Acranthera burmanica, a new species of Rubiaceae from Kachin State, Myanmar

YUN-HONG TAN1, BIN YANG2,3, JIAN-WU LI1, SHI-SHUN ZHOU1, SHWE LONE4, KYI KYI KHAING4, REN LI1, JIAN-PING HUANG4 & HANG SUN2*

1Southeast Asia Biodiversity Research Institute, Center for Integrative Conservation, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Mengla, Yunnan 666303, China
2Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, Yunnan 650201, China
3University of Chinese Academy of Sciences, Beijing 100049, China
4Forest Research Institute, Forest Department Ministry of Environmental Conservation and Forestry, Yezin, Nay Pyi Taw, Myanmar

*Author for correspondence. E-mail: sunhang@mail.kib.ac.cn

Acranthera burmanica, a new species of Rubiaceae from Kachin, Myanmar, is here described and illustrated. It is morphologically similar to A. sinensis, but can be easily distinguished from the latter by its stem and branches densely strigose throughout; ovate leaves; calyx distinctly shorter than corolla tube, lobes lanceolate, apex attenuate; stipules triangular, apex acute not cuspidate; lower part of filaments connate into a tube.

Keywords: Acranthera, biodiversity, Kachin, morphology, Myanmar, taxonomy

Acranthera Arn. ex Meisn. (1838:115) is distributed in India, China, Indonesia, Malaysia, Sri Lanka, Thailand, Vietnam and consists of about 40 species of sparsely branched subshrubs (Bremekamp 1947; Govaerts et al. 2006; Chen et al. 2011). The flowers of Acranthera are unique within Rubiaceae and are characterized by the presence of united connective appendages, which in turn are united with the stigma by means of a columnar tissue (Puff et al. 1995). The position of Acranthera within Rubiaceae has always been controversial since its original description. Traditionally, the genus was placed in tribe Mussaendaeae (Meisner, 1838; Hooker, 1873; Baillon, 1880; and Schumann, 1891) of subfamily Cinchonoideae, however, Bremekamp (1947) questioned this affinity in his monograph of the genus and considered the position of Acranthera unknown. He later classified Acranthera as a monogeneric tribe within Ixoroideae (Bremekamp 1966). Based on molecular data, Alejandro et al. (2005) placed Acranthera as sister to the rest of subfamily Rubioideae; Rydin et al., (2009) included Acranthera in the tribe Coptosapelteae, strongly supported as sister to Coptosapelte (1851:112).

During November to December in 2014, a team from Xishuangbanna Tropical Botanical Garden (XTBG) and Kunming Institute of Botany (KIB), in collaboration with the Forest research Institute of Myanmar, conducted field work in northern Myanmar to survey plant diversity. During field work, specimens of Acranthera were found in Putao, Kachin state. Interestingly, the genus has never been reported from Myanmar before. Based on a detailed examination of the morphological and anatomical characters of our material and possible closely similar species (Bremekamp 1947; Govaerts et al. 2006; Chen et al. 2011), we arrived at conclusion that the specimens collected in Myanmar belong to a species new to science, which we hereby describe and illustrate.

Taxonomic treatment

Acranthera burmanica Y. H. Tan & B. Yang, sp. nov. (Figs. 1–2)


