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Annotations to the *Orchidaceae* of Extremadura (SW Spain)

Keywords

Orchidaceae; New taxa; *Serapias*; *Ophrys*; *Orchis*; *Neotinea*; taxonomy, hybrids, SW-Spain, Extremadura, Badajoz.

Summary

Vázquez, F. M.(2008): Annotations to the *Orchidaceae* of Extremadura (SW Spain).- J. Eur. Orch. 40(4): 699-725.

Further studies on the diversity of the *Orchidaceae* family of Extremadura (SW-Spain) revealed the presence of the following new taxa and nothotaxa: *Serapias maria*, *Ophrys omegaifera* subsp. *dyris* var. *maculata*, *Ophrys lutea* var. *speculissima*, *Neotinea conica* var. *ricardina*, *Neotinea conica* var. *saenzii*, *Orchis italica* var. *fontinalis*, and *Ophrys* ×*braun-blanquetiana* nothosubsp. *perceiana*. Additionally, the following names were revised: *Ophrys fusca* subsp. *lindleyana*, *Ophrys fusca* subsp. *clara*, *Ophrys lutea* var. *quarteirae*, and *Ophrys omegaifera* subsp. *dyris* f. *kelleri*. This study confirmed a substantial diversity of the *Orchidaceae* family in Extremadura and showed the necessity of sustainable conservation measures.

Zusammenfassung

Vázquez, F. M.(2008): Anmerkungen zu den *Orchidaceae* der Extremadura (SW-Spanien).- J. Eur. Orch. 40(4): 699-725.

Bei weiteren Untersuchungen der Orchideen der Region Extremadura (SW-Spanien) konnten die folgenden neuen Taxa und Nothotaxa nachgewiesen werden: *Serapias maria*, *Ophrys omegaifera* subsp. *dyris* var. *maculata*, *Ophrys lutea* var. *speculissima*, *Neotinea conica* var. *ricardina*, *Neotinea conica* var. *saenzii*, *Orchis italica* var. *fontinalis*, *Ophrys* ×*braun-blanquetiana* nothosubsp. *perceiana* und *Ophrys* ×*maimonensis*. Zusätzlich wurden einige Taxa neu bewertet: *Ophrys fusca* subsp. *lindleyana*, *Ophrys fusca* subsp. *clara*, *Ophrys lutea* var. *quarteirae*, and *Ophrys omegaifera*

subsp. *dyris* f. *kelleri*. So konnte eine ausgeprägte Diversität der Orchideenflora in der Extremadura nachgewiesen und die Notwendigkeit nachhaltiger Schutzmaßnahmen aufgezeigt werden.

* * *

1. Introduction

The diversity the *Orchidaceae* in the Southwest of the Iberian Peninsula recently has been studied by numerous working groups (TYTECA 1998, KREUTZ & al. 2007; VÁZQUEZ 2007a; VENHUIS & al. 2007). The originally known diversity of the territory has been increased during the last decade with new taxa such as *Serapias occidentalis* C.Venhuis & P.Venhuis (VENHUIS & al. 2006), *Ophrys lutea* subsp. *quarteirae* C.A.J.Kreutz, M.R.Lowe & Wucherpfennig (KREUTZ & al., 2007) or *Dactylorhiza irenica* F.M.Vázquez (VÁZQUEZ 2008). Also, other long time forgotten taxa were reconfirmed such as *Serapias strictiflora* Welw. ex Da Veiga (SÁEZ & al. 2005) or *Dactylorhiza caramulensis* (Verm.) D.Tyteca (TYTECA 1998). A continuous study within a territory is a main element to obtain a substantial knowledge on diversity and interactions between habitats and species, especially in the *Orchidaceae* family.

The diversity of the *Orchidaceae* family from SW Iberian Peninsula is concentrated mainly in *Ophrys* L. (GALÁN & GAMARRA 2003; ALDASORO & SÁEZ 2005), *Orchis* L. (TYTECA 1998; AEDO 2005), *Dactylorhiza* Necker ex Nevski (VÁZQUEZ 2007a) and *Serapias* L. (BAUMANN & KÜNKELE 1989; SÁEZ & al. 2005; VENHUIS & al. 2006; VENHUIS & al. 2007), genus. Also, there are known numerous hybrids between the species of the most representative genera (TYTECA 1998; VÁZQUEZ 2008) and occasional inter-generic hybrids (KRETZSCHMAR & al. 2007).

The objective of this work is to continue the orchid study in the Extremadura region (SW-Spain) in order to improve knowledge on their diversity.

2. Material and methods

During the 2005 until 2008 years numerous *Orchidaceae* populations in Extremadura (Spain) were studied. A selection of the materials studied was dried, labelled, and conserved in HSS Herbarium (HOLMGREN & al. 2003). The material conserved was studied during the 2008 period for knowledge the

distribution of the *Orchidaceae* family diversity in the Extremadura Community.

The dry material was studied morphologically; and in order to characterize the investigated populations morphologically, the floral part and vegetative characters have been studied on living material in the field. Photographs and drawings were made in order to show the most important characters and its differences to close taxa.

Emphasis has been put on material of taxonomically interesting groups, for which additional material has been studied from herbariums: B-W, L, MA-CAV, MPU, P, P-LAM (HOLMGREN & al. 1990). After conclusion of the study the specimens of the investigated populations were characterized and compared with related taxa in order to show possible differences.

The final result is a list of the different new and revised names of taxa from Extremadura region.

3. Results

The results will be exposed in three chapters: 3.1. New taxa; 3.2. Revision of names; and 3.3. New nothotaxa.

3.1. New taxa

Serapias maria F.M.Vázquez spec. nov.

Diagnosis: Plantae 17-38 cm; tuberis 2-3 subglobosis; foliis 7-14(18) × 0,5-1,8 cm lineari-lanceolatis, superne in bracteis purpurascens transeuntibus; spica 4-9(12) cm, ovata vel cylindrica pauciflora; bracteis flores (20)22-40(45) × 7-14 mm superantibus; sepalis 22-28(30) × 3,5-8 mm lanceolatis; petalis 20-25(27) × 4-6(7,5) mm basi obovatis vel lanceolatis, et acumen ciliatis, atropurpureo; labello maximo, trilobo, late oblongo (8)10-17(20) × 12-17(20) mm atropurpureo, pubescentibus, lobis lateralibus subrotundis, medio (10)12-20(22) × 6-9(10) mm reflexo subtriangulari rotundato auct acuminato, atropurpureo et pubescentibus.

Holotype: HS, BADAJOZ, Badajoz, proximidades de La Atalaya, 29SPD70, 23-III-2008, D. García & M. Fernández (HSS Single exemplar). Fig. 1 and Fig. 2.

Etymology: Francisco M. Vázquez species filiae carissimae María Vázquez García dicata.

