

Addenda to the Checklist of Guangxi Plants (VIII) Postprint

Authors: Huang Xueyu, Huang Xuekui, Nong Suyun, Huang Yusong

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Abstract

This study reports 17 new species records for Guangxi: *Yinshania henryi* (Oliv.) Y. H. Zhang, *Lepidium didymum* L., *Rumexa cetosella* L., *Impatiens chekiangensis* Y. L. Chen, *Pittosporum kweichowense* Gowda, *Reevesia orbicularis* Tardieu, *Itea ilicifolia* Oliv., *Eriobotrya henryi* Nakai, *Myrsine verruculosa* (C. Chen) Pipoly & C. Chen, *Mycetia hirta* Hutch., *Spermacoce exilis* (L. O. Williams) C. D. Adams, *Picris divaricata* Vaniot, *Mazus gracilis* Hemsl. ex Forbes et Hemsl., *Viburnum rhytidophyllum* Hemsl., *Schnabelia nepetifolia* (Benth.) P. D. Cantino, *Salvia nanchuanensis* var. *pteridifolia* Sun, and *Smilax elegantissima* Gagnep. These new records hold significant value for research in Guangxi's floristic geography, plant resource utilization, and plant diversity conservation. Among them, *Lepidium didymum* and *Spermacoce exilis* are alien species, and their invasiveness is evaluated in this paper; *Yinshania henryi*, *Lepidium didymum*, *Rumexa cetosella*, *Picris divaricata*, *Mazus gracilis*, *Schnabelia nepetifolia*, *Salvia nanchuanensis* var. *pteridifolia*, *Viburnum rhytidophyllum*, and *Itea ilicifolia* represent new records of medicinal plants in Guangxi, with their medicinal efficacy briefly summarized herein. The paper also provides specimen citations, geographic distribution, and color photographs for the newly recorded species.

Full Text

Preamble

Supplements to the Checklist of Vascular Plants of Guangxi, China (VIII)

Xueyu Huang^{1,3}, Xuekui Huang², Suyun Nong³, Yusong Huang^{3*}

¹College of Life Sciences, Guangxi Normal University, Guilin 541006, Guangxi, China

²Scientific Research Academy of Guangxi Environmental Protection, Nanning 530022, China

³Guangxi Key Laboratory of Plant Functional Phytochemicals and Sustainable Utilization, Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences, Guilin 541006, Guangxi, China

Abstract

This paper reports seventeen newly recorded species from Guangxi, China: *Yinshania henryi* (Oliv.) Y. H. Zhang, *Lepidium didymum* L., *Rumex acetosella* L., *Impatiens chekiangensis* Y. L. Chen, *Pittosporum kweichowense* Gowda, *Reevesia orbicularis* Tardieu, *Itea ilicifolia* Oliv., *Eriobotrya henryi* Nakai, *Myrsine verruculosa* (C. Chen) Pipoly & C. Chen, *Mycetia hirta* Hutch., *Spermacoce exilis* (L. O. Williams) C. D. Adams, *Picris divaricata* Vaniot, *Mazus gracilis* Hemsl. ex Forbes et Hemsl., *Viburnum rhytidophyllum* Hemsl., *Schnabelia nepetifolia* (Benth.) P. D. Cantino, *Salvia nanchuanensis* var. *pteridifolia* Sun, and *Smilax elegantissima* Gagnep. These new records are of significant value for research on the floristic geography of Guangxi, innovative utilization of plant resources, and plant diversity conservation. Among them, *Lepidium didymum* and *Spermacoce exilis* are alien species whose invasiveness is evaluated in this paper. Additionally, *Yinshania henryi*, *Lepidium didymum*, *Rumex acetosella*, *Picris divaricata*, *Mazus gracilis*, *Schnabelia nepetifolia*, *Salvia nanchuanensis* var. *pteridifolia*, *Viburnum rhytidophyllum*, and *Itea ilicifolia* represent new records of medicinal plants in Guangxi, with their medicinal efficacy briefly summarized. Voucher specimens, geographical distribution, and color photographs are provided for each species.

Keywords: new records, species diversity, Flora of Guangxi, vascular plants, plant resources

Introduction

Guangxi is exceptionally rich in plant resources. The *Checklist of Vascular Plants of Guangxi* published in 2010 documented 9,168 species of vascular plants (including infraspecific taxa) belonging to 309 families and 2,011 genera (Qin & Liu, 2010). Since then, new records and new species have been reported annually from Guangxi. Researchers including Jiang Rihong, Liu Jing, Huang Xinyi, Li Shuwan, Chen Hailing, Huang Xuekui, and Nong Shiyue have published a series of papers titled “Supplements to Checklist of Vascular Plants of Guangxi” (Jiang et al., 2010; Liu et al., 2014; Huang et al., 2015; Li et al., 2016; Chen et al., 2021; Nong et al., 2022; Huang et al., 2023). Shen Xiaolin, Qin Ying, Zou Chunyu, and Nong Suyun have reported new orchid records such as *Pomatocalpa undulatum* subsp. *acuminatum* (Rolfe) S. Watthana & S. W. Chung, *Changnienia amoena* Chien, *Neottia japonica* (Bl.) Szlachetko, *Liparis tsii* H. Z. Tian & A. Q. Hu, and *Didymoplexiella siamensis* (Rolfe ex Downie) Seidenf. (Shen et al., 2015; Qin et al., 2018; Zou et al., 2018), as well as new mainland China records including *Gastrodia uraiensis* T. C. Hsu & C. M. Kuo, *Gastrodia flexistyla* T. C. Hsu & C. M. Kuo, and *Gastrodia shimizuana* Tuyama (Qin et al., 2020),