Diagnosis: Acranthera burmanica is similar to A. sinensis C. Y. Wu (1957:295), differing from the latter by its stem and branches densely strigose throughout (vs. glabrescent when aged); ovate to ovate-lanceolate leaves (vs. elliptic or obovate); calyx distinctly shorter than corolla tube (vs. equal to corolla tube), calyx lobes lanceolate (vs. linear-lanceolate), apex attenuate (vs. acuminate); stipules triangular, apex acute not cuspidate (vs. broadly ovate to triangular, glabrescent, cuspidate); lower part of filaments connate into a tube (vs. free).
Shrubby perennial herbs, 50–80 cm tall, with tissues often turning black when dry. Stem terete, densely strigose throughout. Leaves opposite; petiole 1.5–4.5 cm, strigose to strigillose; leaf-blade thinly papery to membranous, ovate to ovate-lanceolate, 9.0–15 × 6.5–7.0 cm, adaxially sparsely hirsute to hispid, densely strigillose along midrib, abaxially sparsely puberulous denser along lateral veins, densely strigillose along midrib, base rounded, cuneate or obtuse, sometimes slightly unequal, apex attenuate or acute, margins ciliolate; lateral veins 9–10 on each side of midrib; stipules persistent, broadly ovate to triangular, 5.0–7.0 × 3.0–8.0 mm, densely villose, apex acute to acuminate, margins 3–4-glandular denticulate and ciliolate, the lower part connate into a short tube; Inflorescences terminal, pseudo-axillary, or axillary on short shoots, 1-flowered, short shoots abbreviated, 2.0–3.0 mm long, pilose; bracts in 2 whorls, outer bracts less than 2 mm long, inner bracts leaf-like, pink-red to dark-red, lanceolate, 6.0–8.0 × 3.0–4.0 mm, pubescent, midrib ridged with 1–2 lateral veins, margins entire and ciliolate; pedicel dark-red, 1–1.5 mm long, pubescent; bractlets lanceolate, dark-red, 8.0–9.0 × 2.0–3.0 mm, apex acute, pubescent outside and glabrous inside, margins entire and ciliate. Flowers 5-merous; calyx strigillose to
strigose, glabrescent when aged; ovary portion cylindrical to obconical, dark-red, strigillose to strigose, 2.8–3 cm long; lobes slightly unequal, lanceolate, 1.7–2.4 cm × 3.0–6.0 mm, with conspicuous glands on both sides of the base, margins entire and ciliolate; disc pale-yellow, valvate, 1.5 mm high; corolla white to pale purple outside and vermilion inside, funnel-shaped 4.7–5.3 cm long, outside densely puberulent to puberulous, inside glabrous; tube ca. 3.6–4.5 cm, 4.0–5.0 mm in diameter at base and 12–14 mm in diameter at throat; lobes valvate in bud, erect in open flowers, ovate, 8.0–9.0 × 7.0–8.0 mm, apex emarginate with tip, margins ciliate. Stamens 5, 3.2–3.4 cm long, inserted at base of corolla tube; filaments 2.4–2.5 cm long, flattened at base, lower part connate into a tube, upper part free; anthers 8.0–9.0 mm long, with united spurred at apex, white immature and blue-purple when mature; pistil equal in length to the stamens, stigma and style enclosed by united stamens; stigma club-shaped, 10-ridged, equal in length to the anthers; ovary 2-celled. Fruit berry-like, dark-red, cylindrical, 3.5–4.0 × ca. 5 mm, strigose to strigillose on the surface, bisulcate, calyx lobes persistent. Seeds small, numerous, with pitted testa.

**Phenology:**—Flowering from October to November and fruiting from November to the following February.


94 • *Phytotaxa* 238 (1) © 2015 Magnolia Press
**Distribution:**— *Acranthera burmanica* is endemic to Myanmar and known from Kachin State, Putao, where it grows in the understory in tropical rain forests and tropical mountain forests, at an elevation of ca. 900–1500 m.

**Discussion:**— *Acranthera burmanica* is morphologically most similar to *A. sinensis* in the inflorescences borne on short shoots, 1-flowered, leaves on short shoots undeveloped. After comparison with the specimens and literature, we found that *A. burmanica* can be clearly differentiated from *A. sinensis* by several characters, as described in the diagnosis above and summarized in Table 1.

**TABLE 1.** Morphological comparisons between *Acranthera burmanica* and *A. sinensis*.

<table>
<thead>
<tr>
<th></th>
<th>A. burmanica</th>
<th>A. sinensis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem</td>
<td>densely strigose throughout</td>
<td>densely hirsute to strigose and strigillose, glabrescent when aged</td>
</tr>
<tr>
<td>Leaves</td>
<td>ovate to ovate-lanceolate, 9.0–15 × 6.5–7.0 cm, base rounded, cuneate or obtuse</td>
<td>elliptic or obovate, 8–22 × 4.5–9 cm, base acute or cuneate</td>
</tr>
<tr>
<td>Petioles</td>
<td>1.5–4.5 cm long</td>
<td>1–7 cm long</td>
</tr>
<tr>
<td>Stipules</td>
<td>densely villose, apex not cuspidate</td>
<td>broadly ovate to triangular, glabrescent, cuspidate</td>
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<tr>
<td>Calyx</td>
<td>distinctly shorter than corolla tube</td>
<td>equal to corolla tube</td>
</tr>
<tr>
<td>Corolla</td>
<td>4.7–5.3 cm long; white to pale purple outside and vermilion inside</td>
<td>4.5 cm long, purple outside and pink inside</td>
</tr>
<tr>
<td>Filaments</td>
<td>lower part connate into a tube</td>
<td>free</td>
</tr>
</tbody>
</table>

**Additional specimens examined (paratypes):**—MYANMAR. Kachin State: Putao, Shinsan, 97º 53’ 10.48” E, 27º 41’ 17.60”. Understory shrubby herbs in tropical mountain forests, alt. 1430 m, 28 Nov. 2014, *Myanmar Exped. 188* (HITBC, KUN).

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