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New records of Orchids from Morocco

Keywords

Orchidaceae, *Ophrys neglecta*, *Ophrys numida*, *Orchis langei*, Taxonomy, Chorology, Flora of Morocco.

Summary

Vázquez, F. M., Pinto-Gomes, C., Sánchez-Mata, D., Gavilán, R., Ferreira, R. & B. Vilches (2012): New records of Orchids from Morocco.- J. Eur. Orch. 44 (3): 584-592.

The exploration of the Rif Valley (Morocco) during 2010 revealed the presence of some new taxa and records from Morocco. The new taxa are: *Orchis langei* subsp. *magrebensis* and *Ophrys neglecta* var. *riphaea*. *Ophrys neglecta* var. *neglecta* and *Ophrys numida* have been detected for the first time in Morocco.

Zusammenfassung

Vázquez, F. M., Pinto-Gomes, C., Sánchez-Mata, D., Gavilán, R., Ferreira, R. & B. Vilches (2012): Neue Nachweise von Orchideen aus Marokko.- J. Eur. Orch. 44 (3): 584-592.

Im Rahmen floristischer Geländearbeiten im Rif Valley (Marokko) im Jahr 2010 konnten mit *Orchis langei* subsp. *magrebensis* und *Ophrys neglecta* var. *riphaea* zwei neue Taxa entdeckt werden. *Ophrys neglecta* var. *neglecta* und *Ophrys numida* wurden neu für Marokko nachgewiesen.

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Introduction

The *Orchidaceae* of Morocco recently were revised by SILVESTRE (2002). RAYNAUD published a complete revision in 1985, the first treatment however was carried out by MAIRE (1959) in his “Flore of Nord Africa”. All authors agree on the high diversity of the *Orchidaceae* family in North Africa, especially in Morocco and Algeria, associated to the high landscape diversity and high physical contrasts. The main diversity in Morocco is associated to Rif Valley (SILVESTRE 2002) with next to 38 orchids species, and the Atlas mountains (MAIRE 1959), with around 43 orchids species, associated with the diversity of the oak forests, scrubs, altitude range and basic soils.

The most rare orchids from Morocco, in accordance with MAIRE (1959); DELFORGE (2006) and BAUMANN & al. (2006) are *Anacamptis longicornu* subsp. *tlemcenensis* (Batt.) F.M.Vázquez, *Serapias vomeracea* subsp. *mauritanica* A.Camus, *Orchis cyrenaica* Durd. & Barr., *Ophrys sphegifera* Willd., *Ophrys sphegodes* subsp. *moesziana* Soó and *Ophrys atlantica* Munby. A detailed study of further areas such as High Atlas, Tlemcen region or Southern Morocco however needs more exploration campaigns.

The objective of this work is to report the results of a specific exploration campaign to the Medium Atlas and Northern Rif Valley

Methods and Materials

During the 2010 the Rif Valley (Morocco) was visited and numerous orchids populations studied. The study was supported by collecting herbarium material now conserved in HSS and MAF herbarium (HOLMGREN & al. 1990; 2003). Morphology of floral parts and vegetative characters of the investigated orchids has been studied on living material in the field. Additionally dried material served to study and to characterize the populations morphologically. Photographs were made in order to show the most important characters and its differences with close and new taxa.

For this taxonomic revision of the genera *Orchis* and *Ophrys* in the Mediterranean area, especially of the *Ophrys subfusca* group and *Orchis langei* K.Rich. monographs like DELFORGE 2006, DEVILLERS & DEVILLERS-TERSCHUREN 1994 2000, LANDWEHR 1977, MAIRE 1959 and BAUMANN & al. 2006 have been considered.

Finally, the new described taxa from Morocco are illustrated and commented in comparison to related taxa. Information on their ecology and distribution range including geographical coordinates (WGS84) is given.

Results

1. *Orchis langei* subsp. *magrebensis* F.M.Vázquez subsp. nov.

Syn: *Orchis mascula* auct. pl.

Diagnosis: Subspecies *magrebensis* incola similis *Orchis langei* subsp. *langei* a qua differt labello maiore, (9)10-14(15) × 12-15(16) mm longo (nec 7-12(14) × 8-14 mm), calcare maiore, 14-15.5 mm longo (nec 7-12(14) mm) et bracteis florum maioribus (12)14-17(19) × 3-4.5 mm longae (nec (8)10-18 × 2-4 mm).

