

## *Tylophora lui* (Apocynaceae), a new species from Taiwan

Yen-Hsueh Tseng\* & Chien-Ti Chao

Department of Forestry, National Chung-Hsing University, Taichung 402, Taiwan (\*corresponding author's e-mail: tseng2005@nchu.edu.tw)

Received 16 Sep. 2010, revised version received 4 Nov. 2010, accepted 5 Nov. 2010

Tseng, Y. H. & Chao, C. T. 2011: *Tylophora lui* (Apocynaceae), a new species from Taiwan. — *Ann. Bot. Fennici* 48: 515–518.

*Tylophora lui* Y.H. Tseng & C.T. Chao, a new species of Apocynaceae from southern Taiwan, is described and illustrated. It resembles *T. ovata* in the shape and size of the leaves and flowers, but differs by the indumentum of stems, the number of flowers, and by the glabrous and slender inflorescences. An identification key to the Taiwanese *Tylophora* species is provided.

The genus *Tylophora* (Apocynaceae) comprises 60 species that are mainly distributed in tropical and subtropical Asia, Africa and Australia. A total of 35 species have been found in China (Li *et al.* 1995). Two taxa of *Tylophora* were previously recognized in the *Flora of Taiwan* (Lu & Kao 1978) and more recently three taxa were recognized in its second edition (Lu *et al.* 1998). Since then, one new species, *T. sui*, has been reported (Tseng *et al.* 2011).

In our recent systematic revision of *Tylophora* in Taiwan, one sharply distinct species was discovered. Consultation of original materials and taxonomic works on *Tylophora* (Henry 1896, Kawakami 1910, Hayata 1911, Sasaki 1928, Masamune 1954, Hatusima 1963, Tsiang & Li 1974, Lu & Kao 1978, Forster 1992, 1994, Swarupanandan & Nicolson 1993, Li *et al.* 1995, Lu *et al.* 1998) supports its recognition as a new species.

***Tylophora lui*** Y.H. Tseng & C.T. Chao, *sp. nova* (Figs. 1–3)

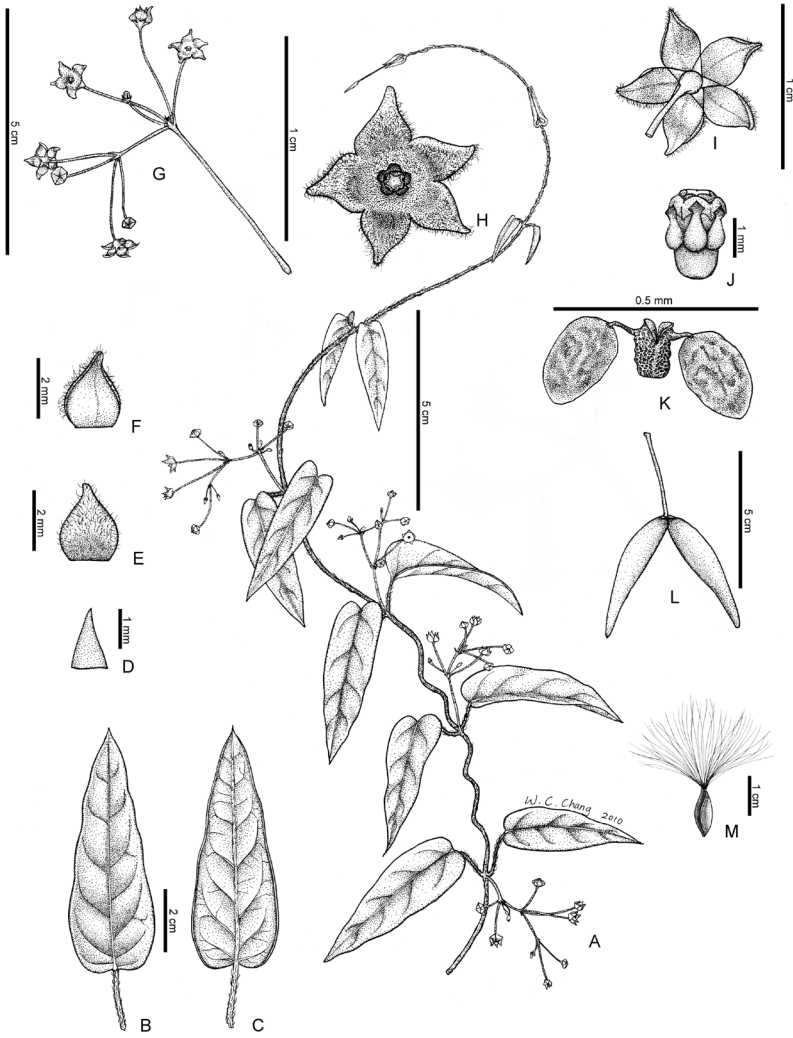
*Species Tylophorae ovatae affinis, sed cymis*

*gracilibus, flexuosis, 1 vel 2-nodis, paucifloris, floribus 3–5 in quoque nodo, purpureis, pedunculis et pedicellis glabris differt.*

HOLOTYPE: Taiwan. Pintung County, Taiwu Town, Mt. Peitawu, 22°37'N, 120°43'E, elev. ca. 1600 m, on rocky slope, 21 Mar. 2010, Y. H. Tseng 4916 (TCF). — PARATYPES: Same locality, 15 Sep. 1994 S.Y. Lu 24356 (CHIA), 21 Mar. 2010 Y. H. Tseng 4915, 4917 (TCF).

