JJBS

Volume 7, Number 1, March .2014
ISSN 1995-6673
Pages 67 - 70

Jordan Journal of Biological Sciences **Short Communication**

Two New Records of *Astragalus* species of the Section *Chronopus* Bge. and *Harpilobus* Bge. in Saudi Arabia

Sherif M. Sharawy*

Botany Department, Faculty of Science, Ain Shams University, Abbaseya 11566, Cairo, Egypt

Present Address: Biology Department, Faculty of Science, Hail University, Hail, Saudi Arabia

Received: September 26, 2013 *Revised: October 12, 2013* *Accepted: October 24, 2013*

Abstract

Astragalus trigonus DC. and *Astragalus trimestris* L. are new records in Saudi Arabia. They belong to sections *Chronopus* Bge. and *Harpilobus* Bge.

Keywords*: Astragalus*, Section *Chronopus*, Section *Harpilobus*, Flora, Saudi Arabia.

1. Introduction

The genus *Astragalus* L. of the family Fabaceae (Leguminosae) is one of the largest genera of vascular plants (Polhill, 1981; Podlech, 1986, 1991, 1999; Maassoumi, 1998, 2005; Taeb *et al.*, 2007; Lozano *et al.*, 2010) with an estimated number of 2500-3000 species. Many species are narrowly endemic, while relatively few are wide-spread, distributed in the Northern hemisphere, especially in Central Asia and Western North America (Podlich, 1986; Lock and Simpson, 1991; Maassoumi, 1998). In Egypt, the genus is represented by 32-35 species (Taeckholm, 1974; Boulos 1999). Zohary (1972) recorded 50 *Astragalus* species from Palestine; Post and Dinsmore (1932) recorded about 133 species of *Astragalus* in Syria. In Qatar, the genus *Astragalus* is represented by eight species (Norton *et al*., 2009). In Saudi Arabia, the genus is represented by 25-26 species (Migahid, 1996; Collenette, 1999; Mandaville, 1999; Chaudhary, 2000), distributed in different phytogeographical regions and placed in several sections. In Hail province, North Central Saudi Arabia, Collenette and Tsagarakis (2001) recorded 6 species of *Astragalus* in the Aja Mountains, Turki and Al-Olayan (2003) recorded 9 species in Hail, while Alshammari and Sharawy (2010) recorded 6 species in the Hema Faid region and recently Llewellyn *et al*. (2011) recorded 7 species in the Aja Mountains.

In this paper, two new records of *Astragalus* species are presented from Hail province; these are recorded in Saudi Arabia for the first time. One of them is from section *Chronopus* Bge. (*A. trigonus* DC.), and the other from section *Harpilobus* Bge. (*A. trimestris* L.).

During extensive field studies in Hail province of North Central Saudi Arabia, *Astragalus trigonus* and *A. trimestris* were collected fresh from different localities (Figure 1). Herbarium specimens of the two species are deposited at the Herbarium of Biology Department, Faculty of Science, Hail University, Hail, Saudi Arabia.

* Corresponding author. e-mail: sherifsharaawy@yahoo.com.

