

A SYNOPSIS OF THE GENUS *LEPTOPUS* DECNE. (EUPHORBIACEAE) IN CHINA

LI PING-T'AO*

ABSTRACT. In a taxonomic study of the Chinese species of the genus *Leptopus*, eight species are recognized. Two new species, *L. yunnanensis* P. T. Li and *L. nanus* P. T. Li are described, the new combination *L. esquirolii* (Lévl.) P. T. Li is made and 12 new synonyms are also recognized. The study is based mainly on herbarium material. All material examined is deposited at the herbaria of the South China Institute of Botany Academia Sinica, the Institute of Botany Academia Sinica and the South China Agricultural College.

Leptopus Decne. in Jacquem., Voy. Ind. Bot. 4: 155, t. 156 (1844); Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 270 (1960).

Syn.: *Andrachne* Linn. sect. *Arachne* Endl., Gen. Pl. 1119 (1840).

Arachne (Endl.) Pojark. in Bot. Journ. URSS 25: 342 (1940); non Neck. (1790).

Type species: *L. cordifolius* Decne.

Distribution: About 20 species from W Himalaya to China, SE Asia, Malaysia and Australia; with 8 species and 1 variety in China (Fig. 1).

KEY TO THE SPECIES

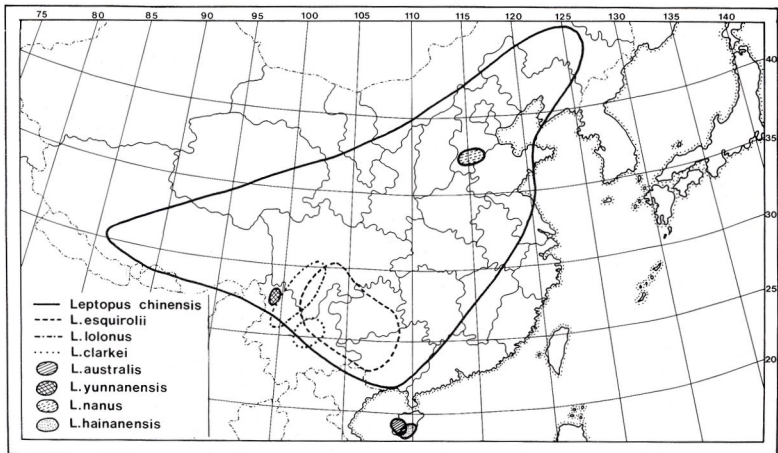
1. Plant dioecious; leaves linear-lanceolate to ovate; ovary and fruit glabrous 2
- + Plant monoecious; leaves ovate to obovate; ovary and fruit usually pubescent, rarely glabrous 3
2. Leaves linear-lanceolate; Sichuan & Yunnan 1. *L. lolonius*
- + Leaves ovate to ovate-lanceolate; Hebei 8. *L. nanus*
3. Rudimentary ovary present in the male flowers 4
- + Ovary absent in the male flowers 5
4. Leaves chartaceous; petals linear-lanceolate 2. *L. hainanensis*
- + Leaves membranous; petals broadly ovate-triangular 3. *L. australis*
5. Disc-scales linear, entire at the apex 4. *L. clarkei*
- + Disc-scales ligulate, bifid at the apex 6
6. Leaves subcordate or truncate at the base 5. *L. yunnanensis*
- + Leaves cuneate to rounded at the base 7
7. Leaves caudate-acuminate or attenuate at the apex 6. *L. esquirolii*
- + Leaves obtuse or acute at the apex 7. *L. chinensis*

1. **Leptopus lolonius** (Hand.-Mazz.) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 274 (1960).

Syn.: *Andrachne lolonum* Hand.-Mazz. in Sitzgsanz. Akad. Wissensch. Wien 58: 178 (1921) & Symb. Sin. 7: 220 (1929).

Type: China. Sichuan: Ningyuan, *Handel-Mazzetti* 1383 (photo!).

* Dept. of Forestry, South China Agricultural College, Guangzhou, Guangdong, China.

FIG. 1. Distribution of *Leptopus* spp. in China.

CHINA. Sichuan: Ningyan, T. P. Soong 38174 (topotype); Tien-Chuan, H. K. Tsiang 33836. Yunnan: Li-Kiang, T. T. Yü 8154.

Distribution: China (Sichuan, Yunnan) (Fig. 1).

