

adansonia

2023 • 45 • 14

Clitoria ternatea L. var. *angustifolia*
Hochst. ex Baker (Fabaceae):
new varietal record to Asia from India

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Adansonia is a fast track journal published by the Museum Science Press, Paris

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diff.pub@mnhn.fr / <http://sciencepress.mnhn.fr>

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ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

Clitoria ternatea L. var. *angustifolia* Hochst. ex Baker (Fabaceae): new varietal record to Asia from India

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Submitted on 4 August 2022 | Accepted on 18 October 2022 | Published on 20 June 2023

Patel P. K. 2023. — *Clitoria ternatea* L. var. *angustifolia* Hochst. ex Baker (Fabaceae): new varietal record to Asia from India. *Adansonia*, sér. 3, 45 (14): 267-271. <https://doi.org/10.5252/adansonia2023v45a14>. <http://adansonia.com/45/14>

KEY WORDS

Fabaceae,
Leguminosae,
Asia,
India,
lectotypification,
new record.

ABSTRACT

Clitoria ternatea L. var. *angustifolia* Hochst. ex Baker (Fabaceae), is reported as new to Asia for the first time from India. Details of its identification, description and distribution are provided here along with the designation of a lectotype. A detailed photo plate of the plant with an artificial key to the varieties of Indian *Clitoria ternatea* L. are provided.

RÉSUMÉ

Clitoria ternatea L. var. *angustifolia* Hochst. ex Baker (Fabaceae) : nouveau signalement variétal en Asie pour l'Inde.

Clitoria ternatea L. var. *angustifolia* Hochst. ex Baker (Fabaceae) est signalée comme nouvelle en Asie et pour la première fois en Inde. Les détails de son identification, de sa description et de sa distribution sont donnés ici, et un lectotype est désigné. Une photo détaillée de la plante et une clé artificielle des variétés de *Clitoria ternatea* L. indienne sont fournies.

MOTS CLÉS

Fabaceae,
Leguminosae,
Asie,
Inde,
lectotypification,
signalement nouveau.

INTRODUCTION

Clitoria L. (Fabaceae) comprises 60 species distributed mostly within the tropical belt with a few species found in temperate areas. Most of the species are native to the Neotropics with four native to Africa, six to Southeast Asia, and one to Australia. Many members are cultivated for their showy flowers and for their reported medicinal and economic properties (Fantz 1991; Lindley 1938; Uphof 1968; Morton 1981). *Clitoria* is characterized as a woody genus with showy, resupinate, papilionaceous flowers, an infundibular calyx with persistent bracteoles, persistent stipules and stipels, and stalked ovaries with a geniculate, bearded style (Fantz 1990). Fantz (1977) provided the first monographic treatment of the genus since the revision by Bentham (1858), and presently has annotated over nine thousand vouchers of the genus.

Clitoria ternatea L. is native to equatorial Asia, including locations in South Asia and Southeast Asia but has also been introduced to Africa, Australia and the Americas. *Clitoria ternatea* was named originally by Breynia (1678) as *Flos clitoridis ternatensis* and regarded as appropriately named (Rumpf 1747). The Portuguese vernacular name “Fula criqua” applied to this plant was derived from the form of the flowers (Rumpf 1747).

During our field visits for floristic explorations, a few plants of a *Clitoria* species was collected from Morbi District of Gujarat state, India. After preliminary laboratory studies and perusal of literature, it has been identified as an individual of *Clitoria ternatea* var. *angustifolia* Baker f. Since the specimen was not matching with any of the variety of *Clitoria ternatea* reported from India, the author has contacted Dr Paul R. Fantz (Emeritus Professor, Department of Horticultural Science, North Carolina State University, Raleigh, North Carolina, United States) for his expert opinion and the specimens were identified again as *Clitoria ternatea* var. *angustifolia* Baker f. The identity was further confirmed by referring to published literature (Fantz 1977) and comparing digital images of specimens held in the Kew database (<http://apps.kew.org/herbcat/navigator.do>) and Natural History Museum (<https://data.nhm.ac.uk/dataset/collection-specimens/resource/>). Our further review of literature regarding its occurrence and distribution revealed that the variety has previously never been reported from India (Hooker 1879; Cooke 1908; Saxton & Sedgwick 1918; Shah 1978; Sanjappa 1992; Fantz & Predeep 1995; Singh 2007) or any other region of Asia. (Lock & Simpson 1991; Lock & Heald 1994; Kumar & Sane 2003; Lock & Ford 2004). Therefore, in the present paper, *Clitoria ternatea* var. *angustifolia* is reported as a new record to Asia from India.

