

Four new species of *Microchirita* (Gesneriaceae) from Thailand

Carmen Puglisi¹, David J. Middleton² & Somran Suddee³

Summary. Four new species of *Microchirita* (C. B. Clarke) Yin Z. Wang are here described: *M. huppatatensis* C. Puglisi and *M. personata* C. Puglisi, from Uthai Thani province, and *M. hemratii* C. Puglisi and *M. lilacina* C. Puglisi, from Tak province. Proposed conservation assessments are given for all species.

Key Words. *Chirita*, limestone, Tak, Uthai Thani.

Introduction

In the past few years the combination of an increased collecting effort, together with taxonomic and molecular phylogenetic research, has contributed to a profound transformation in the classification of the Old World Gesneriaceae. New genera have been described (Wei *et al.* 2010; Middleton & Möller 2012; Middleton & Triboun 2012; Middleton *et al.* 2014; Möller *et al.* 2014) whilst other genera have been reduced to synonymy or re-circumscribed (Möller *et al.* 2011; Puglisi *et al.* 2011; Wang *et al.* 2011; Weber *et al.* 2011a, b). In addition large numbers of new species have been described, particularly from Thailand (e.g. Triboun & Middleton 2012; Middleton & Triboun 2013; Nangngam & Middleton 2014). These works have resulted in many new names and combinations across most of the genera. One of the most thorough systematic studies carried out on the family (Weber *et al.* 2011a) confirmed that *Chirita* Buch.-Ham. ex Don (1825: 89), a genus defined by the presence of a “chiritoid” stigma (a bilabiate stigma with a reduced upper lip and a bilobed lower), should be synonymised, resulting in its species being divided between *Damrongia* Kerr ex Craib (1918: 364), *Henckelia* Spreng. (Sprengel 1817: 402), *Liebigia* Endl. (Endlicher 1841: 1407), *Primulina* Hance (1883: 169) and *Microchirita* (C. B. Clarke) Yin Z. Wang (Wang *et al.* 2011: 59).

The crested, epiphyllous inflorescence formed by a series of pair-flowered cymes (Weber 1975), present in many species of *Microchirita*, is unique in the tribe Trichosporeae (sensu Weber *et al.* 2013). Other remarkable features of *Microchirita*, although not always present, are the fleshy stems, the presence of a connective tissue holding the two fertile anthers together, and a dense indumentum dorsally on the anthers. The corolla can be white, yellow, orange, lilac, violet or blue, with further variation added by

stripes and spots in the throat. For Thailand, Wood (1974) recognised 13 species. Five more were recently described (Middleton & Triboun 2013), making Thailand the centre of diversity for *Microchirita*. The limestone formations scattered across the country have been found to be exceptionally rich in Gesneriaceae, mostly narrowly endemic species, as is especially noticeable in *Paraboea* (Xu *et al.* 2008; Puglisi *et al.* 2011; Triboun & Middleton 2012).

During a recent expedition organised by the Forest Herbarium Bangkok, the Singapore Botanic Gardens and the Royal Botanic Garden Edinburgh, the north-western part of Thailand was visited. Collections made in the limestone mountains close to the border between Thailand and Myanmar (Burma) included several unknown plants of Gesneriaceae, currently under study. This paper focuses on four of these which were discovered to be new species of *Microchirita*. The acronyms of the herbaria where the specimens are deposited follow *Index Herbariorum* (Thiers, continuously updated). All cited specimens have been seen by the authors. The proposed IUCN conservation assessments follow the procedures in IUCN (2012).

***Microchirita personata* C. Puglisi sp. nov.** Type: Thailand, Uthai Thani, Lan Sak, Huppatat Non Hunting Area, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5688 (holotype BKF; isotypes AAU, E, K, QBG, SING).

<http://www.ipni.org/urn:lsid:ipni.org:names:77151914-1>

Herb to 35 cm tall. *Stems* fleshy, pale green, glabrous or sparsely hairy. *Leaves* opposite, with the exception of

Accepted for publication 12 January 2016.

¹ Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh, EH3 5LR, UK. e-mail: c.puglisi@rbge.ac.uk

² Singapore Botanic Gardens, National Parks Board, 1 Cluny Road, Singapore, 259569, Singapore.