Holotype: Morocco: Taza, Alto monte Tazzeka, 34° 04' 07''N, 4° 04' 37''W, 1610 msm, 13.5.2010, R. Ferrerira, R. Gavilan, C. Pinto, D. Sanchez-Mata, F.M. Vázquez & B. Vilches. (HSS 54595) (Single exemplar). Others studied materials: Morocco: Bab Berret, 35° 00' 03''N, 4° 51' 36W, 1260 msm, 14.5.2010, leg. R. Ferrerira, R. Gavilan, C. Pinto, D. Sanchez-Mata, F.M. Vázquez & B. Vilches. (HSS 54597)

Description: Plant up to 65 cm tall; 1-3 cauline leaves, oblong to ovate lanceolate not maculate, limb 5-8.5(9.5) × 1.2-2(2.4) cm; (2)3-5 basal leaves oblong lanceolate, maculated or not, lamina (8)10-17(18.5) × (1.3)1.5-2.2(2.8) cm. Inflorescence lax, cylindrical up to 24 cm tall; 24-29(32) rather large flowers, purple to pink; flower bracts lanceolated, (12)14-17(19) × 3-4.5 mm, purples. Flowers with lateral sepals ovate lanceolate, round apex, (7)9-12(12.5) mm, erect and curved apex, dorsal sepal turned down and together with the rather large petals, forming a sub-hood, purple to pink; petals lanceolate 7-9 mm; lip 3-lobed (9)10-13(14.5) × 12-15(16) mm, larger than long, abruptly folded horizontally, base white to pink pale, lateral lobes rounded 2-3 mm; median lobe slightly divided 2-3,5 mm, spur robust cylindrical to round at the base, elongated 14-15.5 mm, horizontal, pink to pale pink; ovary (18)20-23(24) mm, purple. (Figures 1-2, phot. F.M. Vázquez)

Ecology and distribution

In Holm, Cork and Pyrenean oak forests, associated to scrubs of *Adenocarpus decorticans* Boiss., *Cistus populifolius* L., *Cistus salviifolius* L., *Lavandula atlantica* Braun-Blanq. & Maire, and the grasses *Celtica gigantea* (Link) F.M.Vázquez & Barkworth and *Patzkea paniculata* subsp. *baetica* (Hack.) H. Scholz. North Rif Valley: Taza and Bab Berret.

Comments

The segregation of this new taxon is supported by its lip morphology, larger than long in *Orchis langei* subsp. *magrebensis*, and equal or longer than large in *O. langei* subsp. *langei* K.Richt. Also the flowers bracts, spur and ovary are longer than in *O. langei* subsp. *langei*. The presence of the new taxon is associated to Pyrenean Cork and Holm oak forest at high elevations (1000-1800 msm), the potential habitats of *O. mascula* (L.) L., in Iberian Peninsula. At lower altitudes we found *O. langei* subsp. *langei*, from Rif Valley (Morocco: Ketama, 34° 57' 47''N, 4° 39' 29''W, 1648 msm, 14.5.2010, R. Ferrerira, R. Gavilan, C. Pinto, D. Sanchez-Mata, F.M. Vázquez & B. Vilches. (HSS 54593) and SILVESTRE 2002), but no sites with both taxa were observed. The new taxon probably may be found in the Medium Atlas, associated to Cork oak forests at medium elevations (> 1000 msm), and the Tlemcen region in Algeria, where similar oak forest occur.

2. *Ophrys neglecta* Parl., *Fl. Ital.* (Parlatore) 3(2): 548. 1860.

Syn.: *Ophrys tenthredinifera* subsp. *neglecta* (Parl.) E.G.Camus, P.Bergon & A.Camus, Monographie Orchid.: 262. 1908.

Ophrys tenthredinifera rac. *neglecta* (Parl.) Rouy, Fl. France 13: 112. 1912. (Figures 5-6, phot. F.M. Vazquez)

Ecology and distribution

In open spaces of mixed Canarian, Pyrenean and Cork oak forests, associated to *Lamiaceae* little scrubs communities such as *Thymus* spp, *Lavandula atlantica* Braun-Blanq. & Maire, and *Teucrium* spp. Single locality in central Rif Valley: National Park Talassemtane (Chefchaouen).

Comments

The finding of *O. neglecta* Parl. in Morocco (Chefchaouen, National Park Talassemtane, 34° 59' 51''N, 4° 58' 09''W, 1260 msm, 14.5.2010, R. Ferrerira, R. Gavilan, C. Pinto, D. Sanchez-Mata, F.M. Vázquez & B. Vilches. (HSS 54588)), is the first record for the species in the North Africa; a morphological study of the flower characters shows no big or little differences between the European, Mediterranean Islands and Moroccans populations and confirm their conspecific identity. A first impression showed a certain affinity of the collected material with *Ophrys tenthredinifera* var. *ficalhoana* (J.A.Guim.) F.M.Vázquez (VÁZQUEZ 2009). The small, predominantly yellow and not quadrangular lip however, less than 12 mm (9-11.5 mm) long, and a big prominent tuft with longer hairs than the basal appendage, are typical characters of *O. neglecta* from Italy, France, Sardinia and Corse. Overall Moroccan plants seem to be nearer to populations from peninsular Italy.

Furthermore the study of Moroccan population showed the presence of individuals with green sepals, in the following described as *Ophrys neglecta* var. *riphaea*.

***Ophrys neglecta* var. *riphaea* F. M. Vázquez, var. nov.**

Diagnosis: Affinis varietati *Ophrys neglecta* var. *neglecta* a qua differt sepalis viridibus.