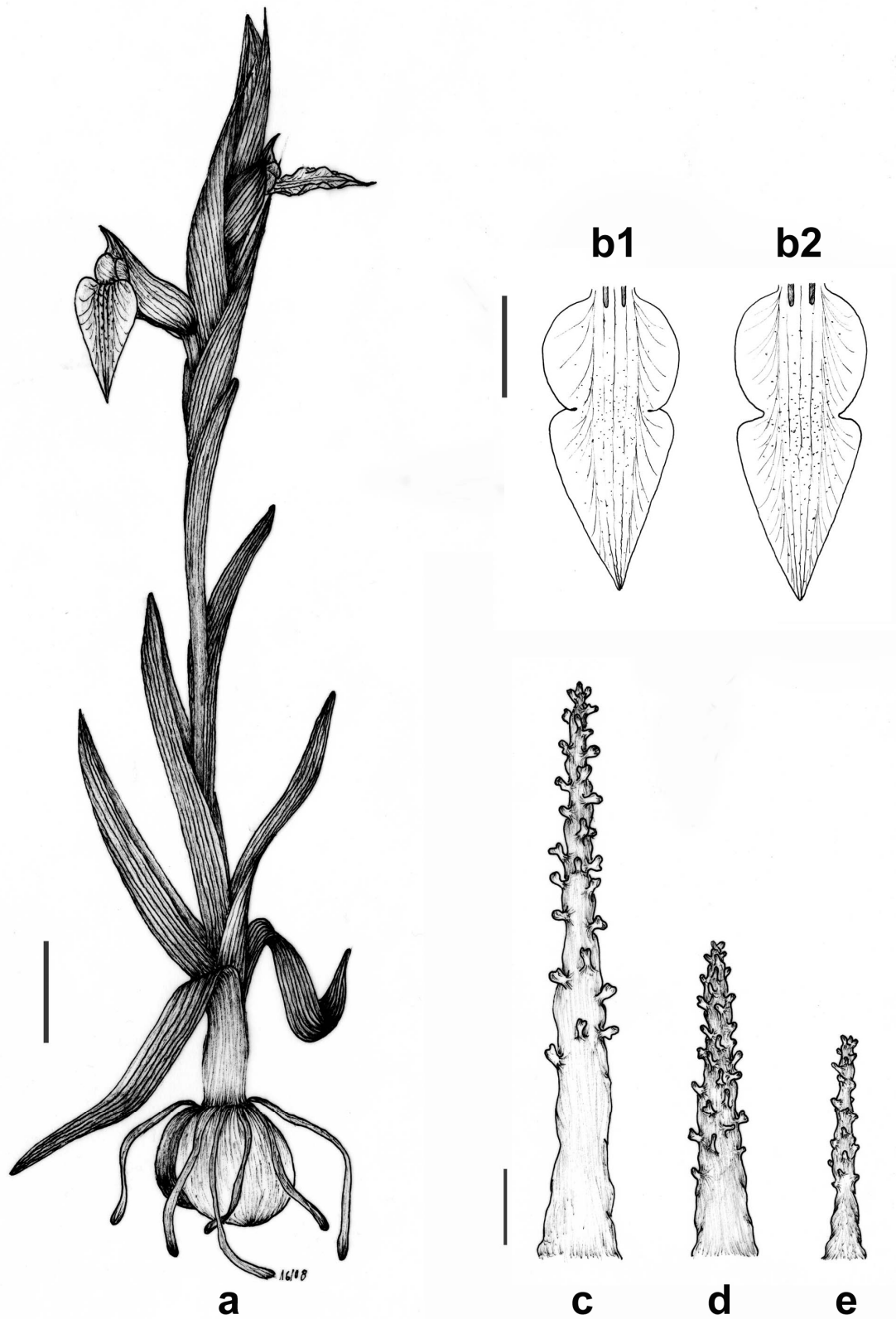


Fig. 1: Illustration of *Serapias maria* F.M.Vázquez. a: Plant; b¹, b²: Lip diversity; c: Hair type of *Serapias cordigera* L.; d: Hair type of *Serapias maria*; e: Hair type of *Serapias parviflora* Parl. Plant bar indicates 1 cm; Lip bar indicates 5 mm; Hair bar indicates 0.1 mm.

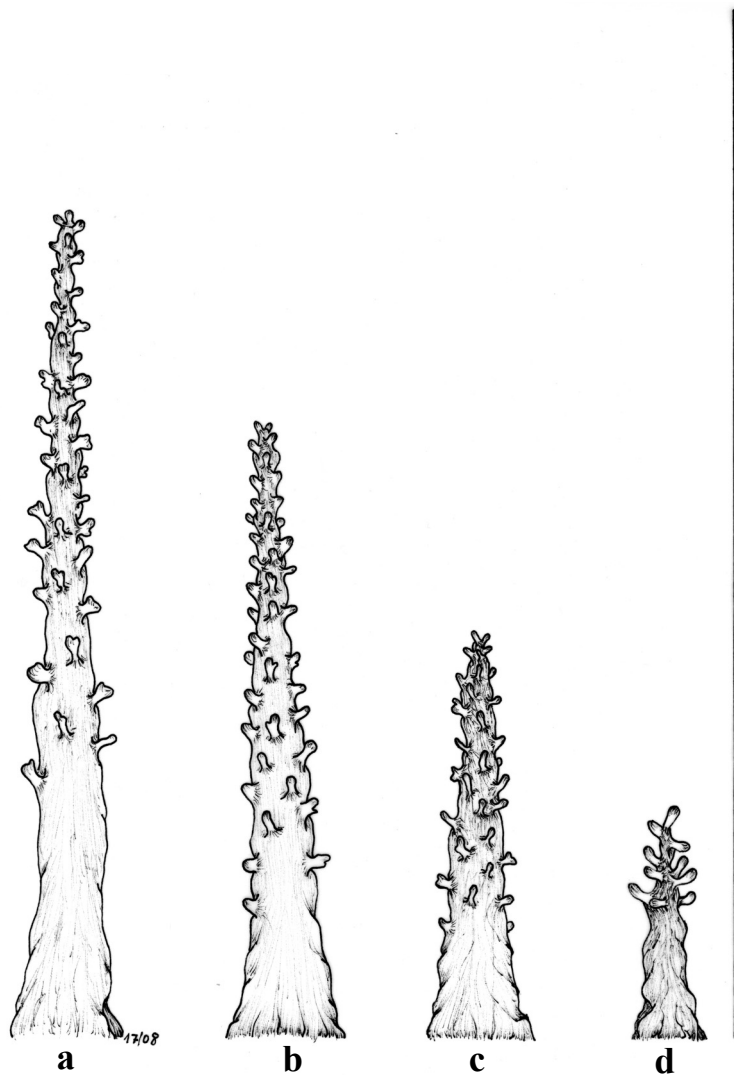


Fig. 2: Hairs of the basal area of epichile of the species: a: *Serapias cordigera* L.; b: *Serapias ×occidentalis* C.Venhuis & P.Venhuis; c: *Serapias maria* F.M.Vázquez; d: *Serapias lingua* L. Bar indicates 2 mm.

The new species was before identified such as *Serapias vomeracea* (Burm.fil) Briq. (PÉREZ-CHISCANO & al. 1991; MATEOS & DURÁN, 2006; VÁZQUEZ 2007b), but the hypochile and epichile size and morphology are completely different. The size of the flower pieces remember *Serapias lingua* L., but the morphology of the basal area of the hypochile insert the new species in the group *Serapias* Section *Bilamellaria* Schltr. A first opinion about the exemplars associated to *Serapias maria* F.M.Vázquez was included in the nothotaxon proposal by RÜCKBRODT & al. 1990 from Northern Iberian Peninsula such as *S. cordigera* × *S. lingua*. However the study of the flower

character of the exemplars studied by RÜCKBRODT & al. 1990 showed differences in the morphology and size of the sepals, petals and epichile of the exemplars of *S. maria* (see table 1).