³ The Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation, 61 Pahonyothin Road, Chatuchak, Bangkok, 10900, Thailand.

the single basal leaf, fleshy (very thin when dry); petioles 0.1 – 0.5 cm long, sparsely hairy; blades pale green above, pale grey-green beneath, lanceolate, 3.4 – 40 × 1.7 – 29 cm, 1.3 – 2.2 times as long as wide, minutely tomentose above and beneath, base usually rounded-obtuse, sometimes slightly cordate or slightly decurrent, apex acuminate to acute, margin entire, 6 – 11 pairs of secondary veins in the opposite leaves, 8 – 14 pairs in the basal leaf, venation raised beneath in fresh material, tertiary venation barely visible and loosely reticulate. *Inflorescence* epiphyllous, many-flowered (10 to more than 20 flowers), forming a crest where the young flowers develop flush to the midrib and then progressively curve upwards and backwards towards the stem; peduncles fused with the petiole; pedicels pale green, 0.5 – 1.3 cm long, pubescent. *Calyx* green, slightly bilabiate, tube 0.4 – 0.7 mm long, lobes lanceolate, 4 – 7 × 0.4 – 0.6 mm, membranous along the side edges, apex more or less narrowly obtuse, outside eglandular hairy throughout, inside only towards the apex. *Corolla* 0.7 – 1 cm long, tube greenish white, narrow, glabrous at base, mouth personate due to the raised ventral lip, limb densely pubescent outside, upper lip pale green, strongly reflexed upwards, densely papillose, lower lip white with a densely papillose yellow marking at base; tube length 0.4 – 0.8 cm dorsally, 0.6 – 0.9 cm ventrally, 0.4 – 0.7 cm laterally between lips, upper lobes small and elliptic, 0.7 – 0.8 × 1 – 1.3 mm, lower lateral lobes elliptic, 1.5 – 1.8 × 2.2 – 2.3 mm, lower central lobe elliptic, 1.2 – 1.3 × 1.8 – 3 mm. *Stamens* arising 2.7 – 3.7 mm above the corolla tube base, filaments pale green, glabrous, 0.5 – 1.2 mm long, anthers glabrous, 1.1 – 1.7 × 0.3 – 0.5 mm, apically joined by a connective, thecae slightly divergent, anthers and connective white; lateral staminodes absent or to 0.2 mm long, arising c. 1.7 mm above the tube base, central staminode extremely reduced or absent. *Disk* a ventral lobe, 0.6 – 1 mm high. *Pistil* 2.2 – 2.3 mm long; ovary urceolate, c. 1.5 mm, glabrous or sparsely glandular at base, apically eglandular hairy; style c. 0.6 mm, hairy; stigma broadly bilobed, lobes 0.1 – 0.2 mm long, rounded. *Fruit* green, 1 – 3 cm long, 1 – 2 mm diam., hairy almost exclusively in the terminal half, straight or curved. *Seeds* pale brown, elliptic, 0.4 – 0.5 × 0.2 – 0.3 mm. Fig. 1A.

RECOGNITION. Differs from all other species of *Microchirita* in the personate corolla and the reduced upper corolla lobes.

DISTRIBUTION. Thailand: Uthai Thani. Only known from the type collection (Map 1).

SPECIMENS EXAMINED. THAILAND. Uthai Thani province, Lan Sak, Huppatat Non Hunting Area, 100 m, 15°22'36.0"N 99°37'51.0"E, 14 Oct. 2014, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5688 (holotype BKF; isotypes AAU, E, K, QBG, SING).

HABITAT. Lithophyte, on bank over limestone rocks in secondary forest.

CONSERVATION STATUS. Critically Endangered [CR B1ab(iii,iv)+B2ab(iii,iv)]. This species is only known from the type collection in the Huppatat Non Hunting Area, where only one, small population was observed. The limestone range there is only about 12 km² in total and is subject to disturbance from tourism. There are no collections from the nearby Khao Pha Ra, and the area is surrounded by cultivated land.

ETYMOLOGY. Named for the personate corolla mouth. **NOTES.** *Microchirita personata* is the most immediately recognisable of the four new species and arguably the most distinctive species in the genus. Its main diagnostic feature is the personate corolla, a unique occurrence in *Microchirita*. The small corolla is also remarkable, with the entire flower hardly reaching 1 cm in length and the upper two lobes strongly reduced. *M. personata* appears most similar to *M. woodii* D. J. Middleton & Triboun (2013: 15) and *M. huppatatensis*, both with a corolla primarily white and with a smaller upper lip and expanded and slightly raised lower lip. These species, however, have much larger and non-personate flowers.

Microchirita huppatatensis C. Puglisi sp. nov. Type: Thailand, Uthai Thani, Lan Sak, Huppatat Non Hunting Area, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5689 (holotype BKF).

