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Author: Al-Turki, Turki A.

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TURKI A. AL-TURKI

A new species of *Indigofera* (Fabaceae) from southwestern Saudi Arabia

Abstract

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Indigofera brachyphylla from the Province of Jizan, Saudi Arabia, is described as a new species and illustrated. It is unique among other known species of this genus by the combination of small leaflets, distinct tetragonal pods, long, delicate, persistent peduncles, a blister-like gland on the ventral side of the petiolule, smooth, tetragonal seeds and linear stipules.

Introduction

Mountainous southwestern Saudi Arabia is remarkable for its comparably dense vegetation and species diversity. Floristic explorations have resulted in the reporting of many new taxa and records (Alfarhan 2000, 2003, Alfarhan & al. 1997, 2001, Al-Turki & al. 2001).

On successive expeditions to study the flora of the Province of Jizan, the team members found a small population of a semi-prostrate species of *Indigofera* L. Since the plants were not fruiting, I could not successfully place it in any of the known species. In spring 2002, another, fruiting, individual was collected from a rocky slope of a hillock situated about 50 km from the first site. Critical studies of these specimens with the help of the relevant literature (Thulin 1982, 1992, 1995, Gillett 1971) revealed that the newly collected specimens does not belong to any of the hitherto known species.

Indigofera is one of the largest genera in *Fabaceae*, including about 700 species (Airy Shaw 1985, Mabberley 1997). Though widespread in the tropical and subtropical regions of the world, it is not reported from any part of the Mediterranean region (Gillett 1958). Its greatest diversity is reported from tropical Africa. However, the centres of diversity within sections can be seen from India to South East Asia and in the New World (Schrire 1998).

In Saudi Arabia *Indigofera* has not been comprehensively reviewed, except in the recent flora by Chaudhary & al. (2001). Previous works such as that of Blatter (1919-1936), Migahid (1978), etc., are out of date and do not provide much help in segregating the species. In Saudi Arabia, *Indigofera* is represented by 20 species (excluding the new species) and five varieties (Collenette 1999, Chaudhary 2001).

