

STUDIES IN THE VICIEAE I: THE NEW GENUS ANATROPOSTYLIA

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ABSTRACT. The new monotypic SW Asian genus *Anatropostylia* is published and its affinity with the rest of the Viciae is discussed.

INTRODUCTION

The new genus *Anatropostylia* is formally published below, and the reasons for its separation from *Vicia* are discussed.

On the basis of a detailed morphological, anatomical and serological study (to be reported later), the tribe Viciae is here considered to comprise the genera *Vicia*, *Lathyrus*, *Lens*, *Pisum*, *Vavilovia* and *Anatropostylia*; *Cicer* is excluded.

***Anatropostylia* (Plitmann) Kupicha, stat. nov.** Syn.: *Vicia* Sect. *Anatropostylia* Plitmann in Davis, Fl. Turkey 3: 598 (1970).

Annual. Stems angular, branched, ascending. Leaves with 5-9 pairs of leaflets, tendrillous; leaflets lanceolate, aristate, with conduplicate vernation (ptyxis). Stipules finely and palmately laciniate. Inflorescence \pm equaling leaf, 3-7-flowered. Calyx subregular, teeth shorter than to equalling tube. Corolla bright lemon-yellow; standard stenonychioid (i.e. with blade distinctly wider than claw), with two small bosses. Staminal tube ending obliquely. Style dorsally compressed, pubescent on adaxial (inner) side below stigma. Legume subterete, the upper suture curved, the lower straight; valves papery, prominently reticulate-veined. Seeds 4, compressed-spherical, scabrid-tuberculate; hilum minute. — Monotypic.

***A. koeieana* (Rech. fil.) Kupicha, comb. nov.** Fig. 1.

Syn.: *Vicia koeieana* Rech. fil. in Dansk Bot. Ark. 15, 4: 37, f. 10 (1954-55); *V. singarensis* Boiss. & Hausskn. var. *aristata* Náb. in Publ. Fac. Sci. Univ. Masaryk Brno 35: 100 (1923); *V. aristata* (Náb.) Schischkin in Ber. Tomsker Staats-Univ. 80: 487 (1929), non (Lapeyr.) Dulac (1867); *V. blakelockiana* C. C. Townsend in Kew Bull. 21: 452 (1968).

Type: [W Iran] Kharon (100 km SW of Arak), 1300 m, 31 v 1937, *Köie* 726 (W).

[Iraq] Karoukh Mountain, nr Dargala, 800-1500 m, *Nuri & Kass* 2774. Between Kujar and Kani Grawi, E of Karoukh, 1500-1700 m, *Alkas, Nuri & Sarhank* 27630. [Turkey] B7 Malatya: 62 km from Malatya to Elaziğ, 980 m, *Hub.-Mor.* 9211. B8 Muş: Muş to Chaskei, 1300 m, 31 vii 1916, *Saposhnikov & Schischkin*. C9 Hakkari: Hasitha (Ashuti) between Amadia and Çolemerik, 1450 m, *Nábělek* 2933 (BAV, holotype of *V. singarensis* var. *aristata*, syntype of *V. blakelockiana*); Çukurca in Zap gorge, 1200 m, *D.* 44753!

The species belongs to the Irano-Turanian region.

* This paper embodies part of the work at present being undertaken for the degree of Ph.D. in the University of Edinburgh.

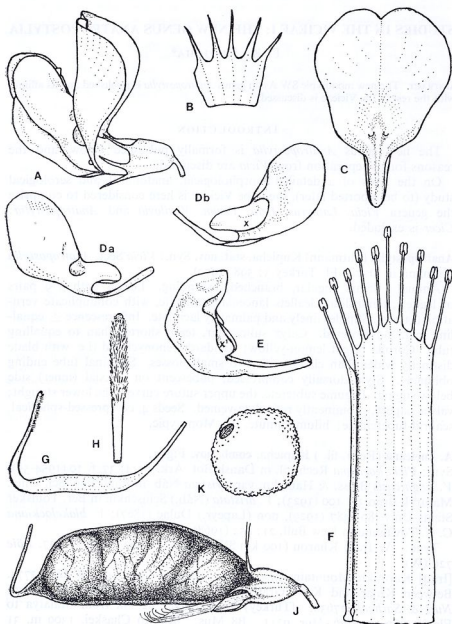


FIG. 1. *Anatrophylla koeieana*. A, flower. B, calyx. C, standard. D, wing: a) from outside, b) from inside. E, keel. (Process 'x' of wing is adnate to hollow 'x'' of keel.) F, androecium. G, ovary. H, detail of style, adaxial side facing. J, fruit. K, seed. Scale: A-E, J $\times 4$; G $\times 5$; F, K $\times 8$; H $\times 10$. J & K drawn from D. 44753; A-H from progeny of this collection.

