

## MITREOLA YANGCHUNENSIS (LOGANIACEAE), A NEW SPECIES FROM CHINA

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### Abstract

*Mitreola yangchunensis* Q. X. Ma, H. G. Ye & F. W. Xing *sp nova* from Guangdong province, China is described, illustrated, and compared with its congeners. It is somewhat similar to *M. reticulata* Tiegel, but is distinguished by its pubescent stem or branches, its pilose leaves, with acute apex, its long-pedunculate cymes, present styles and its smooth capsule wall. A distribution map and a key to species of *Mitreola* in China are provided.

### Introduction

Two generic names, *Mitreola* L. and *Cynoctionum* Gmel., had been used confusedly on the same taxon of Loganiaceae. Leenhouts (1962) once used *Cynoctionum* as the generic name when he made a taxonomic revision on Loganiaceae, but he changed his opinion again and accepted *Mitreola* as the correct name in 1972. Leeuwenberg (1974) and Nelson (1980) confirmed *Mitreola* was a valid generic name after summarizing the research history of *Mitreola* and *Cynoctionum*. *Mitreola* is comprised of about 13 annual or perennial herbaceous species which are distributed through Asia, Oceania, America and Africa (Chang & Qiu, 1992; Fang *et al.*, 1995; Conn, 1996). The genus is characterized by herbaceous habit, cymes, 5-merous flowers, cleft styles, and bilobed capsules, with two erect or incurved horns. About eight species of this genus can be found in southern, southwestern and central China and they mainly grow in limestone areas (Fig. 1).

During an expedition on the flora of limestone areas in Yangchun city, Guangdong province, we found one species that had never been described before. After studying its specimens carefully, we confirmed that it represents a new species of the genus *Mitreola*.

### *Mitreola yangchunensis* Q. X. Ma, H. G. Ye & F. W. Xing, sp. nova (Fig. 2)

*Affinis M. reticulatae, sed caulibus vel ramis pubescentibus, foliis oblongis, longe ellipticis, vel ellipticis, acutis ad apicem, pilosis; stipulis triangulis; pedunculis 3.5-7.8 cm longis, pedicellis ca. 0.5 mm longis; stylis 0.3-0.4 mm longis; pericarpio aequato differt.*

**Type:** China. Guangdong Province, Yangchun City, Kongdongyan scenic spot, 22°10'N, 111°47'E, altitude about 20 m, on shady limestone, 16 Apr. 2004, H. G. Ye 9558 (holotype, IBSC).

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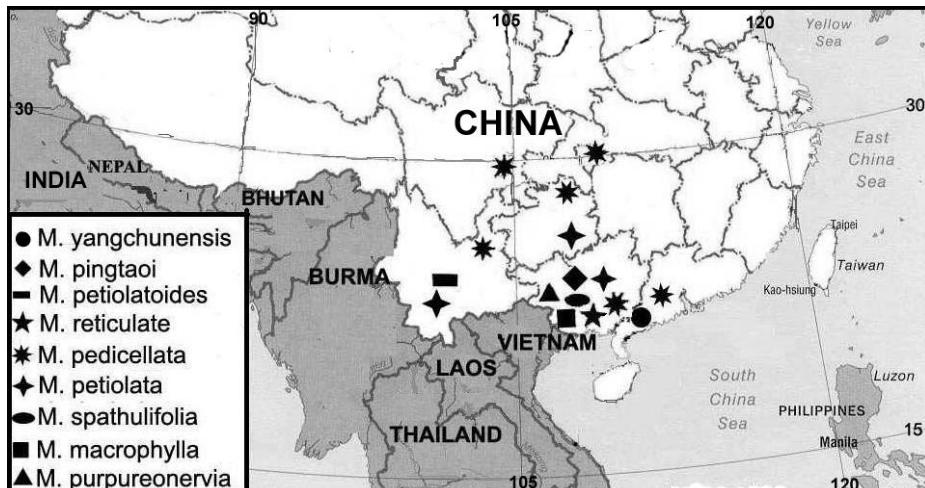


Fig. 1. Geographical distribution of *Mitreola* in China.