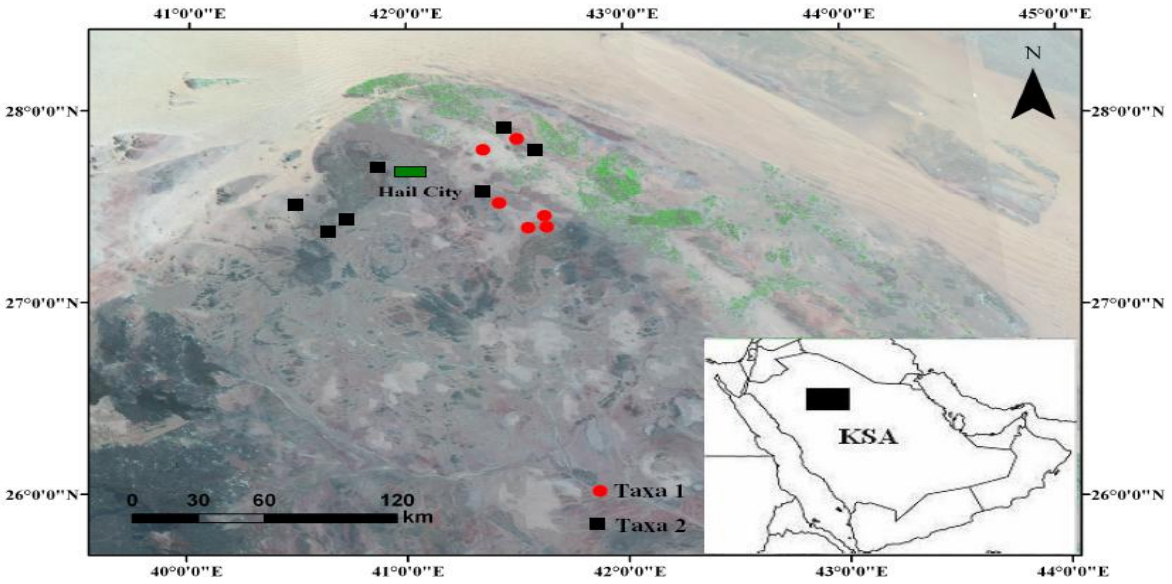

Figure 1. Distribution map of *Astragalus trigonus* (Taxa 1) and *A. trimestris* (Taxa 2) in Hail Province, Saudi Arabia

***Astragalus trigonus* DC. (Sect. *Chronopus* Bge.) – (Figure 2)**

Astragalogia 186 (1802).
= *Astragalus leucanthus* Boiss., Diagan. P1 Orient. 9:93 (1849).
= *Astragalus pseudotrigonus* Batt. & Trab., Bull. Soc. Bot. Fr. 58: 670 (1912).

Description: Subshrub 20-30 cm branched from the base and also above; stem and branches densely furnished with persistent spinous, 2-4 cm, generally rather stout leaf rachides; young shoots densely rather persistently white-tomentose. Leaves of two kinds: (1) those of the young shoots large, producing the persistent spines, oblong in outline with 5-7 pairs of ovate to oblong or suborbicular, minutely mucronate leaflets, 2-4 × 2-3 mm., flat leaflets which are sparsely appressed hairy on the lower surface, almost glabrous on the upper; (2) those on the old wood reduced to fascicles of 2-5 cuneate-obovate, 3-15 × 1.5-5 mm leaflets; stipules triangular-deltoid, long acuminate 3-5 mm, membranous, white-ciliate. Inflorescence of 2-4 subsessile flowers; bracts deltoid, acute, membranous, 1-2 mm. Calyx 1-1.5 cm, shortly cylindrical, furnished with appressed black and white hairs, teeth about 3 mm. Corolla yellow or creamy white; standard 7-9 mm, the lamina oblong, blunt or notched; keel 5-6 mm, the lamina oblong, subequalling the claw. Style 1.5-2 mm, pilose basally or glabrous; ovary rather thinly to more densely appressed-pilose. Pod 2-2.5 × 0.3-0.6 cm including the sharp beak, straight or slightly curved, woody reticulate-veined, almost glabrous; seeds 2-5 mm, quadrangular, compressed brown or yellow and smooth

