

New taxa, Nomenclature, and Chromosome Report

Edited by Yin-Zheng WANG, Xiang-Yun ZHU, Yong YANG, and Zhen-Yu LI

New species and nomenclatural action in *Saussurea* DC. (Asteraceae)

¹You-Sheng CHEN* ²Qi-Liang GAN

¹(State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, China)

²(Office of Plant Survey, Zhuxi 442300, China)

Saussurea zhuxiensis Y. S. Chen & Q. L. Gan, sp. nov.

竹溪风毛菊 (S1-1. Figs. 1, 2)

Type: **China. Hubei:** Zhuxi County, Shuangqiao, rock crevices along stream, alt. 900 m, 2006-08-09, *Q. L. Gan 1508* (PE).

Latin diagnosis: Species *Saussurea salicifoliae* DC. similis, a qua radicibus numerosis fibrosis, foliis inferioribus parce dentatis vel incis, laminis abaxialibus pallidis viridibus, capitulis laxioribus differt.

Morphological description: Perennial herbs, 30–50 cm tall. Rhizome stout and repent, with numerous fibrous roots. Stems simple or 3–5, erect, puberulent, apically corymbosely branched. Leaves densely arranged, sessile, adaxially green, puberulent, abaxially light green, puberulent; basal and lower leaves lanceolate, 5–15 cm long 1–2 cm wide, apex acuminate, base attenuate, margin with sparse dentate or incised, apex apiculate; middle leaves lanceolate, usually entire, sometimes with short cusps; upper leaves smaller, entire. Capitula numerous, in loose corymbs; peduncle short, subglabrous. Involucre campanulate, 8–10 mm in diameter, 12–15 mm high. Receptacle slightly convex, sparsely bristly; receptacular bristles filiform, 5–6 mm long. Phyllaries in 5 rows; outer ones green, oblong-lanceolate, 4–5 cm long, ca. 1 mm wide, sparsely arachnoid, apex acute; innermost ones light green, lanceolate, 10–12 mm long, 1–1.5 mm wide, glabrous, apex acuminate. Pappus in one row, grayish-white, plumose, ca. 1 cm long. Florets purplish-red, limb ca. 7 mm long, tube ca. 7 mm long. Achenes elliptical, ca. 3 mm long. Flowering in August.

Distribution: *Saussurea zhuxiensis* is only found in two localities (Shuangqiao and Xiangba) in Zhuxi County in Hubei province, growing in rock crevices or sandy places along streams at altitude ca. 900 m.

Saussurea megaphylla (X. Y. Wu) Y. S. Chen, stat. nov.

大叶风毛菊 (S1-1. Figs. 3, 4)

Basionym: *Saussurea carduiformis* Franch. var. *megaphylla* X. Y. Wu in Flora Tsinling. 1 (5): 423, 367, t. 261. 1985. syn. nov.

Type: **China. Shaanxi:** Hu County, Laoyu, Xihe, 1951-09-09, *P. C. Kuo 925* (holotype, WUK; isotype, PE!).

Latin diagnosis: Affinis *Saussurea recurvatae* (Maxim.) Lipschitz, a qua differt foliis profunde pinnatisectis et magnioribus, capitulis sparsim corymbosis, pedunculis 3.5–4.5 cm longis.

Morphological description: Perennial herbs to 45 cm tall. Stems erect, unbranched, 4–5 mm in diameter, with sparse glandular hairs.

