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## Three new species of *Astragalus* L. from West Pakistan

by

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Recently the present author published a paper (ALI, S. I. Notes on the genus *Astragalus* L. from West Pakistan and N.-W. Himalayas. *Kew Bull.* 1958: 303-318. 1958) wherein new and interesting taxa belonging to the genus *Astragalus* from West Pakistan and the N.-W. Himalayas have been discussed. Subsequently some more material was received for identification from the Conservatoire et Jardin botaniques, Geneva and from Gordon College, Rawalpindi by the courtesy of Dr. R. R. STEWART. A critical study of the material and the specimens available at the herbarium of Gordon College, Rawalpindi, revealed the existence of three new species. The material on which these new species are based was collected by F. SCHMID for the Swiss Entomological Expedition in 1953-1954 and by Mr. J. D. A. STANTON, who led the British Museum Expedition to Chitral in 1958.

The present opportunity has been taken to describe these new species. The classification followed is the same as that discussed earlier by the author (ALI 1958). Further material of this genus is being studied and is expected to yield more interesting data.

### *Astragalus stantonianus* Ali, spec. nov.

*Herba* perennis. Radix lignosa elongata. Caule super terram emergente valde abbreviato, internodiis quasi deficientibus; parte subterranea elongata. *Folia* 5-8,5 cm. longa, imparipinnata, stipulis c. 11 mm. longis, c. 3-4 mm. latis, glabris; rhachide c. 2-4 cm. longa. Foliola 25-43, petiolulo quam 1 mm. longiore, lamina c. 3-6 mm. longa, c. 2-4 mm. lata, elliptica, ovata, supra glabra (margine excepto), infra pilosa, margine integra, apice obtusa. *Inflorescentia* 4-flora, pedunculo 4-5 mm. longo. Flores pedicellis c. 3 mm. longis, bracteis c. 1 cm. longis, lineatis. *Calyx* extus pilosus, parte connata c. 9-10 mm. longa, duobus dentibus superioribus c. 6 mm., 3 dentibus inferioribus c. 5 mm. longis acutis. *Corolla* (in sicco) flava apicibus violascentibus, vexillo c. 19-22 mm. longo, c. 8-10 mm. lato, apice retuso; alis c. 19-21 mm. longis, c. 4 mm. latis, clave c. 11-12 mm. longa; carina c. 16 mm.



FIG. 13. — *Astragalus staintonianus* Ali, holotype (Stainton 2874, RAW).