Perennial herb upto 55 cm in height. Stem usually erect, nearly terete, several times dichasially branched, but unbranched in small plants, internodes 0.3-6.5 cm long. Leaves opposite, often clustered at the stem or branch apex, petiolate; petiole 3-10 mm long, pilose; blade membranous, oblong, elliptic, or long elliptic, rarely long obovate, 4-10.2 cm long, 1.8-3.8 cm wide, acute at the apex, cuneate or narrowed at the base, entire, sparsely pilose above, margin and nerves pilose beneath; secondary veins 7-10 pairs, flat above, distinct beneath; stipules triangular, interpetiolar, 1-1.2 mm long. Cymes terminal and axillary, 2.5-4 cm long, 3.5-7.8 cm peduncled, pilose or glabrescent; bracts sparsely pilose, subulate-lanceolate, 4-8.5 mm long, bracteoles subulate, 1-2 mm long; pedicels glabrescent, ca. 0.5 mm long. Calyces subglabrous or pubescent, tubes ca. 0.5 mm long, lobes 5, long-triangular, 0.8-1.2 mm long. Corollas urceolate, white, tubes 1.3-1.8 mm long, lobes 5, broad ovate, ca. 1 mm long, glabrous outside and inside except with a pubescent ring of long hairs at throat. Stamens 5, included, nearly inserted at the middle of corolla tube, glabrous, filaments 0.2-0.4 mm long, anthers broad ovate, ca. 0.3 mm long. Ovaries slightly semi-inferior, oblate, ca. 0.3 mm long, 0.5 mm wide, bilocular, ovules numerous per locule; styles 2, 0.3-0.4 mm long, distinct, stigmas clavate. Immature capsules bilobed, split near the middle, two horns erect; mature capsules 1.6-2.5 mm long, 2.5-3 mm wide, subglabrous or pubescent, sepals persistent at base. Seeds black, semi-globular, ca. 0.5 mm wide, testa reticulate. Flowers from early April to May, fruits may be half a month later.

**Distribution and ecology:** *M. yangchunensis* is known only from the type locality, grows on shady limestone areas, at the foot of hills, or at cave openings, in Kongdongyan scenic spot, Yangchun city, Guangdong province, Southern China (Fig. 1), and occurs with *Spiradiclisis petrophila* Lo, which is very common in these habitats.

**Discussion:** One morphologically similar species of *M. yangchunensis* is *M. reticulate*, because they have similar architectural form, a variation of Leeuwenberg's model (Hallé, 1980: Figs. 3, 6, 2). More detailed morphological differences between the two species are presented in Table 1. The following key provides the most reliable identification characters to species of *Mitreola* in China.