and the new Chinese record *Liparis petraea* Aver. & Averyanova (Nong et al., 2021). Li Xiong et al. (2022) reported 20 new records from the karst regions of southwestern Guangxi. Regarding new species alone, 37 taxa including *Styrax hwangiae* M. Tang & W. B. Xu and *Aphyllorchis yachangensis* Ying Qin & Yan Liu were described during 2021–2022 (Du et al., 2022; Lu et al., 2022; Qin et al., 2022; Su et al., 2022; Huang et al., 2022a, b; Huang et al., 2022; Pan et al., 2022; Xie et al., 2022). These discoveries of new records and new species have greatly enriched the floristic data for Guangxi and are significant for biodiversity research, conservation, and utilization, while also indicating that the baseline of plant diversity in Guangxi remains unclear and requires further intensive investigation.

The authors recently sorted and identified problematic specimens, confirming seventeen new records for Guangxi: *Yinshania henryi* (Oliv.) Y. H. Zhang, *Lepidium didymum* L., *Rumex acetosella* L., *Impatiens chekiangensis* Y. L. Chen, *Pittosporum kweichowense* Gowda, *Reevesia orbicularis* Tardieu, *Itea ilicifolia* Oliv., *Eriobotrya henryi* Nakai, *Myrsine verruculosa* (C. Chen) Pipoly & C. Chen, *Mycetia hirta* Hutch., *Spermacoce exilis* (L. O. Williams) C. D. Adams, *Picris divaricata* Vaniot, *Mazus gracilis* Hemsl. ex Forbes et Hemsl., *Viburnum rhytidophyllum* Hemsl., *Schnabelia nepetifolia* (Benth.) P. D. Cantino, *Salvia nanchuanensis* var. *pteridifolia* Sun, and *Smilax elegantissima* Gagnep. Given their significant value for floristic geography research, innovative resource utilization, and biodiversity conservation in Guangxi, as well as their importance as supplements to the completed *Flora of Guangxi* and the forthcoming updated *Checklist of Vascular Plants of Guangxi*, these records are hereby reported. All voucher specimens are deposited at the Herbarium of Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences (IBK).

Species Accounts

1.1 *Yinshania henryi* (Brassicaceae) (Plate I: A-B)

Yinshania henryi (Oliv.) Y. H. Zhang in Acta Phytotax. Sin. 25(3): 213. 1987; *Flora Reipublicae Popularis Sinicae* 33: 104. 1987; *Flora of China* 8: 51. 2001.

Annual herb with white long pubescence. Stems prostrate, branched. Basal leaves pinnately compound with 3 or 5 leaflets; terminal leaflet rhombic-ovate, pinnately deeply lobed, lobes ovate or elliptic, margin obtusely toothed; lateral leaflets smaller, gradually narrowed into a petiolule 2–3 mm long, or sessile. Racemes terminal, rachis zigzag; flowers white; sepals oblong; petals obovate. Siliques oblong or oblong-ovate, initially hairy, later glabrescent; valves navicular; seeds 2 per locule, ovate, brown.

Voucher specimens: Guangxi, Guilin City, Quanzhou County, Shitang Town, Luoshishan, Dakouyan, on rocks in limestone cave, alt. 300 m, 8 Sep 2012, R. C. Hu, Y. B. Liao, J. Liu et al. QZ0408 (IBK); Guangxi, Guilin City, Quanzhou County, Shitang Town, Luoshishan, on rocks in limestone cave, alt. 216 m, 26

Mar 2013, Quanzhou County Survey Team 450324130326012LY (IBK); Guangxi, Guilin City, Quanzhou County, Shitang Town, Luoshishan, Dakouyan, on rocks in limestone cave, alt. 250 m, 1 Aug 2014, Quanzhou County Survey Team 450324140801006LY (IBK).

Distribution: Hubei, Sichuan, Guizhou, Yunnan, China. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for clearing heat and detoxifying.

1.2 *Lepidium didymum* (Brassicaceae) (Plate I: C-D)

Lepidium didymum L. in Syst. Nat., ed. 12. 2: 433. 1767.—*Coronopus didymus* (L.) J. E. Smith in Fl. Brit. 2: 691. 1804; *Flora Reipublicae Popularis Sinicae* 33: 58. 1987; *Flora of Chinese Invasive Plants* 1: 322-326. 2020.

