. Lora, P. Prados & J. L. Vivero, COA 22085. CÓRDOBA: Hornachuelos, 19-III-1987, F. Navarro, COA 13821. Km 8 al S de Cardena, 15-V-1989, A. Pujadas, COA 13509. Villa del Río dirección Cardena, 24-V-1989, A. Pujadas & J. Oliveira, COA 13508. Km 6 Córdoba a Villaviciosa, 5-V-1991, A. Pujadas & P. Poyato, COA 17477. Cerro Muriano, cerro Torreárboles, 20-V-1996, R. Rubio, COA 22084. El Majago, Pozoblanco, 30SVH4253, 23-III-2001, J. L. Sánchez Sánchez, COA31054. Valle del Guadalquivir, Arroyo de S. Antón,

Table 1. Morfological differences between *Orobanche crinita* Viv. & *Orobanche foetida* Poir.

Trait	O. crinita	O. foetida
Stem base,diameter (mm)	8-11(17)	(7)14-32
Basal leaves (mm)	18-23 x 3-4	9-20(25) x 3-8
Basal leaves, form	narrowly lanceolate	deltate, oval or lanceolate
Inflorescence (cm)	(4)11-18(30) x 2,2-3(3,4)	(7)13-45 x (2,3)3-4,1
Corolla length (mm)	(8)13-17	(11)15-20(22)
Corolla form	narrow tubular uniformly curved	wide tubular +/- straight
Corolla apex	narrowing to the limb	slightly infundibuliform
Upper lip	shortly bilobed	notably bilobed
Basal lip	stretched forward or +/-deflexed	deflexed
Adaxial filaments, insertion above corolla base (mm)	1-3	1,5-4,5
Abaxial filaments, insertion above corolla base (mm)	0,5-1,5	0,5-3
Anthers (mm)	1,1-1,4	1,5-2
Ovary	glabrous or subglabrous	hairy
Stigma (*)	bright red	deep yellow

(*) The colour of the stigma has to be observed in the anthesis with fresh material.

25-IV-1980, *M. Arenas & E. Domínguez*, COFC 6544. GRANADA: El Pecho, Los Guajares, 15-IV-1990, *J. M. Ruiz*, COA 17602. HUELVA: Aroche, arroyo de Presa Valiente, 19-V-1998, *R. Tamajón*, COA 25537. Cortijo Comeuñas, Gibralfón, 28-IV-2001, *E. Sánchez Gullón & A. Pujadas*, COA 31014. Vía Verde, Gibralfón, 28-IV-2001, *E. Sánchez Gullón & A. Pujadas*, COA 31050. Paraje Natural Marismas del Piedras, Cartaya, 30-IV-2001, *E. Sánchez Gullón*, COA 31047. Ayamonte, 9-V-1943, *C. Vicioso*, MA 115177. Entre Valverde del Camino y La Palma del Condado, 17-IV-1966, *A. Sánchez Jurado*, MAF 75196. Huelva, 2-V-1903, *C. Pau*, MPU. Cortegana, borde de caminos, 28-VI-1988, *Ladero & Amor*, SALA 79728. Entre Aracena y Corterangel, 18-VI-1978, *J. Rivera*, SEV 62024. MADRID: Las Rozas de Puerto Real, 5-VII-1984, *P. Montserrat & J. L. González Rebollar*, JACA 73484. MÁLAGA: Canillas de Albaida, 9-VI-1935, *M. Laza Palacios*, MAF 36199. SALAMANCA: Villariño de los Aires, 13-VII-1978, *J. Sánchez*, SALA 17906. SEVILLA: Prope Dos Hermanas, 21-IV-1895, *C. Pau*, BC 46645. Bienés, 5-V-1984, *A. Lara*, COA 13521. Km 10 de Lora del Río a Constantina, 8-VI-1995, *A. Lora & A. Pujadas*, COA 17630. VALENCIA: El Perellonet, 31-III-1961, *O. de Bolòs*, BC 149702. Valencia, -VI-, *M. Rivas Mateos*, MAF 36193. El Saler, Valencia, 8-V-1982, *J. E. Hernández & al.*, COA 11142. Sierra de la Murta, s.d., *J. Borja*, MAF 36258.

