

Three new records of *Jasminum* (Oleaceae) for the flora of Vietnam

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Summary: Three species of the genus *Jasminum*, *J. rehderianum*, *J. subglandulosum* and *J. craibianum*, are reported as newly discovered recently for the flora of Vietnam. Detailed descriptions and colour photographs are provided for each of the newly recorded taxa. With these findings, the total number of species of *Jasminum* known in Vietnam is increased from 37 to 40.

Keywords: *Jasminum*, Oleaceae, new records, flora of Vietnam

Jasminum L. is one of the largest genera of the family Oleaceae. It comprises about 200 species distributed in tropical and subtropical regions of Southeast Asia, Europe, Australia and Africa (MABBERLEY 2008). In Vietnam, this genus is currently known to be represented by two sections, *Trifoliolata* and *Unifoliolata*, and 37 species, including several recent records (BUI et al. 2013a, 2013b, 2013c, 2013d, 2014, 2017) and one recently described species (BUI et al. 2016). While exploring the flora of the country in 2014–2016, the authors have collected several specimens of *Jasminum* which, after critical examination, consulting relevant literature (CLARKE 1882; GAGNEPAIN 1933; KOBUSKI 1939; CHANG et al. 1996; GREEN 2000, 2003; KRESS et al. 2003; PHAM HOANG HO 2003; TRAN DINH LY 2003) and study of the type specimens, were identified as *J. rehderianum*, *J. subglandulosum* and *J. craibianum*. Herbarium specimens housed in the herbaria of Vietnam [HN, HNU, NIMM, VNMN], China [IBSC, KUN] and several virtual herbaria [A, BK, BM, E, IBK, K, L, LBG, NY, P, PE] were studied in course of the specimen identification. These three species have never been reported from Vietnam to date. All of them belong to the section *Unifoliolata*, which was represented by 34 species in Vietnam before our findings. The newly reported species are found in Thanh Hoa, Hai Phong, Thua Thien-Hue and Kon Tum provinces. A detailed description and colour photographs based on the Vietnamese material are provided for each species for the purpose of their easier recognition by subsequent explorers.

Taxonomic treatment

Jasminum rehderianum Kobuski (Fig. 1)

Sunyatsenia 3 (2–3): 110, pl. 7 (1936); Kobuski, J. Arnold Arbor. 20: 68 (1939); M.C. Chang et al., Fl. China 15: 295 (1996). – **Type.** China: Hainan province, 02 September 1933, *H.Y. Liang* 62844 [holo-, NY: NY297219! (its photograph stored in A: 00020597!); iso-, A: 00020598!; iso-, A: 00020599!; iso-, IBK: IBK00191329!; iso-, IBSC: IBSC0002792!; iso-, IBSC: IBSC0002793!; iso-, P: P00363719!].

Description. Scandent shrub, up to 2 m long. Branchlets terete, innovations pubescent when young. Leaves opposite, simple; petiole 2–5 mm long, pubescent; blade ovate-elliptic, 2–3(5) × 1.5–2 cm, chartaceous, base cuneate to rounded, apex shortly acuminate, lower surface with domatia at vein