ETYMOLOGY. The specific epithet commemorates Dr. Sheng-You Lu, the first collector of this new species, Botanical Garden Division, Taiwan Forestry Research Institute, for his contributions to the plant taxonomy of Taiwan.

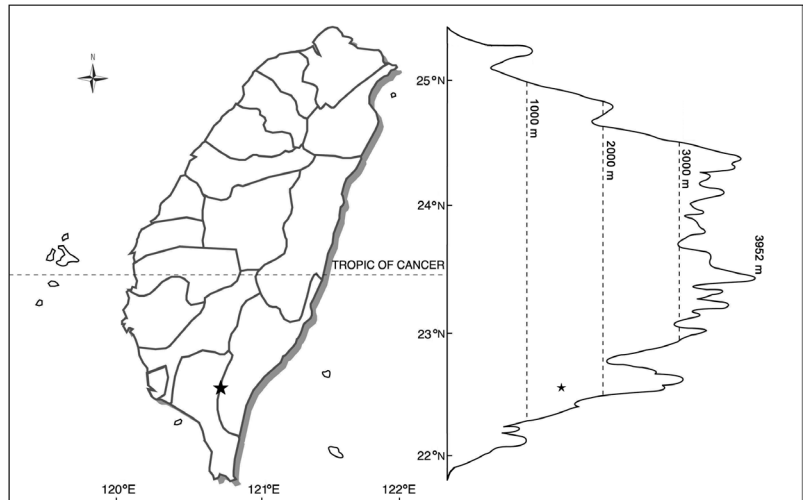
Plants twining. Stems pubescent. Leaves simple, opposite, entire, papery; petiole 1.0–1.3 cm long, pubescent, grooved; blade 5.5–6.5 × 1.4–2.1 cm, lanceolate, apex acuminate, base subcordate, adaxial surface sparsely pubescent, veins prominent, lateral veins 4–6 pairs, margin pubescent and abaxial surface glabrous, veins sparsely pubescent. Cymes axillary, simple, slender, glabrous; peduncles glabrous, 3–4 cm long, flowers 3–5 on each node, first node rachis 1.5–1.6 cm long, branched and simple to 2 and zigzag; bracts one at base of each flower, linear, glabrous; pedicels glabrous, 1.8–2.2 cm; calyx glabrous, 5-lobed, lobes narrow triangular,



**Fig. 1.** *Tylophora lui* (from the holotype). — **A:** Habit. — **B:** Leaf adaxial surface. — **C:** Leaf abaxial surface. — **D:** Sepal. — **E:** Petal inner surface. — **F:** Petal outer surface. — **G:** Inflorescence. — **H:** Flower upper surface. — **I:** Flower lower surface. — **J:** Gynostegium. — **K:** Pollinium. — **L:** Fruit. — **M:** Seed.



**Fig. 2.** Inflorescence of *Tylophora lui* (holotype).



**Fig. 3.** Locality of *Tylophora lui* (star).

0.1 cm long, without glands inside; corolla red, rotate, 5-lobed, 0.3–0.5 cm long, hirsute on upper surfaces, pubescent on lower surfaces, ovate, fleshy; corona 5-lobed, lobes with fleshy tumor-like appendages outside; gynostegium cylindrical, 0.1–0.2 cm long; pollinaria 5, pollinia 2 per pollinarium, retinacula horizontal, pollinium elliptic and apically obtuse; stigma disciform, style cylindrical, ovaries glabrous. Follicles 2 per pedicel, spindle lanceolate, obtuse at apex, 4–5.5 cm long, 0.5–0.8 cm wide. Seed asymmetrically fusiform, winged, glabrous, 0.3–0.5 cm long, 0.1–0.2 cm wide.

*Tylophora lui* closely resembles *T. ovata* and *T. taiwanensis* but differs from both in several characters (Table 1). *Tylophora lui* is so far known only from the type locality.

