Flora Montiberica 59: 128-134 (I-2015). ISSN: 1138-5952, edic. digital: 1998-799X

WHAT IS AND WHAT IS UNDERSTOOD BY *OROBANCHE FOETIDA* POIR., VOY. BARBARIE 2: 195[-196] (1789)?

Luis CARLÓN[1], Manuel LAÍNZ[2], Gonzalo MORENO MORAL[3] & Óscar SÁNCHEZ PEDRAJA[4]

[1] Jardín Botánico Atlántico. Avda. del Jardín Botánico, 2230. E-33394 Cabueñes, Gijón (Asturias) España. lcarlon77@gmail.com
[2] Avda. Hnos. Felgueroso, 25. E-33205 Gijón (Asturias) España. lainz@colegioinmaculada.es
[3] Santa Clara, 9-1º dcha. E-39001 Santander (Cantabria) España.
[4] E-39722 Liérganes (Cantabria) España. osanchez@farmalierganes.com

ABSTRACT: After carefully reviewing its protologue and lectotype, it is concluded that *Orobanche foetida* Poir. (1789) is an earlier synonym of *Orobanche variegata* Wallr. (1825) and cannot be used for the western Mediterranean species to which in recent times it has been generally applied. Unless the conservation of that concept of the binomen *Orobanche foetida* is proposed and approved, that Iberian and North African plant must be called *Orobanche hookeriana* Ball. ***Key words:*** Nomenclature, *Orobanche foetida*, *O. hookeriana*, *O. variegata*, Mediterranean flora, Orobanchaceae, broomrape.

RESUMEN: ¿Qué es y que se entiende por *Orobanche foetida* Poir., Voy. Barbarie 2: 195[-196] (1789)? Tras un detenido estudio de su protólogo y lectótipo, se concluye que *Orobanche foetida* Poir. (1789) es un sinónimo prioritario de *Orobanche variegata* Wallr. (1825) y no puede usarse para la especie del Mediterráneo occidental a la que en los últimos tiempos venía por lo general aplicándosele. Mientras la conservación en ese uso del binomen *Orobanche foetida* no sea propuesta y aprobada, esa especie ibérica y norteafricana debe llamarse *Orobanche hookeriana* Ball. ***Palabras clave:*** nomenclatura, *Orobanche foetida*, *O. hookeriana*, *O. variegata*, flora mediterránea, Orobanchaceae, jopo.

INTRODUCTION

The Mediterranean flora comprises all five so far described species of *Orobanche* Subsect. *Cruentae* (Beck) Teryokhin ["Trib. Cruentae" sensu BECK (1890); "Grex Cruentae" sensu BECK (1930)]), (cf. CARLÓN & al., 2005 onwards), a monophiletic set of polyploids (SCHNEEWEISS & al., 2004a, 2004b), parasitic on Fabaceae and with deep-red coloration at least in the inner side of the corolla as the most obvious synapomorphy. This papers aims to clarify the nomenclature of two of these species, for which not only as a result of misapplication but also misconception, the names *foetida* and *variegata* have been ambiguously used since very early.

DISCUSSION

The species generally known in recent times as *Orobanche foetida* is widely distributed around the south-western Mediterranean and adjacent Atlantic areas (Algeria, Morocco, Portugal, Spain and Tunisia, see PUJADAS & al., 2003), its abundance increasing westwards (CARLÓN & al., 2005 onwards), whereas that recently referred to under the name *Orobanche variegata* has a more easterly distribution, with an overlapping area in North Africa but not even reaching the Iberian Peninsula and much more abundant around its Sicilian *terra classica* (WALLROTH, 1825: 43), its range covering also Sardinia, Tunisia and, as mentioned before, parts of Algeria (CARLÓN & al., 2005 onwards).