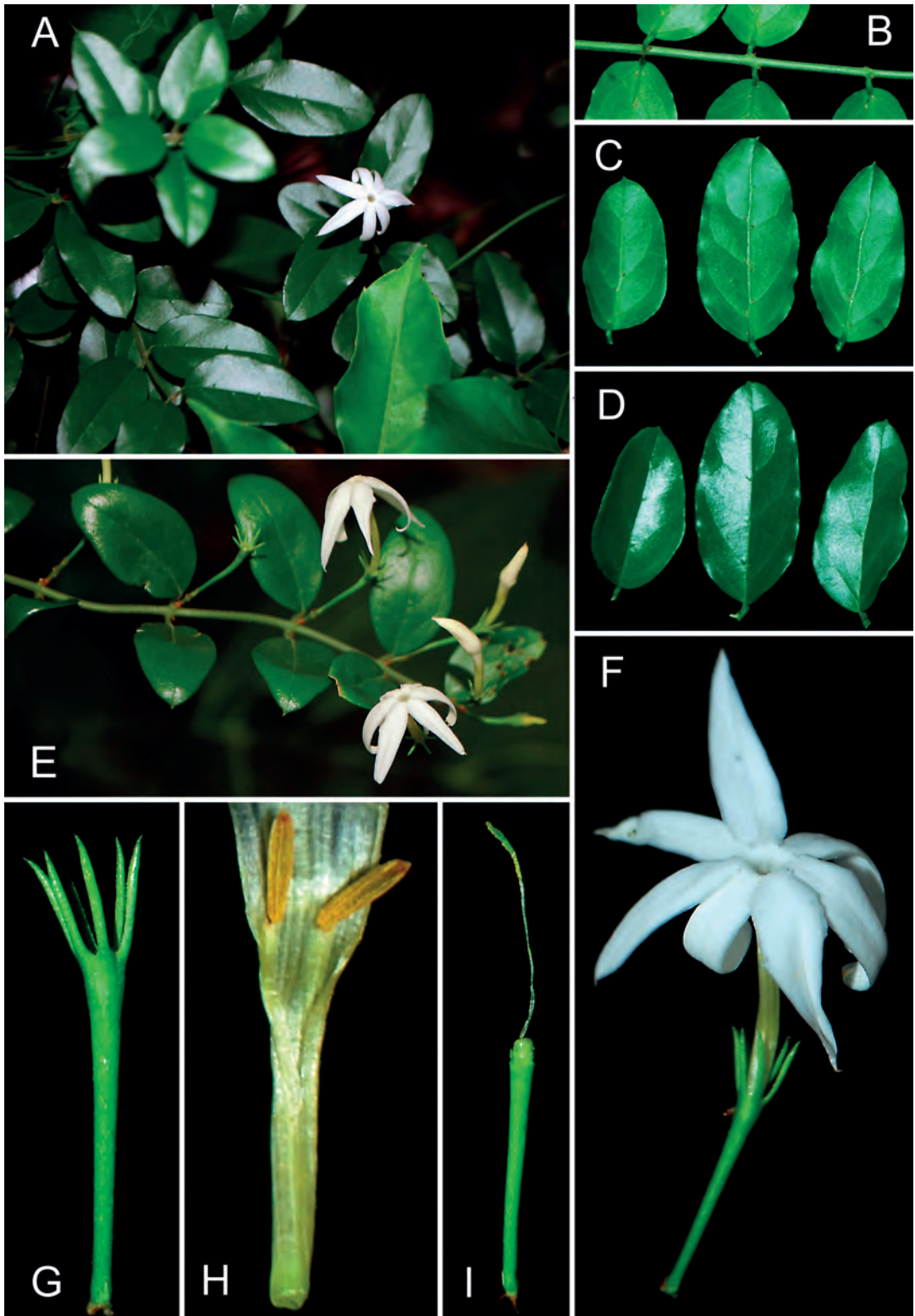


Figure 1. *Jasminum rebderianum*: A – habit; B – branchlet; C – abaxial side of leaves; D – adaxial side of leaves; E – branchlet with solitary flowers; F – flower; G – calyx; H – corolla tube (longitudinally opened); I – ovary with pistil. *Cuong et al. BLV 85*. Photos by D.V.Hai.

axils; secondary veins 2–4 on each side of midrib, slightly raised above, prominent below; blade dark green above, pale green below. Flowers solitary, terminal or sometimes axillary, pubescent or glabrous; bracts linear, ca. 1–2 mm long, glabrous. Pedicel 1–2 cm long, pubescent. Calyx campanulate, villous outside, pubescent or glabrous inside; tube 2–3 mm long; lobes 6–7, filiform, 6–8(10) mm long, pubescent or glabrous. Corolla tube 1.5–2 cm long, pale white; corolla lobes 5–7, lanceolate, 1.5–2.5 × 4–5 mm, white, apex acute to shortly acuminate. Stamens 2; filaments 0.5–1 mm long, glabrous; anthers 2–3 mm long, with acute connective appendage. Ovary elliptic, 0.2–0.5 mm long, glabrous; style 1–1.5 cm long, glabrous; stigma ca. 4 mm long, glabrous; ovules 2. Fruit 1-lobed, ellipsoid, 8–12 × 5–7 mm, greenish.

Ecology and phenology. Grows near the sea, scrambling up the shrubs. Flowering and fruiting: June–November.

Distribution (Fig. 4). Northern Vietnam: Hai Phong province (Bach Long Vi district). China (Hainan).

Studied specimens. Vietnam: Hai Phong province, Bach Long Vi district, Bach Long Vi Island, at 20°08'04.6"N 107°44'0.1"E, -2 m, 09 June 2014, *N.T. Cuong, D.V. Hai, D.T. Hoan BLV 85* [HN: HN0000070346!, HN0000070347!, HN0000070348!, HN0000070349!, HN0000070350!]; the same location, 16 July 2015, *N.Q. Binh 001* [HN: HN0000070351!; VNMN!].