Annual or biennial prostrate herb, entire plant fetid. Main stem inconspicuous, base much-branched, glabrous or with long simple hairs. Leaves once or twice pinnatisect, lobes 3-5 pairs, linear or narrowly oblong, entire, glabrous on both surfaces. Flowers minute; petals white, oblong, slightly longer than sepals, or absent; stamens usually 2. Silicles reniform, 2-lobed, valves hemispherical, surface coarsely wrinkled, splitting into 2 valves at maturity; seeds reniform.

Voucher specimen: Guangxi, Guilin City, Yanshan District, Dabu Township, Dong Village, in roadside grass, alt. 171 m, 23 Mar 2019, Yanshan District Survey Team 4503112019032301LY (IBK).

This species is alien, native to South America and widely naturalized worldwide. Although its geographical distribution is extensive, its biological characteristics indicate limited harmfulness, making it an invasive species unlikely to develop new expansion trends. According to the invasion categories in *The Checklist of Invasive Plants in China*, it is classified as “moderately invasive” with a hazard level of 4 (on a scale of 1-5, with 1 being most severe) (Li & Deng, 2021).

Distribution: Beijing, Chongqing, Gansu, Hebei, Henan, Liaoning, Shandong, Anhui, Shanghai, Jiangsu, Zhejiang, Fujian, Taiwan, Hunan, Hubei, Jiangxi, Guangdong, Sichuan, Yunnan, China; Europe, North America, Asia. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for clearing heat, improving vision, and promoting diuresis.

1.3 *Rumex acetosella* (Polygonaceae) (Plate I: E-F)

Rumex acetosella L. in Sp. Pl. 1: 338. 1753; *Flora Reipublicae Popularis Sinicae* 25(1): 149. 1998; *Flora of China* 5: 335. 2003.

Perennial herb. Rhizomes horizontal, lignified. Stems several, arising from rhizome, erect or ascending, grooved, usually branched from middle to upper parts. Lower stem leaves hastate, middle lobe lanceolate or linear-lanceolate,

entire, glabrous on both surfaces; upper stem leaves smaller, petiole short or subsessile; ocrea membranous, white, often ruptured. Inflorescence paniculate, terminal; flowers 2-7. Achene broadly ovate, trigonous, yellowish-brown.

Voucher specimen: Guangxi, Guilin City, Longsheng County, Weijiang Township, Shuangping Village, on hillside roadside, alt. 1,548 m, 5 Sep 2019, S. W. Li, J. Q. Huang LZC212 (IBK).

Distribution: Heilongjiang, Inner Mongolia, Xinjiang, Hebei, Shandong, Henan, Jiangxi, Hunan, Hubei, Sichuan, Fujian, Yunnan, Zhejiang, Taiwan, China; Korea, Japan, Mongolia, Kazakhstan, India, Russia, Europe, and North America. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for clearing heat and detoxifying, cooling blood and invigorating blood circulation, promoting diuresis and bowel movement, and killing parasites.

1.4 *Impatiens chekiangensis* (Balsaminaceae) (Plate I: G-H)

Impatiens chekiangensis Y. L. Chen in Bull. Bot. Res., Harbin 8(2): 4. 1988; *Flora Reipublicae Popularis Sinicae* 47(2): 192. 2002; *Flora of China* 12: 105. 2007.

Annual herb, glabrous. Stem unbranched or sparsely branched, with few fibrous roots. Leaves alternate, lower leaves withering at anthesis, middle and upper leaves ovate-oblong, base with 2-3 pairs of stalked glands, margin crenate-serrate, glabrous on both surfaces; uppermost leaves nearly dense. Peduncle solitary, axillary; flowers pinkish-purple; upper petal suborbicular, slightly constricted upward, apex emarginate, dorsal midrib thickened, prominently carinate, apex with incurved rostellum; lateral petals subsessile, 2-lobed; lower sepal narrowly funnelform. Capsule fusiform; seeds ovate-oblong, yellowish-brown.

Voucher specimen: Guangxi, Guilin City, Lingchuan County, Haiyang Township, Caijue Village, in broad-leaved forest, alt. 753 m, 19 Jun 2013, Lingchuan County Survey Team 450323130619055LY (IBK).

Distribution: Zhejiang, Jiangxi, China. First record for Guangxi, China.

1.5 *Pittosporum kweichowense* (Pittosporaceae) (Plate I: I-J)

Pittosporum kweichowense Gowda in Journ. Arn. Arb. 32: 296. 1951; *Flora Reipublicae Popularis Sinicae* 35(2): 15. 1979; *Flora of China* 9: 8. 2003.

Shrub. Young branches puberulous, later glabrescent. Leaves rigidly coriaceous, narrowly oblong, 3-5 cm × 1-1.5 cm, apex slightly acute, base cuneate; adaxial surface dark green, shiny; abaxial surface yellowish-green, glabrous; lateral veins and reticulate veins obscure on both surfaces. Flowers 2-3, in leaf axils at branch apices; sepals extremely short, ciliolate; ovary brown-pubescent, ovary stalk short, placentas 3, each with 2-3 ovules. Capsule long-cylindric, solitary

at branch apex, pubescent, 3-valved, valves long-elliptic, without obvious transverse partitions inside, seed stalk flattened, located at middle of valve; seeds 6–8, orbicular, red.