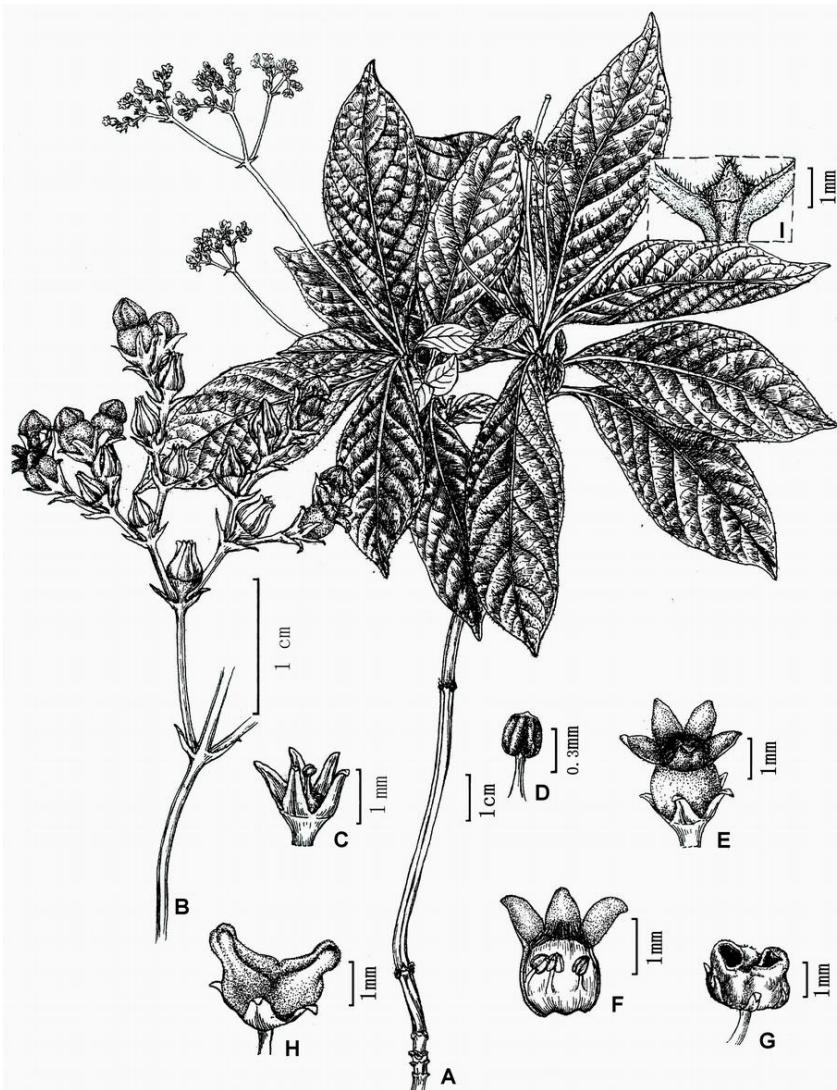


Fig. 2. *Mitreola yangchunensis* (from holotype and paratype). A: Habit, B: Cyme, C: Pistil, D: Stamen, E: Flower, F: Corolla with stamens, G: Mature capsule, H: Immature capsule, I: Stipule.

**Table 1. Morphological differences between *M. yangchunensis* and *M. reticulata*.**

Character	<i>M. yangchunensis</i>	<i>M. reticulata</i>
Stem	Pubescent	Glabrous
Leaf	Oblong, elliptic or long elliptic, rarely Obovate, acute at the apex, pilose	Ovate-lanceolate, long acuminate at the apex, glabrous
Stipule	Triangular	Linguiformis
Peduncle	3.5-7.8 cm long	1-2.5 cm long
Flower	Pedicel ca. 0.5mm long, style 0.3-0.4 mm long	Pedicel very short, style absent
Capsule wall	Smooth	Bumpy by the seeds

### Key to species of *Mitreola* in China

1. Stems inconspicuous, leaves sessile or subsessile, clustered at short stems ..... 2
1. Stems conspicuous, leaves petiolate, occurring along length of stem or clustered at stem apex ..... 4
2. Leaves small, 3.5–7 cm long, papery; nerves purple abaxially; capsule horns incurved ..... *M. purpureonervia*
2. Leaves large, 7–37 cm long, thick papery, fleshy; nerves light green or white abaxially; capsule horns erect ..... 3
3. Leaves long obovate, rarely oblanceolate; stamens inserted at top of corolla tube ..... *M. macrophylla*
3. Leaves spathulate to oblanceolate; stamens inserted at the middle of corolla tube ..... *M. spathulifolia*
4. Stems several times dichasially branched, rarely unbranched ..... 5
4. Stems unbranched or irregularly branched mostly at the base ..... 6
5. Leaves oblong or elliptic, rarely obovate, acute at the apex, pilose; peduncle long, 3.5–7.8 cm; style present; capsule wall even ..... *M. yangchunensis*
5. Leaves ovate-lanceolate, long acuminate at the apex, glabrous; peduncle short, 1–2.5 cm; style absent; capsule wall bumpy by the seeds ..... *M. reticulata*
6. Stem obviously hairy ..... 7
6. Stem glabrous ..... 8
7. Leaves ovate, 0.5–2 cm long; cymes terminal, 3-flowered ..... *M. petiolatoides*
7. Leaves obovate to long obovate, usually 2–8 cm long; cymes terminal and axillary, multi-flowered ..... *M. pingtaoi*
8. Stems erect; stamens inserted nearly at the base of corolla tube; capsule horns obviously incurved ..... *M. petiolata*
8. Stems creeping at the base, stamens inserted at the middle of corolla tube; capsule horns erect ..... *M. pedicellata*

**Selected specimens examined (paratype):** China. Guangdong, Yangchun, Kongdongyan scenic spot, at the foot of hill, 2003, Q. X. Ma 18 (IBSC).

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