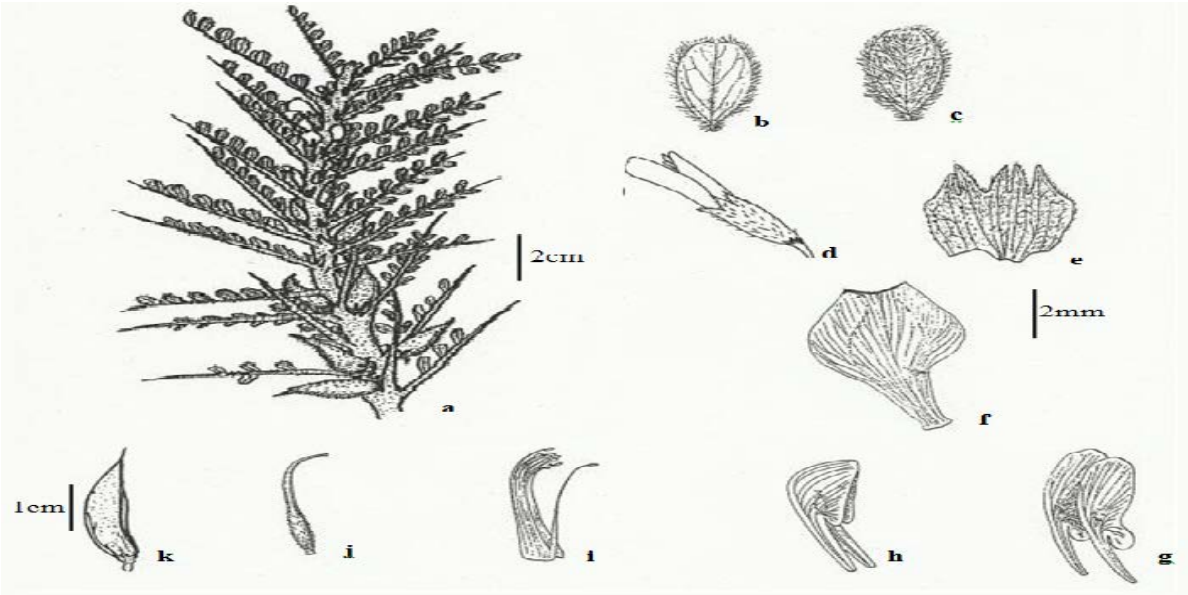

Figure 2. *Astragalus trigonus* DC. a, habit; b, leaflet, upper surface; c, leaflet, lower surface; d, flower; e, calyxopened out, outer surface; f, standard; g, wings; h, keel; i, androecium; j, gynoecium; k, pod.

***Astragalus trimestris* L. (Sect. *Harpilobus* Bge.) – (Figure 3)**

Sp. Pl., ed. 1,761 (1753).

Description: Annual, 8-22 cm branched from the base and frequently also a little above; stems decumbent or ascending, sulcate, rather weak, glabrous or sparsely pilose above with white and sometimes a few black hairs. Leaves 4-8 cm long, shortly petiolate, lamina oblong in outline; leaflets in 8-12 pairs, oblong-elliptic, 5-1 × 3-5 mm, obtuse or retuse at apex, white-strigose on the lower surface, glabrous on the upper; stipules lanceolate-triangular, long acuminate, 2-3 mm, membranous, white ciliate. Inflorescences of 2-6 subsessile flowers in short but rather lax racemes on long peduncles mostly about equaling the leaves and clad with appressed black and white hairs; bracts deltoid, acute, membranous, 1-1.5 mm. Calyx shortly cylindrical, 4-5 mm, furnished with appressed white hairs, teeth about half as long as the tube. Corolla white or creamy white. Standard 10-12 mm, the lamina oblong-obovate, obtuse or retuse, about twice as long as the claw; wings 6-7 mm, the lamina oblong, blunt or notched; keel 4-5 mm, the lamina bluntly oblong, subequalling the claw. Style glabrous, 1 mm; ovary linear, 25-35 ovulate. Pods sessile, glabrous, erect, arcuate- to strongly fish-hook shaped, linear, with a short beak. Seeds quadrate-wedge shaped, 2-mm, brown and smooth.