The present article provides its description, taxonomic note, notes on typification and photo plate for easy identification. An artificial key is also provided for the identification of *Clitoria ternatea* varieties occurring in India.

TAXONOMIC TREATMENT

Clitoria ternatea L. var. *angustifolia*
Hochst. ex Baker f.
(Fig. 1)

Leguminosae of Tropical Africa: 428 (Baker 1929).

SPECIMENS EXAMINED. — **India**. Gujarat, Morbi District, near Machchu river, Machchu Dam 3, 22°51'40N, 70°49'32E, 92 m a.s.l., 21.IV.2018, PKP 0722 (BSI!, Department of Botany Herbarium, SPT Arts & Science College, Godhra, Gujarat).

Ethiopia. Ad radices montium in valle fluvii Tacaze, 18.VIII.1841, Schimper 1736 (G[G00015969 image!], P[P02779519, P02779523]).

LECTOTYPE. — **Ethiopia**. Fluvium Tacaze prope Djeladjeranne, Abyssinia, 1.IX.1841, Schimper 1617 (lecto-, designated here, BM[BM000842757 image!]; isolecto-, P[P02779513, P02779514], TUB[TUB001563]).

HABITAT. — Grows near wetlands, edges of crop fields.

DISTRIBUTION. — Africa (Angola, Burundi, Chad, Ethiopia, Kenya, Malawi, Mozambique, Sudan, Tanzania, Uganda, Zaire and Zambia) and Asia (India) (Fig. 1).

DESCRIPTION

A bush-like perennial herb with twining, climbing, or trailing branches up to 5 m long. Stem terete, slender, 1–3 mm thick, weakly striate, much branched near the woody base, infrequently branched above, pubescence strigose. Leaves 5 (7) foliate, rarely with 3 foliate leaf, green to silvery green, polymorphic in shape. Leaflets elongate, narrow, typically 4–15 (25) mm wide, linear, lanceolate, oblong, occasionally narrowly elliptic (leaflet size minute), apex obtuse, base rotund, pubescence on upper surface uncinata, dense to scattered, becoming glabrate, macroscopic trichomes lacking. Petioles 1–4 cm, shorter than the rachis, weakly striate, strigose-pubescent, rachis 2–7 cm, pubescence and striations similar to petiole, internode segments 1–2.5 cm long. Petiolules 1–3 mm long, uncinata-pubescent, densely strigose. Stipules persistent, linear, 4–10 mm long, 0.5–1 mm wide, pubescence uncinata and sparsely strigose. Stipels persistent, 1–3 mm long, acicular, reduced to a nerve, inconspicuous, uncinata-pubescent with sparse appressed trichomes. Inflorescence axillary, solitary, reduced to a short peduncle bearing one flower at its apex; peduncle 0.3–1.5 cm long, sparsely strigose. Pedicel 3–6 mm long, usually borne laterally from peduncle apex, straight or often bending at swollen base to form an obtuse to right angle with peduncle, uncinata-pubescent. Bracts 2, apparently the outer pair, ovate to lanceolate, acuminate to acute, spreading-ascending or weakly concave and appressed to pedicel when pedicel is terminally located, 2–4 (5) mm long, 1 mm wide, pubescence uncinata and more or less strigose. Bracteoles highly variable, broadly ovate to nearly orbicular, 4–11 mm diameter. Flowers small, (2.5) 3–4 cm, typically white, usually papilionaceous. Calyx subpellucid, more or less 10 nerved with a nerve extending to the apex of each lobe, tube 9–14 mm long, 4–5 mm wide near base expanding to 7–9 mm wide at the throat, lobes oblong. Vexillum pubescence uncinata and strigose dorsally,