#### Key to species of *Tylophora* in Taiwan

1. Stem creeping, leaves orbicular ..... *T. sui*
1. Stem twining, leaves ovate, oblong or lanceolate ..... 2
2. Leaves 3-nerved, obtuse or rounded at base; calyx with 5 glands inside ..... *T. oshimae*
2. Leaves pinnately-nerved, more or less cordate at base; calyx without glands inside ..... 3
3. Inflorescences velutinous, each node with 10–12 flowers ..... *T. ovata*

**Table 1.** Morphological comparison of *Tylophora lui*, *T. ovata* and *T. taiwanensis*.

	<i>T. lui</i>	<i>T. ovata</i>	<i>T. taiwanensis</i>
<b>Stems</b>			
Diameter (cm)	0.1	0.2	0.2
Indumentum	sparsely pubescent	velutinous	glabrous
<b>Leaf surface</b>			
Adaxial	sparsely pubescent	velutinous	glabrous
Abaxial	glabrous	velutinous	glabrous
<b>Petioles</b>	pubescent	velutinous	glabrous
<b>Inflorescences</b>			
Indumentum	glabrous	velutinous	glabrous
<b>Rachis</b>			
Peduncles	simple to 2 zigzag	2–4 zigzag	4–6 zigzag
Axil	glabrous	velutinous	glabrous
<b>Flowers</b>			
Number	3–5	10–12	5–7
Pedicels (cm)	1.8–2.2	0.8–1.5	0.5–1.0
	glabrous	velutinous	glabrous

3. Inflorescences glabrous, each node with 3–8 flowers .. 4  
 4. Stems glabrous; inflorescences not slender, rachis 4–6, zigzag; each node with 5–8 flowers; corolla yellow .....  
 ..... *T. taiwanensis*  
 4. Stem pubescent; inflorescences slender, rachis simple to two and zigzag; each node with 3–5 flowers; corolla red .....  
 ..... *T. lui*

## Acknowledgements

We thank Dr. Chern-Hsiung Ou (TCF) for valuable comments, Dr. Qin-Er Yang (IBSC) for the Latin diagnosis, Ms. Wei-Chun Chang for her line drawing and Ms. Hui-Wen Lin for useful suggestions.

## Reference

- Forster, P. I. 1992: A taxonomic revision of *Tylophora* R. Br. (Asclepiadaceae: Marsdenieae) in Australia. — *Australian Systematic Botany* 5: 29–51.
- Forster, P. I. 1994: A taxonomic revision of *Tylophora* (Asclepiadaceae: Marsdenieae) in Papuasias. — *Australian Systematic Botany* 7: 485–505.
- Hatusima, S. 1963: New and noteworthy Asclepiadaceae plants from Formosa and the Ryūkyūs. — *Journal of Geobotany* 12: 9–11.
- Hayata, B. 1911: Materials for a flora of Formosa. — *Journal of the College of Science, Imperial University of Tokyo* 30: 195–199.
- Henry, A. 1896: A list of plants from Formosa, with some preliminary remarks on the geography, nature of the flora, and economic botany of the island. — *Transactions of the Asiatic Society of Japan* 24, supplement: 1–118.
- Kawakami, T. 1910: *A list of plants of Formosa*. — Bureau of Productive Industry Government of Formosa, Taihoku (Taipei).
- Li, P. T., Gilbert, M. G. & Steven, W. D. 1995: Asclepiadaceae. — In: Wu, Z. Y. & Raven, P. H. (eds.), *Flora of China*, vol. 16: 189–270. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis.
- Lu, F. Y. & Kao, M. T. 1978: Asclepiadaceae. — In: Li, H. L., Liu, H. L., Huang, T. C., Koyama, T. & DeVol, C. E. (eds.), *Flora of Taiwan*, vol. 4: 243–246. Epoch Publishing, Taipei.
- Lu, F. Y., Kao, M. T., Huang, S. F. & Wang, J. C. 1998: Asclepiadaceae. — In: Huang, T. C. (eds.), *Flora of Taiwan*, 2nd ed., vol. 4: 239–244. Editorial Committee of the Flora of Taiwan, Taipei.
- Masamune, G. 1954: *A list of vascular plants of Taiwan*. — Hokurikunoshoku Butzunokai Press, Kanazawa.
- Sasaki, S. 1928: *List of plants of Formosa*. — The Natural History Society of Formosa, Taihoku (Taipei).
- Swarupanandan, K. & Nicolson, D. H. 1993: A new variety of *Tylophora tetrapetala* (Asclepiadaceae). — *Blumea* 38: 231–235.
- Tseng, Y. H., Chao, C. T. & Lin, H. W. 2011: A new species of *Tylophora* from coral reef areas in Hengchun Peninsula, Taiwan, China. — *Journal of Systematics and Evolution* 49: 162.
- Tsiang, Y. & Li, P. T. 1974: Praecursores Florae Asclepiadacearum Sinensium. — *Acta Phytotaxonomica Sinica* 12: 79–150.