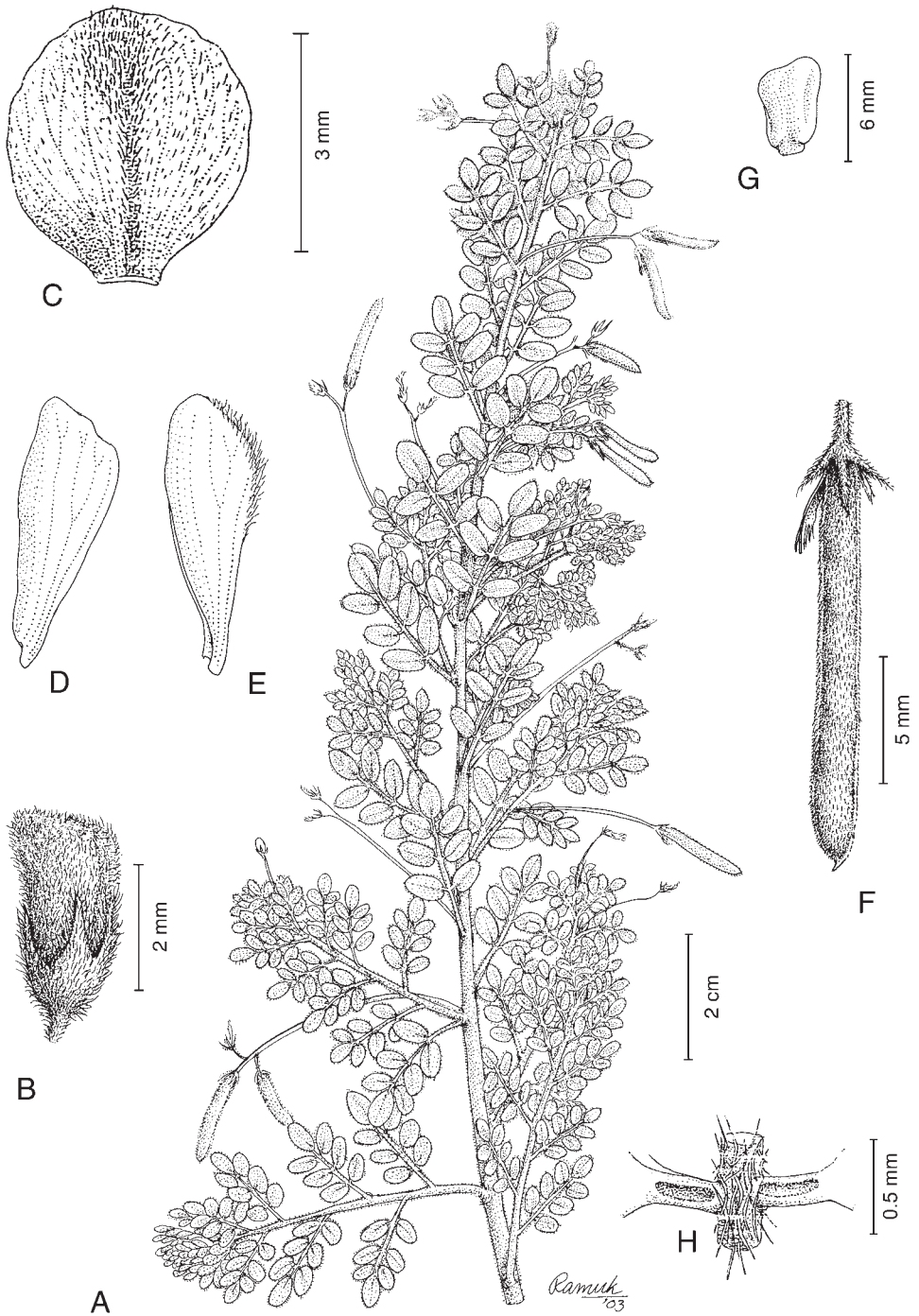


Fig. 1. *Indigofera brachyphylla* – A: part of a fruiting branch; B: flower bud; C: standard; D: wing; E: keel; F: fruit; G: seed; H: blister-like glands on petiolules. – Drawn from the holotype by Pradeep Kumar.

***Indigofera brachyphylla* Al-Turki, sp. nova – Fig. 1**

Holotype: Saudi Arabia, Jizan Province, Ad Da'ir (Ad Dayer), 60 km from Sabya, c. 900 m, 21.1.2002, T. Al-Turki & J. Thomas (KSU-20230).

Herba perennis semiprostrata. *Folia* 1-2 cm longa, imparipinnata, foliolis (5-)7-9, petiolulis saepe pustulis dorsalibus instructis, stipulis linearibus 4-5 mm longis. *Racemi* laxi cum 2-3 floribus; pedunculi axillares, persistentes, 1.5-3 cm longi, folio subtendente multo longiores. *Semina* tetragona testa laevi.

Perennial herb. *Stem* semiprostrate, c. 35 cm long, densely strigose. *Leaves* imparipinnate, 1-2 cm long, including the 1-5 mm long petiole; *stipules* linear, 4-5 mm long; leaflets besides the terminal one in (2-)3-4 pairs, obovate to elliptic-obovate, entire, 2-5.5 × 1-3 mm, mucronate, often folded with the downcurved tip, appressed-pubescent of biramous hairs, petiolules c. 0.4-0.6 mm long, ventrally often with a blister-like gland. *Racemes* lax, 2-3-flowered; peduncles axillary, 1.5-3 cm long, much longer than the subtending leaf, persistent. *Pedicels* short, less than 1 mm long. *Calyx* c. 2 mm long; lobes linear-lanceolate, c. 1 mm long, as long as or slightly longer than the tube. *Corolla* pink or reddish pink; *vexillum* orbicular to suborbicular, c. 3.5 mm long, mostly pubescent on the upper half and along the midvein; *wings* clawed, c. 3.3 mm long, glabrous; *keel* c. 3.5 mm long, pubescent along the lower margins. *Stamens* 9+1; anthers apiculate. *Ovary* linear, strigose, many-ovulate. *Style* upcurved, stigma capitate. *Pod* tetragonal, 8-11-seeded. *Seeds* tetragonal, brown, 1 × 0.6 mm, smooth.

Distribution. – Endemic to the Province of Jizan, southwestern Saudi Arabia. The species was found in the western escarpments at c. 900 m of altitude, in open woodland and more sparsely vegetated, heavily browsed habitats, on rocky slopes or ridges. The substrate was granite and sandstone.