Note. *Jasminum rehderianum* was previously known only from Hainan province, China (Kobuski 1939; Chang et al. 1996). In Vietnam, this species grows on slopes, in evergreen forests, at low elevations (near sea level), near the seashores, together with other plant species including *Ipomoea pes-caprae* (Convolvulaceae), *Opuntia monacantha* (Cactaceae) and *Tarenna latifolia* (Rubiaceae). At Bach Long Vi Island, *J. rehderianum* is known only from a single population, with fewer than ten individuals observed during our two expeditions in the past few years. It is therefore assigned a preliminary status of Vulnerable (VU) according to IUCN Red List criteria (IUCN 2015), as this population possesses a very restricted area. More populations of this species probably remain to be found in similar habitats on the island. However, a special field survey is needed since this species is a small liana that is inconspicuous in the forest and thus usually difficult to be found in the field.

Jasminum subglandulosum Kurz (Fig. 2)

J. Bot. 13: 329 (1875); Kurz, Forest Fl. Burma 2: 151 (1877); M.C. Chang et al., Fl. China 15: 265 (1996); W.J. Kress et al., Checkl. Trees, Shrubs, Herbs, Climbers Myanmar: 319 (2003). – **Type.** India: Andaman Is., Mt. Harriet, *Kurz s.n.* [holo-, K: K000901394! (including a photograph of isotype in CAL); A].

– *Jasminum sempervirens* Kerr, Bull. Misc. Inform. Kew 1938: 30 (1938). – **Type.** Thailand: Chiang Mai province, Mae Rim, ca. 600 m, evergreen forest, 24 October 1922, *A.F.G. Kerr 6445* [holo-, K: K000901454!; iso-, BM: BM000997652!; iso-, P: P00644265!; E; L: L2679268!].

– *Jasminum wangii* Kobuski, J. Arnold Arbor. 20: 69 (1939, as '*Wangii*'). – **Type.** China: Yunnan province, 900 m, mountain ravine woods, September 1936, *C.W. Wang 79673* [holo-, A: 00020601!; iso-, IBSC: IBSC0002799!; iso-, IBSC: IBSC0002800!; iso-, KUN: KUN483711!; LBG: LBG00106247!; iso-, PE: PE00027942!; iso-, PE: PE00027943!].

Description. Scandent shrub up to 3–5 m long. Branchlets glabrous when young, old branches developing prominent corky wings (suber). Leaves opposite, simple; petiole 2–5 cm long,