DISCUSSION

The tribe Viciae forms a coherent and undoubtedly natural group within which the genera, although each possessing many differential features, are often delimited on the basis of just two or three diagnostic characters. Since these attributes have been found particularly useful as guides for identification, they have traditionally received special taxonomic weighting within the tribe. The three most important traits of this kind are the type of leaflet-vernation (this character has, surprisingly, been overlooked by recent authors); the form of the staminal tube; and the shape of the style and its indumentum-distribution.

Lathyrus is distinguished by having supervolute vernation; the other genera (except *Vavilovia*, whose vernation is unknown) have leaflets folded in bud. In *Vicia* and *Lens* the staminal tube ends obliquely; in *Lathyrus*, *Pisum* and *Vavilovia* it is truncate. Variation in stylar details is very wide and complex, providing characters of both intra- and inter-generic importance. Members of *Lathyrus*, *Lens*, *Pisum* and *Vavilovia* have a dorsally compressed style pubescent on the adaxial face; in the first two genera it is flat, in the last two folded abaxially along the median longitudinal line. The style in *Vicia* species may be terete or compressed dorsally or laterally, with uniformly circumstylar pubescence or with an abaxial tuft of hair, but it is never as in the other genera.

The phenetic relationships between *Anatropostylia* and the rest of the Viciae are summarised in Table 1. This shows that with respect to the three 'generically important' characters (nos. 2, 8 & 9), *Anatropostylia* agrees completely only with *Lens*; the style is atypical of *Vicia*.

CHARACTERS OF ANATROPOSTYLIA

<i>Vi. Le.</i>	1. Leaves multijugate
<i>Vi. Le. Pi.</i>	2. Leaflet vernation conduplicate
<i>An.</i>	3. Leaflets aristate
<i>An.</i>	4. Both stipules at each node laciniate
<i>Vi. La. Pi. Va.</i>	5. Calyx teeth shorter than to equalling tube
<i>La.</i>	6. Corolla bright lemon-yellow
<i>La. Le. Pi. Va.</i>	7. Vexillum stenonychioid, with 2 bosses
<i>Vi. Le.</i>	8. Staminal tube ending obliquely
<i>La. Le.</i>	9. Style dorsally compressed, pubescent on adaxial side, not folded abaxially
<i>An.</i>	10. Legume subterete, with papery, prominently reticulate-veined valves
<i>An.</i>	11. Style appearing to arise from lower suture of legume
<i>La. Pi.</i>	12. Seeds finely scabrid-tuberculate

TABLE 1

A comparison between *Anatropostylia* and the other genera of the Viciae.

Vi. Character-state typical of *Vicia*, *La.* of *Lathyrus*, *Le.* of *Lens*, *Pi.* of *Pisum*, *Va.* of *Vavilovia* and *An.* character-state peculiar to *Anatropostylia*.

In general facies *A. koeieana* is reminiscent of *Vicia* and *Lens*; this is due to the leaves, which have many pairs of small leaflets (*Lathyrus*, *Pisum* and *Vavilovia* are all characterised by leaves with larger, less numerous

leaflets). The evidence from floral characters provides a different emphasis. A bright yellow corolla is unknown within *Vicia* and *Lens* but is quite common in *Lathyrus*. The calyx of *Anatropostylia* distinguishes this genus from *Lens*: in the former the calyx teeth are usually shorter than the tube, in the latter they are several times longer. The vexillum, with its wide blade and narrow claw, and with two bosses at the junction between these areas of the petal, is like a standard of *Lathyrus* or *Lens*, but unlike that of *Vicia*. Seeds with a rough testa are very rare in *Vicia* (occurring only in the closely related *V. cuspidata* Boiss. and *V. lathyroides* L.), but they are quite common in *Lathyrus* and *Pisum*.

The remaining features (the aristate leaflets, the equal pair of laciniated stipules and the details of the fruit) are all anomalous within the Viciaeae and each will serve alone to diagnose *Anatropostylia* from other members of the tribe.

Although *Vicia* is the largest genus in the Viciaeae, and comprises wide variation in many characters, *Anatropostylia* cannot be included within it without a very significant broadening of its definition. In particular, while *A. koeieana* is retained as a member of *Vicia* there is no character by which *Vicia* can be distinguished from *Lens* apart from the difference in relative lengths of calyx teeth and tube. *Anatropostylia* could be placed in *Lens* on the basis of a few 'key' characters, but the diverse nature of the stipules, calyx, fruit and seeds of these two groups argues against such an arrangement. Thus the isolation of *Anatropostylia* is supported both by its many unique or unusual attributes and by the effect of this separation on the delimitation of *Vicia* and *Lens*.