<http://www.ipni.org/urn:lsid:ipni.org:names:77151913-1>

Herb to 40 cm tall. *Stems* fleshy, red at base and around the basal nodes, otherwise pale green, pubescent. *Leaves* opposite, with the exception of the single basal leaf; petioles 0.5 – 1.2 cm long, pubescent; blades pale green above, paler beneath, lanceolate or elliptic, 5 – 12.8 × 1.6 – 6.1 cm (undamaged basal leaf not seen), 2 – 3 times as long as wide, minutely tomentose above and beneath, base acute to obtuse, apex acuminate, margin entire, 5 – 9 pairs of secondary veins in the opposite leaves, at least 13 in the basal leaf, venation raised beneath in fresh material, tertiary venation barely visible and loosely reticulate. *Inflorescence* epiphyllous, 4 – 15-flowered, forming a crest where the young flowers develop flush to the midrib and then progressively curve upwards and backwards towards the stem; peduncles fused with the petiole, rarely arising from the petiole and fused together at the base; pedicels pale green, 0.2 – 2 cm long, pubescent. *Calyx* pale green, actinomorphic, tube 0.3 – 0.5 mm long, lobes narrowly lanceolate, 8 – 9 × 0.7 – 1.1 mm, apex acute, outside hairy throughout, with mixed glandular and eglandular hairs, inside with a sparse minute glandular indumentum. *Corolla* 1.5 – 2 cm long, white, tube with a narrow basal portion c. 5 mm long, c. 2 mm diam., greenish white, curved downwards, then abruptly broadening into a ventral pouch, this marked by a yellow, raised and papillose line running throughout the inner surface of the tube, with a purple-

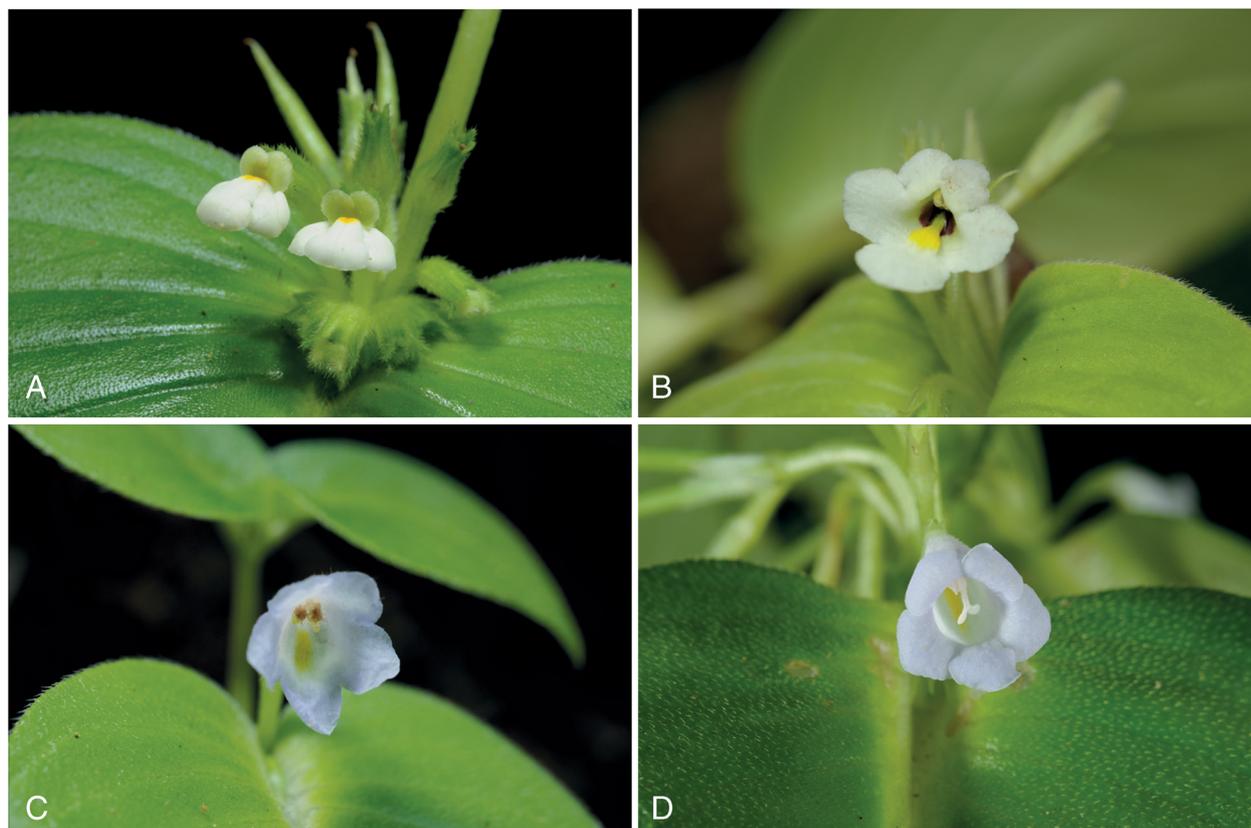


Fig. 1. *Microchirita* flowers. A *M. personata*; B *M. huppatatensis*; C *M. hemrati*; D *M. lilacina*. PHOTOS: PREECHA KARAKET.