Leaves usually arranged around the middle of stem, blade oblong, 6–20 × 2.5–6 cm, pinnatipartite, with 13–17 pairs of lobes, abaxially densely glandular hairy, adaxially sparsely and shortly glandular hairy, apex acuminate, base cordate, lobes oblong to lanceolate, usually curved downwards, 6–30 × 1.5–5 mm, margin entire, apex acute with spines; petioles 7–18 mm long, glandular hairy, base expanded. Capitula homogamous, discoid, usually 10–14, in loose corymbs; peduncles 2.5–4.5 cm, very shortly glandular hairy. Involucre globose, 10–15 mm in diameter, 10–12 mm high; phyllaries 5–6-seriate, imbricate, brownish, coriaceous, outermost ones ovate, ca. 5 mm long, ca. 2 mm wide, inner ones oblong, 10–12 mm long, ca. 2 mm wide, margin entire, abaxially tomentose, apex black, long acuminate and recurved. Receptacle densely setose, bristles yellowish brown, 5–6 mm long, simple, persistent. Florets numerous, bisexual, fertile, corolla tubular-funnelform, pink, glabrous, tube 5–6 mm long, limb 5–6 mm in diameter, with 5 lobes ca. 4 mm long. Anthers 5–6 mm long, apical appendage acute, base obtuse, auricles with lacerate tails ca. 1 mm long; style ca. 14 mm long, branches ca. 1 mm long. Achenes cylindroid, ca. 5 × 1.2 mm, glabrous, brown. Pappus of two series, inner row of yellowish white plumose bristles, bristles 18–20, ca. 8 mm long, connate at base, outer series of 3–4 mm long scabrid bristles. Flowering in August and September, fruiting in September and October.

Distribution: *Saussurea megaphylla* is distributed in the northern slope of Qinling Mountains in central China between 1800 m and 2000 m elevation growing on grassy slopes at forest margin in valleys, near mixed forests with a canopy mainly with *Quercus aliena* var. *acutiserrata* Maxim. ex Wenzig, *Quercus mongolica* Fisch. ex Ledeb., *Platycladus orientalis* (L.) Franco, *Pinus amandii* Franch., *Populus davidiana* Dode, *Acer grosseri* Pax, *Acer maximowiczii* Pax, and *Fraxinus bungeana* DC., important accompanying tree species include *Betula albo-sinensis* Burk. and *Euptelea pleiosperma* Hook. f. & Thoms. Important associated shrubs and herbs include *Spiraea fritschiana* Schneid., *Sorbaria kirilowii* (Regel) Maxim., *Philadelphus pekinensis* Rupr., *Lespedeza buergeri* Miquel, *Aster ageratoides* Turcz., *Artemisia qinlingensis* Ling & Y. R. Ling, *Sinacalia tangutica* (Maxim.) B. Nord., *Saussurea dolichopoda* Diels, and *Impatiens nolitangere* L.

Additional specimens examined:

China. Shaanxi: Hu County, Laoyu, Zhuque Forest Park, alt. 1800–2000 m, 2008-08-22, *Y. S. Chen 8104* (PE).

Online supplementary data:

S1-1. Figs. 1, 2, *Saussurea zhuxiensis* Y. S. Chen & Q. L. Gan, sp. nov. (*Q. L. Gan 1508*) (photographed by Q. L. Gan & X. L. Yu). **3, 4, *Saussurea megaphylla*** (X. Y. Wu) Y. S. Chen (*Y. S. Chen 8104*) (photographed by Y. S. Chen).

* Author for correspondence. E-mail: maple@ibcas.ac.cn; Tel.: 86-10-62836090; Fax: 86-10-62590843.

Acknowledgements This work was supported by the State Key Laboratory Program from the Ministry of Science and Technology of China, the National Natural Science Foundation of China (Grant Nos. 30470128,

39899400, and 30499340) and the Natural Science Foundation of Hubei Province (Grant No. 2009CDB030). The authors are grateful to Prof. Yi Lin CHEN for his suggestions.

A new species of Apocynaceae from Hainan, China

¹Shao-Yun HE ²Ren-Chao ZHOU ³Ping-Tao LI* ³Jia-Yi LIN ²Wei WU

¹(College of Horticulture, South China Agricultural University, Guangzhou 510642, China)

²(State Key Laboratory of Biocontrol and Key Laboratory of Gene Engineering of the Ministry of Education, Sun Yat-Sen University, Guangzhou 510275, China)

³(College of Forestry, South China Agricultural University, Guangzhou 510642, China)

Hoya ledongensis S. Y. He & P. T. Li, sp. nov.