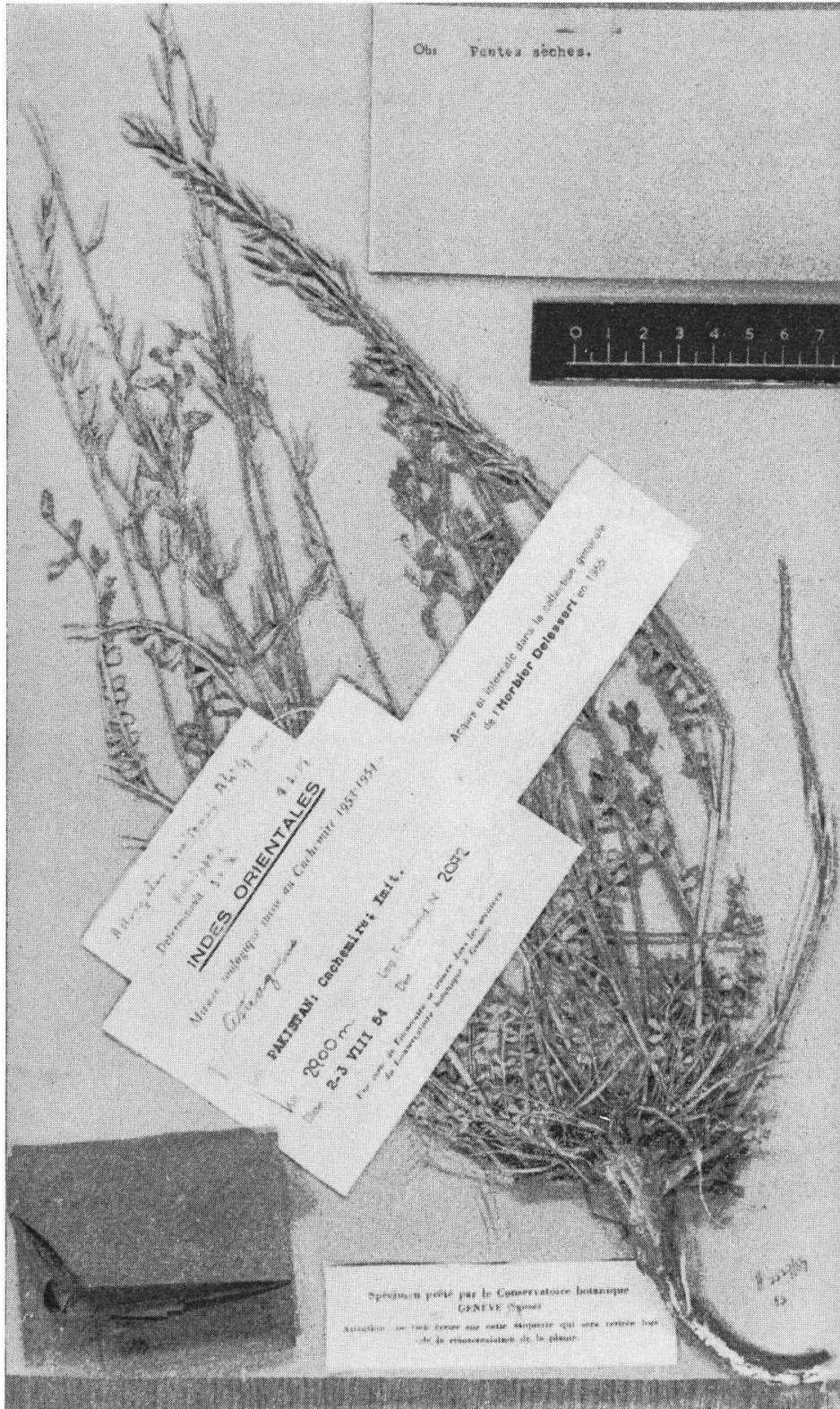


FIG. 14. — *Astragalus imitensis* Ali, holotype (Schmid 2072, G).

longa, c. 4 mm. lata, clave c. 10-11 mm. longa. *Stamina* diadelpha, 9+1, filamentis c. 16-18 mm. longis. *Ovarium* stipitatum, c. 7-8 mm. longum, c. 2 mm. latum, dense albo-pilosum, stylus glaber c. 2 mm. ab apice angulo recto superne curvatus; stigmatum capitato. Legumen sessile 17-18 mm. longum, c. 5-6 mm. latum, pilis albis hirsutum, partim biloculare, seminibus c. 8. Semina reniformia, c. 3-4 mm. longa, c. 2 mm. lata, colore brunneo.

*HOLOTYPE*: CHITRAL, Khot Au, alt. 4700 m., July 12, 1958, *Stainton 2874* (RAW) (Fig. 13).

*COTYPES*: KASHMIR, Anesarbar, pierriers, 3900-4900 m., 15-16 août 1954, *Schmid 2265* (G, RAW); deux versants de l'Ishkuman Aghost, 4210-4540 m., 15-16 août 1954, *Schmid 2462* (G); Chitral, haute vallée de Yarkhun, hauts pâturages, 4000 m., 22-27 août 1954, *Schmid 2327* (G).

This species belongs to the section *Myobroma* of the subgenus *Caprinus* and is related to *A. volkii* Rech. f. from which it differs in the characters of leaf, keel, vexillum and ovary. The size of the leaves in *A. volkii* Rech. f. is up to 12 cm., whereas in *A. staintonianus* Ali the size is of the order of 2-4 cm. The vexillum in *A. volkii* Rech. f. is more than three times longer than broad, whereas in *A. staintonianus* Ali it is less than three times as long as broad (19-22 mm. long, c. 8-10 mm. broad). The ratio of the length of the claw and lamina of the keel is also different in the two cases (*A. volkii*: 17-18/15; *A. staintonianus*: 11/6). Further, the ovary is only sparsely hairy in *A. volkii* Rech. f. but very densely hairy in *A. staintonianus* Ali (Fig. 16).