Table 1. Flower characters of the species related with *Serapias maria* F.M.Vázquez. (1) Information according RÜCKBRODT & al. 1990; (2) Information obtains by LANDWEHR 1977; (3) Information obtains by SÁEZ & al. 2005; and VENHUIS & al. 2006.

Characters	<i>Serapias cordigera</i> x <i>S. lingua</i> ⁽¹⁾	<i>Serapias vomeracea</i> ⁽³⁾	<i>Serapias cordigera</i>	<i>Serapias occidentalis</i>	<i>Serapias maria</i>	<i>Serapias lingua</i>
Flower bracts	Lanceolate	Lanceolate	Obovate	Obovate	Lanceolate To Obovate	Lanceolate
Number of flower/inflorescence	?	6.1±2.2	6.2±3.6	4.1±1.9	2.5±3.5	4.5±2.2
Base Hypochile	Two parallel lamellae	Two parallel lamellae	Two divergent lamellae	Two sub-parallel lamellae	Two parallel lamellae	Single boss
Hairs base Epichile (mm)	?	1.1-1.3 ⁽²⁾	1.2-1.9	0.9-1.6	0.7-0.9	0.4-0.6
Base of Petals	Sub-orbicular	Obovate	Sub-orbicular	Sub-orbicular	Sub-orbicular	Lanceolate
Hypochile	Sub-orbicular	Sub-orbicular	Sub-orbicular	Sub-orbicular	Obovate to Sub-orbicular	Obovate
Hypochile length (middle) (mm)	15.81±2.53	10.1±1.5	14.3±2.2	13.6±2.1	11.4±2.7	9.7±3.6
Epichile length (middle) (mm)	22.8±4.44	21.4±3.2	21.2±3.3	22.4±4.1	19.3±5.2	16.3±5.3
Ratio length Epichile/Hypochile	>1.2	1.8-2.3	1.2-1.6	1.4-1.8	0.9-1.1	1.3-1.7

Other exemplars in Extremadura, formerly attributed to *S. vomeracea* (Burm. fil) Briq., recently were described as *Serapias occidentalis* C.Venhuis & P.Venhuis (VENHUIS & al. 2006). A comparison of the population of *S. occidentalis* C.Venhuis & P.Venhuis from Badajoz, Obando and the material in HSS (conserved sub *S. vomeracea* (Burm.fil) Briq.) confirms the presence of two different, but related taxa. Finally it is concluded, that *Serapias*

occidentalis C.Venhuis & P.Venhuis represents a hybrid as proposed by its authors (VENHUIS & al. 2006). the origin however was not *Serapias cordigera* L. × *Serapias vomeracea* (Burm.f.) Briq. In the morphological study of *S. occidentalis* C.Venhuis & P.Venhuis intermediate morphological flower characters between *Serapias cordigera* L. × *Serapias maria* F.M.Vázquez (see table 1) have been identified by the authors (l.c.). Finally, we can conclude, that the main populations, which were named such as *Serapias vomeracea* (Burm. fil) Briq., probably will be *Serapias maria* F.M.Vázquez, and that in some populations occur hybrids between *S. cordigera* × *S. maria* that we can attribute to *Serapias × occidentalis* C.Venhuis & P.Venhuis, Anal. Jard. Bot. Madrid 63(2): 138. 2006 (See table 1). The new species live in the more occidental part of Extremadura, near to adjacent Portugal country, and probability exist in these territory.

***Ophrys omegaifera* subsp. *dyris* var. *maculata* F.M.Vázquez var. nov.**

Diagnosis: Affinis varietas *Ophrys omegaifera* subsp. *dyris* var. *dyris*, a qua different speculum partitum et maculatum.

Holotype: HS, Badajoz, Fuente de León, próximo castillo del Cuervo, 4-IV-2008, F. Márquez, S. Rincón, S. Ramos, & F.M. Vázquez (HSS Single exemplar), Fig. 3b.

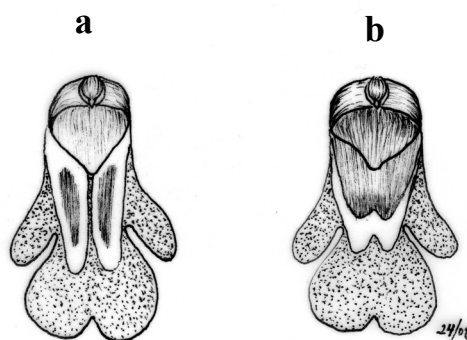


Fig. 3: Lip diversity of *Ophrys omegaifera* subsp. *dyris* (Maire) Del Prete: a: *Ophrys omegaifera* subsp. *dyris* var. *dyris* (Maire) Del Prete; b: *Ophrys omegaifera* subsp. *dyris* var. *maculata* F.M.Vázquez. Bar indicates 1 cm.

The new variety is characterized for the presence of speculum divided per a middle line. Each locus of the speculum contains one macula that remembers the morphology of the speculum of *Ophrys fusca* subsp. *bilunulata* (Risso) C.A.J.Kreutz, Fig. 3b).

Ophrys lutea* var. *speculissima F.M.Vázquez var. nov.

Diagnosis: Affinis varietas *Ophrys lutea* var. *lutea*, a qua speculo longissimo differt.

Holotype: HS, Badajoz, Santa Marta, Sierra Caliza , 7-V-2008 F.M.Vázquez (HSS Single exemplar), Fig. 4b.

The typical speculum of *Ophrys lutea* Cav., is characterized for the oblonge to obovate morphology. The new variety has a very long, lanceolate speculum, (Fig. 4b. and fig. 30).

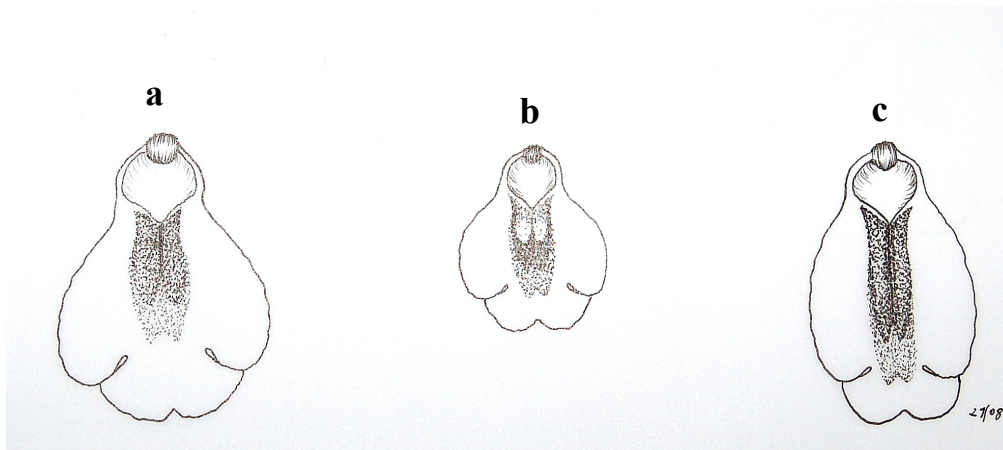


Fig. 4: Lip diversity in *Ophrys lutea* Cav., from Extremadura (Spain): a: lip *Ophrys lutea* var. *lutea* Cav.; b: *Ophrys lutea* var. *quarteirae* (C.A.J.Kreutz, M.R.Lowe & Wucherpfennig) F.M.Vázquez; c: *Ophrys lutea* var. *speculissima* F.M.Vázquez. Bar indicates 1 cm.