乐东球兰 (S2-3, Fig. 1)

Type: **China. Hainan:** Jianfengling, on tree and rock in a montane rainforest, alt. 960 m, 2008-05-08, *S. Y. He* (0805081 holotype, CANT; 0805082 holotype, CANT).

Latin diagnosis: Species *H. carnosae* (L. f.) R. Br. affinis, sed foliorum nervis utrinque conspicuo elevatis, pedicellis et calycibus glabris, corollarum lobis deflexis a basibus, coronarum lobais, in-torse angulo purpureo, extrorse cuspidato deflexoque, polliniorum retinaculis apice prominulis differt.

Morphological description: Plants slender branched vines; adventitious roots; stems terete, glabrous, 2–3 mm diameter; internodes 4–13 cm long. Latex milky-white. Leaves opposite. Petiole curved, terete, 0.5–1.2 cm long; leaf blade ovate elliptic or elliptic, texture thinly coriaceous, 5–8.5 × 3–6 cm, glabrous on both sides, but with many smaller gubulas, deep green above, lighter green beneath, base cuneate or rounded, with 1–2 glands adaxially, apex acuminate or cuspidate, secondary veins 3–5 paired, conspicuous, and much reticulated. Inflorescence a geotropic convex umbel, glabrous, 15–22 flowered. Peduncles straight, glabrous, 3–4.5 × 0.1 cm diameter. Pedicels all of equal length 1.1 cm long, uniformly very pale green, or with purple spot. Calyx 1–1.5 mm long, 500–600 μm wide at base, ovate apex obtuse, outside glabrous, greenish, inside glabrous, 2–4 glands in each lobe sinus. Corolla 0.7 cm. diameter, flattened to 1.2 cm, outside glabrous, white, inside holosericeous, milky-white, lobe strongly deflexed from base, broadly triangular 3.5 mm at wide, sinus 3/4 to base. Corona waxy, lobes white except inner apex mauve, longitudinally ridged above, outer apex higher than inner, inner apex erect cuspidate, outer apex cuspidate, deflexed. Anther with membranous appendage appressed against stigmas. Pollinia 2 per pollinarium, pollinium extremity by caudicle longer than the other, obliqueness, translucent margin, pollinium longitudinal length and caudicle at approximate right angle, caudicles short, retinaculum apex of pollinarium slightly raised,

deep brown. Ovaries ellipsoid-shaped, 600 μm tall. Fruit and seed unknown. Flowering May–June.

Distribution: *Hoya ledongensis* is known only from Jianfengling Nature Reserve (alt. 960 m), Hainan, China.

Etymology: The specific epithet is derived from Ledong County, Hainan province, China where the holotype specimen was collected.

Additional specimens examined:

Hoya carnosae: **China. Hainan:** near Wanning County, on the tree, leaves green above and under greenish, fruit green, 1935-03-29, *F. C. How* 78460 (IBSC!). **Guangdong:** 294550 (IBSC!). **Guangxi:** Mubian County, Cefu, alt. 200 m, rock-dwelling, leaves thick, 1958-12-03, *C. C. Chang* 297633 (IBSC!); Lingle, Shui Lian-dong, in the mountains, leaves green above and under greenish, corolla white, 1959-05-23, *Z. T. Li* 691898 (IBSC!).

Online supplementary data:

S2-1. Investigation of ecological environment

S2-2. Table 1 Diagnostic morphological characters of *Hoya ledongensis* and *H. carnosae*

S2-3. Fig. 1. *Hoya ledongensis* (from holotype). **A**, Flowering stem. **B**, Flower in top view. **C**, Corona in bottom view. **D**, Corona lobe in lateral view. **E**, Pollinarium. **F**, Calyx and ovary.

S2-4. Fig. 2. Stereoscope photographs. **A–D**, *Hoya ledongensis* (from holotype). **A**, Corolla inside holosericeous. **B**, Calyx outside glabrous. **C**, Glabrous peduncle. **D**, Slightly raised apex of retinaculum of pollinarium. **E–H**, *Hoya carnosae* (from 29445-IBSC). **E**, Corolla inside velutinous. **F**, Calyx outside pubescent. **G**, Pubescent peduncle. **H**, Higher raised apex of retinaculum of pollinarium.