brown streak on either side of it, limb externally sparsely hairy, upper lobes reflexed, with stalked glands at the base, lower lateral lobes spreading, the central lobe straight; tube length 0.9 – 1 cm dorsally, 1 – 1.4 cm ventrally, c. 1 cm laterally between lips, upper lobes elliptic, 3 – 3.5 × 3.5 – 4 mm, lower lateral lobes elliptic, 5 – 6 × 4 – 5 mm, lower central lobe rounded, 6 – 8 × 5 – 8 mm. *Stamens* arising 4 – 6 mm above the corolla tube base, filaments yellow, minutely glandular, 1 – 1.5 mm long, with a thicker base and two geniculations, anthers with a small patch of short hairs dorsally, 1.5 – 2 × 1.2 – 1.5 mm, held at a right angle, apically joined by a connective, thecae parallel, anthers yellow, connective white; all three staminodes much reduced, less than 0.5 mm long, arising 5 – 6 mm above the tube base. *Disk* a complete ring, slightly lobed, 1 – 1.3 mm high, whitish at base and darker along the edge. *Pistil* c. 5 mm long; ovary fusiform, 2.5 – 3.5 mm long, glabrous in the basal $\frac{2}{3}$, apically eglandular hairy; style 0.5 – 0.7 mm, glabrous; stigma with lobes 0.5 – 0.7 mm long, 0.4 – 0.6 mm wide, elliptic. Immature *fruit* pale green, c. 1.5 cm long, 2 – 3 mm diam., pubescent throughout its length, straight. *Seeds* not seen. Fig. 1B.

RECOGNITION. Very similar to *Microchirita woodii*, differing in the indumentum of the anthers, the smaller flower, the more prominent yellow ventral stripe, and the acuminate leaves.

DISTRIBUTION. Thailand: Uthai Thani. Only known from the type collection (Map 1).

SPECIMENS EXAMINED. THAILAND. Uthai Thani province, Lan Sak, Huppatat Non Hunting Area, 100 m, 15°22'36.0"N 99°37'51.0"E, 14 Oct. 2014, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5689 (holotype BKF).

HABITAT. Lithophyte, on bank over limestone rocks in secondary forest.

CONSERVATION STATUS. Critically Endangered [CR B1ab (iii,iv)+B2ab (iii,iv)]. This species is only known from the type collection growing in a mixed population with *Microchirita personata*. Therefore, the same justifications apply.

ETYMOLOGY. The new species is named after the type locality.

NOTES. *Microchirita huppatatensis* is most similar to *M. woodii*, a species only known from Nan province. Both species share a corolla colour pattern of mostly white with a yellow ventral stripe surrounded by purple-brownish spots. The two species, however, differ significantly in the size of the corolla (much larger in *M. woodii*), the leaf ratio (higher in *M. huppatatensis*), leaf apex (acute, not acuminate, in *M. woodii*), leaf size (much larger in *M. woodii*), and the basal inflorescence, which can be compound in *M. woodii*. In living material the following additional differences in the corolla are observed, but these, unfortunately, are not preserved in dry or rehydrated



Map 1. Distribution of newly described species of *Microchirita* in Thailand.

flowers. The overall mouth shape is depressed in *M. woodii* and apically compressed in *M. huppatatensis*; the yellow stripe that runs down the inner, ventral part of the corolla is strongly raised in *M. huppatatensis* and much less so in *M. woodii*, which also has the ventral part of the tube linear, not pouched.

Microchirita hemratii *C. Puglisi* **sp. nov.** Type: Thailand, Tak, Mae Sot distr., Wat Tham Inthanin, *D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee* 5775 (holotype BKF; isotypes E, SING).

<http://www.ipni.org/urn:lsid:ipni.org:names:77151915-1>

Herb to 50 cm tall. *Stems* fleshy, dark red or green at base, otherwise pale green, glabrous or sparsely hairy.