The aforementioned species share the strong odour underlying the name *foetida* and are relatively similar, some of their differences being uneasily enunciated, which in addition to the unfortunate fact that the *terra classica* of Poiret's species ("Barbarie ... l'ancienne Numidie [N.E. Algeria]", see POIRET, 1789: 195-196; "J'ai découvert cette plante en Barbarie, dans les bois, du côte du Cap-Rose [Cap Rosa, El Taref / El Tarf Province, Algeria]. (V.v.)", see POIRET, 1798: 622) lies in the area where both species co-occur, explains that, at least since BIVONA-BERNARDI (1813: [15]) and PRESL (1820) used the name *O. foetida* for Sicilian plants, both names have been often indistinctly used. Moreover, A. P. de CANDOLLE (1815: 392) further confounded the issue by using the name *Orobanche foetida* for French plants that, judging by his description and by the fact that neither of the aforementioned species is known to occur in France (TISON & al., 2014: 1444), are to be referred to *O. gracilis* Sm., a widespread member of the same group.

Which name should thus be applied to each of those two apparently vicariant Mediterranean species? The currently most used concept of *foetida* (CHATER & WEBB, 1972: 293; FOLEY, 2001: 233) takes root in the description and illustration by DESFONTAINES (1798: 59), who undoubtedly referred to the same species that HOFFMANNSEGG & LINK (1813: 316) studied years after in Portugal and to which, surely inspired by Desfontaines, called *Orobanche foetida*, a plant that had been known in Portugal since pre-Linnean times (TOURNEFORT, 1689: 121 "*Orobanche elegans aestiva atropurpurea*"). But, was this western species the one that Poiret actually described?

The Latin diagnosis in Poiret's protologue is brief and almost useless, but his more detailed French description contains a first clue to successfully unravel the enigma. Truly, most of the alluded features are shared by both species, but there is one –the branched habit of the plant ("Ses tiges ... il s'en élève trois ou quatre de la même racine")– almost completely absent in the western species while very frequent in that described from Sicily as *O. variegata*. If this was all, the western concept of "*foetida*" might not be firmly ruled out, but a description published by Poiret himself a few years later (POIRET, 1798: 622) adds enough details about both the corolla ("La corolle a un tube court") and the calyx ("Le calice est formé de deux valves bifides dont les découpures sont presque mucronées") to dispel all doubts and unambiguously identify *Orobanche foetida* Poiret with *Orobanche variegata* Wallr., the long, proportionately narrower tubular flowers and the linear-lanceolate, apically filiform calyx teeth being amongst the hallmarks of the western species (see fig. 5 and cf. BECK, 1930: 290, 292; PUJADAS, 2002: 433, 435 t. 31 fig. e-f).

Does the type material support this unexpected bibliographical conclusion? *Orobanche foetida* Poiret was typified by DOMINA & al. (2013), who designated as type the left-hand of the two specimens contained in the same herbarium sheet

Flora Montiberica 59: 128-134 (I-2015). ISSN: 1138-5952

that Foley had invalidly, *in schedis*, considered type (MNHN-P00102803-herb. E. Cosson, fig. 1). After a careful study of this sheet, we must conclude that neither of its specimens can be attributed to the western species to which by means of that typification the name *foetida* wanted to be definitely linked. Despite incomplete, both specimens (the one determined as "*Orobanche foetida* Poir." [right-hand] and that determined as "*Orobanche foetida* Desf." [left-hand]) show unequivocally the characteristic flower morphology of *Orobanche variegata* Wallr.: calyx with triangular-lanceolate teeth, subulate and far from filiform apically (figs. 2, 3 and 5); corolla with short and comparatively wide tube and the typical *O. variegata* colour pattern when dried: intenselly dark-brown in distal 1/2-2/3 (not only in the apex) and much lighter in the basal 1/3-1/2 (figs. 2, 3 and 5). Although we haven't seen the exact epitype designated by DOMINA & al. (2013), judging by the pictures of specimens from the very same W. Schimper's Algerian gathering conserved in K and P (CARLÓN & al., 2005 onwards, sub *O. variegata*), it must be assumed to taxonomically also correspond to *Orobanche variegata*. A picture of another Algerian sheet labelled as *foetida* and expressively showing the difference between the two here discussed species is linked in CARLÓN & al. (2005 onwards, sub *O. variegata*): the right-hand specimen of MNHN-P03428421, collected by A. Letourneux, corresponds to the western, traditional concept of "*Orobanche foetida*", whereas the left-hand one, part of the same gathering better preserved as MNHN-P02978379, is referable to *O. variegata*, and thus to *O. foetida* sensu typico.