S2-5. References

Acknowledgements The study was financially supported by the Science and Technology Fund of Guangdong Province, China (Grant Nos. 2003c201020, 2007A020300009-7, 2008B020400016). We are grateful to the Forestry Bureau of Hainan Province, Center for Nature Conservation of Hainan Province, China, and Jianfengling Forestry Bureau of Hainan Province, China. We especially thank Professor Su-Hua SHI, Mr. Wei GUO of Sun Yat-Sen University, and Miss Xiao-Ying WU of South China Agricultural University for their help.

* Author for correspondence. E-mail: Li85280485@126.com; Tel.: 86-20-85280258; Fax: 86-20-85280256.

A new species of *Tylophora* from coral reef areas in Hengchun Peninsula, Taiwan, China

Yen-Hsueh TSENG* Chien-Ti CHAO Hui-Wen LIN

(Department of Forestry, National Chung-Hsing University, 250 Kuo-Kuang Rd., Taichung 402, Taiwan, China)

Tylophora sui Y. H. Tseng & C. T. Chao, sp. nov.

苏氏欧蔓 (S3-3. Fig. 1, S3-4. Fig. 2)

Type: **China, Taiwan:** Pingtung County, Hengchun Town, Longpan, coral reef areas near seashore, 21°55'20.6"N, 120°51'14.25"E, ca. 76 m, 2009-05-25, *Yen-Hsueh Tseng 4668* (holotype, TCF).

Latin diagnosis: Species *Tylophora ovatae* affinis, a qua planta repente, caule villosa, foliis orbicularibus, supra glabris, subtus margineque villosis, venis prominentibus differt.

Morphological description: Plants creeping. Stems villous. Leaves simple, opposite, entire, fleshy; petiole 0.5–1.3 cm long, villous, grooved; blade 2–3 by 1.5–2.5 cm, orbicular, adaxial surface glabrous, veins prominent, lateral veins 3–4 pairs, margin and abaxial surface villous; apex mucronate; base cordate; cymes axillary, simple or 2; peduncles sparsely pubescent to glabrescent, 2–2.5 cm long, rachis 1–8 mm long, branched zigzag; bracteoles 1 at the base of each flower, lanceolate, hirsute; pedicels glabrous, 5–12 mm; calyx glabrous but sparsely hirsute at apex, 5-lobed, lobes broadly triangular; corolla rotate, 5-lobed, glabrous on both surfaces, ovate, fleshy; corona 5-lobed, lobes with fleshy tumor-like appendages outside; gynostegium cylindraceous, pollinarium 5, pollinia 2 per pollinarium, candicule horizontal, retinaculum elliptic and apically obtuse; stigma disciform, style cylindraceous, ovaries glabrous. Follicles 2 per pedicel, spindle lanceolate, obtuse at apex, 3–4.5 cm long, 0.7–1.0 cm broad. Seed teapot-like, circular winged, glabrous, 0.4–0.6 cm long, 0.1–0.2 cm broad.

Tylophora sui resembles *T. ovata*, but it is distinct for having creeping stems and villous indumentum on stems (vs. twining stems and velutinous indumentum on stems) (S3-5. Fig. 3). *Tylophora sui* is also similar to *T. rotundifolia*, but it is distinguishable by having creeping stems; pedicle 0.5–1.3 cm (vs. twining stems; pedicle 0.2–0.5 cm) (S3-2. Table 1).

Distribution: *Tylophora sui* is only found in the typical locality, Longpan, Hengchun Town, Pingtung County, Taiwan, China (S3-8. Fig. 6). This plant grows on open coral reef areas near seashore. In Taiwan many narrow endemic species are confined to this area of Hengchun Peninsula, including *Cassia garambiensis* Hosok., *Clematis terniflora* DC. var. *robusta* (Carr.) Tamura, *Crotalaria similes* Hemsl., *Chamaesyce garanbiensis* (Hayata) Hara, *Kalanchoe garambiensis* Kudo, *Milletia pulchra* (Benth.) Kurz. var. *microphylla* Dunn, *Alpinia koshunensis* Hayata, and *Premna hengchunensis* Lu & Yang. This peninsula is conceived as a phytogeographical island

across which a demarcation line between the Boreal and the Palearctic floristic kingdom has been proposed (Takhtajan, 1986; Su, 1992).