Taxonomic remarks. – *Ipomoea brachyphylla* strongly resembles and is apparently closely related to *I. brevicalyx* Baker f. of *I. sect. Monanthae* Wight & Arn., a species widely distributed in East Africa and extending into the highlands of W Yemen. The new species differs from *I. brevicalyx* in particular by the absence of distinct translucent blisters on the leaflets, tetragonal pods and non-pitted seeds. *I. brevicalyx* has so far not been recorded from Saudi Arabia but is possibly present in its southwestern part. The new species also resembles *I. rubromarginata* Thulin (a species recently described from southern Yemen) but differs by its long peduncles, being up to twice the length of the subtending leaf, non-reddish leaflet margins and about 4-5 mm long linear stipules (in *I. rubromarginata* the peduncle has almost the same length (1-2 cm) as the subtending leaf). Other species that may be confused with *I. brachyphylla* include *I. eremophila* Thulin and *I. vohemarensis* Baill. The former differs from the new species by its 10-25-flowered racemes and 3-5 leaflets, the latter differs by its triangular calyx lobes and strong smell of coumarin. *I. vohemarensis* (a species widespread in East Africa, from Ethiopia southwards to N Mozambique and Madagascar) is so far not recorded from any part of the Arabian Peninsula. *I. eremophila*, previously known only from Ethiopia and Somalia, has been reported from Yemen and Oman recently (Thulin 1995).

Additional specimens examined. – Saudi Arabia, Jizan Prov., Sabya-Jabal Fayfa road, about 10 km from Wadi Sabya, c. 900 m, 9.5.2001, A. Alfarhan, T. Al-Turki & J. Thomas (KACST, KSU-19776-A).

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References

- Airy Shaw, H. K. 1985: A dictionary of the flowering plants & ferns, 8th edition. – Cambridge.
- Alfarhan, A. H. 2000: An account of the genus *Croton* L. in Saudi Arabia with a new record of *C. bonplandianus* Baill. – Saudi J. Biol. Sci. **7**(1): 39-45.
- 2003: Revision of the genus *Lepidium* L. in Saudi Arabia. – J. King Saud Univ. (in press).
- , Al-Turki, T. & Thomas, J. 2001: Annotated list to the flora of Farasan Archipelago, Southern Red Sea, Saudi Arabia. – *Taeckholmia* **22**(2): 1-33.
- , — & Alallah, M. I. H. 1997: Noteworthy records to the flora of Saudi Arabia. – Kuwait J. Sci. & Eng. **24**: 123-130.
- Al-Turki, T., Omer, S. & Ghafoor, A. 2001: Two new species of *Heliotropium* L. (*Boraginaceae*) from Saudi Arabia. – *Bot. J. Linn. Soc.* **137**: 215-220.
- Blatter, E. 1919-1936: Flora arabica. – *Rec. Bot. Surv. India* **8**(1-6).
- Chaudhary, S., Ghafoor, A. & Al-Turki, T. 2001: *Papilionaceae*. – Pp. 29-38 in: Chaudhary, S. (ed.), *Flora of the Kingdom of Saudi Arabia* **2**(1). – Riyadh.
- Collenette, S. 1999: Wild flowers of Saudi Arabia. – Riyadh.
- Gillett, J. B. 1958: *Indigofera* (*Microcharis*) in tropical Africa with the related genera *Cyamopsis* and *Rhynchotropis*. – *Kew Bull., Add. Series* **1**.
- 1971: *Indigoferaeae*. – Pp. 212-330 in: Milne-Redhead, E. & Polhill, R. M. (ed.), *Flora of Tropical East Africa*. – Kew.
- Mabberley, D. J. 1997: The plant book, ed. 2. – Cambridge.
- Migahid, A. M. 1978: Flora of Saudi Arabia, ed. 1. – Riyadh.
- Schrire, B. D. 1998: Notes relating to the genus *Indigofera* (*Leguminosae-Papilionoideae*) for Flora Zambesiaca: 2. Section *Indigofera*. – *Kew Bull.* **53**: 651-668.
- Thulin, M. 1982: New and noteworthy species of *Indigofera* (*Leguminosae*) from NE Africa. – *Nordic J. Bot.* **2**: 41-50.
- 1992: Eight new species and a new record of *Indigofera* and *Microcharis* (*Leguminosae-Indigoferaeae*) from Somalia. – *Nordic J. Bot.* **12**: 315-326.
- 1995: *Indigofera rubromarginata* sp. nova (*Leguminosae*) from southern Arabia, with a note on *I. eremophila*. – *Nordic J. Bot.* **15**: 519-521.

Address of the author:

T. A. Al-Turki, Natural Resources and Environmental Research Institute, King Abdulaziz City for Science and Technology, P.O. Box 6086, Riyadh-11442, Saudi Arabia; e-mail: talturki@kacst.edu.sa