Voucher specimens: Guangxi, Cenwanglaoshan National Nature Reserve, Langping Station, Nongyang, on limestone mountain top, alt. 1,370 m, 27 Jun 2021, G. Xie, S. Y. Nong, C. L. Su CWA0304 (IBK); Guangxi, Cenwanglaoshan National Nature Reserve, Langping Station, from Langping Township to Xiaodong Village, on limestone mountain top, alt. 1,330 m, 1 Aug 2021, P. Yang, J. Q. Dong, Q. Zhang CWA0705 (IBK).

Distribution: Guizhou, Yunnan, Hunan, China. First record for Guangxi, China.

1.6 *Reevesia orbicularis* (Sterculiaceae) (Plate I: K–L)

Reevesia orbicularis Tardieu in Fl. Indo-Chine Suppl. 1: 413. 1945.—*R. orbicularifolia* Hsue in Acta Phytotax. 15(1): 81. 1977; *Flora Reipublicae Popularis Sinicae* 39(2): 151. 1984; *Flora of China* 12: 316. 2007.

Tree. Branchlets glabrous or slightly pubescent. Leaves coriaceous, entire, orbicular or ovate-orbicular, apex rounded or obtusely mucronate, base rounded or truncate, adaxially sparsely stellate-pubescent, later glabrescent, abaxially densely yellowish-brown stellate-pubescent, basal veins 5; petiole glabrous or slightly pubescent. Corymb terminal, sparsely stellate-pubescent; sepals funnelform, 3-lobed, stellate-pubescent outside, glabrous inside; petals 5, white; stamens 3; ovary globose, hairy. Capsule elliptic-pyriform, sparsely yellowish-brown stellate-pubescent and scurfy; seed wing membranous, oblong, apex obtuse, slightly falcate-curved. Fruiting period August–December.

Voucher specimen: Guangxi, Bangliang Gibbon National Nature Reserve, Huanglianya, on limestone mountain top, alt. 882 m, 23 Aug 2020, G. Xie, S. Y. Nong BL1037 (IBK).

Distribution: Yunnan, Hainan, China; Vietnam. First record for Guangxi, China.

Feng et al. (2022) compared specimens of *R. orbicularifolia* Hsue from Yunnan, China with the type specimen of this species and concluded they belong to the same species, with the former being a synonym of the latter. The authors of this paper support this conclusion.

1.7 *Itea ilicifolia* (Iteaceae) (Plate I: M–O)

Itea ilicifolia Oliv. in Hook. Ic. Pl. 16(2): pl. 1538. 1886; *Flora Reipublicae Popularis Sinicae* 35(1): 265. 1995; *Flora of China* 8: 436. 2001.

Shrub. Branchlets glabrous. Leaves thickly coriaceous, broadly elliptic to elliptic-oblong, apex acute or pungent, base rounded or cuneate, margin sparsely rigidly pungent-serrate, often revolute when dry, glabrous on both surfaces

or only vein axils tufted-pubescent abaxially; midrib and lateral veins prominently raised abaxially, reticulate veins obscure; petiole glabrous. Terminal raceme long and pendulous; rachis puberulous; bracts subulate; flowers usually 3-clustered; pedicel glabrous; sepals triangular-lanceolate; petals linear-lanceolate, apex with rigid mucro, erect after opening; stamens ca. 1/2 as long as petals; filaments glabrous; anthers oblong; ovary semi-inferior; style solitary, stigma capitate. Capsule ovate-lanceolate, glabrous. Flowering May–June, fruiting July–November.

Voucher specimen: Guangxi, Jingxi City, Kuiwei Township, in sparse forest on limestone mountain, alt. 950 m, 5 Jun 2021, S. Y. Nong, H. Wang, S. C. Dai ZYB00250 (IBK).

Distribution: Shaanxi, Hubei, Sichuan, Guizhou, Chongqing, China. First record for Guangxi, China.

Medicinal efficacy: Roots used for clearing heat, relieving cough, and nourishing liver and kidney.

1.8 *Eriobotrya henryi* (Rosaceae) (Plate I: P–Q)

Eriobotrya henryi Nakai, in Journ. Arn. Arb. 5: 70. 1924; *Flora Reipublicae Popularis Sinicae* 36: 274. 1974; *Flora of China* 9: 141. 2003.

Evergreen shrub or small tree. Leaves coriaceous, lanceolate or oblanceolate, rarely belt-shaped oblong, 5–11 cm × 0.8–2.7 cm, apex acuminate, base cuneate or attenuate, margin sparsely sharply serrate, shiny adaxially, rusty-tomentose on both surfaces when young, soon glabrescent, midrib raised on both surfaces, lateral veins 16–20 pairs; petiole 5–13 mm; stipules caducous. Panicle terminal; calyx tube cupular; sepals lanceolate; petals white, obovate, entire or toothed, base hairy; stamens 10; styles 2, free; ovary 2-loculed, hairy. Fruit ovate, rusty-tomentose externally, with reflexed persistent sepals at apex; seeds large. Flowering March–April, fruiting June–August.