Etymology: The specific epithet commemorates Prof. Horng-Jye Su, the mentor of the senior author, School of Forestry and Resource Conservation, National Taiwan University, for his contributions to plant taxonomy and vegetation ecology of Taiwan.

IUCN Red List category: According to the IUCN Red List Categories and Criteria (IUCN, 2001), this species is treated as vulnerable (VU) because its habitats are easily disturbed by human activity, and is so far known only from southern Taiwan, China.

Additional specimens examined:

China, Taiwan: Pingtung County, Hengchun Town, Longpan, coral reef areas near seashore, ca. 60 m, 2009-09-10, *Yen-Hsueh Tseng 4803* (paratype, TCF).

Online supplementary data:

S3-1. Material and methods of chromosome observation

S3-2. Table 1 Comparison of *Tylophora sui*, *T. ovata*, and *T. rotundifolia*

S3-3. Fig. 1. *Tylophora sui* Y. H. Tseng & C. T. Chao. A, Habit. B, Leaf adaxial surface. B', Leaf abaxial surface. C, Inflorescence. D, Corolla lobe inner surface. D', Corolla lobe outer surface. E, Calyx lobe. F, Flower front side. F', Flower back side. G, Flower. H, Gynostegium. I, Pollinarium outer surface. I', Pollinarium inner surface. J, Fruit. K, Seed.

S3-4. Fig. 2. *Tylophora sui* Y. H. Tseng & C. T. Chao. A–F, Photos by digital camera. A, Habitat. B, Habit. C, Leaves. D, Inflorescence. E, Flower. F, Fruits. G–J, Photos by scanning electron microscope. G, Pollinarium. H, Retinaculum. I, Pollinium. J, Sculptural of pollinium surface.

S3-5. Fig. 3. Indumentum of genus *Tylophora* in Taiwan, China. A, *T. sui* Y. H. Tseng & C. T. Chao. B, *T. ovata* (Lindl.) Hook. ex Steud.

S3-6. Fig. 4. Somatic chromosome of *Tylophora sui* Y. H. Tseng & C. T. Chao.

S3-7. Fig. 5. Somatic chromosome of *Tylophora ovata* (Lindl.) Hook. ex Steud.

S3-8. Fig. 6. Distribution map of *Tylophora sui* Y. H. Tseng & C. T. Chao.

S3-9. References

Acknowledgements We thank Dr. Chern-Hsiung OU (TCF) and Dr. Ching-I PENG (HAST) for valuable comments, Dr. Qin-Er YANG (IBSC) for the Latin diagnosis, Dr. Yoshiko KONO (HAST) and Dr. Shu-Chuan HSIAO for chromosome observation technical support, Ms. An-Ya CHENG for her line drawing, and Mr. Yu-Jung HONG for useful suggestions.

* Author for correspondence. E-mail: tseng2005@nchu.edu.tw; Tel.: +886-4-22840346 ext. 139; Fax: +886-4-22870793.

Notes on *Elatostema* section *Androsyce* Wedd. (Urticaceae)

¹Qi LIN ²Lin-Dong DUAN ¹Zhi-Rong YANG* ³Yu-Min SHUI

¹(State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, China)

²(Shaoyang University, Shaoyang 422004, China)

³(Key Laboratory of Biodiversity and Biogeography, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, China)

Based on examinations of herbarium specimens of *Elatostema* and observations in fieldwork, three species and one variety are recognized in *Elatostema* section *Androsyce* Wedd. as follows.

Elatostema* section *Androsyce Wedd. in DC. Prodr. 16 (1): 171. 1869. Type: *Elatostema ficoides* Wedd.