CONCLUSION

By means of the above arguments we consider to have firmly established that both the protologue and the type currently designated don't allow applying the valid and legitimate name *Orobanche foetida* Poir. for the western Mediterranean species for which it is nowadays almost unanimously used, even in agronomical context (KHARRAT & al., 1992; RUBIALES & al., 2005). Therefore, for the sake of nomenclatural stability it appears recommendable to propose the conservation of the current usage of the binomen *Orobanche foetida*, a step that we will carefully consider formalising in the next future. In the meantime, the situation can be summarised as follows:

Orobanche foetida Poir., Voy. Barbarie 2: 195[-196] (1789)
= *O. variegata* Wallr., Orobanches Gen. Diask.: 40 (1825)
= *O. condensata* Moris, Stirp. Sard. Elench. 2: 8 (1828)

Orobanche hookeriana Ball in J. Linn. Soc., Bot. 16(96-97): 605 (1877-1878 [17-VI-1878]). Lectotypified by Domina & al. (2013)
– *O. foetida* auct. plur., non Poir.

Acknowledgements: We are grateful to Carmelo Rifici for his picture and to the staff of the cited herbaria, particularly for the monumental amount of precious pictures made available online by the herbarium of the Muséum Nationale d'Histoire Naturelle in Paris (MNHN-P).