Leaves opposite, with the exception of the single basal leaf, fleshy (very thin when dry); petioles 0.2 – 1.5 cm long, glabrous; blades pale green above, paler beneath, lanceolate, 3.75 – 14 × 2.6 – 8.5 cm, 1.3 – 1.7 times as long as wide, sparsely and minutely tomentose above and beneath, above with additional scattered eglandular hairs, base obtuse to cordate, apex acute to acuminate, margin entire to obscurely serrulate, 3 – 8 pairs of secondary veins in the opposite leaves, 7 – 13 in the basal leaf, venation raised beneath in fresh material, tertiary venation almost invisible. *Inflorescence* epiphyllous, 1 – 8-flowered, forming a crest where the young flowers develop flush to the midrib and then progressively curve upwards and backwards towards the stem; peduncles fused with the petiole; pedicels green, 0.5 – 1.3 cm long, sparsely hairy. *Calyx* green, actinomorphic, tube 0.2 – 0.5 mm long, lobes lance-

olate, 3 – 9 × 0.5 – 1 mm, inconsistently with some serration towards the apex, apex acute, outside sparsely eglandular hairy at base, hairier distally, inside with an indumentum of sparse sessile glands. *Corolla* 1 – 1.5 cm long, tube with a narrow basal portion, greenish white, 5 – 6 mm long, c. 1 mm diam., curved downwards, glabrous, then broadening into a funnel-shaped distal portion, white, pubescent outside, inside glabrous, with a yellow stripe ventrally, lobes pale lilac, the upper densely covered in stalked glands, the lower central lobe sparsely so, the lower lateral lobes glabrous; tube length 0.9 – 1.2 cm dorsally, 1 – 1.1 cm ventrally, 0.85 – 0.9 cm laterally between lips, upper lobes broadly elliptic, 2.5 – 3 × 4 – 4.7 mm, lower lateral lobes elliptic, 2 – 4 × 4 – 5 mm, lower central lobe rounded, 3 – 4 × 4 – 5 mm. *Stamens* arising 4 – 6.5 mm above the corolla tube base, filaments glabrous, 3 – 3.5 mm long, straight, anthers with a dense indumentum of long hairs dorsally, c. 1 × 0.7 – 0.8 mm, apically joined by a connective, thecae divergent; lateral staminodes c. 2 mm long, arising 3 – 5 mm above the tube base, central staminode c. 1 mm long, arising c. 4 mm above tube base. *Disk* absent. *Pistil* 0.8 – 1.2 cm long; ovary fusiform, 3 – 5 mm long, papillose, with pubescence restricted to the apex; style 5 – 6 mm long, apically curved, hairy; stigma with lobes c. 0.5 mm long, c. 0.8 mm wide, narrowly elliptic, glabrous. *Fruit* green, 2 – 6 cm long, 0.9 – 1.1 mm diam., glabrous at base, sparsely hairy distally, straight or curved. *Seeds* light brown with reddish apices, elliptic, 0.5 – 0.6 × 0.2 – 0.3 mm. Fig. 1C.

RECOGNITION. Similar to *Microchirita suddeei* D. J. Middleton & Triboun (2013: 18), *M. lilacina* and *M. albiflora* Middleton & Triboun (2013: 19), but is characterised by the combination of open corolla mouth (unlike *M. suddeei* and *M. albiflora*), ventral yellow stripe (unlike *M. suddeei*) and hairy anthers (unlike *M. albiflora* and *M. lilacina*).

DISTRIBUTION. Thailand: Tak (Map 1).

SPECIMENS EXAMINED. THAILAND. Tak Province, Mae Sot Distr.: Wat Tham Inthanin, 650 m, 16°45'58.6"N 98°40'20.1"E, 18 Oct. 2014, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5775 (holotype BKF; isotypes E, SING); Wat Tham Inthanin 500 m, 16°46'00"N 98°40'20"E, 11 Sept. 2009, D. J. Middleton & P. Triboun 4849 (E); Tham Inthanin temple, 650 m, 17 Oct. 2013, R. Pooma, N. Pattharahirantricin, P. Karaket & B. Wanwisa 7851 (BKF, E); Phra Wo Limestone cave, 650 m, 16°46'00"N 98°40'20"E, 5 Nov. 2010, R. Pooma, N. Pattharahirantricin, S. Sirimongkol & P. Supachok 7522 (BKF); Phra Wo, Trail behind Phra Wo Spirit House, 700 m, 16°46'21"N 98°41'45"E, 5 Nov. 2010, R. Pooma, N. Pattharahirantricin, S. Sirimongkol & P. Supachok 7507 (BKF); Ma Kah Sah [Mae Kasa] subdistr., Po Tip Tawng Cave Meditation Centre, 300 m, 20 Aug. 1994, J. F. Maxwell 94-905 (A, L).