***Astragalus imitensis* Ali, spec. nov.**

*Herba* perennis, c. 30-40 cm. alta. Radix lignosa. *Caulis* erectus pilosus. *Folia* c. 3-5,5 cm. longa, imparipinnata, stipulis lateralibus liberis, subulatis, c. 2 mm. longis. Petiolus c. 7-15 cm. longus. Foliola 9-11, petiolulo quam 1 mm. longiore, lamina c. 5-10 mm. longa, 2-4 mm. lata, obovata vel elliptica, margine integra, apice acuto, mucronato, utrinque aequaliter pilosa. *Inflorescentia* racemosa, c. 10-31 cm. (in fructu) longa, pedunculo c. 5-11 cm. longo. Bractee c. 1-2 mm. longae. Pedicelli c. 1 mm. longi. *Calyx* aequaliter pilosus, parte connata c. 5-5,5 mm. longa, dentibus c. 1,5-2 mm. longis. *Corolla* (in sicco) flava, vexillo c. 12-13 mm. longo, c. 6 mm. lato, apice retuso; alis c. 11 mm. longis, c. 1,5-2 mm. latis, clave c. 5-6 mm. longa, auriculis c. 5 mm. longis. Carina c. 8 mm. longa, c. 2 mm. lata, clave c. 5 mm. longa. *Stamina* diadelpha, 9+1, filamentis c. 7-9 mm. longis. *Ovarium* c. 4 mm. longum, c. 1 mm. latum, aequaliter albo-pilosum, stylus glaber, c. 5 mm. longus; stigma capitatum. Legumen sessile 17 mm. longum, c. 2 mm. latum, pilis albis aequaliter pilosum, biloculare, seminibus numerosis (c. 8). Semina glabra, matura non visa.

*HOLOTYPE*: KASHMIR, Imit, 2900 m., 2-3 août 1954, *Schmid 2072* (G) (Fig. 14).



This species belongs to the subgenus *Cercidothrix* and comes nearest to *A. subuliformis* DC. and *A. suffulcatus* DC. but differs from these in having a calyx smaller than 1 cm. (c. 7 mm.) (Fig. 17).

***Astragalus khalifatensis* Ali, spec. nov.**

*Herba* perennis, radice elongata. Caulis super terram reductus, internodiis stipulis persistentibus. *Folia* imparipinnata, stipulis lateralibus, c. 1-2 mm. longis, deltoidis, supra pilosis, infra glabris, rhachide 6-13 mm. longa, petiolo c. 3-8 mm. longo. Foliola 9, petiolulo quam 1 mm. longiore, lamina c. 2,5-5 mm. longa, c. 1-1,5 mm. lata, margine integra, apice obtuso. *Racemi* floriferi capitati  $\pm$  densiusculi, pedunculo c. 3-4,5 cm. longo, albo-nigro piloso. Flores pedicellis c. 1,5 mm. longis. *Calyx* 17-18 mm. longus, tubulosus, tubo appresse, densiuscule albo-nigro-piloso, dentibus c. 3-3,5 mm. longis. *Corolla* (in sicco) lutea; vexillo c. 20 mm. longo, c. 6 mm. lato; alis c. 19 mm. longis, c. 1,5 mm.



FIG. 15. — *Astragalus khalifatensis* Ali, holotype (Schmid 152, G).