2. *Leptopus hainanensis* (Merr. & Chun) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 271 (1960).

Syn.: *Andrachne hainanensis* Merr. & Chun in Sunyatsenia 5: 102, fig. 9 (1940); T. Chen in Fl. Hainanica 2: 134, fig. 359 (1965).

A. hainanensis var. *nummularifolia* Merr. & Chun in Sunyatsenia 5: 103 (1940). Type: Guangdong: Hainan, Yeh-Hsien, C. Wang 34920.

Type: Guangdong: Hainan, Yeh-Hsien, H. Y. Liang 62295.

CHINA. Guangdong: Hainan, Yeh-Hsien, H. Y. Liang 65354; *ibid.*, C. Wang 33319; *ibid.*, Hainan Exp. 960; Bo-Ting, H. C. How 73494; Teu-Lo-Shan Exp. 2248, 2715, 2716; Ling-Shui, L. Teng 3212; Lo-Tung, C. K. Lau 27016, 27430; Tung-Fang, Hainan Exp. 258, 1908.

Distribution: China (Guangdong) (Fig. 1).

3. *Leptopus australis* (Zoll. & Morr.) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 270 (1960); Airy Shaw in Kew Bull. 26: 285 (1972).

Syn.: *Andrachne australis* Zoll. & Morr. in Natuurk. Geneesk. Arch. Neerl. Ind. 2: 17 (1845) & in Flora 30: 663 (1847); Muell. Arg. in DC., Prodr. 15(2): 235 (1866); Pax & Hoffm. in Engl. Pflanzenr. 81: 172 (1922); Beille in Lec., Fl. Gén. Indo-Chine 5: 539 (1927), pro parte; Back. & Bakh. f., Fl. Java 1: 470 (1963); Airy Shaw in Kew Bull. 19: 299 (1965); T. Chen in Fl. Hainanica 2: 133 (1965).

Arachne australis (Zoll. & Morr.) Pojark. in Bot. Zhurn. URSS 25: 342 (1940).

CHINA. Guangdong: Hainan Is., Yeh-Hsien, C. L. Tso & N. K. Chun 44778; *ibid.*, H. Y. Liang 63912.

Distribution: Indo-China, Malaya, Indonesia, Philippines and China (Hainan Is.) (Fig. 1).

4. *Leptopus clarkei* (Hook. f.) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 272 (1960).

Syn.: *Andrachne clarkei* Hook. f., Fl. Brit. Ind. 5: 285 (1887).

Arachne clarkei (Hook. f.) Pojark. in Bot. Zhurn. URSS 25: 342 (1940).

CHINA. Yunnan: Kungning, Ta-Chi-Pu, Y. Tsiang 16484.

Distribution: India and China (Yunnan) (Fig. 1).

This species is new to China.

5. *Leptopus yunnanensis* P. T. Li, *sp. nov.* Figs. 1 & 2.

Species *L. cordifolio* Decne. affinis, sed foliis coriaceis vel crasse chartaceis, petiolis brevissimis 2–4 mm longis, sepalis late ovatis nec obovatis, staminibus petala superantibus differt.

Frutex monoecius, erectus usque 70 cm altus; caulis ramulique angulares pilosi et ramentacei. Folia coriacea, alterna, late ovata vel ovata, 1–2 cm longa, 6–13 mm lata, apice obtusa vel rotundata basi subcordata vel truncata, supra pilosa vel grabra, infra pilosa; costa et nervi supra plana subtus prominentia, nervi laterales utrinsecus 3–4-jugi, patuli, prope marginem arcuato-anastomosantes; petioli 2–4 mm longi, pilosi; stipulae

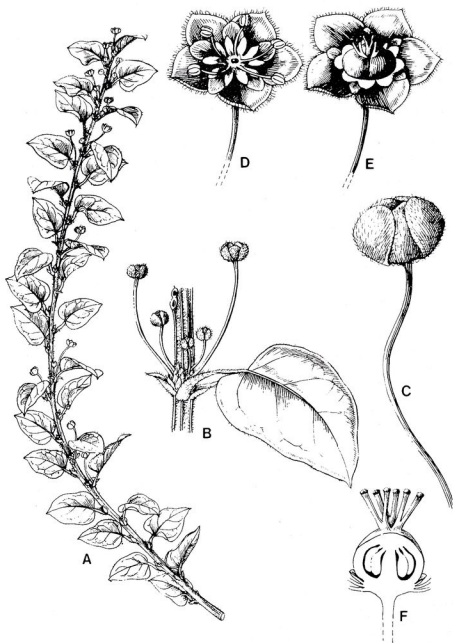


FIG. 2. *Leptopus yunnanensis*: A & B, flowering branches; C, alabastrum $\times 10$; D, male flower $\times 10$; E, female flower $\times 10$; F, section of pistil $\times 15$. From B. S. Sun 753.