Holotype: Morocco, Chefchaouen, National Park Talassemtane, 34° 59' 51'' N; 4° 58' 09'' W, 1260 msm, mixed forest of *Quercus canariensis* Willd., *Q. pyrenaica* Willd, *Q. suber* L., 14.05.2010, leg. R. Ferreira, R. Gavilán, C. Pintos, D. Sánchez-Mata, F.M. Vázquez & B. Vilches (HSS 54592, one flower). (Figures 7-8, phot. F.M. Vazquez)

3. *Ophrys numida* J.Devillers-Terschuren & P.Devillers, Natural. Belges 81 (special orchidées 13): 297. 2000.

Syn.: *Ophrys lutea* subsp. *numida* (J.Devillers-Terschuren & P.Devillers) C.A.J.Kreutz, Kompend. Eur. Orchid.: 110. 2004.
(Figures 3-4, phot. F.M. Vazquez)

Ecology and distribution

In open forests up to 1000 msm, (Northern Rif Valley), lives together with *Iberis pectinata* Boiss., *Thymus* spp, *Paeonia coriacea* subsp. *maroccana* Pau & Font Quer, and *Abies marocana* Trab. on basic soils originated for decomposition of Jurassic calcareous rocks. Single locality in central Rif Valley, Morocco, Chefchaouen, National Park Talassemtane, 34° 59' 51''N, 4° 58' 09''W, 1260 msm, 14.05.2010, R. Ferrerira, R. Gavilan, C. Pinto, D. Sanchez-Mata, F.M. Vázquez & B. Vilches. (HSS 54590).

Comments

The confusion between *Ophrys sicula* Tineo (= *O. galilaea* H.Fleischmann & Bormüller) and *O. numida* J.Devillers-Terschuren & P.Devillers was resolved by DELFORGE (2006) by studying the angle between the lateral and central lobules of the lip: more than 45° in *O. sicula*, and less than 45° in *O. numida*. Additionally we detected a new character for the segregation of the two taxa: a traverse line or canal in the lip from the base to the central lobule in *O. sicula*, and the absence of a line in the lip of *O. numida*.

The proximity to *Ophrys battandieri* E.G.Camus is high, but we can determinate the two taxa because of a different position of the lip, horizontal in

O. numida, and bent downwards in *O. battandieri*, also the central lobe is ample in *O. battandieri*, near to lateral lobes, and the central lobe is reduced in *O. numida*.

Known from Northern Algeria and Tunis (DEVILLERS & al. 2000; DELFORGE 2006), it is the first record for the species in Morocco.

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References

- BAUMANN, H.; KÜNKELE, S., & R. LORENZ (2006): Orchideen Europas mit angrenzenden Gebieten.- Ulmer.- Stuttgart.
- DELFORGE, P. (2006): Orchis of Europe, North Africa and the Middle East. Simon Harrap Ed.- A&C Black.- London.
- DEVILLERS, P. & J. DEVILLERS-TERSCHUREN (1994): Essai d'analyse systématique du genre *Ophrys*.- Natural. Belges 75 (Orchid. 7 suppl.): 273-400.
- DEVILLERS, P. & J. DEVILLERS-TERSCHUREN (2000): Observation sur les ophrys du groupe d'*Ophrys subfusca* en Tunisie.- Natural. Belges 81 (Orchid. 13): 283-297 + 8 figs.
- HOLMGREN, P.K. & N.H. HOLMGREN (2003): Additions to Index Herbariorum (Herbaria), edition 8- Fourteenth Series.- Taxon 52: 385-389.
- HOLMGREN, P.K.; HOLMGREN, N.H. & L.C. BARNETT (1990): Index Herbariorum Part I: The herbaria of the World, ed. 8.- Regn. Vegetabile 120: 1-693.
- KREUTZ, C.A.J. (2004): Catalogue of European Orchids.- Kerkrade.- Drukkerij Deurenberg.
- LANDWEHR, J. (1977): Wilde orchideeën van Europa.- Vereniging tot Behoud van Natuurmonumenten.- S-Graveland.
- MAIRE, R. (1959): *Orchidaceae*.- In: MAIRE, R.: Flore de l'Afrique du Nord 6: 231-374.
- RAYNAUD, C. (1985): Les orchidées du Maroc.- Soc. Française d'Orchidophilie.- Paris.
- SILVESTRE, S. (2002): *Orchidaceae*.- In: V. VALDES, M. REJDALI, A. ACHHAL EL KADMIRI, J.L. JURY & J. M. MONSERRAT Catalogue des plantes vasculaires du Nord du Maroc, incluant des clés d'identification: 889-901.

VAZQUEZ, F.M. (2009): Revisión de la familia *Orchidaceae* en Extremadura (España).- *Folia Bot. Extremadurensis* 3: 5-362.

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Fig. 1-2: *Orchis langei* subsp. *magrebensis*, Morocco, Chefchaouen, 13.5.2010.



Fig. 3-4: *Ophrys numida*, Morocco, Chefchaouen, 14.5.2010.



Fig. 5-6: *Ophrys neglecta* var. *neglecta*, Morocco, Chefchaouen, 14.5.2010.



Fig. 7-8: *Ophrys neglecta* var. *riphaea*, Morocco, Chefchaouen, 14.5.2010.