Neotinea conica* var. *ricardina F.M.Vázquez var. nov.

Diagnosis: Affinis varietas *Neotinea conica* var. *conica*, a qua differt labello et lobulis linearibus.

Holotype HS, Badajoz (Ba) , Badajoz, 6-IV-2006, F.M.Vázquez & al., (HSS Single exemplar), Fig. 5a.

Etymology: Variantes cultissimus, pater Ricardo Cabezas de Herrera et familiaris, dicata.

Neotinea conica var. *saenzii* F.M.Vázquez var. nov.

Diagnosis: Affinis varietas *Neotinea conica* var. *conica*, a qua differt labello integro.

Holotype HS, Badajoz (Ba) , Fuente de León, 4-IV-2008, F.M.Vázquez & al., (HSS Single exemplar) Fig. 5c.

Etymology: Variantes cultissimus auctoris Antonio Sáez Delgado et familiaris, dicata.

The lip type of *Neotinea conica* (Willd.) R.M.Bateman is characterized for the two lateral lobules of the lip angulated 20°-35° degrees, and the central lobule obovated to sub-orbicular. The presence of exemplars with lip not lobulated or with lineal lobules (lateral and central) are the origin of the two new varieties: *Neotinea conica* var. *saenzii* F.M.Vázquez, with lip not divided; and *Neotinea conica* var. *ricardina* F.M.Vázquez with lateral lobules of the lip lineals.

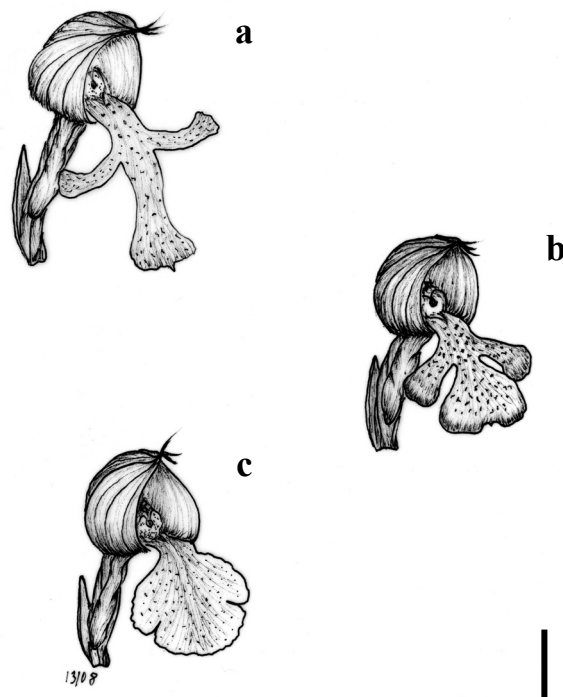


Fig. 5: Flower diversity in *Neotinea conica* (Willd.) R.M. Bateman: a: *Neotinea conica* var. *ricardina* F.M.Vázquez; b: *Neotinea conica* var. *conica* (Willd.) R.M. Bateman; c: *Neotinea conica* var. *saenzii* F.M.Vázquez. Bar indicates 0.5 cm.

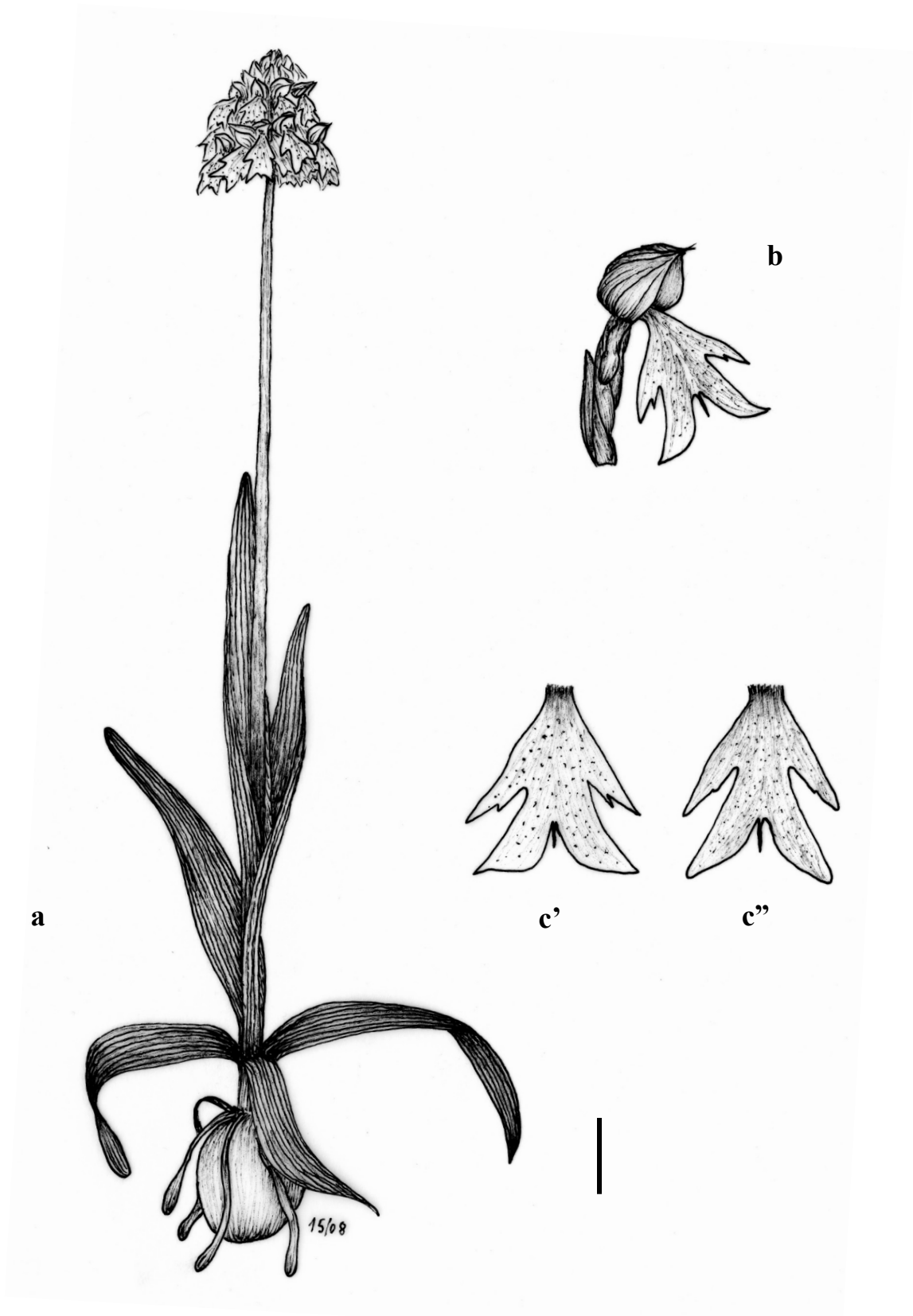


Fig. 6: Illustration of *Orchis italica* var. *fontinalis* F.M.Vázquez. a: Plant; b: flower; c' and c'': lips diversity. Plant bars indicate 1 cm. Flower and lip bars indicate 0,6 cm.