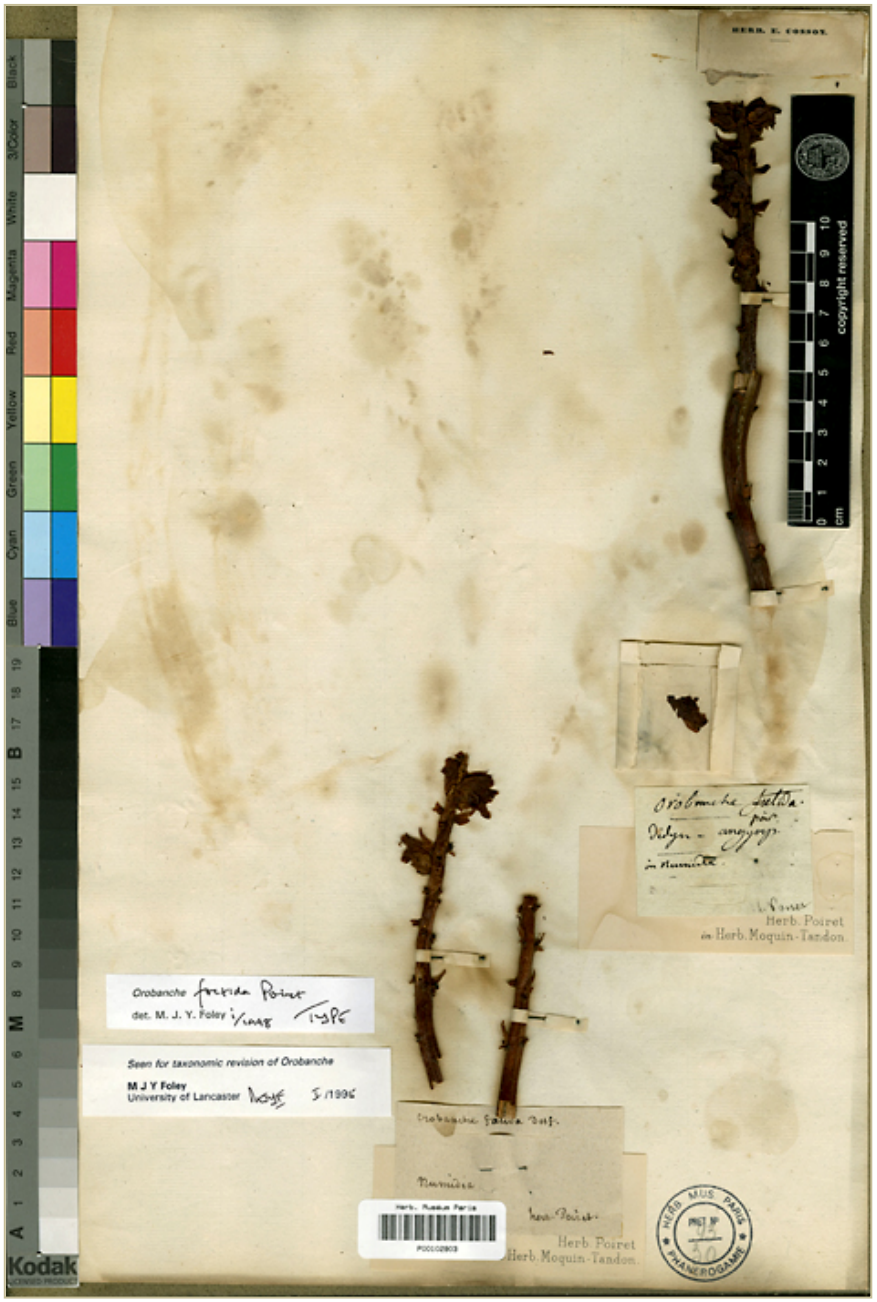


Fig. 1. *Orobanche foetida* Poir. (MNHN-P00102803). The left-hand specimen is the lectotype designated by Domina & al. (2013). Image available at http://science.mnhn.fr/institution/mnhn/collection/p/item/p00102803

Fig. 2. *Orobanche foetida* Poir., detail of the lectotype (left-hand specimen).

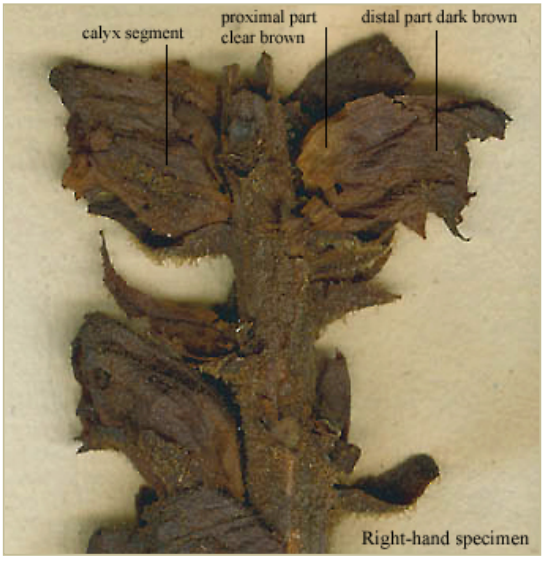


Fig. 3. *Orobanche foetida* Poir., detail of the paralectotype (right-hand specimen).