HABITAT. Lithophyte on limestone in mixed deciduous forest.

CONSERVATION STATUS. Endangered [EN B1ab(iii,iv) +B2ab(iii,iv)]. The known EOO of this species would qualify it for Critically Endangered but the collecting localities are in a limestone range much of which has so far not been explored and where it is also likely to occur. Even if it were to occur throughout this range its EOO would still qualify it as Endangered. Parts of this range, including some of the known localities, are outside protected areas and subject to disturbance from visitors, particularly at the religious sites.

ETYMOLOGY. The species is named in honour of Chandee Hemrat, one of the collectors of the types of all of the new species.

NOTES. See notes under *Microchirita lilacina*.

Microchirita lilacina C. Puglisi **sp. nov.** Type: Thailand, Tak, Umphang, D. J. Middleton, C. Hemrat, P. Karaket, C. Puglisi & S. Suddee 5704 (holotype BKF; isotypes AAU, E, K, QBG, SING).

<http://www.ipni.org/urn:lsid:ipni.org:names:77151916-1>

Herb to 40 cm tall. *Stems* fleshy, red at base, otherwise green, with pale green hairs, which are lost in dried specimens. *Leaves* opposite, with the exception of the single one or two basal leaves, fleshy (very thin when dry); petioles 0.3 – 2.5 cm long, glabrous; blades pale to mid green above, paler beneath, ovate, 2.5 – 18 × 1.4 – 13 cm, 1.3 – 1.8 times as long as wide, densely tomentose above, sparsely so beneath, base cordate, apex acuminate or rarely acute, margin entire, 6 – 10 pairs of secondary veins in the opposite leaves, 10 – 15 in the basal leaf, venation raised beneath in fresh material, tertiary venation finely and irregularly reticulate, visible only beneath. *Inflorescence* epiphyllous, 2 – 15-flowered, forming a crest where the young flowers develop flush to the midrib and then progressively curve upwards and backwards towards the stem; peduncles wholly or partly fused with the petiole, if partly arising from the petiole, then also fused together; pedicels green, 0.2 – 1.5 cm long, glabrous or sparsely hairy. *Calyx* pale green, bilabiate, tube 0.5 – 1.5 mm long, lobes narrowly lanceolate, 6.5 – 7 × 0.8 – 1.2 mm, with the central upper lobe (alternate to the upper corolla lobes) c. 1 mm shorter than the other lobes, membranous along the side edges, apex narrowly obtuse, outside with scattered eglandular hairs along the midrib, inside with a minute indumentum of sessile glands. *Corolla* 0.8 – 1.2 cm long, markedly variable even within populations, tube whitish pale lilac, with a narrow basal portion 3 – 4 mm long, c. 2.5 mm diam., glabrous, then abruptly broadening into a campanulate tube, pubescent with very fine eglandular hairs outside, inside glabrous, with a yellow

stripe ventrally, lobes very pale lilac, the upper with sparse stalked glands, especially abundant towards the centre of the upper lip, the lower minutely papillose; tube length 1.1 – 1.3 cm dorsally, 1.3 – 1.4 cm ventrally, 1.05 – 1.25 cm laterally between lips, upper lobes elliptic, 3 – 3.5 × c. 5 mm, lower lateral lobes elliptic, 3 – 3.5 × 5 – 6.5 mm, lower central lobe rounded, 4 – 4.5 × 4.5 – 5 mm. *Stamens* arising 4.5 – 5 mm above the corolla tube base, filaments glabrous, 3.5 – 4.5 mm long, slightly twisted, anthers glabrous, 1.7 – 3 × 0.6 – 1.5 mm, apically joined by a connective, thecae divergent and apiculate, anthers cream-white with a dark spot beside the attachment of the filament; lateral staminodes 1.5 – 3 mm long, arising 3 – 3.7 mm above the tube base, central staminode c. 1.7 mm long, arising c. 2.8 mm above tube base. *Disk* a ventral lobe, 0.3 – 0.4 mm high, with irregular margin. *Pistil* 1.2 – 1.6 cm long; ovary fusiform, 6 – 11 mm long, with scattered glands for $1/2 - 2/3$ and then distally with fewer glands and a dense eglandular pubescence; style 5 – 6 mm long, curved downwards, hairy; stigma with pronounced lobes, lobes 1 – 1.4 mm long, 0.6 – 0.8 mm wide, narrowly elliptic, glabrous outside, papillose inside. *Fruit* green, 2 – 6 cm long, 0.8 – 1 mm diam., glabrous at base, sometimes with indumentum terminally, straight or curved. *Seeds* brown, elliptic, 0.4 – 0.5 × c. 0.2 mm. Fig. 1D.