Orchis italica var. *fontinalis* F.M.Vázquez, var. nov.

Diagnosis: Affinis varietas *Orchis italica* var. *italica*, a qua differt labello et lobulis amplissimis.

Holotype: HS, Badajoz, Fuente de León, 9. IV-2008, leg. F. M. Vazquez, F. Wallenwein & R. Lorenz, Hb. R. Lorenz/Weinheim. Fig. 7, Holotypus; Fig. 6a, b, c', c''.

At first view one could think on the possibility of a hybrid between *Neotinea conica* (Willd.) R.M.Bateman × *Orchis italica* Poir., supported by MATEOS & DURÁN 2006, as they indicated the presence of *Orchis* × *diversifolia* Guadagno; (= *Orchis conica* Willd. × *Orchis italica* Poir.). The name *Orchis* × *diversifolia* Guadagno was listed by SUNDERMANN (1980: 255) for the hybrid *Orchis italica* × *Orchis tridentata*, such as *O.* × *diversifolia* Guadagno [“Gaudagno”] 1923

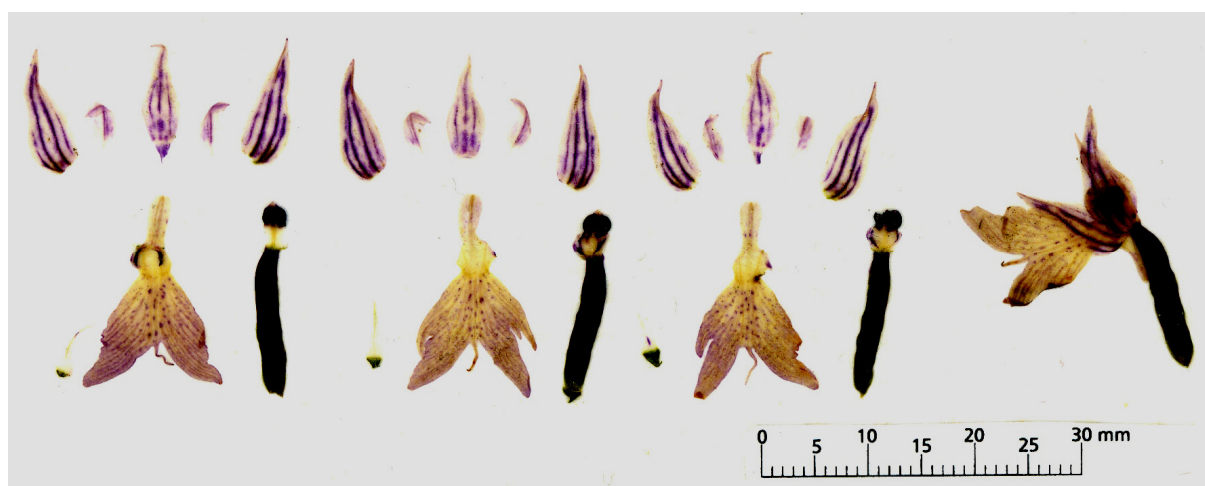


Fig. 7: *Orchis italica* var. *fontinalis*, HS, Badajoz, Fuente de León, 9. IV-2008, dried flowers of one single plant, holotypus.

3.2. Revision of names

Ophrys fusca subsp. *lindleyana* (H.Fleischm. ex Soó) F.M.Vázquez comb. et stat. nov.

Basionym: *Ophrys lindleyana* H. Fleischm. ex Soó, in Keller & Soó, Monogr. Iconogr. Orchid. Eur. 2: 32. 1930. (Ind. loc.: “Im Süden Portugals soll nach Fleischmann...”) Lectotype: LINDLEY 1827, Bot. Reg. 13: 1071! (Inflorescence, flower, and basal leaves. Designated here). Syntype: REICHENBACH 1831, Icon. Pl. Crit. Tab. 856. 1148! (Compleat exemplar)

Synonyms: *Ophrys iricolor* auct. pl.; *Ophrys fusca* auct. pl.; *Ophrys fusca*

subsp. *iricolor* auct.

A comparison of the population associated with *Ophrys iricolor* Desf. (= *Ophrys fusca* subsp. *iricolor* (Desf.) K.Richt.) in Extremadura with the type of *Ophrys iricolor* Desf., Ann. Mus. Par. 10: 224. t. 13. 1807 (Ind. loc.: “TOURNEF. Cor. Inst. 30- Velins du Muséum 2.” Lectotype: DESFONTAINES 1807, Plate 13! (Inflorescence, lateral and central flowers, and complete plant) (designated here)), indicate, that these are two different taxa, because the size and morphology of the lip are different, formerly indicated by LINDLEY, 1827; REICHENBACH, 1831; SOÓ 1930; PEDERSEN & FAURHOLDT 2007 (See table 2). The plants associated with the *Ophrys iricolor* group from SW Iberian Peninsula are characterized for the smaller lip, presence of yellow lines in the margin, and not bipartite mirror. Any of the mentioned characters were used by SOÓ 1930, for the description of *Ophrys lindleyana* H.Fleischm. ex Soó, supported by the reflections of FLEISCHMANN.

Table 2. Characters for the differentiation between *Ophrys fusca* subsp. *iricolor* (Desf.) K. Richt., and *Ophrys fusca* subsp. *lindleyana* (H. Fleischm. ex Soó) F.M.Vázquez. ⁽¹⁾ Information according DELFORGE 2006 and PEDERSEN & FAURHOLDT 2007.

Characters	<i>Ophrys fusca lindleyana</i>	<i>Ophrys fusca iricolor</i> ⁽¹⁾
Underside lip colour	Red to purple	Purple
Lip margin	Yellow to red	Blanck to red
Mirror	Metalic blue to Metalic	Metalic blue
Mirror division	Not divided	Divided
Lip size (mm)	12-22 × 11-20	16-26 × 14-22
Ration lip Long/Large	1,0-1,1	1,1-1,3

Ophrys fusca* subsp. *clara (F.M.Vázquez & S.Ramos) F.M.Vázquez comb. et stat. nov.

Basionym: *Ophrys clara* F.M.Vázquez & S.Ramos, J. Eur. Orch. 35(4): 818. 2005. (Holotype: HS, Badajoz, Fuente del Maestre, Sierra de San Jorge, Casa Blanca, 38° 31' 19 N, 6° 23' 13 W, 500 msm, V-2004, C. & F.M. Vázquez (HSS 11870!))

Ophrys lutea* var. *quarteirae (C.A.J.Kreutz, M.R.Lowe & Wucherpfennig) F.M.Vázquez comb. et stat. nov.