membranaceae, ovato-lanceolatae, 0.5 mm longae, extra pilosae. Flores monoici, axillares, solitarii vel 2–5-ni fasciculatae; bracteis membranaceis 0.5 mm longis extra pilosis. Flores masculi: pedicelli gracillimi, c. 2 cm longi, glabri; sepala 5, submembranacea, late ovata, 3 mm longa et lata, basi connata, apice obtusa vel acuta, extra pilosa; petala 5, membranacea, obovata, distincta, c. 1.5 mm longa, apice 1 mm lata, glabra; discus planus, 10-lobatus, glaber, lobis oblongis apice obtusis; stamina 5, 2–2.5 mm longa, glabra, filamentis liberis; antheris ovatis. Flores foeminei: pedicelli sepala et petala ut in floribus masculis sed petalis brevioribus; discus petalo brevior, glaber, annularis, ad medium 10-lobatus inferne connatus, lobis ovatis; ovarium ovoideum, obscure trilobum, glabrum; styli 3, erecti, glabri, ad basin lobati.

Type: China. Yunnan: Li-Kiang, Yu-Lung-Shan, 15 viii 1956, *B. S. Sun* 753 (holo. South China Inst. Bot. Herb.; iso. Yunnan Univ.).

6. *Leptopus esquirolii* (Lévl.) P. T. Li, comb. nov.

Syn.: *Andrachne esquirolii* Lévl. in Fedde, Rep. Sp. Nov. 9: 327 (1911) & Fl. Kouy-Tchéou 158 (1914); Rehd. in Journ. Arn. Arb. 14: 229 (1933) & op. cit. 18: 213, 257 (1937); Hand.-Mazz., Symb. Sin. 7: 1372 (1936). Type: Guizhou, without locality, *Esquirol* 110 (photo!).

A. hypoglaucula Lévl. in Fedde, Rep. Sp. Nov. 12: 187 (1913).

A. persicariifolia Lévl. in Fedde, Rep. Sp. Nov. 12: 187 (1913). Type: Guizhou, Kouy-Yang, Kien-Lin-Chen, Ke-Ma-Teng, *Bodinier* 1695 (photo!).

A. attenuata Hand.-Mazz. in Sitzgsanz. Akad. Wissensch. Wien 58: 178 (1921) & Symb. Sin. 7: 219 (1931). Type: Guizhou, Djitschangping prope oppidum Huyu, *Handel-Mazzetti* 10402 (photo!).

A. attenuata Hand.-Mazz. var. *microcalyx* Hand.-Mazz., Symb. Sin. 7: 220 (1931), **syn. nov.** Type: Sichuan: Djientschang, Huili, *Handel-Mazzetti* 5631 (photo!).

A. esquirolii Lévl. var. *microcalyx* (Hand.-Mazz.) Rehd. in Journ. Arn. Arb. 18: 257 (1937), **syn. nov.**

Leptopus attenuatus (Hand.-Mazz.) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 271 (1960), **syn. nov.** Type: Guizhou, Djitschangping prope oppidum Huyu, *Handel-Mazzetti* 10402 (photo!).