PORTUGAL. ALGARVE: Cabo San Vicente, 16-IV-1987, *A. Pujadas & P. Poyato*, COA 13828. Raposeira, 16-IV-1987, *A. Pujadas & P. Poyato*, COA 13830. Vila do Bispo, Raposeira, Praia do Zaial, 14-VI-1988, *M^a.D. Espirito Santo*, LISI. Aljezur, Amoreira, entre a ribeira e o mar, 15-VI-1988, *M^a.D. Espirito Santo*, LISI. Tavira, Conceição, Quinta do Morgado, 5-VI-1993, *M^a.D. Espirito Santo*, LISI. V.N. de Portimao, 2-VI-1847, *leg. illeg.*, LISU P34543. Sagres, -V-1887, *J. A. Guimaraes*, LISU P3457. ALTO ALENTEJO: Arredores de Evora, -V-1945, *S. Perdigao*, LISI. Arredores de Evora, -V-1946, *S. Perdigao*, LISI. Montemor-o-Novo, S. Mateus, 20-IV-1957, *A. A. R. Pereira d'Almeida*, LISI. Arraiolos, Vimieiro, herdade da Tourega, 23-V-1987, *A. López Aleixo*, LISI. Beja, -

IV-1882, A.R. da Cunha, LISU P34551. Montemor-o-Novo, -V-1885, *J. G. de Barros e Cunha*, LISU P34558. BEIRA LITORAL: Coimbra, S. Benito, s.d., *J. Henriques*, LISU P34544. DOURO LITORAL: S. Martinho do Porto, -VI-1915, *F. Mendes*, LISU P34575. ESTREMADURA: Cascais, Malveira, -IV-1943, *J. M. Carvalho & F. M. Flores*, LISI 2752/56. Carnaxide, Ontorela, Quinta dos Sales, 15-V-1960, *A. A. da Freitas*, LISI. Sintra, Colares, Azenhas do mar, 5-VI-1980, *F. L. Alves*, LISI. Lisboa, IV-1881, *A. R. de Cunha*, LISU P34554. Santa Quiteria de Meca, -VI-1892, *J. Gualberto de Barros*, LISU P34548. Alemquer, -V-1900, *J. A. Guimaraes*, LISU P34545. Cascais, entre Zambujeiro e Murches, 10-V-1983, *M. Correia & J. Cardoso*, LISU 151693. Cascais, Praia do Abano, 31-V-1983, *M. Correia & J. Cardoso*, LISU 151899. RIBATEJO: Azambuja, -V-1936, *Marquês da Silva*, LISI. TRAS OS MONTES: Carrazeda de Ansiaes, Ribalonga, foz o rio Tua, 1-V-1996, *C. Aguiar*, HVR 5919.

MOROCCO: Autovía Rabat-Casablanca Km 32, 9-IV-1989, *J. Oliveira*, COA 13827. Casablanca & Chaouia, s.d., *C. J. Pitard*, MPU. Camp Monod, -IV-1912, *G. Mouret*, MPU. Hür-Kansara, 6-V-1917, *Ducellier*, MPU. M. Kenitra, La Mamora, 29-III-1921, *R. Maire*, MPU. Prope urbem Saffi, 18-IV-1924, *R. Maire*, MPU. Tanger, s.d., *Salzmann*, MPU. Prope Mogador, 6-IV-1926, *R. Maire*, MPU. Monte Zerhoun prope Urassim, 20-IV-1926, *R. Maire*, MPU. Prope urbem Fés, 20-IV-1927, *R. Maire*, MPU. In Atlante rifano, montis Kráa, 25-VI-1930, *R. Maire*, MPU. Atlas Medium, prope Tizi-n-Ouria supra Ksiba, 21-VI-1936, *R. Maire*, MPU. Zaïr, Vallé de l'O. Korifla, à Bled Oud Dfebli, 9-V-1968, *J. Mathez*, MPU.