Flora Montiberica 59: 128-134 (I-2015). ISSN: 1138-5952

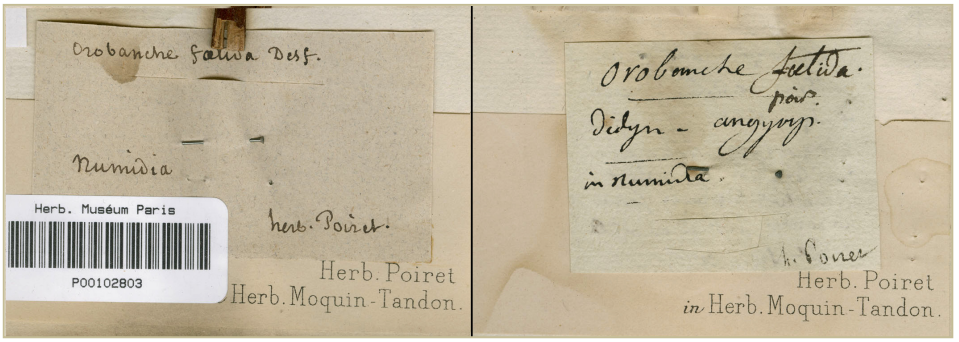


Fig. 4. *Orobanche foetida* (MNHN-P00102803), labels of lectotype (left-hand) and paralectotype (right-hand), showing that attending to the protologue any of both specimens might have been chosen as lectotype.

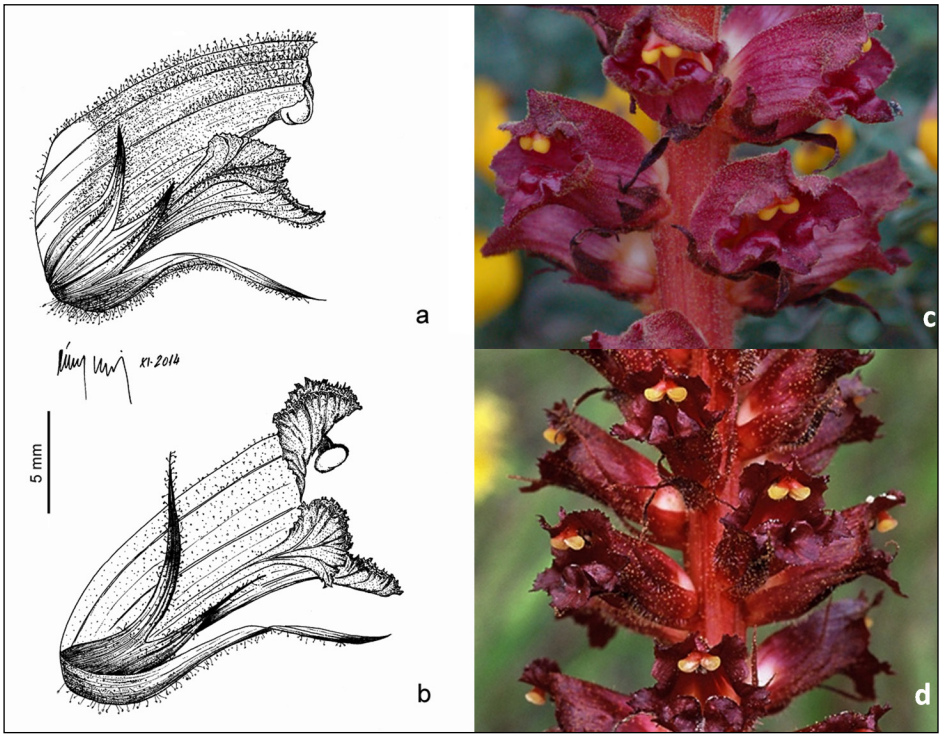


Fig. 5. Flowers of a) the central Mediterranean *Orobanche variegata* (=*O. foetida* sensu typico) and b) the Atlantic and western Mediterranean *O. hookeriana* (=*O. foetida* auct.); c) flowers of *O. variegata* (=*O. foetida*) in its *terra classica* (Sicily, near Librizzi, photo: Carmelo Rifici); d) flowers of *O. hookeriana* (Sevilla, pr. Guillena [herb. Sánchez Pedraja 10504b]). Compare (a) and (c) with figs. 2 and 3. (*The graphic scale is valid for the drawings only*).

REFERENCES

BECK, G. (1890) *Monographie der Gattung Orobanche*. *Biblioth. Bot.* 19. T. Fischer. Kassel.

BECK, G. (1930) IV. 261. *Orobanchaceae*. In A. Engler (ed.). Das Pflanzenreich. Regni Vegetabili Conspectus. W. Engelmann. Leipzig [pp. 1-348].