L. kwangsiensis Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 272 (1960), **syn. nov.**

CHINA. Guizhou: without locality, *Esquirol* 110 (photo!); *ibid.*, *Cavalerie* 1288 (photo). Kouy-Yang; Kien-Lin-Chen, Ke-Ma-Teng, *E. Bodinier* 1695; Djitschangping prope oppidum Huyu, *Handel-Mazzetti* 10402; Pinfa, Kweiting, *Y. Tsiang* 5378; Do-Chun-Kwan, Tsungchou, *S. W. Teng* 1219; Kweiyang, *Y. Tsiang* 5326; Mou-Chown-Puting, *S. W. Teng* 378; Tu-Yun, *Y. Tsiang* 5694. Yunnan: Kungning, *T. N. Liu* 55288, 57163; *ibid.*, *W. S. Liou* 51361; *ibid.*, *H. Wang* 10025; Chih-Tze-Lo Hsien, *H. T. Tsai* 58491; *ibid.*, *T. N. Liou* 13099, 14764, 16245; Weipsoshan, Menghwa, *Y. Tsiang* 12022; Shaun-Kiang, *G. S. Sin* 966; Chengkiang, *H. T. Chang* 738; Jing-Long, Shih-So, *M. K. Li* 2151; Mengtze, *Y. Tsiang* 12777; *ibid.*, *E. E. Maire* 608 (photo!); *ibid.*, *F. Ducloux* 95; *ibid.*, *G. Forrest* 10917; Chu-Hsien, *M. K. Li* 183. Sichuan: Djientschang, Huili, *Handel-Mazzetti* 5631; Nanchuan, *C. H. Hsiung* 93038; *ibid.*, *Y. Y. Ho* 6545. Guangxi: Lun-Lin, *South China Inst. Bot. Herb.* 4997; Ling-Yun Hsien, *S. K. Lau* 28547 (Topotype of *L. kwangsiensis* Pojark.); Nan-Tan, *C. Wang* 40919, 41175; Ling-Lo, *C. T. Li* 603449.

Distribution: China (Guizhou, Yunnan, Sichuan and Guangxi) (Fig. 1).

7. *Leptopus chinensis* (Bunge) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 274 (1960).

Syn.: *Andrachne chinensis* Bunge in Mém. Acad. Imp. Sci. St. Pétersb. 2: 133 (1833).

A. cordifolia Hemsl. in Journ. Linn. Soc. 26: 420 (1894); Pax & Hoffm. in Engl. Pflanzenr. 81: 171 (1922), pro parte quoad *E. H. Wilson* 3205, 3539; non Muell. Arg. (1866).

Flueggea capillipes Pax in Bot. Jahrb. 29: 427 (1900).

Andrachne bodinieri Lévl. in Fedde, Rep. Sp. Nov. 12: 187 (1913) & Fl. Kouy-Tchéou 158 (1914); Rehd. in Journ. Arn. Arb. 14: 229 (1933). Type: Guizhou, Montagnes, Lou-Tsong-Koan, *E. Bodinier* 1662 (photo!), **syn. nov.**

A. capillipes (Pax) Hutch. in Sargent (ed.), Pl. Wilson. 2: 516 (1916), **syn. nov.**

A. capillipes (Pax) Hutch. var. *pubescens* Hutch. in Sargent, Pl. Wilson. 2: 516 (1916), **syn. nov.**

A. montana Hutch. in Sargent, Pl. Wilson. 2: 517 (1916). Type: *E. H. Wilson* 5173, **syn. nov.**

Arachne chinensis (Bunge) Pojark. in Bot. Zhurn. URSS 25: 342 (1940).

A. montana (Hutch.) Pojark. in Bot. Zhurn. URSS 25: 342 (1940), **syn. nov.**

A. capillipes (Pax) Pojark. in Bot. Zhurn. URSS 25: 392 (1940), **syn. nov.**

Leptopus capillipes (Pax) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 273 (1960), **syn. nov.**