Voucher specimen: Guangxi, Jingxi City, Tunpan Township, Quhuai Village, Sieran Village Group, in sparse forest on limestone slope, alt. 830 m, 25 Jun 2021, P. Yang, X. Y. Huang, X. T. Li et al. ZYA00542 (IBK).

Distribution: Yunnan, Guizhou, China; Myanmar. First record for Guangxi, China.

This species is easily distinguished from other congeners by its lanceolate or oblanceolate leaves with acuminate apex and sparsely sharp serrate margins, glabrous on both surfaces, and rusty-tomentose flowers and fruits.

1.9 *Myrsine verruculosa* (Myrsinaceae) (Plate I: R–T)

Myrsine verruculosa (C. Chen) Pipoly & C. Chen, Novon 5(4): 360. 1995; *Flora Reipublicae Popularis Sinicae* 58: 128. 1979; *Flora of China* 15: 35. 1996.

Shrub. Branchlets glabrous, densely tuberculate, scabrous. Leaves mostly clustered at branchlet apex, lamina rigidly papery or subcoriaceous, obovate, apex rounded, base cuneate, entire, glabrous on both surfaces, midrib impressed adaxially, raised abaxially, with very sparse glandular dots; petiole not decurrent. Inflorescence umbellate or flowers clustered, inserted at apex of short branchlets with imbricate bracts; bracts broadly ovate, ciliolate. Fruit ovoid-globose, glabrous, densely glandular-dotted, pedicel more or less puberulous.

Voucher specimens: Guangxi, Hechi City, Huanjiang County, Xunle Township, in broad-leaved forest on limestone mountain, alt. 843 m, 10 Nov 2013, Huanjiang County Survey Team 451226131110013LY (IBK); Guangxi, Tianlin County, Langping Town, Made Village Back Hill, in forest on limestone mountain, alt. 1,440 m, 6 Mar 2022, C. L. Su et al. CWB2230 (IBK).

Distribution: Yunnan, Guizhou, China; Vietnam. First record for Guangxi, China.

This species is easily distinguished from other *Myrsine* species by its branchlets densely covered with tuberculate protuberances and scabrous texture.

1.10 *Spermacoce exilis* (Rubiaceae) (Plate II: C-D)

Spermacoce exilis (L. O. Williams) C. D. Adams in Fieldiana, Bot. n. s., 33: 316. 1993; *Flora Reipublicae Popularis Sinicae* 71(2): 208. 1999; *Flora of China* 19: 327. 2011.

Slender prostrate herb. Stem quadrangular, with narrow wings on angles. Leaves membranous, glabrous on both surfaces or pubescent along midrib abaxially; petiole extremely short; stipular sheath with several setae longer than calyx at apex. Flowers many, in whorled clusters within stipular sheath, sessile, with filiform, transparent bracteoles longer than calyx; calyx tube extremely short; calyx limb 2-lobed; corolla white, shorter than calyx, apex 4-lobed, glabrous. Capsule small, subelliptic, slightly compressed, subglabrous, dehiscent from top downward at maturity; seeds elliptic, both ends obtuse, brownish-yellow when dry, lustrous.

Voucher specimen: Guangxi, Liuzhou City, Rong'an County, Tantou Township, Hedong Village, Ludong Village Group, in broad-leaved forest, alt. 255 m, 10 Aug 2017, Rong'an County Survey Team 450224170810032LY (IBK).

This alien species is native to the Americas and currently distributed in Asia, Oceania, and Africa. However, it has not reached invasive levels in China. According to the invasion categories in *Flora of Chinese Invasive Plants*, it is classified as “species requiring observation” with a hazard level of 5 (Wang, 2019).

Distribution: Taiwan, Hong Kong, Hainan, China; Vietnam, India, Indonesia, Mauritius, Mexico, Australia, Nepal, Sri Lanka, Africa, Antilles, Central

America, Pacific Islands, northern South America. First record for Guangxi, China.

1.11 *Mycetia hirta* (Rubiaceae) (Plate II: A-B)

Mycetia hirta Hutch. in Pl. Wilson. (Sargent) 3(2): 410. 1916; *Flora Reipublicae Popularis Sinicae* 71: 320. 1999; *Flora of China* 19: 382. 2011.

Shrub. Stems and branches with long internodes, branchlets crisped-tomentose, older branches glabrous, often covered with yellowish-white, shiny bark. Leaves papery, oblong-elliptic or broadly lanceolate, those on same node often slightly unequal, apex long-acuminate, base broadly cuneate, adaxially appressed setose-hairy, abaxially crisped-pubescent, hairs on midrib long and spreading; lateral veins 18-23 per side, prominent adaxially, raised abaxially; petiole densely crisped-pilose; stipules oblong-lanceolate to ovate. Cymes terminal; bracts ovate or lanceolate, with stalked glands; calyx tube globular-campanulate, densely setose-hairy, lobes 5, triangular, margin with stalked glands or lacerate, subacute, slightly shorter than tube; corolla yellow, narrowly tubular, tube cylindrical, upper part sparsely villous, lobes 5, triangular, apex slightly obtuse, sparsely villous outside; short-styled flowers with stamens inserted at throat, filaments short, anthers slightly exerted, long-styled flowers with stamens inserted near base of tube, included; short-styled flowers with style ca. 1.5 mm long, long-styled flowers with style nearly as long as tube, stigma slightly exerted. Capsule subglobose, white when mature, hairy. Flowering June-July, fruiting September-October.