ALGERIA: Sidi Aïch, s.d.; *Battandier*, MPU. Dpdjelli C.C., s.d., *Battandier*, MPU. Bougie, s.d., *Battandier*, MPU. Munby, s.d., *Pomel*, MPU.

TUNISIA: Beja, 20-IV-1991, *M. Kharat*, COA 17476.

var. *broteri* (*J. A. Guim.*) Merino

SPAIN. A CORUÑA: Cabo Fisterra, 14-V-1994, *R. J. Louzán*, SANT 40603. Fisterra, Punta Alba, al Este de la Playa de Langostera, 12-V-1996, *J. Amigo & M.J. Romero*, SANT 35416. ALMERIA: Sierra de Gádor, Alcolea, 7-VIII-1992, *A. Hervás*, GDAC 38289. ÁVILA: Macizo oriental de la Sª de Gredos, entre Lanzahita y Piedralaves, 14-V-1982, *D. Sánchez-Mata*, MAF 134226. Macizo oriental de la Sª de Gredos, Mombeltrán, Las Chinas, 16-VII-1985, *D. Sánchez-Mata*, MAF 134313. CÁDIZ: Zahara de los Atunes, junto al Faro de Camarinal, sobre *Scorpiurus muricatus*, 10-V-2003, *A. Pujadas*, COA 31111. Llanos de Paulina, prope Jerez, 10-V-1879, *Pérez-Lara*, MAF 36197. Pinar de Hierro prope Chiclana, 19-V-1883, *Pérez-Lara*, MAF 36198. Prope Chipiona, 15-VII-1883, *Pérez-Lara*, MAF 36151. Pinar de Platero prope Pto. de Sta. María, 28-IV-1887, *Pérez-Lara*, MAF 36152. GRANADA: Trevélez, cerca río Trevélez, 30-VI-1990, *A. Pujadas & P. Poyato*, COA 17373. Trevélez, c. cortijo Calvanche, 16-VII-1990, *A. Pujadas & P. Poyato*, COA 17374. Castaras, 28-VI-1978, *J. Molero-Mesa*, GDA 11251. Laroles, Sª Nevada, 22-VI-1989, *A. Hervás*, GDAC 34739. LUGO: Montforte, Ribas Altas, 15-VI-1989, *M. Buján*, SANT 25394. Cerca de Frieria, en Brollón, 7-VI-1990, *J. Amigo*, SANT 25377. Sober, Canabal, 18-VI-1991, *M. J. Romero & J. Amigo*, SANT 25378. Sober, Dorde, 15-VII-1992, *J. Amigo & M. J. Romero*, SANT 25397. Campus Universitario, 18-VI-1993, *X. Soñora*, SANT 29215. OURENSE: Carballeda, entre el refugio y Trevinca Norte, 1780-2095 m, 5-VIII-1983, *S. Ortiz*, SANT 17412. Toén,