L. montanus (Hutch.) Pojark. in Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 274 (1960), **syn. nov.**

7a. var. *chinensis*

CHINA. Xizang: *G. Forrest* 23464. Guizhou: Montagnes, Lou-Tsong-Koan, *E. Bodinier* 1662; *ibid.*, *J. Cavalerie* 2481 (photo!); *ibid.*, *Y. Tsiang* 5694; *ibid.*, *S. S. Sin* 50258; *ibid.*, *S. W. Teng* 106; *ibid.*, *P. H. Yu* 417; *ibid.*, *SW. Teach. Colleg.* 542. Jiangsu: *C. W. Yao* 4171; *ibid.*, *P. C. Yuen & J. S. Yue* 2036. Hunan: *L. H. Liou* 1704; *ibid.*, *I. K. Yang* 3088. Gansu: *C. L. Wu* 20327. Shandong: *China-Germany Exp.* 973; *ibid.*, *T. N. Liou* 9416; *ibid.*, *Y. C. Wang* 552. Liaoning: *C. Wang* 1019. Henan: *K. S. Hao* 3556; *ibid.*, *T. N. Liou* 5510; *ibid.*, *Henan Forest Exp.* 851. Shanxi: *S. Y. Bao* 1229; *ibid.*, *Huangho Exp.* 343; *ibid.*, *K. C. Kuan* 792; *ibid.*, *K. M. Liou* 1254; *ibid.*, *Shanxi Exp.* 642; *ibid.*, *T. Tang* 744; *ibid.*, *T. P. Wang* 2812. Yunnan: *P. Y. Chiu* 51633; *ibid.*, *K. M. Feng* 745; *ibid.*, *T. N. Liou* 16034, 21488; *ibid.*, *W. S. Liou* 51199; *ibid.*, *Y. H. Li* 239; *ibid.*, *H. T. Tsai* 52091; *ibid.*, *C. W. Wang* 64140; *ibid.*, *H. C. Wang* 1157; *ibid.*, *T. T. Yu* 8154. Shaanxi: *K. T. Fu* 3224; *ibid.*, *S. P. Ho* 972; *ibid.*, *W. Y. Hsia* 4378; *ibid.*, *P. C. Kuo* 185; *ibid.*, *Y. Ling* 20; *ibid.*, *T. Y. Lo* 510; *ibid.*, *Huangho Exp.* 837; *ibid.*, *Shengen Exp.* 10035; *ibid.*, *C. Wang* 192; *ibid.*, *T. P. Wang* 16544. Hubei: Chungyang, *A. Henry* 5243; *ibid.*, *F. C. Li* 3106; *ibid.*, *L. Y. Tai* 562. Hebei: *F. Cheo* 47; *ibid.*, *H. F. Chow* 40052; *ibid.*, *N. H. Cowdry* 484; *ibid.*, *C. Y. Diao* 21259; *ibid.*, *J. W. Feng* 143; *ibid.*, *K. S. Hao* 3156; *ibid.*, *Hemeling* 38, 39; *ibid.*, *W. Y. Hsia* 1961; *ibid.*, *F. Y. Hwang* 8, 120; *ibid.*, *K. C. Kuan* 5453; *ibid.*, *R. W. Kung* 301; *ibid.*, *S. Y. Li* 2075; *ibid.*, *K. M. Liou* 127; *ibid.*, *S. Y. Liou* 54; *ibid.*, *T. N. Liou* 282; *ibid.*, *Y. Liu* 10409; *ibid.*, *Nankai Univ.* 588; *ibid.*, *Purdum* 1099 (photo); *ibid.*, *N. Shigeroku* 127; *ibid.*, *T. F. Shin* 327; *ibid.*, *T. Tang* 1668; *ibid.*, *H. T. Tsai* 50115; *ibid.*, *Y. W. Tsui* 1525; *ibid.*, *C. W. Wang* 61120; *ibid.*, *F. T. Wang* 13; *ibid.*, *T. P. Wang* 196; *ibid.*, *W. T. Wang* 5; *ibid.*, *Y. Yabe s.n.*; *ibid.*, *C. Y. Yang* 21; *ibid.*, *Acad. Sin. Inst. Bot. Herb.* 534; *ibid.*, *Hebei Exp.* A17. Sichuan: *C. Y. Chang* 22080; *ibid.*, *H. F. Chang* 440; *ibid.*, *S. S. Chang* 4619; *ibid.*, *Chengdu Univ.* A73; *ibid.*, *H. F. Chow* 107630, 26895; *ibid.*, *K. L. Chu* 1865; *ibid.*, *Faber* 4 (photo); *ibid.*, *M. Y. Fang* 24640; *ibid.*, *W. P.*

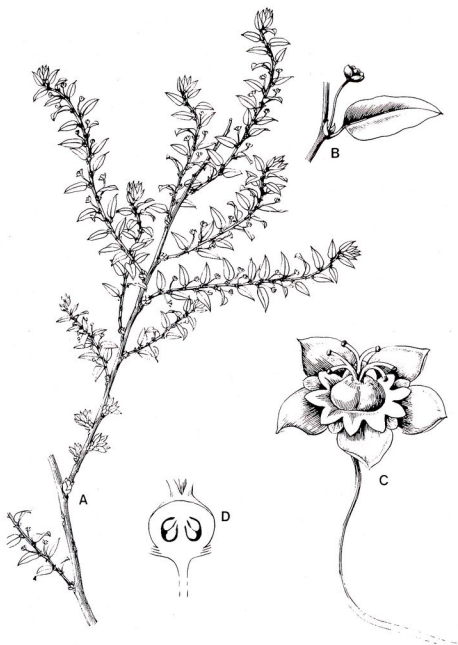


FIG. 3. *Leptopus nanus*: A & B, flowering branches; C, female flower $\times 20$; D, section of ovary $\times 25$. From T. F. King 1010.