Basionym: *Ophrys lutea* subsp. *quarteirae* C.A.J.Kreutz, M.R.Lowe & Wucherpfennig, J. Eur. Orch. 39(3/4): 627. 2007. (Holotype: Portugal (Algarve); Paderme, 29S0570.983/4112873 (WGS 84), leg C.A.J. Kreutz, 17.4.2007 (L)!)

Ophrys omegaifera* subsp. *dyris* f. *kelleri (Maire) F.M.Vázquez comb. nov.

Basionym: *Ophrys dyris* f. *kelleri* Maire, Bol. Soc. Hist. Nat. Afr. Nord 27: 80 (1936) (Ind. loc.: “ Hab. circa Casablanca (J. GATTEFOSSE).” Lectotype: MPU 006250 (single exemplar)! (Designated here)).

3.3. New nothotaxa

Ophrys* × *maimonensis F.M.Vázquez nothosp. nov. (*Ophrys incubacea* Bianca et *Ophrys picta* Link)

Diagnosis: Inter *Ophrys incubacea* Bianca et *Ophrys picta* Link. Labellum inter parentis, sepalis proximo *Ophrys picta* et petalis proximo *Ophrys incubacea*.

Holotype: Plate 7. Plant with flower. Illustration based in the observation of exemplar from: HS, Badajoz, Los Santos de Maimona, Sierra Caliza, IV-2008

SOÓ (1931) applied the name *Ophrys* × *breviappendiculata* [breviappendiculata] (Duffort) Sóo, Monogr. Iconogr. Orchid. Eur. 2: 79. 1931. for the hybrid between *Ophrys incubacea* Bianca × *Ophrys picta* Link. But DUFFORT 1908, described *Ophrys* × *philippii* nothosubsp. *breviappendiculata* Duffort in E.G.Camus, Bergon & A.Camus, Monogr. Orchid. 304. 1908. (Ind.loc.: “*prés de Masseube, Gers*”), for naming the hybrid between *Ophrys incubacea* Bianca × *Ophrys scolopax* Cav. According SOÓ 1931 however *Ophrys scolopax* Cav. was a synonym of *Ophrys picta* Link, but today we know that *Ophrys picta* Link and *Ophrys scolopax* Cav., are two different species (BENITO & al. 1999; DELFORGE 2006; VAZQUEZ 2007b).

The combination *Ophrys* × *breviappendiculata* (Duffort) Sóo 1931 is valid for naming the hybrid between *Ophrys incubacea* Bianca × *Ophrys picta* sensu SOÓ 1931, because the hybrid between *Ophrys incubacea* Bianca × *Ophrys scolopax* Cav., [= *Ophrys* × *llenassii* Sennen ex E.G. Camus, in CAMUS & CAMUS, Icon. Orch. Eur. 356. 1928 (Ind.loc.: “*Espagne: Catalogne à Cabanas (Sennen).- France: Alpes-Marit. à Vence*” (A.Camus); sur la route de St-Laurent-du-Var à St-Jeannet (Bergon).); = *Ophrys* × *llenassii* Sennen in Bol. Soc. Arag. XI: 244. 1912. nom. nud.], is different and has different type, such

as CAMUS 1928 listed: a) *Ophrys ×llemasii* var. *llemasii* Sennen ex E.G. Camus, and b) *Ophrys ×llemasii* var. *breviappendiculata* (Duffort) E.G. Camus. The origins of the two taxa are mainly France, and punctually NE of Spain. *Ophrys picta* Link does not occur in France or NE of Spain (BOURNERIAS 1998), it is a taxon of the Central and Southern Iberian Peninsula and NW-Africa. In this case it is necessary to give a new name to the hybrid *Ophrys incubacea* Bianca × *Ophrys picta* Link, i.e. *Ophrys ×maimonensis* F.M. Vázquez.

Ophrys ×braun-blanquetiana Soó 1931 nothosubsp. ***perceiana*** F.M. Vázquez & R. Lorenz nothosubsp. nov. (*Ophrys fusca* subsp. *clara* (F.M. Vázquez & S. Ramos) F.M. Vázquez × *Ophrys incubacea* Bianca)

Diagnosis: Inter *Ophrys fusca* subsp. *clara* (F.M. Vázquez & S. Ramos) F.M. Vázquez et *Ophrys incubacea* Bianca quasi intermedia. Labello proxime *Ophrys fusca* subsp. *clara*, sepalis et petalis proxime *Ophrys incubacea*.

Holotype: HS, Badajoz, Villafranca de los Barros, Las Bodegas, 9-IV-2008, R. Lorenz & F.M. Vázquez (HSS Single exemplar)

The new hybrid is characterized for the lip with maculae in the mirror similar to *Ophrys fusca* subsp. *clara* (F.M. Vázquez & S. Ramos) F.M. Vázquez, and the sepals and petals similar to *Ophrys incubacea* Bianca.

4. Material studied

Neotinea conica (Willd.) R.M. Bateman,
Portugal: In collib. Prope Bellas Lusit., 1797, J.H. Link. (B-W 16809!
Lectotype (TYTECA, 1985))

Spain, Badajoz, Badajoz, IV-2006, F.M. Vázquez & al. (HSS). Dehesilla del Calamón, IV-2007, F.M. Vázquez (HSS).

Neotinea conica var. ***ricardina*** F.M. Vázquez

Spain, Badajoz, Badajoz, IV-2006, F.M. Vázquez & al., (HSS, Holotype)

Neotinea conica var. ***saenzii*** F.M. Vázquez

Spain, Badajoz, Fuente de León, IV-2008, F.M. Vázquez & al., (HSS, Holotype)

Ophrys ×braun-blanquetiana nothosubsp. ***perceiana*** F.M. Vázquez & R. Lorenz

Spain, Badajoz, Villafranca de los Barros, Las Bodegas, IV-2008, R. Lorenz & F.M. Vázquez (HSS holotype)



Fig. 8: Illustration of *Ophrys* \times *maimonensis* F.M.Vázquez. Plant bar indicates 1 cm. Flower bar indicates 0,4 cm. bars indicate 0,6 cm.

Ophrys fusca Link in J. Bot. (Schrader) 1799(2): 324 (1800) (Ind. loc.: Portugal, Estremadura, Häufig um Lissabon B-W 16939 -00 1. Lectotype (single exemplar) (Designated here).

Ophrys fusca subsp. ***clara*** (F.M.Vázquez & S.Ramos) F.M.Vázquez
Spain, Badajoz, Fuente del Maestre, Sierra de San Jorge, Casa Blanca, 500 msm, V-2004, C. & F.M. Vázquez (HSS 11870, Holotype). Los Santos de Maimona, sierra Caliza, IV-2007, F.M. Vázquez (HSS s.n.). Villafranca de los Barros, Las Bodegas, IV-2008, F.M. Vázquez (HSS s.n.).

Ophrys fusca subsp. ***lindleyana*** (H.Fleischm. ex Soó) F.M.Vázquez
Spain, Badajoz, Los Santos de Maimona, sierras con dirección a Usagre, IV-2007, F.M. Vázquez (HSS). Santa Marta, sierra Caliza, IV-2006, D. García, M. Gutiérrez & F.M. Vázquez (HSS). Usagre, sierras calizas, IV-2007, F.M. Vázquez (HSS).