RECOGNITION. Similar to *Microchirita suddee*, *M. albiflora* and *M. hemratii*. Differs from *M. suddee* in the glabrous anthers and the presence of a yellow stripe; differs from *M. albiflora* in the shape of the tube (trumpet shaped in *M. albiflora* and narrow at base and suddenly broadening into a campanulate upper tube in *M. lilacina*) and the size of the corolla lobes; and differs from *M. hemratii* in the glabrous anthers (densely hairy dorsally in *M. hemratii*).

DISTRIBUTION. Thailand: Tak (Map 1).

SPECIMENS EXAMINED. THAILAND. Tak Province, Umphang Distr.: Road from Mae Sot to Umphang, 500 m, 16°08'38.7"N 98°52'38.1"E, 15 Oct. 2014, *D. J. Middleton*, *C. Hemrat*, *P. Karaket*, *C. Puglisi* & *S. Suddee* 5704 (holotype BKF, isotypes AAU, E, K, QBG, SING); Umphang-Maesod road, 500 m, 16.995000 N 98.524100 E, 24 Aug. 2004, *R. Pooma*, *K. Pattharahirankanok*, *S. Sirimongkol* & *M. Poopath* 4643 (BKF); Umphang-Maesot road, 500 m, 19 Oct. 2013, *R. Pooma*, *N. Pattharahirantricin*, *P. Karaket* & *B. Wanwisa* 7894 (BKF); Ban Wa Khrue Kho, 550 m, 16°10'30.2"N 98°52'52.4"E, 15 Oct. 2014, *D. J. Middleton*, *C. Hemrat*, *P. Karaket*, *C. Puglisi* & *S. Suddee* 5699 (BKF, E, SING); Umphang Wildlife Sanctuary (also known as Doi Hua Mot WS), 900 m, 15°56'6.5"N 98°52'8.5"E, 17 Oct. 2014, *D. J. Middleton*, *C. Hemrat*, *P. Karaket*, *C. Puglisi* & *S. Suddee* 5763 (BKF, E, SING); Umphang Wildlife Sanctuary, Doi Hua Mot, Umphang-Palatha road, 900 m, 18 Oct. 2013, *R. Pooma*, *N. Pattharahirantricin*, *P. Karaket* & *B. Wanwisa* 7886 (BKF, E).

HABITAT. On limestone in dry and disturbed environments.

CONSERVATION STATUS. Endangered (EN B1ab(iii,iv) +B2 ab(iii,iv)). This species is known from disturbed roadside collections, with the exception of two collections in Doi Hua Mot Wildlife Sanctuary, over an area within the bounds of an EOO in the Endangered category. Its known localities are subject to disturbance.

ETYMOLOGY. The plant is named after its pale lilac corolla.

NOTES. *Microchirita hemratii* and *M. lilacina* belong to a group of species characterised by corolla colours ranging from pale lilac-white to blue. *M. hemratii* and *M. lilacina* have small corollas in comparison with most members of their group, which are also much darker in colour. The only species somewhat similar to them are *M. suddee*, *M. albiflora* and *M. karaketii* D. J. Middleton & Triboun, all from Northern Thailand. *M. karaketii* is similar in the shape of the corolla tube, but differs in the colour pattern of the corolla, being white with a ventral yellow line and purple spots to either side of it. *M. albiflora* is pure white and differs from the other species in having its anthers free, a rare feature in *Microchirita*. *M. suddee* is much closer to *M. hemratii* and *M. lilacina*, and the main difference is in the absence of the ventral yellow stripe in the flower, which is present in both the new species. Finally, one other important distinguishing feature between these closely related species is the indumentum dorsally on the anthers, which is present in *M. suddee* and *M. hemratii*, reduced in *M. karaketii* and absent in *M. lilacina* and *M. albiflora*.

Acknowledgements

Preecha Karaket and Chandee Hemrat are gratefully acknowledged for assistance in the field. Fieldwork was funded by the Singapore National Parks Board through Singapore Botanic Gardens, the Davis Fund of the University of Edinburgh and the Forest Herbarium Bangkok. Photographs were taken by Preecha Karaket (BKF). Work on *Microchirita* was funded by grants from the Sibbald Trust of the Royal Botanic Garden Edinburgh and the Singapore Botanic Gardens Research Fellowship.