BIVONA-BERNARDI, A. de (1813-1816) *Stirpium rariorum, minusque cognitarum in Sicilia sponte provenientium descriptione, nonnullis iconibus auctae Manipulus* I-IV, Palermo, Typis Regiis.

CANDOLLE, A.P. de (1815) *Flore française [...] [troisième édition]. Tome cinquième, ou sixième volume*. Paris. [Fl. franç. ed. 3: 392-393 (Orobanche)].

CARLÓN, L., G. GÓMEZ CASARES, M. LAÍNZ, G. MORENO MORAL, Ó. SÁNCHEZ PEDRAJA & G.M. SCHNEEWEISS (2005 onwards) [continuously updated]. *Index of Orobanchaceae*. http://www.farmalierganes.com/Otrospdf/publica/Orobanchaceae%20Index.htm. (acessed, nov. 2014).

CHATER, A.O. & D.A. WEBB (1972) *Orobanche* L. In T.G. TUTIN & al. (eds.). *Flora Europaea*, 3: 286-293.

DOMINA, G., W. GREUTER, P. MARINO & P. A. SCHÄFER (2013) Types of names of *Orobanche* taxa described from North Africa. *Pl. Biosystems* 147: 758-766.

FOLEY, M.J.Y. (2001) Orobanchaceae in the *Flora iberica* area: new taxa, excluded taxa, and typification. *Anales Jard. Bot. Madrid* 58: 223-233.

HOFFMANNSEGG, J.C. von & J.H.F. LINK (1813) *Flore portugaise* [...] *Tome I*. (fasc. 10). Berlin. [Fl. Portug. 1: 311-320, t. 62-63 (Ordo 8. Orobanchinae)].

KHARRAT, M., M.H. HALILA, K.H. LINKE & T. HADDAR (1992) First report of *Orobanche foetida* Poiret on faba bean in Tunisia. *FABIS Newsletter* 30: 46-47.

POIRET, J.L.M. (1789) *Voyage en Barbarie, ou lettres écrites de l'ancienne Numidie pendant les années 1785 & 1786, sur la religion, les coutumes & les moeurs des Maures & des Arabes-Bédouins; avec un essai sur l'histoire naturelle de ce pays par M. l'abbé Poiret*. Partie 2. J.B.F. Née de la Rochelle. Paris.

POIRET, J.L.M. In J.-B. LAMARCK (1797-1798) *Encyclopédie méthodique. Botanique* [...] Tome 4. H. Agasse, Libraire. Paris.

PRESL, K. (1826) *Flora sicula, exhibens plantas vasculosas in Sicilia aut sponte crescentes aut frequentissime cultas, secundum systema naturale digestas*. Praga.

PUJADAS, A. (2002) *Orobanche* L. In J.A. LÓPEZ SÁEZ, P. CATALÁN & L. SÁEZ (*eds*.): *Plantas parásitas de la Península Ibérica e Islas Baleares*. Ed. Mundi-Prensa [pp. 348-440].

PUJADAS, A., P. FRAGA, E. SÁNCHEZ & N. MOLINA (2003) *Orobanche crinita* and *Orobanche foetida* (Orobanchaceae) in the West Mediterranean area. *Bocconea* **16**: 737-744.

RUBIALES, D., M. SADIKI & B. ROMÁN (2005) First report of *Orobanche foetida* on common vetch (*Vicia sativa*) in Morocco. *Plant Disease* 89: 528.

SCHNEEWEISS, G.M., T. PALOMEQUE, A. E. COLWELL & H. WEISS-SCHNEEWEISS (2004). Chromosome numbers and karyotype evolution in holoparasitic *Orobanche* (Orobanchaceae) and related genera. *American Journal of Botany* 91: 439-448.

SCHNEEWEISS, G.M., A.E. COLWELL, J. M. PARK, C.G. JANG & T.F. STUESSY (2004) Phylogeny of holoparasitic *Orobanche* (Orobanchaceae) inferred from nuclear ITS sequences. *Mol. Phylogenetics Evol*. 30: 465-478.