Ophrys incubacea Bianca
Spain, Badajoz, Alconera 2-IV-2003, R. Almoril, A.B. Lucas, S.Ramos & F.M. Vázquez (HSS 10483). Badajoz, ctra. Campomaior, 21-III-2006, J. Blanco & F.M. Vázquez (HSS 18350). Guadajira, La Orden, 23-III-2006, Dionisia (HSS 18281).

Ophrys lutea Cav.
Spain, Badajoz, Alconera, IV-2005, F.M. Vázquez & al., (HSS). Santa Marta de los Barros, sierra Caliza, IV-2006, D. García & al. (HSS). Villafranca de los Barros, Casa Blanca, IV-2007, F.M. Vázquez (HSS). Valencia, prope Albaydae (MA-CAV 476034!, Lectotype (central exemplar) (designated here).

Ophrys lutea var. ***quarteirae*** (C.A.J.Kreutz, M.R.Lowe & Wucherpfennig) F.M.Vázquez
Portugal, Algarve, Paderme, 29S0570.983/4112873 (WGS 84), leg C.A.J. Kreutz, 17-IV-2007 (L, Holotype)
Spain, Badajoz, Los Santos de Maimona, 11-IV-2006, F.M. Vázquez (HSS). Villafranca de los Barros, Las Bodegas, 9-IV-2008, R. Lorenz & F.M. Vázquez (HSS)

Ophrys lutea var. ***speculissima*** F.M.Vázquez
Spain, Badajoz, Los Santos de Maimona, sierra calizas, 11-IV-2006, F.M. Vázquez & al., (HSS). Santa Marta, Sierra Caliza, 7-V-2008 F.M.Vázquez (HSS Holotype).

Ophrys* × *maimonensis F.M.Vázquez
Spain, Badajoz, Los Santos de Maimona, Sierra Caliza, IV-2008, F.M.

Vázquez (fresh material)

***Ophrys omegaifera* subsp. *dyris* (Maire) Del Prete**

Moroco, Grand Atlas, Ourika, Mont Agaiouar, pâturages vers 1800 m, 9-IV-1929, leg R. Maire (MPU 002299! Holotype (single exemplar) (DEL PRETE 1984) In Atlantis majoris, ditone Ourika, in pascuis montis Agaiouar, prope castellum, ad fontem, 1800 m, solo siliceo & subcalcareo, 1929-04-09, Maire R.(P 00428687! Isotype (above exemplar))

***Ophrys omegaifera* subsp. *dyris* f. *kelleri* (Maire) F.M.Vázquez**

Moroco, Hab. circa Casablanca, without date, (J.Gattefossé). (MPU 006250 Lectotype).

***Ophrys omegaifera* subsp. *dyris* var. *maculata* F.M.Vázquez**

Spain, Badajoz, Fuente de León, próximo castillo del Cuervo, IV-2008, F. Márquez, S.Rincón, S. Ramos, & F.M. Vázquez (HSS, Holotype)

***Ophrys picta* Link**

Portugal, Estremadura, *Ophrys picta* nob. In collib. depres. -- Serra da Arrabida, -- Cintra (Link)/Link W. B-W 16938-01-0!, Lectotype (designated here).

Spain, Badajoz, Alconera, sierra, 15-IV-2006, F.M. Vázquez (HSS 27792). Llerena, sierra de San Miguel, 24-IV-2006, S. Aguilar, D. García & F.M. Vázquez (HSS 20347). Zafra, Matanegra, 7-V-1998, P. Moreno, V. Moreno, S. Rincón & F.M. Vázquez (HSS 225).

***Orchis italica* Poir.**

Italy, Cette plante a été observée en Italie par M. Vahl, 1796, M. Vahl.(P-LAM!, Holotype (KRETZSCHMAR & al. 2007)

Spain, Badajoz, Almendral, IV-2006, F.M. Vázquez (HSS). Los Santos de Maimona, sierras calizas, IV-2006, F.M. Vázquez & al. (HSS). Santa Marta, sierra Caliza, IV-2006, D. García, M. Gutiérrez & F.M. Vázquez (HSS).

***Orchis italica* var. *fontinalis* F.M.Vázquez**

Spain, Badajoz, Fuente de León, IV-2008, R. Lorenz & F.M. Vázquez (R.Lorenz collection)

***Serapias cordigera* L.**

Spain, Badajoz, Badajoz, las Vaguadas, 30-IV-2006, F.M. Vázquez (HSS 20864). Badajoz, 23-IV-2003, S. Ramos & F.M. Vázquez (HSS 9274, 9273, 9272)

Pontevedra. La Guarda, Monte Santa Tecla, 17-VI-1993, S. García, M.C. Pérez & F.M. Vázquez (HSS 4095)

***Serapias lingua* L.**

Spain, Badajoz, Barcarrota, pastizales, 06-V-2007, F.M. Vázquez (HSS 32889). Monesterio, puerto de las Marismas, 20-IV-2007, M. Gutiérrez & R. Valadés (HSS 31403). Cáceres, Salorino, 20-IV-2006, F.M. Vázquez (HSS 19872).

***Serapias maria* F.M.Vázquez**

Spain, Badajoz, Badajoz, proximidades de La Atalaya, 29SPD70, 23-III-2008, D. García & M. Fernández (HSS s.n. Holotype). La Codosera, 29-IV-2007, F.M. Vázquez (HSS 32501). Jerez de los Caballeros, 6-V-2007, F.M. Vázquez (HSS 32943). Trujillanos, embalse de Cornalvo, 29SQD41, 18-IV-2007, D. García, M. Gutiérrez & F.M. Vázquez (HSS 31316). Cáceres, Salorino, 29SPD77, 20-IV-2006, F.M. Vázquez (HSS 19872, 19874)

***Serapias ×occidentalis* C.Venhuis & P.Venhuis (pro spec.)**

Spain, Badajoz, Obando, 21-V-2005, S.Ramos & F.M. Vázquez (HSS 11006).

***Serapias parviflora* Parl.**

Spain, Badajoz, Alconera, zonas encharcadas, 5-V-1996, F.M. Vázquez (HSS 229). Badajoz, hospital Infantil, 20-IV-2006, F.M. Vázquez (HSS 20486).

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10	13

Fig. 9-10: *Serapias maria* F.M.Vázquez, Spain, Badajoz, Badajoz, la Atalaya (locus classicus), 9-IV-2008 (fot. FMV). 9: Habit. 10: Inflorescence with open flower (fot. FMV).

Fig. 11: *Ophrys omegaifera* subsp. *dyris* var. *maculata* F.M.Vázquez (flower), Spain, Badajoz, Fuentes de León (locus classicus), 4-IV-2008 (fot. FMV).

Fig. 12 *Ophrys omegaifera* subsp. *dyris* f. *kelleri* (Maire) F.M.Vázquez (flower), Spain, Badajoz, San Francisco de Alor, 10-IV-2007 (fot. FMV).

Fig. 13: *Ophrys omegaifera* subsp. *dyris* (Maire) Del Prete (flower), Spain, Badajoz, San Francisco de Alor, 10-IV-2007 (fot. FMV).