References

- Craib, W. G. (1918). Contributions to the flora of Siam. Additamentum X. *Bull. Misc. Inform., Kew* 1918: 362 – 371.
- Don, D. (1825). *Prodromus Florae Nepalensis*. Linnean Society. J. Gale., London.
- Endlicher, S. F. L. (1841). *Genera Plantarum*. Beck, Vindobonae.
- Hance, H. F. (1883). New Chinese Cyrtandreae. *J. Bot.* 21: 165 – 170.

- IUCN (2012). *IUCN Red List Categories and Criteria, Version 3.1, Second edition*. IUCN, Gland and Cambridge.
- Middleton, D. J. & Möller, M. (2012). *Tribounia*, a new genus of Gesneriaceae from Thailand. *Taxon* 61: 1286 – 1295.
- ____ & Triboun, P. (2012). *Somrania*, a new genus of Gesneriaceae from Thailand. *Thai Forest Bull., Bot.* 40: 9 – 13.
- ____ & ____ (2013). New species of *Microchirita* (Gesneriaceae) from Thailand. *Thai Forest Bull., Bot.* 41: 13 – 22.
- ____ Atkins, H., Truong, L. H., Nishii, K. & Möller, M. (2014). *Billolivia*, a new genus of Gesneriaceae from Vietnam with five new species. *Phytotaxa* 161: 241 – 269.
- Möller, M., Middleton, D. J., Nishii, K., Wei, Y. G., Sontag, S. & Weber, A. (2011). A new delineation for *Oreocharis* incorporating an additional ten genera of Chinese Gesneriaceae. *Phytotaxa* 32: 1 – 36.
- ____, Chen, W. H., Shui, Y. M., Atkins, H. & Middleton, D. J. (2014). A new genus of Gesneriaceae in China and the transfer of *Briggsia* species to other genera. *Gard. Bull. Singapore* 66: 195 – 205.
- Nangngam, P. & Middleton, D. J. (2014). Five new species of *Didymocarpus* (Gesneriaceae) from Thailand. *Thai Forest Bull., Bot.* 42: 35 – 42.
- Puglisi, C., Middleton, D. J., Triboun, P. & Möller, M. (2011). New insights into the relationships between *Paraboea*, *Trisepalum* and *Phylloboea* (Gesneriaceae) and their taxonomic consequences. *Taxon* 60: 1693 – 1702.
- Sprengel, K. (1817). *Anleitung zur Kenntnis der Gewächse*, ed. 2. Halle, Kümmerl.
- Thiers, B. (continuously updated). *Index Herbariorum: A global directory of public herbaria and associated staff*. New York Botanical Garden's Virtual Herbarium. Available from: <http://sweetgum.nybg.org/ih/> (accessed 29 January 2015).
- Triboun, P. & Middleton, D. J. (2012). Twenty new species of *Paraboea* (Gesneriaceae). *Gard. Bull. Singapore* 64: 333 – 370.
- Wang, Y.-Z., Mao, R.-B., Liu, Y., Li, J.-M., Dong, Y., Li, Z.-Y. & Smith, J. (2011). Phylogenetic reconstruction of *Chirita* and allies (Gesneriaceae) with taxonomic treatments. *J. Syst. Evol.* 49: 50 – 64.
- Weber, A. (1975). The cristate inflorescence of *Chirita* sect. *Microchirita* (Gesneriaceae). *Notes Roy. Bot. Gard. Edinburgh* 34: 221 – 230.
- ____, Middleton, D. J., Forrest, A., Kiew, R., Lim, C. L., Rafidah, A., Triboun, P., Wei, Y. G., Yao, T. L., Sontag, S. & Möller, M. (2011a). Molecular systematics and remodelling of *Chirita* and associated genera (Gesneriaceae). *Taxon* 60: 767 – 790.
- ____, Wei, Y. G., Puglisi, C., Mayer, V. & Möller, M. (2011b). A new definition of the genus *Petrocodon* (Gesneriaceae). *Phytotaxa* 23: 49 – 67.
- ____, Clark, J. L. & Möller, M. (2013). A new formal classification of Gesneriaceae. *Selbyana* 31: 68 – 94.
- Wei, Y. G., Fang, W., Chen, W. H., Shui, Y. M. & Möller, M. (2010). *Litostigma*, a new genus from China: A morphological link between basal and derived didymocarpoid Gesneriaceae. *Edinburgh J. Bot.* 67: 161 – 184.
- Wood, D. (1974). A revision of *Chirita* (Gesneriaceae). *Notes Roy. Bot. Gard. Edinburgh* 33: 123 – 205.
- Xu, Z., Burt, B. L., Skog, L. E. & Middleton, D. J. (2008). A revision of *Paraboea* (Gesneriaceae). *Edinburgh J. Bot.* 65: 161 – 347.