TISON, J.-M., P. JAUZEIN & MICHAUD (2014). *Flore de la France méditerranéenne continentale*. Conservatoire botanique national méditerranéen de Porquerolles (CBN Med). Naturalia Publications. [166, Orobanchaceae Vent.: 1440-1466].

TOURNEFORT, J.P. de (1656-1708) Denombrement des plantes que j'ai trouvé dans mon voyage d'Espagne et de Portugal entrepris dans le mois d'octobre de lanneé 1688 par l' ordre de Mr. de Louvois. [ms.].

WALLROTH, K.F.W. (1825) *Orobanches generis*. Frankfurt am Main.

(*Recibido el 20-XII-2014*)
(*Recibido el 7-I-2015*)

Catálogo editorial Jolube – *NOVEDADES*

Rosas de Aragón y el resto de la Península Ibérica

Pedro MONTSERRAT, Daniel GÓMEZ, José V. FERRÁNDEZ y Manuel BERNAL

***Monografías de* Botánica Ibérica, nº 14**

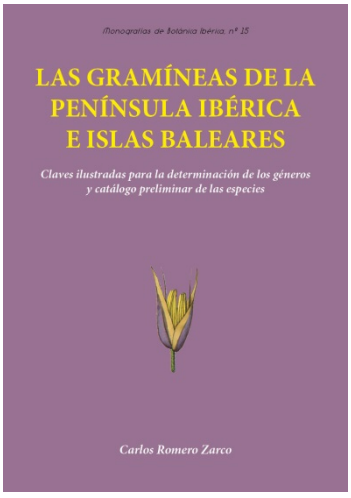
Encuadernación rústica 27 × 21 cm

Aprox. 300 páginas en color

Fecha lanzamiento: marzo de 2015

ISBN: 978-84-941996-9-1

PVP: consúltese en www.jolube.es



Las gramíneas de la Península Ibérica e Islas Baleares. Claves ilustradas para la determinación de los géneros y catálogo de especies

Carlos ROMERO ZARCO

***Monografías de* Botánica Ibérica, nº 15**

Encuadernación rústica 17 × 24 cm

Aprox. 180 páginas en color

Fecha lanzamiento: marzo de 2015

ISBN: 978-84-943561-1-7

PVP: consúltese en www.jolube.es

Las plantas en la cultura tradicional de Ávila: Etnobotánica abulense

Emilio BLANCO CASTRO

***Monografías de* Botánica Ibérica, nº 16**

Encuadernación rústica 19 × 24 cm

Aprox. 320 páginas en color

Fecha lanzamiento: marzo de 2015

ISBN: 978-84-943561-0-0

PVP: consúltese en www.jolube.es

Haz tu pedido a jolube@jolube.net

Claves Ilustradas para la Flora Valenciana

Gonzalo Mateo Sanz y Manuel B. Crespo Villalba

Monografías de Flora Montiberica, nº 6.

Encuadernación cosida 17 × 24 cm

503 páginas **con 2140 ilustraciones en B/N**.

Primera edición: septiembre de 2014

ISBN: 978-84-941996-7-7.

PVP: 19,95 € + (envío: 2,5€ España; 7,5€ UE)