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14	15	16
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	20	21

Fig. 14: *Ophrys lutea* var. *speculissima* F.M.Vázquez (flower), Spain, Badajoz, Santa Marta (locus classicus), 7-IV-2006 (fot. FMV).

Fig. 15: *Ophrys lutea* var. *quarteirae* (C.A.J.Kreutz, M.R.Lowe & Wucherpfennig) F.M.Vázquez (flower), Spain, Badajoz, Los Santos de Maimona, 11-IV-2006 (fot. FMV).

Fig. 16: *Ophrys lutea* var. *lutea* Cav. (flower), Spain, Badajoz, Bienvenida, 26-IV-2006 (fot. FMV).

Fig. 17-19: *Ophrys fusca* subsp. *lindleyana* (H.Fleischm. ex Soó) F.M.Vázquez, Spain, Badajoz, Los Santos de Maimona, 4-IV-2008 (fot. FMV). 17: Habit. 18: Flower. 19: Lip underside.

Fig. 20: *Ophrys fusca* subsp. *clara* (F.M.Vázquez & S.Ramos) F.M.Vázquez (flower), Spain, Badajoz, Villafranca de los Barros, 2-IV-2008 (fot. FMV).

Fig. 21: *Ophrys* × *braun-blanquetiana* nothosubsp. *perceiana* F.M.Vázquez & R.Lorenz (flower), Spain, Badajoz, Villafranca de los Barros (locus classicus), 9-IV-2008 (fot. FMV).

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26	27

- Fig. 22: *Neotinea conica* var. *conica* (Willd.) R.M.Bateman (flower), Spain, Badajoz, Fuentes de León, 4-IV-2008 (fot. FMV).
- Fig. 23: *Neotinea conica* var. *saenzii* F.M.Vázquez (flower), Spain, Badajoz, Fuentes de León (locus classicus), 4-IV-2008 (fot. FMV).
- Fig. 24: *Neotinea conica* var. *ricardina* F.M.Vázquez (flower), Spain, Badajoz, Badajoz (locus classicus), 6-IV-2006 (fot. FMV).
- Fig. 25-26: *Orchis italica* var. *fontinalis* F.M.Vázquez, Spain, Badajoz, Fuentes de León (fot. FMV). 25: Inflorescence with pink flowers, 4-IV-2008. 26: Inflorescence with white flowers, 9-IV-2008.
- Fig. 27: *Orchis italica* Poir. (inflorescence), Spain: Cáceres: Almaraz, 8-IV-2006(fot. FMV).

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- Fig. 28: *Orchis italica* var. *fontinalis* F.M.Vázquez, Spain, Badajoz, Fuentes de León, 9-IV-2008, Habit (fot. FMV).
- Fig. 29: *Ophrys incubacea* Bianca (flower), Spain, Badajoz, Badajoz, 4-IV-2006 (fot. FMV).
- Fig. 30: *Ophrys picta* Link (flowers), Spain, Badajoz, Alconera, 22-V-2008 (fot. FMV).
- Fig. 31: *Ophrys* ×*maimonensis* F.M.Vázquez (flower), Spain, Badajoz, Los Santos de Maimona (locus classicus), 9-IV-2008 (fot. FMV).









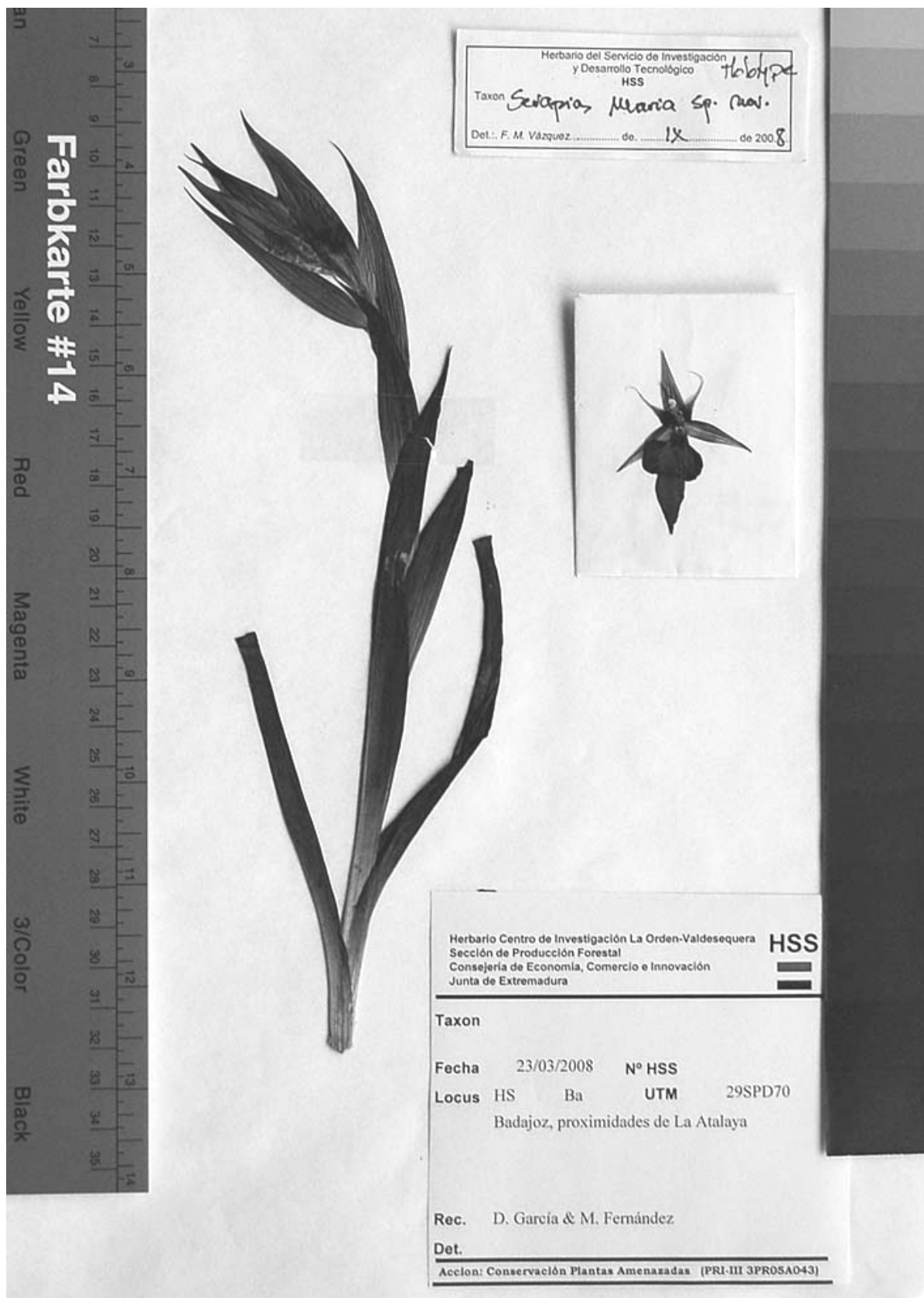


Fig. 32: Holotype of *Serapias maria* F.M.Vázquez.