Voucher specimen: Guangxi, Baise City, Napo County, Baidu Township, Gengpen Village Group, in sparse forest on limestone slope, alt. 1,110 m, 18 Jun 2021, P. Yang, X. Y. Huang, X. T. Li et al. ZYA00322 (IBK).

Distribution: Yunnan, Hainan, China. First record for Guangxi, China.

1.12 *Viburnum rhytidophyllum* (Caprifoliaceae) (Plate II: H-J)

Viburnum rhytidophyllum Hemsl. in Journ. Linn. Soc. Bot. 23: 355. 1888; *Flora Reipublicae Popularis Sinicae* 72: 34. 1988; *Flora of China* 19: 579. 2011.

Shrub or small tree. Young branches, buds, leaf abaxial surfaces, petioles, and inflorescences all densely covered with thick tomentum of yellowish-white, yellowish-brown, or reddish-brown clustered hairs. Leaves coriaceous, ovate-oblong to ovate-lanceolate, apex slightly acute or obtuse, base rounded or slightly cordate, entire, veins deeply impressed adaxially resulting in rugose surface, reticulate veins raised abaxially, lateral veins 6-8 pairs. Cymes dense, peduncle stout; calyx tube cylindrical-campanulate, tomentose with yellowish-white clustered hairs; corolla radiate, subglabrous, lobes slightly longer than tube; stamens exceeding corolla. Fruit red to black, broadly elliptic, glabrous; nutlet broadly elliptic, both ends subtruncate, with 2 dorsal and 3 ventral grooves. Flowering April-May, fruiting September-October.

Voucher specimen: Guangxi, Jingxi City, Kuiwei Township, Guqiu Village Group, at forest edge at limestone foothill, alt. 830 m, 4 Jun 2021, P. Yang, S. Y. Nong et al. ZYA00231 (IBK).

Distribution: Shaanxi, Hubei, Sichuan, Guizhou, Chongqing, China. First record for Guangxi, China.

Medicinal efficacy: Leaves used for promoting tissue regeneration, hemostasis, dispelling wind, and removing dampness.

1.13 *Picris divaricata* (Asteraceae) (Plate II: E-F)

Picris divaricata Vaniot in Bull. Acad. Int. Géogr. Bot. 12: 28. 1903; *Flora Reipublicae Popularis Sinicae* 80(1): 57. 1997; *Flora of China* 20-21: 349. 2011.

Biennial herb, 15-40 cm tall. Root with numerous fibrous roots. Stem erect, base or lower part densely or sparsely covered with pale white apically forked hooked bristles, upward sparsely hairy or glabrous, or nearly glabrous throughout. Leaves mostly basal, both surfaces, especially along midrib and margin, with long or short rigid simple hairs mixed with hooked bristles, margin shallowly undulate-microdentate or undulate or entire; cauline leaves very few or absent. Capitula many or few, solitary at dichotomous branch apices; ray florets yellow, ligule apex 5-dentate. Achene long-elliptic, reddish-brown, curved; pappus 2-layered, outer layer short, scabrous, inner layer long, plumose, white.

Voucher specimen: Guangxi, Guilin City, Longsheng County, Weijiang Township, Shuangping Village, on hillside grassland, alt. 1,559 m, 4 Sep 2019, S. W. Li, J. Q. Huang LZC209 (IBK).

Distribution: Tibet, Yunnan, Sichuan, Guizhou, China. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for dispelling wind-heat, clearing heat, and detoxifying.

1.14 *Mazus gracilis* (Scrophulariaceae) (Plate II: G)

Mazus gracilis Hemsl. in J. Linn. Soc., Bot. 26: 181. 1890; *Flora Reipublicae Popularis Sinicae* 67(2): 194. 1979; *Flora of China* 18: 44. 1998.

Perennial herb, glabrous or quickly glabrescent. Stem completely prostrate. Basal leaves spatulate or ovate; stem leaves usually opposite, obovate-spatulate or suborbicular. Racemes usually lateral, rarely terminal, ascending, laxly flowered; calyx campanulate, teeth as long as tube, ovate-lanceolate, acute or obtuse; corolla yellow with purple spots or white, bluish-purple, or pale purplish-red, upper lip short and erect, 2-lobed, lower lip 3-lobed, middle lobe slightly protruding, long-ovate, with two sparsely glandular-pubescent longitudinal folds. Capsule globose; seeds small and numerous, brownish-yellow, smooth.

Voucher specimen: Guangxi, Hechi City, Luocheng County, Xiao' an Town, Hebei Village, Luoji, in roadside grass, alt. 195 m, 26 Apr 2013, Luocheng County Survey Team 45122513042604 (IBK).

Distribution: Hubei, Henan, Jiangsu, Jiangxi, Zhejiang, China. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for clearing heat and detoxifying, anti-cancer, and improving digestion.