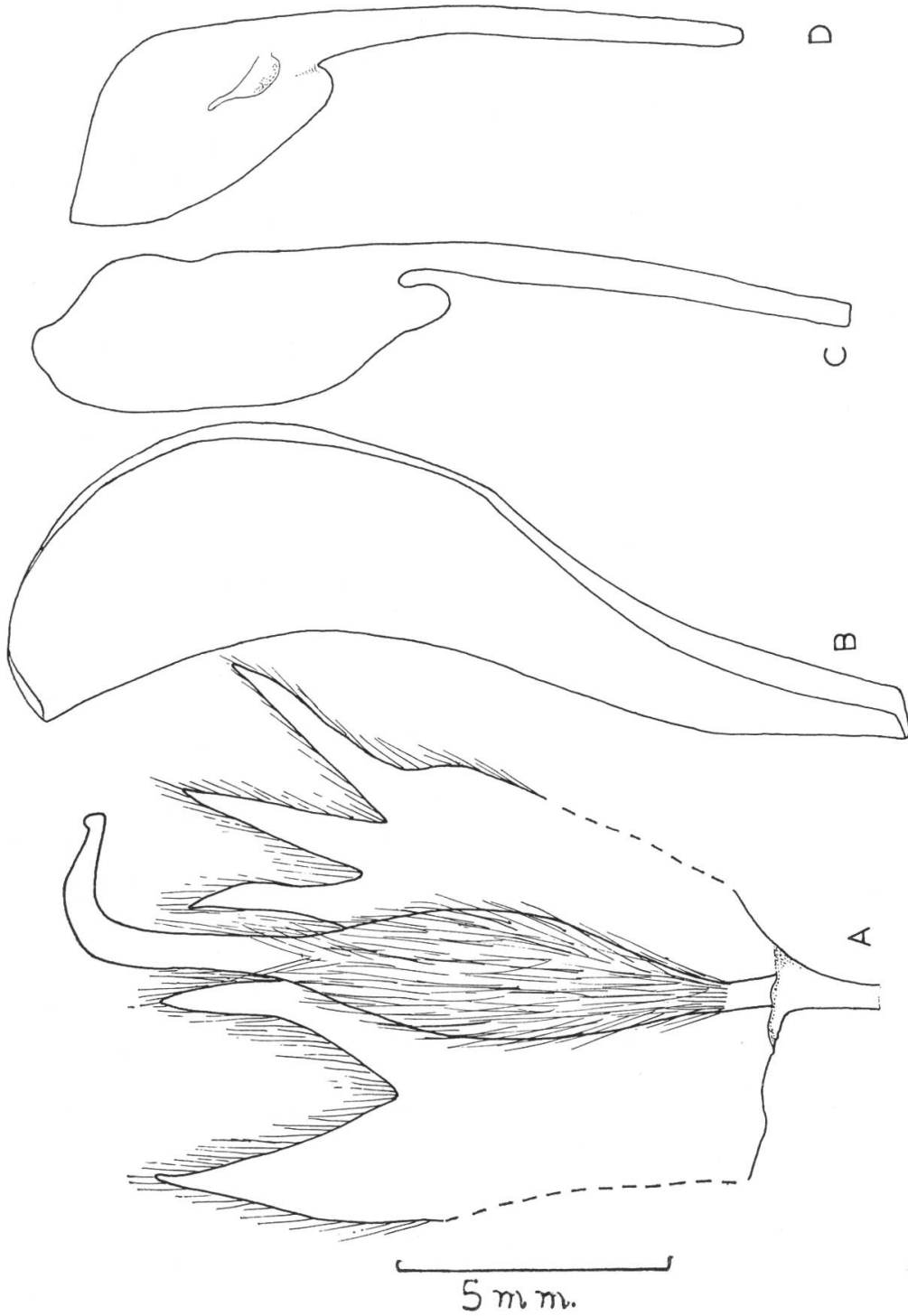


FIG. 16. — *Astragalus staintonianus* Ali. A: calyx and ovary. B: vexillum. C: wing. D: keel (Stainton 2874, RAW).