1. *Elatostema ficoides* Wedd., in Arch. Mus. Hist. Nat. Paris 9: 306, t. 10. 1856. Type: **India**. Sikkim, 4000–6000 ft, *J. D. Hooker & T. Thomson* s. n. (lectotype, designated here, K!; isolectotype, K!). (S4-1. Fig. 1)

1a. *Elatostema ficoides* var. *ficoides*

China, India, and Nepal, occurring in forests, thickets, stream-sides, dark damp places, or rocks in valleys at altitudes of 430–2500 m.

1b. *Elatostema ficoides* var. *puberulum* W. T. Wang, Keys Vasc. Pl. Wuling Mount. 578. 1995. Type: **China. Hunan**: Sangzhi, Tianpingshan, 27.viii.1988, *Beijing Exped 4125* (holotype, PE!).

Endemic to Sangzhi County, NW Hunan Province, China, occurring in mountain forests at altitude of ca. 800 m.

2. *Elatostema brachyodontum* (Hand.-Mazz.) W. T. Wang, in Bull. Bot. Lab. N.-E. Forest. Inst. 7: 90. 1980.

Elatostema ficoides (Wall.) Wedd. var. *brachyodontum* Hand.-Mazz., Symb. Sin. 7: 147. 1929. Type: **China. Hubei**: Yichang,

Nanto, ravine, vi. 1900, *E. H. Wilson 1252* (lectotype, designated here, K!). (S4-2. Fig. 2)

China and N Vietnam, occurring in valley forests or rocks along stream-sides at altitudes of 100–2050 m.

3. *Elatostema atropurpureum* Gagnep., Fl. Gen. Indo-Chine 5: 919. 1930. Type: **Vietnam. Tonkin**: Cha-pa, 1500 m, i. 1928, *Pételot 5100* (holotype, P!).

Southwest China and N Vietnam, occurring in evergreen broad-leaved forests in limestone ravines at altitudes of 1350–1660 m.

During our fieldwork in Wenshan County, SE Yunnan Province, China, we collected specimens of *Elatostema atropurpureum* Gagnep. and found this material had pyriform young male receptacles and papilionaceous mature male receptacles. It is evident that this species belongs to *Elatostema* section *Androsyce* Wedd., rather than *Elatostema* section *Elatostema*.

Online supplementary data:

S4-1. Fig. 1. Photograph of the lectotype of *Elatostema ficoides* Wedd. (*J. D. Hooker & T. Thomson* s. n., K)

S4-2. Fig. 2. Photograph of the lectotype of *Elatostema ficoides* (Wall.) Wedd. var. *brachyodontum* Hand.-Mazz. (*E. H. Wilson 1252*, K)

Acknowledgements This work was supported by the Plant Specimen Digitisation and Chinese Virtual Herbarium Establishment (No. 2005DKA21401). Thanks are also due to the curators of herbaria BM, CDBI, CSFI, E, IBK, IBSC, GXMI, GZTM, HGAS, HNNU, K, KUN, NAS, P, PE, and SZ for the loan of specimens or for permission to examine specimens.

* Author for correspondence. E-mail: zry@ibcas.ac.cn; Tel.: 86-10-62836106; Fax: 86-10-62590296.

Taxonomic circumscription of *Sinojackia xylocarpa* (Styracaceae)

¹Li-Qun LUO* ²Chi LUO

¹(Department of Chemistry and Life Science, Leshan Normal University, Leshan 614004, China)

²(Department of Mathematics, Leshan Normal University, Leshan 614004, China)

***Sinojackia xylocarpa* Hu** in Journ. Arn. Arb. 9: 130. 1928. Type: **China. Jiangsu**: Nanjing, *Y. L. Keng 1376* (PE!).

Sinojackia rehderiana Hu in Journ. Arn. Arb. 11: 227. 1930, syn. nov. Type: **China. Jiangxi**: Nanchang, *H. H. Hsiung 578b* (PE!).