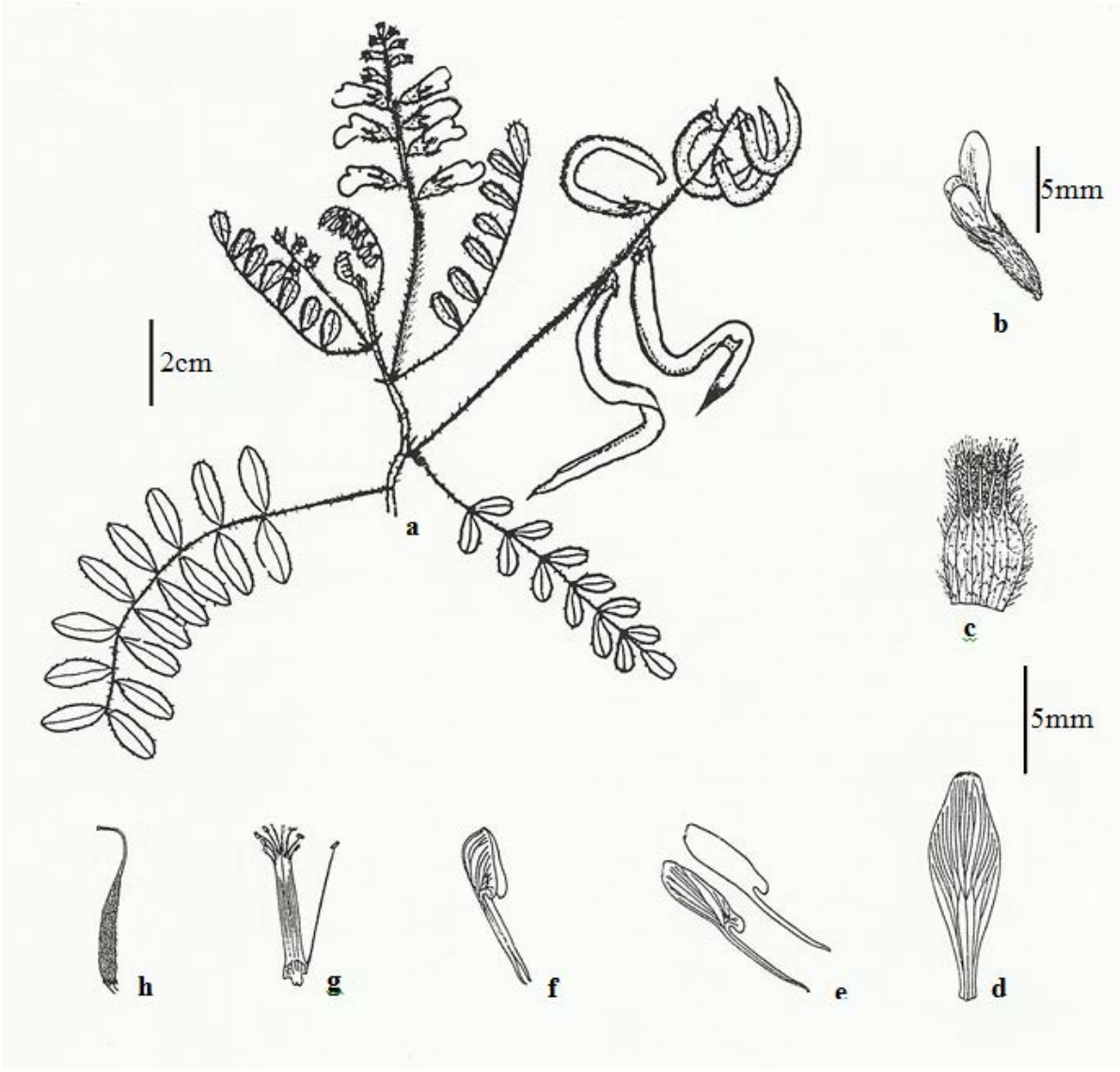

Figure 3. *Astragalus trimestris* L. a, habit; b, flower; c, calyx opened out, outer surface; d, standard; e, wings; f, keel; g, androecium; h, gynoecium.

Acknowledgements

The author thanks Dr. Ahmed M. Alshammari, Associated Professor of Ecology, Faculty of Science, University of Hail, for assistance in collecting the specimens. Also, thanks are due to Dr. M. E. Hereher, Associated Professor of remote sensing, Faculty of Science, University of Hail, for his assistance in providing the distribution map.