1.15 *Schnabelia nepetifolia* (Verbenaceae) (Plate II: K-L)

Schnabelia nepetifolia (Benth.) P. D. Cantino in Syst. Bot. 23(3): 381. 1999.—
Caryopteris nepetifolia Maxim. in Bull. Acad. Imp. Sci. Saint-Pétersbourgxxxiii. 23: 390. 1877; *Flora of China* 17: 45. 1994.

Perennial herb, prostrate. Branches puberulous, quadrangular. Leaf blade broadly ovate to suborbicular, papery, puberulous, glandular, base broadly cuneate to rounded, coarsely serrate, apex obtuse. Flowers axillary, solitary; pedicel slender; calyx cupular, puberulous and glandular; corolla pale blue, lobes entire, lower lobe larger, sparsely puberulous and glandular outside. Nutlets ovate, hairy, margin wingless.

Voucher specimen: Guangxi, Hezhou City, Fuchuan County, Shijia Township, Zhujianping Village, in broad-leaved forest on limestone mountain, alt. 274 m, 22 Jul 2017, Fuchuan County Survey Team 451123170722009LY (IBK).

Distribution: Anhui, Fujian, Jiangsu, Zhejiang, China. First record for Guangxi, China.

Medicinal efficacy: Whole plant used for relieving summer heat and exterior syndrome, promoting diuresis, and detoxifying.

1.16 *Salvia nanchuanensis* var. *pteridifolia* (Lamiaceae) (Plate II: M-O)

Salvia nanchuanensis var. *pteridifolia* Y. Z. Sun in Fl. Reipubl. Popularis Sin. 66: 583. 1977; *Flora of China* 17: 216. 1994.

Annual or biennial herb. Root thick, with numerous fibrous roots. Stem erect, unbranched, obtusely quadrangular, grooved, densely covered with appressed white long woolly hairs. Leaves cauline, 3-4-pinnate, terminal leaflets or lobules all linear, with long soft hairs on veins; petiole densely white woolly. Verticillasters 2-6-flowered, upper part of plant often forming a racemiform panicle up to 25 cm long; corolla purplish-red, long-tubular, limb 2-lipped, glabrous; fertile stamens 2, slightly exserted; style exserted, apex unequally 2-cleft. Nutlets elliptic, brown, glabrous.

Voucher specimen: Guangxi, Liuzhou City, Rong' an County, Siding Township, Licun, on limestone cliff, alt. 338 m, 7 Aug 2017, Rong' an County Survey

Team 450224170807076LY (IBK).

Distribution: Chongqing, China. First record for Guangxi, China.

1.17 *Smilax elegantissima* (Smilacaceae) (Plate II: P-Q)

Smilax elegantissima Gagnep. in Bull. Soc. Bot. France 81: 619. 1934; *Flora Reipublicae Popularis Sinicae* 15: 238. 1978; *Flora of China* 24: 115. 2000.

Liana woody. Branches quadrangular, with narrow wings on angles, unarmed. Leaves coriaceous, elliptic or narrowly ovate-elliptic, apex long-acuminate, base rounded, slightly shiny adaxially, glaucous abaxially, main veins 5; petiole laterally compressed, with narrow sheath ca. 1/3 from base, with long tendril, abscission point near apex. Spike in leaf axil or bract axil, with 7-12 sessile umbels, a scale opposite petiole present above spike insertion; rachis flexuous; umbels with 4-12 flowers; receptacle slightly enlarged, with many broadly ovate bracteoles; outer tepals ovate; inner tepals suboblong, width 1/2-2/3 of outer tepals; stamens ca. 1/2 as long as tepals; anthers 1-5 mm, nearly sessile; pistillate flowers larger than staminate, tepals 6-7 mm × 3.5-4 mm, with 3 staminodes. Berry globose, ca. 10 mm in diameter; immature berry ovoid, beaked at tip. Flowering August, fruiting April of following year.

Voucher specimen: Guangxi, Chongzuo City, Daxin County, Encheng Nature Reserve, Banmeng Village Group, Back Hill Duck Farm, Anmin Village, in dense forest on limestone slope, alt. 209 m, 29 Apr 2020, S. Y. Nong, S. Y. Nong, P. Yang et al. EC20200429018 (IBK).

Distribution: Yunnan, China; Vietnam. First record for Guangxi, China.

This species and *S. aspera* L. both have spikes derived from peduncles and basal leaf reduction, but this characteristic is not homologous and has evolved independently. Morphologically, this species is also similar to *S. gagnepainii* T. Koyama, as both have quadrangular, winged stems and similar leaf size and shape. However, it differs from *S. gagnepainii* in having unarmed stems, compressed petioles with sheathing portion shorter than non-sheathing portion, and petiole dorsal side not winged.