Sinojackia huangmeiensis J. W. Ge & X. H. Yao in Novon 17 (1): 138. 2007, syn. nov. Type: **China. Hubei**: Huangmei, *X. H. Yao & T. Chen 05003* (holotype, PE; isotype, HIB!).

Observations on variation of key characters in a population of Huangmei including plant height, leaf thickness, flower numbers on a branch, fruit morphology, and flower morphology indicated that all

these characters are variable. *Sinojackia rehderiana* Hu is conspecific to *S. xylocarpa*. As a result, *S. rehderiana* Hu is reduced to a synonym of *S. xylocarpa*.

Sinojackia huangmeiensis J. W. Ge & X. H. Yao was believed to be distinct from *S. xylocarpa*. However, a new observation on herbarium specimens from type locality suggests that variation of key taxonomic characters including flower size, petal shape, fruit size, fruit sculpture, and fruit color ranges within variation of *S. xylocarpa*. *Sinojackia huangmeiensis* is thus reduced to a synonym of *S. xylocarpa*.

Additional specimens examined:

China. Jiangsu: Nanjing, Mo-fu-shan, *Y. L. Keng 1376* (holotype, PE!); same locality, *R. C. Ching 3458* (PE!); Baohua Hill, *X. Y. He 2783* (JSBI!). **Jiangxi**: Nanchang, common on low hills, *H. H. Hsiung 578* (PE!).

Hubei: Huangmei, bushes by Longgan lake, *X. H. Yao & T. Chen 05003*

* Author for correspondence. E-mail: leluoliqun@163.net; Tel.: 86-833-2432611; Fax: 86-833-2270735.

(isotype, HIB!); same locality, *L. Q. Luo 06014* (Herbarium of Leshan Normal University); *L. Q. Luo 06015* (Herbarium of Leshan Normal University); *L. Q. Luo 06114* (Herbarium of Leshan Normal University); *L. Q. Luo 06012* (Herbarium of Leshan Normal University); *L. Q. Luo 06017* (Herbarium of Leshan Normal University); *L. Q. Luo 05018* (Herbarium of Leshan Normal University) in Wuhan Botanical Garden.

Online supplementary data:

S5-1. Material and methods

S5-2. Supporting evidence from population investigation

S5-3. Fig. 1. Fruits from a plant of *Sinojackia rehderiana* (*L. Q. Luo 05018*, Herbarium of Leshan Normal University) in Wuhan Botanical Garden.

S5-4. Fig. 2. Comparison of the specimens from Huangmei population of *Sinojackia huangmeiensis* and those of *S. xylocarpa* Hu (holotype) and *S. rehderiana* Hu (holotype). **A.** Holotype of *S. xylocarpa* Hu (*Y. L. Keng 1376*, PE). **B.** Holotype of *S. rehderiana* Hu (*H. H. Hsiung 578b*, PE). **C.** Variation in fruit form from 11 plants in Huangmei population. **D.** Partial fruits from

specimen *L. Q. Luo 06114* (Herbarium of Leshan Normal University). **E.** One specimen from Huangmei population, with clustered flowers (*L. Q. Luo 06014*, Herbarium of Leshan Normal University). **F.** Another specimen from Huangmei population, with sparser flowers (*L. Q. Luo 06012*, Herbarium of Leshan Normal University). **G.** *L. Q. Luo 06015*, minor flowers (Herbarium of Leshan Normal University).

S5-5. Fig. 3. Comparison of petals from three different individuals (1–2, 3–6, and 7) in Huangmei population of *Sinojackia huangmeiensis*.

S5-6. Fig. 4. Isotype of *Sinojackia huangmeiensis* J. W. Ge & X. H. Yao (*X. H. Yao & T. Chen 05003*, HIB).

S5-7. References.

Acknowledgements This study was supported by Leshan Normal University. The author thanks Mr. Zhong-Tao WANG (PE), Mr. Jian-Qiang LI (HIB), and Mr. Ya LI (NAS) for their help in preparation of the manuscript. Thanks are also due to De-Yuan HONG for his valuable suggestions.