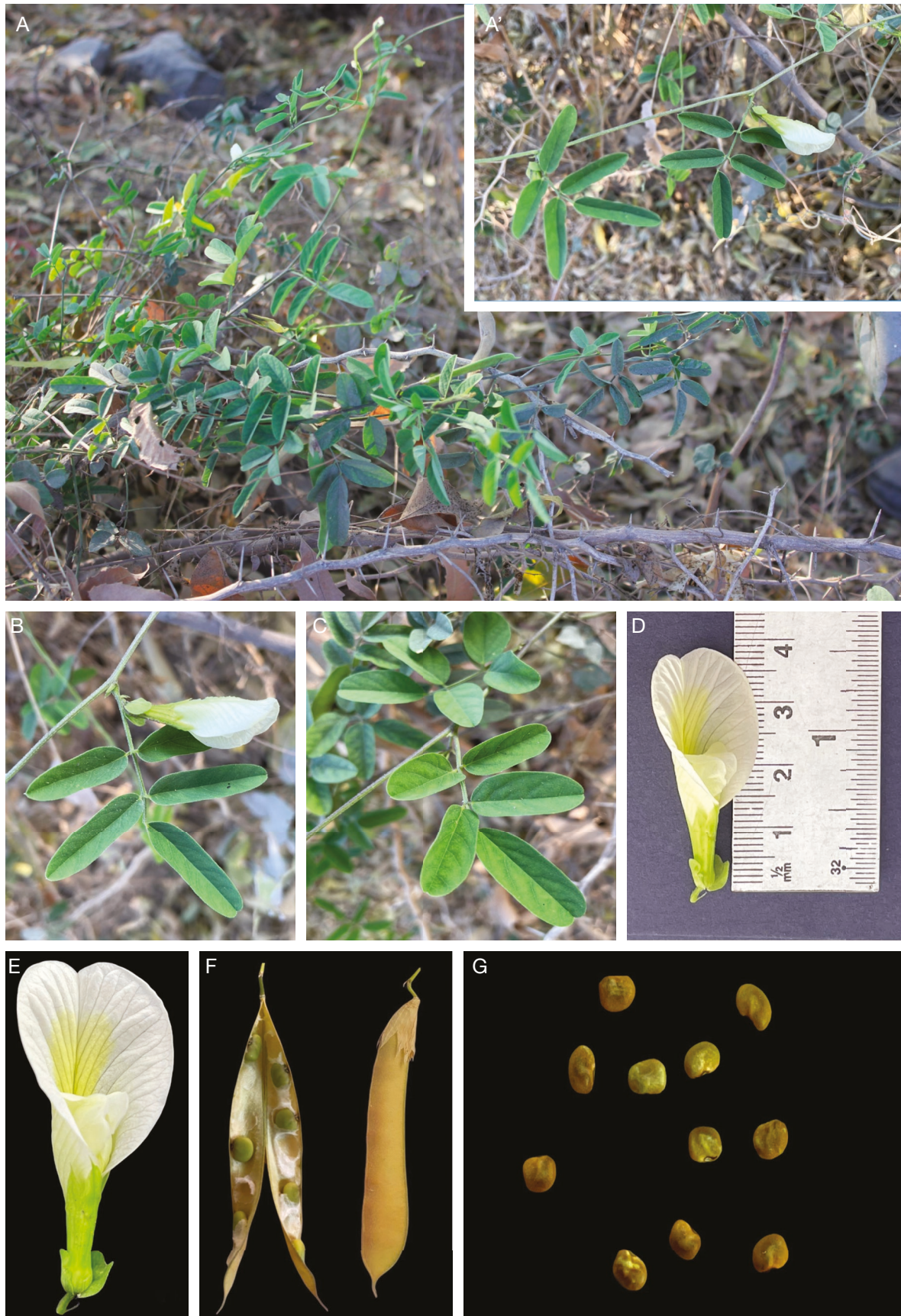


FIG. 1. — *Clitoria ternatea* L. var. *angustifolia* Hochst. ex Baker f. from Machchu Dam 3 (India): **A**, habit (**A'**, habit with flower); **B**, leaf with flower; **C**, leaf; **D**, **E**, flower; **F**, legume; **G**, seeds. Photos: P. K. Patel.