Discussion and Conclusion

Guangxi encompasses four Chinese biodiversity conservation priority regions—the Nanling region, the Western Guangxi-Southern Guizhou limestone region, the Southwestern Guangxi mountainous region, and the South China Sea region—covering most of the province's nature reserves. It is one of China's most biodiverse areas, with reported wild higher plants reaching 9,991 species (including infraspecific taxa), comprising 8,753 wild vascular plant species (Nong et al., 2022; Wei et al., 2023) and 1,238 wild bryophyte species (Wei, 2019; Tang et al., 2020). With the addition of the 17 new records reported here, wild higher plants in Guangxi now exceed 10,000 species. However, due to the complexity of Guangxi's flora, particularly in the relatively poorly surveyed karst regions

of western Guangxi, numerous unknown and questionable species remain to be discovered and confirmed. As biodiversity surveys deepen, the number of wild higher plants in Guangxi will continue to increase.

Among the 17 newly recorded species, two belong to Brassicaceae. *Yinshania henryi* is a Chinese endemic species, and its genus *Yinshania* is a taxonomically controversial group. In *Flora of China*, the former genera *Hilliella* and *Cochleariella* were merged into *Yinshania*, which comprises 13 species, 12 of which are Chinese endemics, with only *Yinshania paradoxa* also occurring in northern Vietnam. *Lepidium didymum* is an alien species classified as moderately invasive. *Pittosporum kweichowense* is a Chinese endemic species belonging to the only widespread genus of Pittosporaceae, which is distributed in tropical and subtropical regions of Australia, Asia, and Africa, but absent from the Americas. China is the main production area for *Pittosporum* species in Asia and exhibits high species endemism, representing an extremely important strategic resource. However, taxonomic research on the genus faces numerous challenges, including unclear resource baselines and phylogenetic relationships, as well as confused infraspecific classification, necessitating a taxonomic revision of Chinese *Pittosporum*. Two species belong to Rubiaceae, a dominant family in Guangxi that ranks only after Orchidaceae, Fabaceae, and Poaceae in species richness and plays an important role in Guangxi's flora. *Mycetia hirta* is a Chinese endemic, while *Spermacoce exilis* is an alien species requiring observation.

The newly discovered species distributed in the limestone regions of southwestern and northern Guangxi—including *Yinshania henryi*, *Lepidium didymum*, *Rumex acetosella*, *Pittosporum kweichowense*, *Reevesia orbicularis*, *Itea ilicifolia*, *Eriobotrya henryi*, *Myrsine verruculosa*, *Mycetia hirta*, *Viburnum rhytidophyllum*, *Picris divaricata*, and *Smilax elegantissima*—also occur in Yunnan or Guizhou, indicating floristic connections between these regions of Guangxi and the Yunnan-Guizhou Plateau. Meanwhile, *Reevesia orbicularis* and *Smilax elegantissima* are also distributed in northern Vietnam (Wei et al., 2022), demonstrating geographical continuity and further supporting that southwestern Guangxi, southeastern Yunnan, and northern Vietnam constitute an integrated karst floristic geographical unit. Species including *Lepidium didymum*, *Rumex acetosella*, *Impatiens chekiangensis*, *Spermacoce exilis*, *Mycetia hirta*, *Mazus gracilis*, and *Schnabelia nepetifolia* are distributed in coastal provinces such as Zhejiang, Hainan, Fujian, and Jiangsu, indicating certain similarities between Guangxi's flora and that of China's southeastern coastal regions. These discoveries demonstrate important floristic relationships between Guangxi and neighboring Guizhou, Yunnan, northern Vietnam, and other Chinese coastal provinces, providing valuable references for research on floristic geographical elements, biodiversity distribution patterns, and phylogenetic relationships.

In summary, these 17 new records represent an important supplement to Guangxi's flora and are valuable for taxonomic, floristic geographical, and conservation biological research. They also provide new resources for devel-

opment and utilization. For instance, *Reevesia orbicularis*, *Itea ilicifolia*, and *Viburnum rhytidophyllum* are ideal species for rocky desertification control in limestone areas or as ornamental landscape plants. *Yinshania henryi*, *Lepidium didymum*, *Rumex acetosella*, *Picris divaricata*, *Mazus gracilis*, *Schnabelia nepetifolia*, *Salvia nanchuanensis* var. *pteridifolia*, *Viburnum rhytidophyllum*, and *Itea ilicifolia* all possess certain medicinal values. *Eriobotrya henryi* exhibits high resistance to gray leaf spot disease in loquat and represents a quality wild germplasm resource for loquat variety improvement, holding significant economic value.

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Plates

Plate I: Nine New Record Species of Vascular Plants from Guangxi

A-B. *Yinshania henryi*; C-D. *Lepidium didymum*; E-F. *Rumex acetosella*; G-H. *Impatiens chekiangensis*; I-J. *Pittosporum kweichowense*; K-L. *Reevesia orbicularis*; M-O. *Itea ilicifolia*; P-Q. *Eriobotrya henryi*; R-T. *Myrsine verruculosa*.

Plate II: Eight New Record Species of Vascular Plants from Guangxi

A-B. *Mycetia hirta*; C-D. *Spermacoce exilis*; E-F. *Picris divaricata*; G. *Mazus gracilis*; H-J. *Viburnum rhytidophyllum*; K-L. *Schnabelia nepetifolia*; M-O. *Salvia nanchuanensis* var. *pteridifolia*; P-Q. *Smilax elegantissima*.

Note: Figure translations are in progress. See original paper for figures.

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