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Taxonomic revision of *Dumasia* (Fabaceae, Papilionoideae)

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In this taxonomic revision of *Dumasia* (Fabaceae), eight species, two subspecies, and one variety are recognized. Two new combinations, *D. villosa* DC. subsp. *leiocarpa* (Benth.) B. Pan & X.Y. Zhu and *D. yunnanensis* Y.T. Wei & S.K. Lee var. *arunachalensis* (S.V. Predeep & M.P. Nayar) B. Pan & X.Y. Zhu are proposed. Four names are reduced to synonyms, and six lectotypes are designated. Chromosome numbers of *D. forrestii* Diels, *D. hirsuta* Craib, and *D. yunnanensis* Y.T. Wei & S.K. Lee are reported for the first time (2n = 20). Descriptions, illustrations, distribution maps, chromosome numbers, ecology, phenology, and a key to all taxa are provided.

Key words: chromosome numbers, morphology, new combinations, new synonyms, nomenclature, taxonomy

Introduction

Dumasia (Fabaceae, tribe Phaseoleae, subtribe Glycininae), a genus of trifoliate climbers, is widely distributed in tropical and subtropical Asia and Africa, and reaches to Papua New Guinea. However, most of the species are concentrated in SW China (Lackey 1981, Predeep & Nayar 1991).

Dumasia was established by de Candolle (1825, 1826). Twenty-two names (including a hybrid) have been published to date under *Dumasia*, and no comprehensive revision has been made. Predeep and Nayar (1991) considered that there were about 12 species in this genus, and provided a key to the taxa in the Indo-Burmese region. In *Flora Reipublicae Popularis Sinicae*, Wei (1995) indicated that there were about ten *Dumasia* species worldwide and nine in China.

Dumasia is characterized by a tubular calyx with an obliquely truncate mouth (Harvey 1894, Wei 1995) and triangular hexaporate pollen grains (Ferguson & Skvarla 1981), and it can be easily distinguished from other genera. However, the taxonomic treatment at specific and infraspecific levels is still problematic because morphological variation renders the genus complicated. This paper evaluates the morphological variation of the genus and provides the synonyms, detailed descriptions, and distributional data for all of the taxa.

Material and methods

We examined ca. 1300 sheets of specimens from more than 20 herbaria. All diagnostic taxonomic characters were carefully examined and evaluated. Ecological and distributional data were tabulated. All measurements and descriptions are based on herbarium specimens and data derived from field notes. Specimens and seeds were collected in S and SW China.

Chromosome counts were obtained from the root tips of seedlings. Seeds were germinated in an incubator. Root tips were pretreated in cold water for 20 hrs. When about 1.5 cm long, they were fixed in absolute ethanol–glacial acetic acid (3/1) for 24 hrs, and then stored in 70% ethanol in a refrigerator. Prior to staining, the root tips were hydrolyzed in HCl–absolute ethanol (1/1) for 4–5 min, and then squashed and stained in Carbol Fuchsin solution. Permanent slides were made using the liquid nitrogen method. Subsequent observations and microphotographs were made with a Zeiss microscope.

Diagnostic characters examined

Predeep and Nayar (1991) used flower size, pubescence, leaflet shape, and pod shape to distinguish the Indo-Burmese taxa. Wei (1995) used pubescence, leaflet shape, inflorescence length, pod shape, and seed number to key out the Chinese species. In this study, we found that pubescence, stipules, leaflet shape, and pod shape are important diagnostic characters, but inflorescence length, flower dissections, and seed number showed little taxonomic significance.

Pubescence

Pubescence is an important taxonomical character in *Dumasia*, and there are two types: (1) glabrous or subglabrous, and (2) pubescent. *Dumasia cordifolia*, *D. forrestii*, *D. truncata*, and *D. villosa* subsp. *leiocarpa* are totally glabrous or nearly so, while the other taxa are sparsely to densely pubescent. Leaflets of *D. hirsuta* are glabrous or with few appressed hairs beneath, while stems and petioles of this species are distinctly covered with brown branched bristles. Leaflets of *Dumasia yunnanensis* var. *arunachalensis* are sparsely to densely pubescent, with dense spreading hairs along margins. *D. yunnanensis* is sparsely pubescent throughout, while *D. henryi*, *D. prazeri*, *D. villosa*, and *D. villosa* subsp. *bicolor* are usually wholly densely pubescent.

