Phytotaxa 172 (3): 265–270
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.172.3.7

Phlomoides binaludensis (Phlomideae, Lamioideae, Lamiaceae), a new species from northeastern Iran

YASAMAN SALMAKI [1*]& MOHAMMAD REZA JOHARCHI[2]

[1] *Center of Excellence in Phylogeny of Living Organisms and Department of Plant Science, School of Biology, College of Science, University of Tehran, PO Box 14155-6455, Tehran, Iran; e-mail: salmaki@ut.ac.ir, salmaki@khayam.ut.ac.ir*

[2] *Department of Botany, Research Center for Plant Sciences, Ferdowsi University of Mashhad, Mashhad, Iran*

** author for correspondence*

Abstract

The new species *Phlomoides binaludensis* (Phlomideae, Lamioideae, Lamiaceae) from Binalud Mountains in the Khorasan province in NE Iran, is here described and illustrated. It belongs to *Phlomoides* section *Filipendula* and resembles *P. labiosiformis* and *P. laciniata* in general morphology, but differs primarily in corolla and calyx size, corolla color and stem indumentum. Notes on the ecology and conservation status of the new species are also given.

Introduction

The genus *Phlomoides* Moench (1794: 403) with about 150–170 species belongs to Lamiaceae, subfamily Lamioideae, tribe Phlomideae (Scheen *et al.* 2010). As pointed out by Kamelin & Machmedov (1990), the genus has been largely ignored for the last 200 years. The genus was recently re-circumscribed to encompass the members of *Eremostachys* Bunge (1830: 414) along with part of *Phlomis* L. (1753: 178), *Paraeremostachys* Adylov *et al.* (1986: 112) and some mono- or oligotypic genera (Salmaki *et al.* 2012). The distribution area of the genus extends from central Europe to the Russian Far East. The major centers of diversity of *Phlomoides* are Central Asia, the Iranian highlands (including Afghanistan, Iran, W Pakistan, SW Turkmenistan and NE Iraq) and China, with a diversity hotspot in Yunnan and Sichuan, and some few species extending to Mediterranean Europe.

Phlomoides accommodates species with simple or laciniate to pinnatisect leaves; the upper corolla lip not being laterally compressed, non-flattened, arched shape, always hairy or fringed-incised and with woody rhizomes and/or tuberiform lateral roots. They are non-aromatic or lightly aromatic herbs usually in subalpine and alpine vegetation with a few species growing in desert conditions. In Iran, these taxa are floristic components of steppe and mountain vegetation (Hedge 1967).

The most important infrageneric classification of *Phlomoides* has been made by Kamelin & Machmedov (1990) in which two sections [*P.* sect. *Phlomoides* and *P.* sect. *Filipendula* Kamelin & Makhmedov (1990: 245)], 21 subsections and 137 species are recognized. *Phlomoides* sect. *Phlomoides* (ca. 66 species) is characterized by simple leaves, crenate, dentate to entire at margin, and unicolored corolla, whereas *P.* sect. *Filipendula* (ca. 71 species) is distinguished by pinnatisect leaves (rarely undivided) and bicolored corolla. Considering the general distribution area of *Phlomoides*, the number of species belonging to *P.* sect. *Phlomoides* decreases from east to west, but *P.* sect. *Filipendula* shows an opposite tendency in its distribution, dominating the western most part of the distribution area.

Rechinger (1982) reported 41 species of *Eremostachys* from the Iranian highlands, of which 15, including seven endemics, occur in Iran. After *Flora Iranica* (Rechinger 1982), *E. lanata* Jamzad (1987: 112) has been added to this genus in Iran (Jamzad 1987). Due to the inclusion of *Eremostachys* in *Phlomoides* according to molecular phylogenetic studies (Salmaki *et al.* 2012), 17 species of *Phlomoides* are known from Iran (Salmaki *et al.* 2012). However, this treatment received no recognition in Flora of Iran and *Phlomoides* species were sorted into *Eremostachys* and *Phlomis* (Jamzad 2013).