References

Alshammari AM and Sharawy SM. 2010. Wild plants diversity of the Hema Faid Region (Ha'il Province, Saudi Arabia). *Asian J. Pl. Sci.*, **9(8):**447-454.

Boulos L. 1999. **Flora of Egypt**. Al Hadara Publishing, CaIRO, Egypt, 1:320-336.

Chaudhary SA. 2000. **Flora of the Kingdom of Saudi Arabia**. Ministry of Agriculture, Riyadh, Saudi Arabia.

Collenette S. 1999. **Wild Flowers of Saudi Arabia**. National Commission for WildlifeConservation and Development (NCWCD), Riyadh, Saudi Arabia.

Collenette S and Tsagarakis C. 2010. Some Regional Botanical Lists from Saudi Arabia. National Wildlife Research Center, Taif, Saudi Arabia.

Llewellyn OA, Hall M, Miller AG, Al-Abbasi TM, Al-Wetaid AH, Al-Harbi RJ and Al-Shammari KF. 2011. Important plant areas in the Arabian Peninsula: 4. Jabal Aja. *Edinburgh J. Bot.*, **68(2):**199-224.

Lock JM and Simpson K. 1991. **Legumes of West Asia, a check-list**. Kew: Royal Botanic Gardens.

Lozano ST, Gomez PS, Garcia DL, Martinez JF and Poveda JM. 2010. A new speciesof *Astragalus* L. Sect. Sesamei DC. (Leguminosae) from the southeast of Spain: *Astragalus castroviejoi*. *Anales del Jardin Botanico de Madrid*. **67(1):** 41-47.

Maassoumi AA. 1998. *Astragalus* L. in the Old World, Check–List. Islamic Rep. Iran Ministry of Jahas–e Sazandgi Res. Inst. Forest and Rangelands, Tehran.

Maassoumi AA. 2005. **The genus Astragalus in Iran**. (Vol. 5) Tehran.

Mandaville JP. 1990. **Flora of Eastern Saudi Arabia**. Kegan Paul, London and NCWCD, Riyadh, Saudi Arabia.

Migahid AM. 1996. **Flora of Saudi Arabia**. 4th Edn. King Saud University Libraries, Riyadh, Saudi Arabia.

Norton J, Abdul Majid S, Allan D, Alsafran M, Boer B and Richer R. 2009. **An Illustrated Checklist of the Flora of Qatar.** Browndown Publications Gosport, UK.

Podlech D. 1986. Taxonomic and phytogeographical problems in *Astragalus* of the Old World and South West Asia. *Proc Roy Soc Edinburgh*, **89**:37-43.

Podlech D. 1991. The systematics of annual species of the genus *Astragalus* L. (Leguminosae). *Flora et. Vegetatio Mundi*, **9**:1-18.

Podlech D. 1999. New *Astragali* and *Oxytropis* from North Africa and Asia, including some new : combinations and remarks on some species. *Sendtnera*, **6:** 135–171.

Polhill RM. 1981. *Gelegeae in advances in legume systematics*. Polhill R M and Ravan, P H.(Eds.), Royal Botanic Gardens, Kew, England, pp: 357-363.

Post GE and Dinsmore JE. 1932. **Flora of Syria, Palaestine and Sinai**, ed. 2, vol. 1. Beirut.

Taeb F, Zarre S, Podlech D, Tillich H, Kazempour Osaloo S and Maassoumai A. 2007. A contribution to the phylogeny of annual species of *Astragalus* (Fabaceae) in the Old World using hair micromorphology and other morphological characters. *Feddes Repertorium*, **118(5-6):**206-227.

Taeckholm V. 1974. **Students flora of Egypt**. Cairo Univ. Press. 261-271.

Turki TA and AL-Olayan HA. 2003. Contribution to the Flora of Saudi Arabia: Hail Region.*Saudi J. Biol. Sci.*, **10**: 190–222.

Zohary M. 1972. **Flora Palaestina**. Vol. 2. Jerusalem.