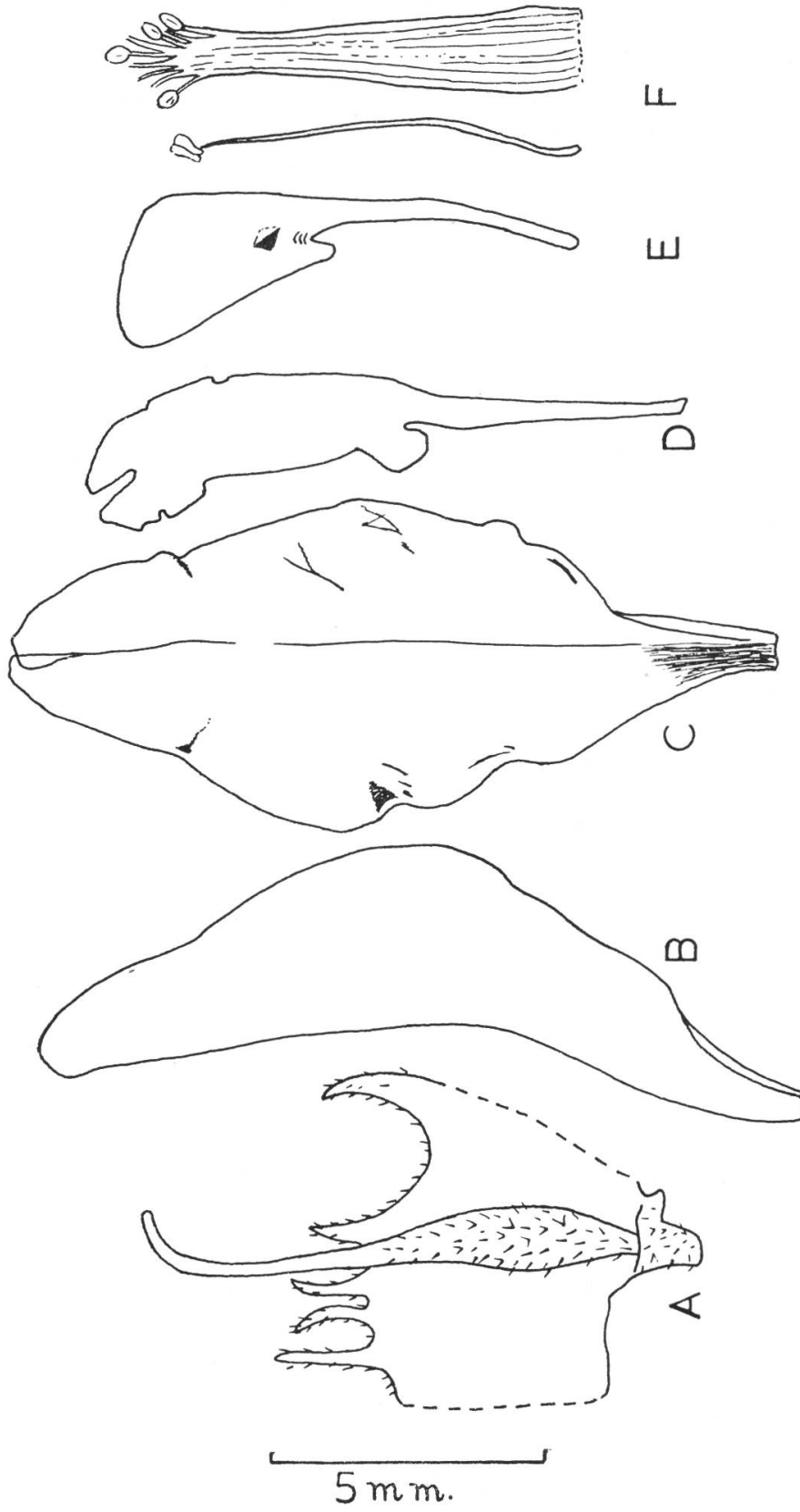


FIG. 17. — *Astragalus imitensis* Ali. A: calyx and ovary. B, C: vexillum. D: wing. E: keel. F: stamens (Schmid 2072, G).