Chromosome report of *Lycoris* Herb. (Amaryllidaceae)

¹Xiang-An HUANG ¹Mei-Fang DONG ²Xiao-Hui WANG ¹Fu-De SHANG*

¹(Institute of Agricultural Biotechnology, College of Life Science, Henan University, Kaifeng 475004, China)

²(Institute of Ecological Science and Technology, College of Life Science, Henan University, Kaifeng 475004, China)

Lycoris anhuiensis Y. Xu & G. J. Fan, **2n** = 16; China, Anhui, Chuzhou, X. A. Huang 80825008

Lycoris aurea (L' Hér.) Herb., **2n** = 16; China, Jiangsu, Nanjing, X. A. Huang 80825002

Lycoris chinensis Traub, **2n** = 16; China, Jiangsu, Nanjing, X. A. Huang 80825003

Lycoris haywardii Traub (pro sp.), **2n** = 22; China, Jiangsu, Nanjing, X. A. Huang 80825011

Lycoris houdyshelii Traub, **2n** = 30; China, Jiangsu, Nanjing, X. A. Huang 80825012

Lycoris incarnata Comes ex Sprenger, **2n** = 30; China, Jiangsu, Nanjing, X. A. Huang 80825010

Lycoris longituba Y. Hsu & G. J. Fan, **2n** = 16; China, Zhejiang, Hangzhou, X. A. Huang 80825004

Lycoris longituba var. *flava* Y. Xu & X. L. Huang, **2n** = 16; China, Jiangsu, Nanjing, X. A. Huang 80825006

Lycoris radiata (L' Hér.) Herb., **2n** = 22; China, Zhejiang, Hangzhou, X. A. Huang 80825001

3n = 33; China, Henan, Luoyang, M. F. Dong 80415001

Lycoris shaanxiensis Y. Xu & Z. B. Hu, **2n** = 16; China, Jiangsu, Nanjing, X. A. Huang 80825007

Lycoris sprengeri Comes ex Baker, **2n** = 22; China, Zhejiang, Hangzhou, X. A. Huang 80825005

Lycoris straminea Lindl., **2n** = 16; China, Jiangsu, Nanjing, X. A. Huang 80825009

Online supplementary data:

S6-1. Fig. 1. Karyotype of 13 materials of *Lycoris* (1, *Lycoris longituba* var. *flava*. 2, *L. aurea*. 3, *L. chinensis*. 4, *L. longituba*. 5, *L. sprengeri*. 6, *L. radiata*. 7, *L. radiata* var. *radiata*. 8, *L. haywardii*. 9, *L. houdyshelii*. 10, *L. incarnata*. 11, *L. straminea*. 12, *L. shaanxiensis*. 13, *L. anhuiensis*).

S6-2. Fig. 2. Idiograms of 13 materials of *Lycoris* (1, *Lycoris radiata*. 2, *L. aurea*. 3, *L. chinensis*. 4, *L. longituba*. 5, *L. sprengeri*. 6, *L. longituba* var. *flava*. 7, *L. shaanxiensis*. 8, *L. anhuiensis*. 9, *L. straminea*. 10, *L. incarnata*. 11, *L. haywardii*. 12, *L. houdyshelii*. 13, *L. radiata* var. *radiata*).

S6-3. Table 1 Relative length, arm ratio, and classification of chromosomes of 13 species of *Lycoris*

S6-4. Table 2 Parameters of chromosomes of 13 species of *Lycoris*

S6-5. References

Acknowledgements This work was supported by the Innovation Scientists and Technicians Troop Construction Projects of Henan Province (Grant No. 094100510018) and the Natural Science Research Program of Henan Educational Committee (Grant No. 2007180011). The authors thank Jian ZHOU, Ping DAI, Ya LI, Yu-Hong ZHENG, Li LI, and Qing-Ju YAO for their comments and suggestions. All vouchers are deposited in KAI (the Henan University Herbarium).

* Author for correspondence. E-mail: fudeshang@henu.edu.cn; Tel.: 13839993933; Fax: 86-378-3886199.