Phlomoides sect. *Filipendula* is the largest section of *Phlomoides* and represents the most diverse and controversial group (Sennikov & Lazkov 2010) of the genus. It includes stout perennial herbs with tuberous rootstock, laciniate to

Accepted by J. G. González-Gallegos: 30 Apr. 2014; published: 18 Jun. 2014

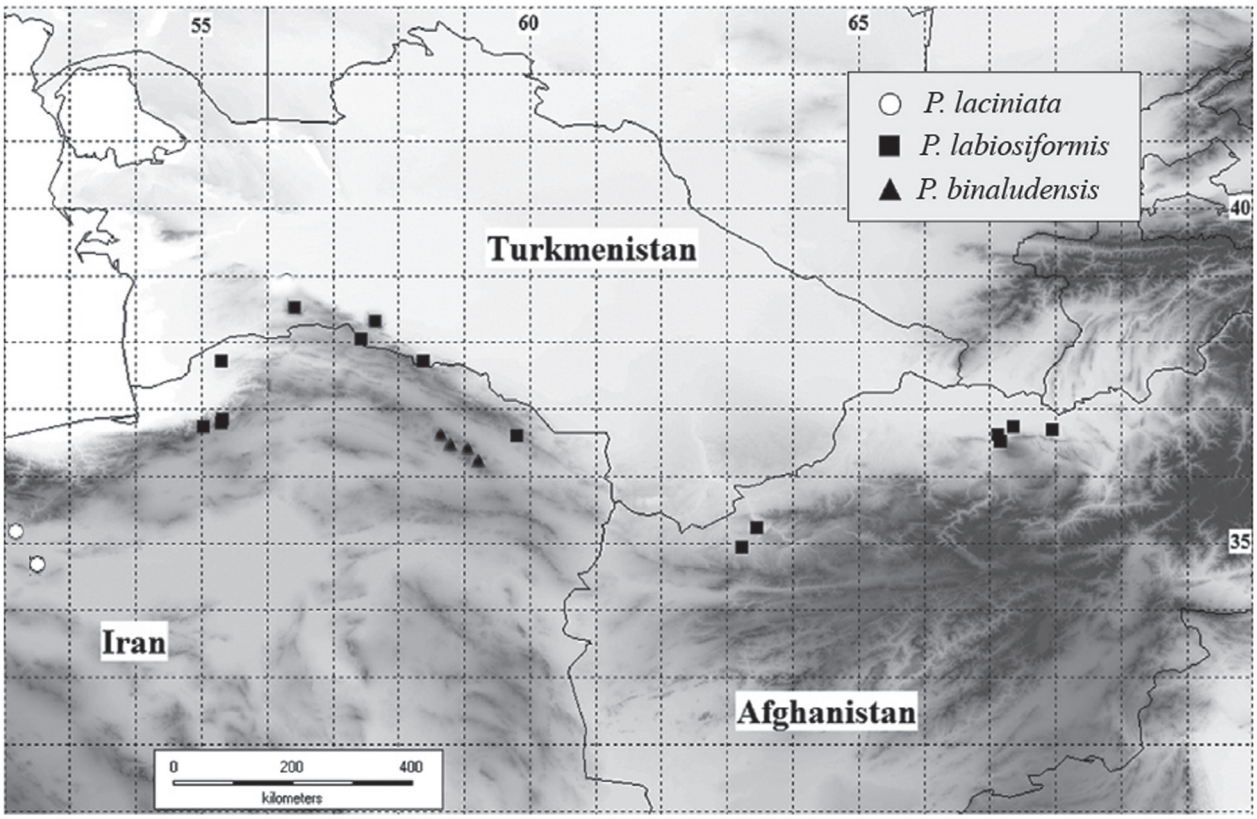

FIGURE 2. Distribution map of *Phlomoides binaludensis*, *P. labiosiformis* and *P. laciniata.*

Acknowledgements

We are grateful to the Research Council, University of Tehran, supporting Y.S. through the project no. 01/1/321120 as well as Iran National Science Foundation (ISNF grant no. 92016604) financing our investigations on the genus *Phlomoides*. We wish to thank DAAD (Deutscher Akademischer Austausch Dienst) also for a grant to Y.S. Comments and suggestions given by the editor and two anonymous reviewers were very helpful in improving the text which are much appreciated. We would like to thank the curators of the herbaria B, E, FUMH, G, G-BOISS, G-DC, K, M, MSB, TARI, TUH, W and WU for loan of the material.