KEY TO THE INDIAN *CLITORIA TERNATEA* L. VARIETIES
(ADAPTED FROM FANTZ 1977)

1. Flowers double, actinomorphic; stamens all free var. *pleniflora* Fantz
— Flowers papilionaceous; stamens diadelphous 2
2. Leaflets narrow and elongated; leaflet shape linear, lanceolate, oblong, lanceolate-oblong, or narrow elliptic (leaflet minute size); leaflet pubescence on upper surface moderately dense to scattered, uncinata, macroscopic trichomes absent; flowers small, typically white var. *angustifolia* Baker f.
— Leaflets broad, leaflet shape ovate, ovate-elliptic, obovate, or sometimes oblong-ovate to oblong-elliptic; leaflet pubescence on upper surface moderate to sparse of very short appressed hairs becoming glabrate, uncinata trichomes lacking or sparse 3
3. Flowers large, typically pale blue to purple var. *ternatea* L.
— Flowers large, typically white var. *pilosula* (Benth.) Baker f.

greenish-white medially and white peripherally, 1.5-3.5 cm wide, blade white. Stamens diadelphous, vexillary stamen nearly free, tube nearly straight, 14-18 mm long, incurved slightly last 2-4 mm, filaments free 3-4 mm; anthers lanceolate, 1-1.5 mm long, 0.6-0.9 mm wide. Gynophore 1-2 mm; ovary 5-8 mm long, 1-1.5 mm wide; pubescence appressed, dense, white; style 12-14 mm long, base pubescent like that of ovary; stigma capitate, *c.* 0.7-0.8 mm in diameter. Legume subsessile, yellowish green to green becoming light brownish to tan, flat, valves linear-oblong to oblanceolate, nearly straight to weakly curved towards apex, margins sometimes wavy, infrequently minutely serrulate, pubescence short, strigose to spreading, and uncinata, typically (5) 6-10 cm long, 8-11 mm wide; stipe enclosed along with legume base within persistent calyx, 1-2 mm; beak 2-6 mm; dehiscence causing valves to twist 1-2 turns. Seeds yellowish brown turning black, smooth, subreniform, compressed, 1.5-2 mm thick, 4-5 mm long, 5-6 mm wide, 6-8 seeds per pod; hilum broad elliptic, 1 × 0.8 mm.

NOTES

Baker (1929) published Hochstetter's varietal name, *Clitoria ternatea* var. *angustifolia*, and synonymized Vatke's (1878) name *Clitoria zanzibarensis*. This variety is characterized by its round bracteoles, small flowers and narrower leaflets. Later botanists included De Wild's (1925) name *Clitoria mearnsii* and Micheli's (1897) name *Clitoria tanganicensis* as synonyms under the name *Clitoria ternatea* var. *angustifolia*. According to Wilczek (1954), this variety is distinguished by its narrow leaflets, rounded leaflet base, smaller white flowers, and smaller bracteoles. Several characteristics are present in these varieties. Leaflet length/width ratio, leaflet pubescence with uncinata hairs on the leaflet surface, leaflet width, flower length, and flower color are all included. Most specimens can be identified by their particular combination of characteristics. There are, however, a number of specimens with intermediate characteristics or with characteristics that are difficult to interpret.

According to De Wild. (1925), *Clitoria mearnsii* is collected from Tanzania and deposited in BR herbarium (BR0000006252830). As per Micheli's (1897) *Clitoria tanganicensis* type material was

gathered in Burundi and put away at BR (BR0000008932587). *Clitoria ternatea* var. *angustifolia* (Schimper 1736) verified syntype material was collected in Abyssinia (Ethiopia), and it was deposited at herbaria BM (BM000842761), G (G00015967), and K (K000418286).

Acknowledgements

The author is thankful to Dr Paul R. Fantz, Emeritus Professor, Department of Horticultural Science, North Carolina State University, North Carolina, United States, and Alexander Krings, Director of the Vascular Plant Herbarium (NCSC), North Carolina State University, North Carolina, United States for confirming the identity of the specimen. Also thankful to Hardik Pethapara for their constant support during field work. He would also like to thank to Dr Ram Suthar, Science College, Kadi for valuable comments on the preparation of the manuscript.

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Submitted on 4 August 2022;
accepted on 18 October 2022;
published on 20 June 2023.