Orquídeas de Aragón

Conchita MUÑOZ ORTEGA

***Col. Guías imprescindibles de flora*, nº 2.**

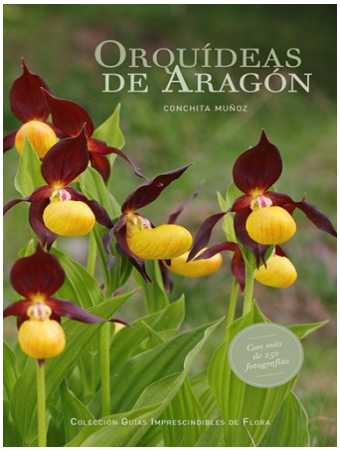
Encuadernación cosida 10 x 21 cm

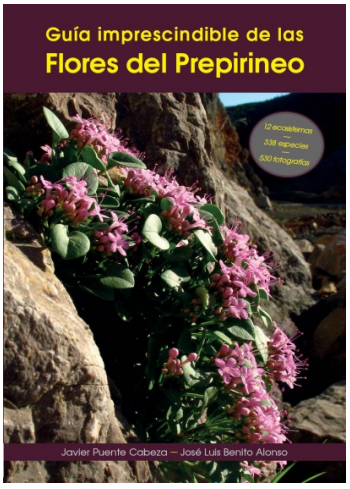
202 páginas **en color** con **250 fotografías**.

Primera edición: abril de 2014

ISBN: 978-84-941996-1-5.

PVP: 17,50 € + (envío: 2,5€ España; 5,5€ UE)





Guía imprescindible de las flores del Prepirineo

Javier PUENTE & José Luis BENITO

***Col. Guías imprescindibles de flora*, nº 3.**

Encuadernación cosida 17 × 24 cm

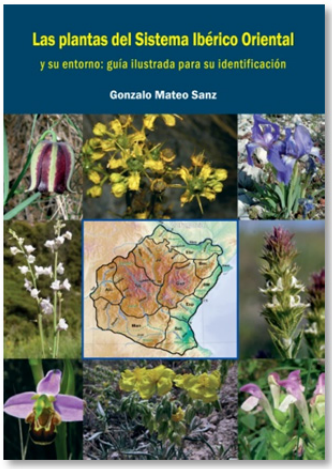
204 páginas **en color con más de 530 fotografías**.

Primera edición: abril de 2013

ISBN: 978-84-941996-4-6.

PVP: 17,50 € + (envío: 2,5€ España; 5,5€ UE)

Haz tu pedido a jolube@jolube.net



Las plantas del Sistema Ibérico oriental y su entorno: guía ilustrada para su identificación

Gonzalo Mateo Sanz

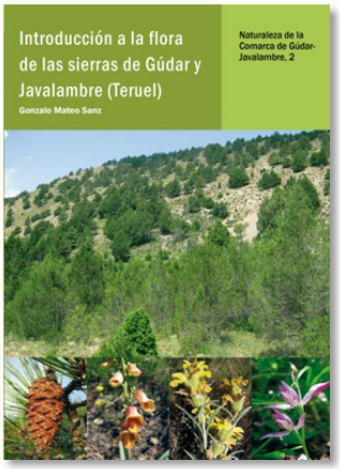
Monografías de Flora Montiberica, nº 5.
Edita Jolube Consultor y Editor Botánico
Rústica 17×24 cm, 280 páginas profusamente **ilustradas con dibujos en blanco y negro**.

Primera edición: julio de 2013
ISBN: 978-84-939581-7-6.
PVP: 16€ (sin gastos de envío a España; + 5,5€ gastos envío UE)

Catálogo florístico de las sierras de Gúdar y Javalambre (Teruel)

Gonzalo MATEO SANZ, José Luis LOZANO TERRAZAS y Antoni AGUILELLA PALASÍ

Naturaleza de la Comarca Gúdar-Javalambre, 1.
Editan: Comarca de Gúdar-Javalambre y Jolube Consultor-Editor Botánico
Rústica 17×24 cm, 210 en blanco y negro.
Primera edición: agosto de 2013
ISBN: 978-84-939581-5-2
PVP: 9,60€ + (envío: 3€ España; 5€ UE)



Introducción a la flora de las sierras de Gúdar y Javalambre (Teruel)

Gonzalo MATEO SANZ

Naturaleza de la Comarca Gúdar-Javalambre, 2.
Editan: Comarca de Gúdar-Javalambre y Jolube Consultor-Editor Botánico
Rústica 15×21 cm, 178 páginas, **ilustrado con 200 fotografías a color**

Primera edición: agosto de 2013
ISBN: 978-84-939581-6-9
PVP: 7,50€ + (envío: 3€ España; 5€ UE)