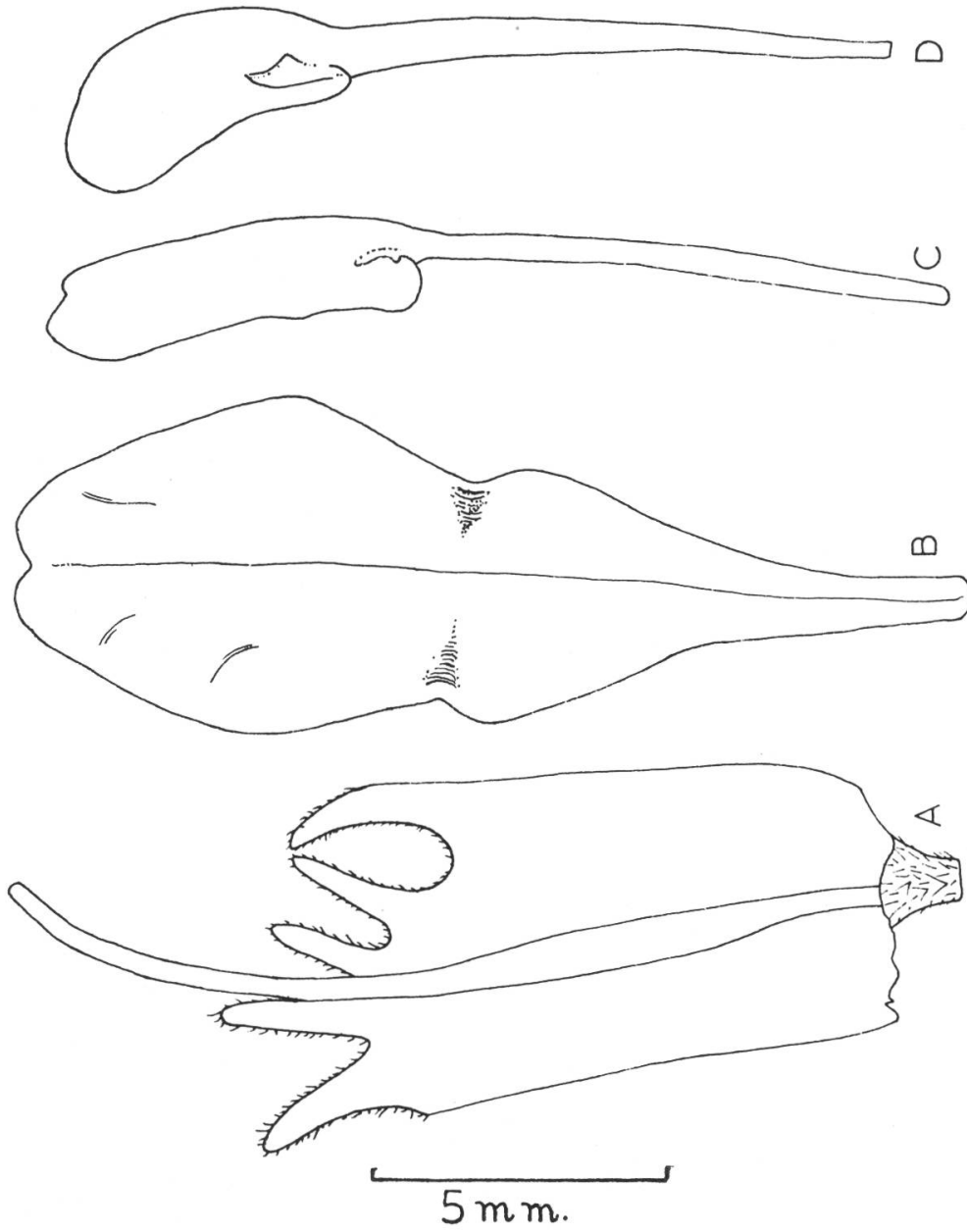


FIG. 18. — *Astragalus khalifatensis* Ali. A: calyx and ovary. B: vexillum. C: wing. D: keel (Schmid 152, G).

latis, clave c. 12 mm. longa, auriculis c. 5 mm. longis; carina 16-17 mm. longa, c. 2,5 mm. lata, clave c. 11-12 mm. longa. *Stamina* diadelpa, 9+1, filamentis c. 17-18 mm. longis. *Ovarium* stipite c. 2 mm. longo sustentum c. 6 mm. longum, c. 1 mm. latum, glabrum, stylus c. 9-10 mm. longus; stigma capitatum. Fructus non vidi.

*HOLOTYPE*: BELOUTCHISTAN, sommet du Khalifat près de Ziarat, 3300 m. 7 mai 1953, *Schmid 152* (G) (Fig. 15).

This species belongs to the subgenus *Cercidothrix* and resembles *A. patulipilosus* Sirj. & Rech. f. but differs in the glabrous nature of the ovary and in the panduriform vexillum (Fig. 18). In *A. patulipilosus* the ovary is pilose and the vexillum is elliptical. It resembles *A. virgaeformis* Sirj. & Rech. f. in having vertical rows of black hairs on the calyx, but its most marked difference lies in its having a compact inflorescence.

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