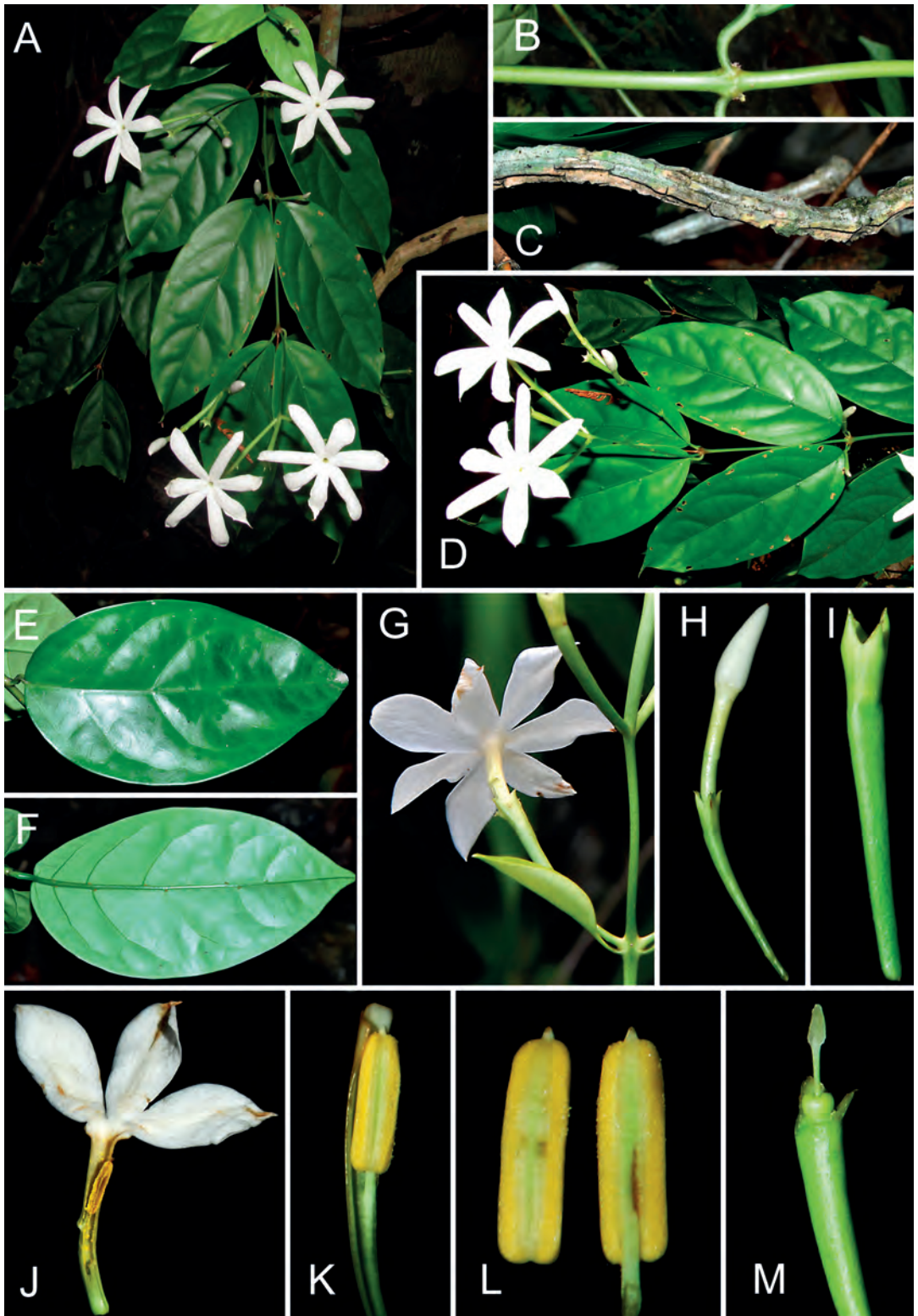


Figure 2. *Jasminum subglandulosum*: A – habit; B – young branchlet; C – old branchlet; D – branchlet with inflorescences; E – adaxial side of leaf; F – abaxial side of leaf; G – flower; H – flower bud; I – calyx; J – corolla (longitudinally opened); K – stamen attached to corolla tube; L – anthers; M – ovary with pistil. *Quang 86*. Photos by B.H. Quang.

glabrous; blade ovate-elliptic, 10–25 × 5–11 cm, papery or thinly leathery, shiny and glabrous adaxially, base cuneate or rounded-cuneate, apex very shortly acuminate; lower surface with domatia at vein axils; secondary veins 5–6 on each side of midrib, slightly raised above, prominent below; blade dark green above, pale green below. Inflorescence terminal or sometimes axillary, glabrous, with 3–10 flowers; bracts linear, ca. 1–2 mm long, glabrous. Pedicel 1–3 cm long, glabrous. Calyx campanulate, glabrous; tube 2–3 mm long; lobes 5, deltoid, ca. 0.5–0.8 mm long, glabrous. Corolla tube 1.5–3 cm long, pale white; corolla lobes 6–8, narrowly lanceolate, 8–10 × 4–5 mm, white, apex acute to shortly acuminate. Stamens 2; filaments 0.25–0.5 mm long, glabrous; anthers 2–4 mm long, with acute connective appendage. Ovary spherical, 0.2–0.8 mm long, glabrous; style 0.5–0.7 cm long, glabrous; stigma ca. 2–3 mm long, glabrous; ovules 2. Fruit ellipsoid or globose, 12–16 × 6–11 mm, purple-black.

Ecology and phenology. Grows in mixed forests, near streams. Flowering in January–March, fruiting in August–October.

Distribution (Fig. 4). Vietnam: Thanh Hoa province (Pu Hu nature reserve), Thua Thien-Hue province (Nam Dong district). India, Myanmar, Thailand, China (Yunnan).

Studied specimens. Vietnam: Thanh Hoa province, Quan Hoa district, Phu Son municipality, Pu Hu nature reserve, Khoa village, around point 20°29'12.8"N 104°57'03.6"E, 16 June 2016, *B.H. Quang, V.T. Chinh, D.H. Son, T.D. Binh* DTL 30 [HN: HN0000070352!, HN0000070353!, HN0000070354!]; Thua Thien-Hue province, Nam Dong district, 16°13'02.6"N 107°43'28.0"E, 01 January 2014, *B.H. Quang* 86 [HN: HN0000070355!]; the same location, 01 January 2014, *Quang, Cuong, Han, Hai* HN-NY 828 [HN: HN0000070356!, HN0000070357!, HN0000070358!].