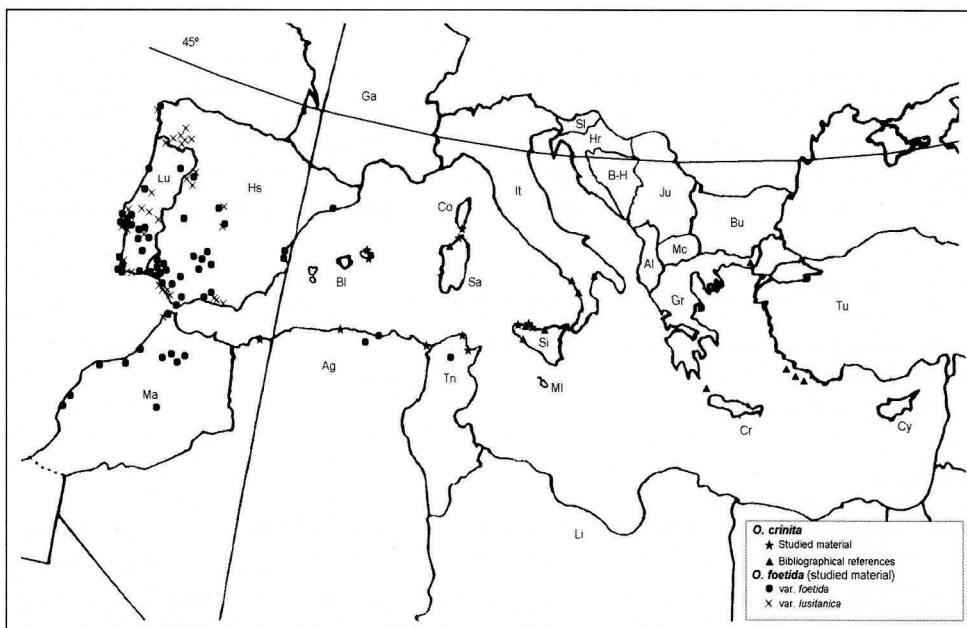


Fig. 1. Distribution map.

Alongos, 7-V-1995, *J. Amigo & M. J. Romero*, SANT 30330. SALAMANCA: El Rostro, Corporario, 20-VI-1977, *F. Amich*, SALA 15856. Estación de Villares de Yeltes, 23-VI-1978, *F. Amich*, SALA 15857. Pereña, 20-VI-1977, *J. Sánchez*, SALA 17907.

PORTUGAL. ALGARVE: Aljezur, Bordura, Praia do Amado, 23-IV-1988, *M^a. D. Espirito Santo*, LISI. Sn. Biaz a Faro, -IV-1881, *J. Daveau*, LISU P34572. Faro, -IV-V-, *J. A. Guimaraes*, LISU P34547. ALTO ALENTEJO: Evora, Graça do Divor, Hde. dos Carpelos, 30-V-1956, *J. V. S. O. Sousa*, LISI. Evora, N^a Sra. do Divor, Monte do Sobral, 28-IV-1977, *J. A. Franco*, LISI 5559. S^a da Penha, Portalegre, -VI-1882, *A. R. da Cunha*, LISU P34567. BEIRA LITORAL: Coimbra, c. S. Benito, s.d.; *D. J. Henriques*, LISU P34544. Coimbra, -IV-1883, *J. A. Guimaraes*, LISU P34550. ESTREMADURA: Serra da Arrabida, IV-1940, *J. Vasconcellos*, LISI. Montachique, -VI-1941, *J. M^a de Carvalho & F. M. Flores*, LISI 1230-23. Cascais, -V-1880, *Pereira Coutinho*, LISU P34545. Entre Corroios et Cezimbra, -IV-V-1885, *J. Daveau*, LISU P34559. Lisboa, -V-1900, *D. J. Henriques*, LISU P34542. Serra d'Arrabida, 15-IV-1902, *Guimaraes*, LISU-P34541. Montserrat, -VI-1909, *H. Cayenil(?)*, LISU P34576. MINHO: Peso de Melgao, Margem do Rio Minho, -VI-1929, *B. Neves*, LISI. RIBATEJO: Cerca de Pinhao, 27-V-1988, *A. Pujadas & al.*, COA 13829. Belaez, Abrantes, -V-1883, *Pereira Coutinho*, LISU P34546.

MOROCCO: Hab. pr. El Araix, l. Bu-Xaren dicto, 19-IV-1930, *Font Quer*, MAF 36257, GDA, MPU.

Main morphological differences between *O. crinita* and *O. foetida* are shown in Table 1.

Conclusion

O. crinita is a coastal Tyrrhenian or central Mediterranean plant that reaches as far west as Minorca (Balearic Islands) and the Algerian coast (Fig. 1). This plant has not yet been found in Morocco neither in the Iberian Peninsula, all the supposed material of *O. crinita* from these territories should be considered *O. foetida*. By the other hand *O. foetida* is a strictly western Mediterranean plant (Iberian Peninsula, Balearic Islands and North West Africa).

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