Fang 1215; *ibid.*, G. Forrest 2495 (photo); *ibid.*, Y. S. Hiao 49239; *ibid.*, C. Ho 12197; *ibid.*, D. P. Ho 45404; *ibid.*, C. H. Hsiung 30079; *ibid.*, S. N. Hsu 642; *ibid.*, L. C. Hu 51216; *ibid.*, W. K. Hu 11369; *ibid.*, C. T. Kuan 6444; *ibid.*, H. Li 47211; *ibid.*, K. F. Li 63631; *ibid.*, L. Y. Lin 1171; *ibid.*, T. N. Liou 9370; *ibid.*, C. S. Liu 444; *ibid.*, S. S. Sin 787; *ibid.*, T. P. Soong 38129; *ibid.*, T. L. Tai 100099; *ibid.*, J. A. Soulié 1893 (photo); *ibid.*, Sutuhneidz 667 (photo); *ibid.*, Y. H. Tau 50590; *ibid.*, T. H. To 444, 560, 4853; *ibid.*, F. T. Wang 20498; *ibid.*, T. P. Wang 10104; *ibid.*, E. H. Wilson 5173; *ibid.*, C. L. Wu 12073; *ibid.*, T. F. Yang 54224; *ibid.*, K. H. Yang 54482; *ibid.*, Z. W. Yao 3336; *ibid.*, Y. C. Yang 3635; *ibid.*, T. H. Yu 63, 4853; *ibid.*, T. T. Yü 346.

Distribution: Endemic to China (Fig. 1).

This variety is characterized by its hairy to glabrescent leaves with rounded to cuneate base and the glabrous, rarely hairy, calyx.

7b. var. *hirsutus* (Hutch.) P. T. Li, stat. nov.

Syn.: *Andrachne hirsuta* Hutch. in Sargent (ed.), Pl. Wilson. 2: 516 (1916).

Type: Sichuan: without locality, roadsides, alt. 2200 m, vii 1913, E. H. Wilson 4453 (isotype).

Arachne hirsuta (Hutch.) Pojark. in Bot. Zhurn. URSS 25: 342 (1940).

Leptopus hirsutus (Hutch.) Pojark. in Bot. Syst. Herb. Inst. Bot. Acad. Sci. URSS 20: 271 (1960).

CHINA. Sichuan: West of Kuan Hsien, Niu-Tou-Shan, E. H. Wilson 3204 (Photo of syntype); Bohing, K. L. Chu 3672; Wen-Chuan, W. P. Fang 1481.

Distribution: China (Sichuan).

This variety is characterized by its hairy ovary; that of the type variety is glabrous.

8. *Leptopus nanus* P. T. Li, sp. nov. Figs. 1 & 3.

Species *L. chinensi* (Bunge) Pojark. affinis, sed foliis crasse chartaceis, nervis inconspicuis, floribus dioicis, sepalis distinctis late ovatis nec obovatis, discis 10-lobis, inferne connatis differt.

Frutex dioecius, gracilis erectus praeter stipulos ciliatos glaber; ramulis angularibus, internodiis brevissimis 3–10 mm longis. Folia crasse chartacea alterna, ovata vel ovato-lanceolata, 5–10 mm longa, 3–5 mm lata, apice acuminata basi rotundata; nervi laterales inconspicui; petioli c. 1 mm longi; stipulae submembranaceae ovato-lanceolatae 1.5 mm longae ciliolatae. Flores foeminei: axillares solitarii, pedicelli graciles 5–6 mm longi; sepala 5, distincta, ovata, 1.5 mm longa et lata, apice obtusa vel acuta crassiuscula; petala sepalis dimidio breviora, spathulata membranacea; discus petalo aequilongus, membranaceus, usque ad medium 10-lobatus, inferne connatus; ovarium ovoideum, obscure trilobum; styli 3, ad medium bilobati patuli.

Type: China. Hebei, Nan-An-Ho, T. F. King 1010 (holo. South China Inst. Bot. Herb., iso. PE).

ACKNOWLEDGEMENT

I am grateful to H. K. Airy Shaw for his critical reading of the manuscript.