Note. *Jasminum subglandulosum* is superficially similar in its morphology to *J. attenuatum* Roxb. ex DC. and *J. simplicifolium* subsp. *funale* (Decne.) Kiew. The main differences of *J. subglandulosum* from these two taxa are the following: old branches developing prominent corky wings (suber), glabrous campanulate calyx with 5 deltoid lobes, glabrous style 0.5–0.7 cm long and glabrous stigma ca. 2–3 mm long.

Jasminum subglandulosum was treated as a synonym of *J. attenuatum* in a number of contributions (GREEN 2000, 2003; BUI et al. 2013d). However, morphological comparison of these two entities has revealed significant differences which are outlined above. For this reason, we accept *J. subglandulosum* as a distinct species here. Such view is also adopted by Flora of China (CHANG et al. 1996) and 'The Plant List' (www.theplantlist.org).

Jasminum craibianum Kerr (Fig. 3)

Bull. Misc. Inform. Kew 1938: 27 (1938); Kerr, Fl. Siam. En. 2: 397 (1939); M.C. Chang et al., Fl. China 15: 286 (1996); P.S. Green, Fl. Thailand 7(2): 313 (2000). – **Type.** Thailand: Phetchabun province, Lomsak, Khao Keo Ngoi, ca. 1000 m, evergreen forest, 06 April 1922, *A.F.G. Kerr* 5755 [BK: BK257252!; E: E00284809!; K: K000901463!; P: P00644269!].

– *Jasminum pilosicalyx* Kobuski, J. Arnold Arbor. 20: 68 (1939). – **Type.** China: Hainan province, forest, 400 m, 05 July 1935, *F.C. How* 73094 [holo-, A: 00020596!; iso-, IBK: IBK00094075!; iso-, IBK: IBK00191327!; iso-, IBK: IBK00191328!; iso-, IBSC: IBSC0002790!; iso-, IBSC: IBSC0460428!; PE: PE01501271!; SZ: SZ00076491].

