

# NOTES ON THE DISTRIBUTION AND TAXONOMY OF VERBASCUM IN IRAN

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Studies on the distribution of *Verbascum* showed that 96 % of the Persian species are Irano-Turanian elements.

Taxonomy of the genus has been revised. Based on the results, 42 species of *Verbascum* are listed from Iran. *V. kermanense* Hub.-Mor. and *V. straussi* (Bornm.) Hub.-Mor. were regarded as a synonymy of *V. gabriellae* Bornm. and *V. nudicaule* (Wydł.) Takht. respectively.

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مقدمه‌ای بر منطقه انتشار و تاکسونومی جنس *Verbascum* در ایران

فریبا شریف‌نیا

بررسی‌های منطقه انتشار جنس گل‌ماهور *Verbascum* در ایران نشان می‌دهد که ۹۶٪ گونه‌ها متعلق به ناحیه ایرانی تورانی هستند. تحقیقات تاکسونومیک نشان می‌دهد که در ایران ۴۲ گونه انتشار دارد. گونه *V. kermanense* مترادف گونه *V. gabriellae* و گونه *V. straussi* مترادف گونه *V. nudicaule* قرار داده می‌شود.

## INTRODUCTION

Nearly 60 % of ca. 360 species of *Verbascum* in the world are centered in an area including Anatolia (Turkey) and northwest of Iran. (Hub.-Mor. 1978 & 1981). The main biodiversity center of the genus is located in Anatolia. According to Flora Iranica 41 species of *Verbascum* (*Scrophulariaceae*) are reported from Iran. Regarding to flower morphology, *Verbascum* is related to *Veronica* in having relatively similar actinomorphic flowers. Nevertheless, molecular studies of the genus showed a close relationship to *Scrophularia*, special seed morphology, hairy filaments and developed androspERM support DNA analysis results that indicate monophyly of the genus (Olmstead and Reeves 1995).

## MATERIALS AND METHODS

The present study has been carried out on 42 species of the genus *Verbascum* in Iran. The whole specimens of Research Institute of Forests and Rangelands (TARI), herbarium of IRAN, herbarium of Tehran University (TUH) and several states herbaria of Iran were studied. Fresh specimens were collected from different regions of Iran.

Flora of Iranica (Hub.-Mor. 1981), Flora of Turkey (Hub.-Mor. 1978) Flora de l Iran (Parsa 1949), Flora Orientalis (Boissier 1879) and monograph of *Celsia* and *Verbascum* (Murbeck 1925 & 1933) were used for the identification of the species. Also, the images of some of the type specimens from Berlin and Jena herbaria were prepared for more studies.

## RESULTS AND DISCUSSION

### Distribution and chorology

Comparing to the number of species in Anatolia with 230 species (Huber-Morath 1978) it is clear that the distribution centre of *Verbascum* is Anatolia. Iran has 42 species in which as it is expected about 20 species (48%) are distributed in Azerbaijan province, in neighbouring of the Anatolia. Chorology of the whole Iranian *Verbascum* species are determined and it is showed that 96% of Persian *Verbascum* species belong to the Irano-Turanian and 4% to the Hyrcanian and Sahara-Sindian regions. And so, 15 species (35.7%) are endemic to Iran (Table 1). The most *Verbascum* species are found on slopes and high altitudes.

### Taxonomic results

This survey showed that *Verbascum kermanense* Hub.-Mor. is a synonymy of *Verbascum gabriela* (Bornm.) Hub.-Mor. In the first *Celsia gabriela* Bornm. changed to *Verbascum gabriela* by Huber-Morath in Flora Iranica, and then Huber-Morath (1981) introduced a new endemic species for the Flora of Iran with the name of *Verbascum kermanense*. With more studies on the specimens have been collected from Kerman area (the type locality of *Verbascum kermanense*) it is cleared that the main difference between both of them is the color of flower. *Verbascum gabriela* and *Verbascum kermanense* have been reported with red flower and yellow flower respectively. In fact, this group of the species bears yellow flowers but the yellow flowers change to red in dry state. It is worth mentioning that the author of Flora Iranica has not seen the type specimen of *Verbascum gabriela* while we prepared the image of the type specimen from Berlin herbarium.

*Verbascum straussii* (Bornm.) Hub.-Mor. is regarded as a synonymy of *Verbascum nudicaule* (Wydł.) Takht. *Verbascum straussii* was described as an endemic species with the name of *Celsia straussii* by Bornmuller and then its name changed to *Verbascum straussii* by Huber-Morath. With morphological comparison of the two species it is cleared that the main difference between both of them is the glandular hairs of the calyx which is stalked and not stalked in *Verbascum straussii* and *Verbascum nudicaule* respectively. The studies showed that this

difference is not constant and the other morphological characters and geographical distribution do not differ. Photos of the type specimens were prepared for comparison of the taxa from Berlin Herbarium.