References

Adylov, T.A., Kamelin, R.V. & Machmedov, A.M. (1986) Zametki o semeistve *Lamiaceae* 1 [Notes on *Lamiaceae* 1]. *Novosti Sistematiki Vysshikh Rastenii* 23: 110–114.

Adylov, T.A. & Makhmedov, A.M. (1987) *Phlomoides* Moench. *In:* Adylov, T.A. (ed.), *Conspectus Florae Asiae Mediae 9*. Izdatel'stvo Akademii Nauk SSSR, Tashkent, pp. 82–107.

Bunge, A. (1830) *Eremostachys* Bunge. *In*: Ledebour, C.F., Meyer, C.A. & Bunge. A. (eds.) *Flora Altaica 2*. G. Reimer, Berlin, pp. 414–416.
http://dx.doi.org/10.5962/bhl.title.6618

Hedge, I. (1967) Studies in the flora of Afghanistan VI. *Notes Royal Botanical Garden Edinburg* 26: 156–167.

Jamzad, Z. (1987) *Eremostachys lanata* and *Mentha mozaffarianii*, two new Labiatae from Iran. *Iranian Journal of Botany* 3: 111–116.

Jamzad, Z. (2013) *Eremostachys*, and *Phlomis*. *In:* Assadi, M., Maassoumi, A.A. & Mozaffarian, V. (eds.), *Flora of Iran*, 76: 253–337.

IUCN. (2010) *The IUCN red list of threatened species*, version 2010.4. IUCN Red List Unit, Cambridge U.K. Available from: http://www.iucnredlist.org/ (accessed: 19 May 2011).

Linnaeus, C. (1753) *Species Plantarum*. Salvius, Stockholm, 1200 pp.

Kamelin, R.V. & Machmedov, A.M. (1990) Sistemaroda *Phlomoides* (Lamiaceae). *Botanicheski Žhurnal* 75: 241–250.

Moench, C. (1794) *Methodus Plantas*. Officina Nova Libraria Academiae, Marburg, 780 pp.

Rechinger, K.H. (1982) *Eremostachys* et *Phlomis*. *In*: Rechinger, K.H. (ed.), *Flora Iranica*, 150. Akademische Druck- u. Verlagsanstalt, Graz, pp. 256–317.

Salmaki, Y., Zarre, S. & Heubl, G. (2012) The genus *Phlomoides* Moench (Lamiaceae; Lamioideae; Phlomideae) in Iran: an updated synopsis. *Iranian Journal of Botany* 18: 207–219.

Salmaki, Y., Zarre, S., Ryding, O., Lindqvist, C., Scheunert, A., Bräuchler, C. & Heubl, G. (2012) Phylogeny of the tribe Phlomideae (Lamioideae: Lamiaceae) with special focus on *Eremostachys* and *Phlomoides*: new insights from nuclear and chloroplast sequences. *Taxon* 61: 161–179.

Scheen, A.-C., Bendiksby, M., Ryding, O., Mathiesen, C., Albert, V.A. & Lindqvist, C. (2010) Molecular phylogenetics, character evolution and suprageneric classification of Lamioideae (Lamiaceae). *Annals of the Missouri Botanical Garden* 97: 191–219. http://dx.doi.org/10.3417/2007174

Sennikov, A. & Lazkov, G. (2010) Typification of *Eremostachys labiosa* (*Phlomoides labiosa*, Lamiaceae) and its synonyms. *Willdenowia* 40: 221–226. http://dx.doi.org/10.3372/wi.40.40207