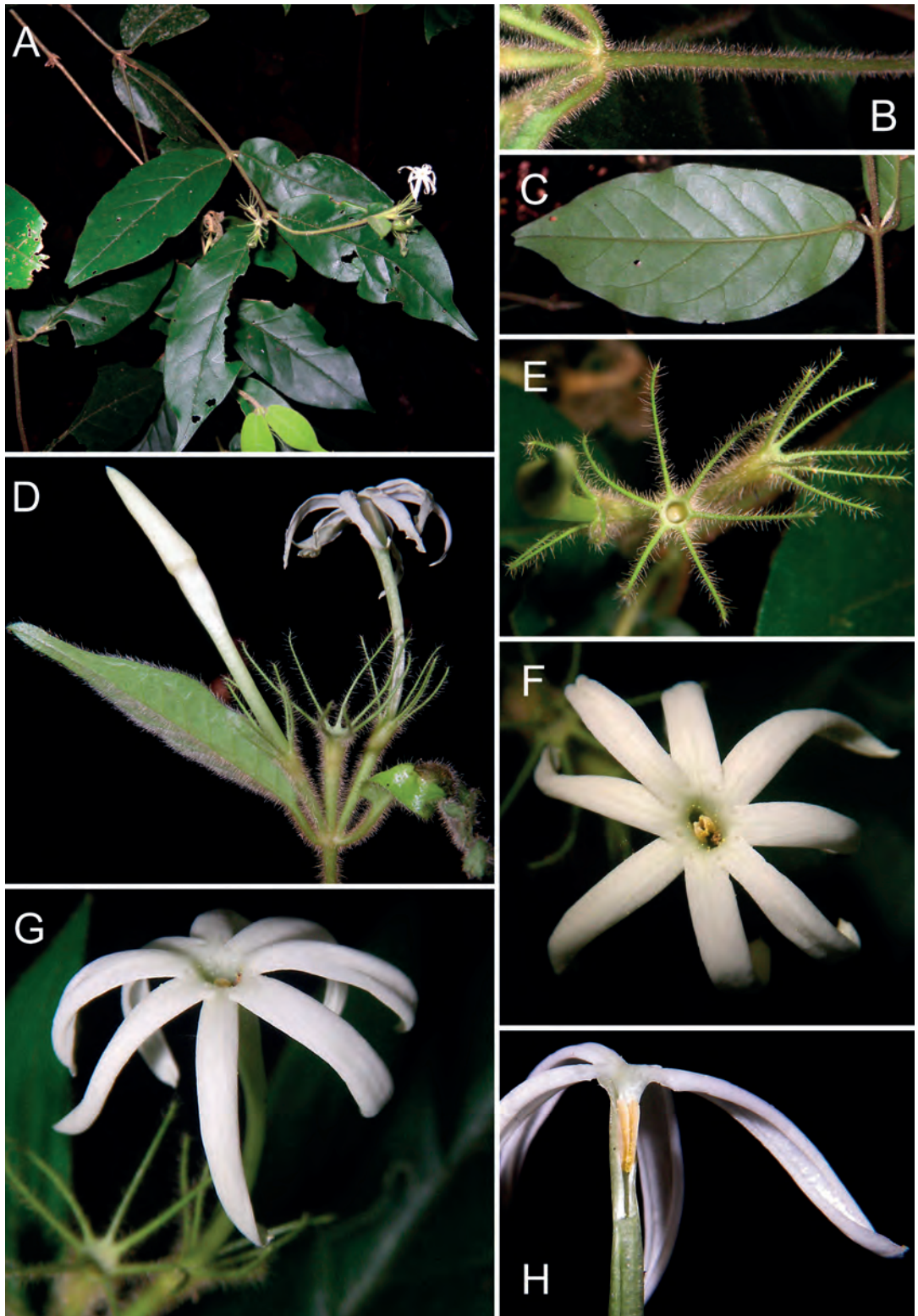


Figure 3. *Jasminum craibianum*: A – habit; B – branchlet; C – abaxial side of leaf; D – terminal inflorescence; E – calyx; F – flower, top view; G – flower, oblique view; H – corolla (longitudinally opened). A.N. Kuznetsov, S.P. Kuznetsova, M.S. Nuraliev 1207. Photos by M. Nuraliev.



Figure 4. Distribution of *J. rehderianum*, *J. subglandulosum* and *J. craibianum* in Vietnam.

Description. Scandent shrub, up to 3–5 m long. Branchlets terete, densely rusty villous. Leaves opposite, simple; petiole 2–5 mm long, sparsely rusty yellow villous; blade ovate-elliptic or narrowly ovate, 8–9 × 3.5–6 cm, papery, sparsely villous at both sides but more densely abaxially, base subcordate or subrounded, apex abruptly acuminate; secondary veins ca. 5–6 on each side of midrib. Inflorescence terminal or sometimes axillary, densely villous, with 3 flowers; bracts linear, 2–3 mm long. Pedicel 1 cm long, densely villous. Calyx campanulate, densely villous; tube 1–2 mm long; lobes 5–7, filiform, 3–6 mm long. Corolla tube 1–1.5 cm long, pale white; corolla lobes 8–9, white, narrowly lanceolate, 8–10 × 2–3 mm, apex acute. Stamens 2; filaments 0.5–0.6 mm long, glabrous; anthers 2–3 mm long, with acute connective appendage 0.1–0.2 mm long. Ovary spherical, 0.5–1 mm long, glabrous; style 0.6–1 cm long, glabrous; stigma ca. 1–2 mm long, glabrous; ovules 2. Fruit not seen.

Ecology and phenology. Grows in forests. Flowering in March.

Distribution (Fig. 4). Vietnam: Kon Tum province (Chu Mom Ray National Park). Laos, Thailand, China (Hainan). A short description of the forest inhabited by *J. craibianum* is given by VISLOBOKOV et al. (2017).

Studied specimen. Vietnam: Kon Tum province (Chu Mom Ray National Park), Sa Thay district, Ro Koi municipality, 33 km WNW of Kon Tum city, at 14°29'05"N 107°42'50"E, 980 m, 28 March 2015, *A.N. Kuznetsov, S.P. Kuznetsova, M.S. Nuraliev* 1207 [HN: HN0000070345!; MW: MW0753854!].

Note. *Jasminum craibianum* shows the closest similarity to *J. rufobirtum* Gagnep. (CHANG et al. 1996; SRISANGA et al. 2004). The latter species clearly differs from our finding by terminal, congested, many flowered inflorescence and densely tomentose, leafy at base bracts 1.5–2 cm long (upper ones linear and 4–10 mm long), while in *J. craibianum* inflorescence is terminal or sometimes axillary and bearing 3 flowers, and all bracts are linear, 2–3 mm long.

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