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### REFERENCES

- Boissier, E., 1879: Flora Orientalis IV *Verbascum* L. 298-349 and *Celsia* L. 349-361. -Genevae & Basiliae.
- Huber-Morath, A., 1978: Flora of Turkey, *Verbascum*, vol. 6: 461-603. -Edinburgh University Press.
- Huber-Morath, A., 1981: Flora Iranica, *Verbascum* no:147: 5-50. -Akademische Druck-u. Verlag sanstal. Graz. Austria.
- Murbeck, Sv. 1925: Monographe of *Celsia*, -Lund. Univ. Arsskr. N. F. Avd. 2 (22):1-239.
- Murbeck, Sv. 1933: Monograph of *Verbascum*. -Lunds. Univ. Arsskr. N. F. Avd. 2 (29): 1-630.
- Olmstead, R. G. & P. A. Reever 1995: Evidence for polyphyly of The Scrophulariaceae based on chloroplast *rbcl* and *ndhF* sequences. -Ann. Missouri Bot. Gard. 82: 176-193.
- Parsa, A. 1949: Flora de ÍIran vol. IV, *Verbascum* 323-334 and *Celsia* 347-361. -Tehran.

Table 1: List of *Verbascum* species in Iran and their chorology (abbreviations: IT=Irano-Turanian region, HY=Hyrcanian province and SS=Sahara-Sindian region; AZR=Azerbaijan).

Taxa	IT	HY	SS	Endemic	AZR
<i>V. orientale</i> (L.) All.	•				•
<i>V. intricatum</i> (Benth.) O. Kuntze	•			•	
<i>V. scoparium</i> Mozaffarian			•	•	
<i>V. aucheri</i> (Boiss.) Hub.-Mor.	•			•	
<i>V. disjectum</i> (Murb.) Hub.-Mor.	•			•	
<i>V. nudicaul</i> (Wydł.) Takht.	•				•
<i>V. suworowianum</i> (C. Koch) O. Kuntze	•				•
<i>V. farsistanicum</i> (Murb.) Hub.-Mor.	•		•	•	
<i>V. austroiranicum</i> Hub.-Mor.	•			•	
<i>V. lyprocarpum</i> (Murb.) Hub.-Mor.	•			•	
<i>V. agrimonifolium</i> (C.Koch) Hub.-Mor.	•				•
<i>V. phoeniceum</i> L.	•				•
<i>V. flavidum</i> (Boiss.) Freyn & Bornm.	•				•
<i>V. bornmullurianum</i> Hub.-Mor.	•				
<i>V. blattaria</i> L.	•	•			
<i>V. macrocarpum</i> Boiss.	•				•
<i>V. oreophillum</i> C. Koch	•				•
<i>V. assurence</i> Bornm. & Hand.-Mzt.	•				
<i>V. carmanicum</i> (Bornm.) Hub.-Mor.	•			•	
<i>V. gabriale</i> (Bornm.) Hub.-Mor.	•			•	
<i>V. saccatum</i> C. Koch	•				•
<i>V. punalense</i> Boiss.& Buhse		•			
<i>V. alceoides</i> Boiss. & Hausskn.	•				
<i>V. pseudodigitalis</i> Nab.	•				
<i>V. kochiforme</i> Boiss. & Hausskn.	•			•	
<i>V. pyramidatum</i> M.B.	•				•
<i>V. alepense</i> Benth.	•				
<i>V. thapsus</i> L.	•				•
<i>V. haesareense</i> Freyn& Bornm.	•			•	
<i>V. cardachorum</i> Bornm.	•				•
<i>V. erianthum</i> Benth.	•				
<i>V. phyllostachyum</i> Boiss. & Hausskn.	•			•	
<i>V. songaricum</i> Schrenk ex Fisch. & C. A. May.	•				•
<i>V. speciosum</i> Schrad	•				•
<i>V. cheirantifolium</i> Boiss.	•				•
<i>V. sublobatum</i> Murb.	•			•	
<i>V. stachydiforme</i> Boiss.& Buhse	•	•		•	•
<i>V. haussknechtianum</i> Hub.-Mor.	•				
<i>V. sinuatum</i> L.	•	•			•
<i>V. gossypinum</i> M.B.	•	•			•
<i>V. szovitsianum</i> Boiss.	•				•
<i>V. azerbaijanense</i> Sharifnia & Assadi	•			•	•
Total%	96%	2%	2%	35.70%	48%