Leaves

The leaves are pinnately trifoliate, stipulate, and stipellate, and they vary widely along the branches. Usually the lower leaves are larger and long petiolate, while the upper leaves are much smaller and shortly petiolate or even subpetiolate (Fig. 1).

Although the leaves show very large variation even on the same branch, the stipules and leaflet shape show very useful characters. Stipules are large and lanceolate in *D. forrestii* and *D. hirsuta* (Fig. 1B and D), but minute and usually setaceous in the other taxa. *Dumasia cordifolia* is characterized by cordiform leaflets on the upper leaves (Fig. 1A). The leaflets are broadly ovate or suborbicular in *D. forrestii* (Fig. 1B), and oblong or oblong-elliptic in *D. henryi* (Fig. 1C). The leaflets of *D. hirsuta* and *D. truncata* are ovate, with the lateral ones truncate at the base (Fig. 1D and E). However, the leaflets of all other taxa (Fig. 1F–K) are ovate with cuneate bases and obtuse apices, and a taxonomical classification based on leaflet shape is impossible.

Moreover, we found that the primary leaves of *D. yunnanensis* and its var. *arunachalensis* (formerly *D. villosa* var. *arunachalensis*) are very peculiar (Fig. 1J and K) although specimens having this character are very few. Leaflets on the primary leaves of both taxa are suborbicular, much resembling the leaflets of *D. forrestii*, but being smaller. This was not found for the other taxa, which indicated that this var. *arunachalensis* is more allied to *D. yunnanensis* rather than to *D. villosa*.

Inflorescences

Inflorescences show similar variation as the leaves, and usually they are shorter along the branches. Sometimes the leaves gradually vanish at the tip of a branch, forming a string of inflo-

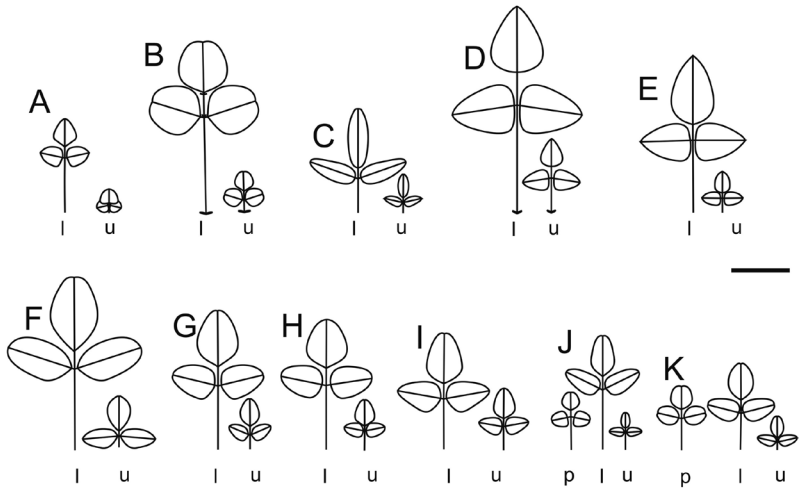

Fig. 1. Leaves of *Dumasia*. — **A**: *D. cordifolia* (from *C. M. Feng 2734*, PE). — **B**: *D. forrestii* (from *B. Pan 200609034*, PE). — **C**: *D. henryi* (from *B. Pan 200609041*, PE). — **D**: *D. hirsuta* (from *T. Y. Chang 25437*, PE). — **E**: *D. truncata* (from *S. Y. Chang 3673*, PE). — **F**: *D. prazeri* (from an isotype, CAL). — **G**: *D. villosa* (from *E. H. Wilson 4838*, BM). — **H**: *D. villosa* subsp. *bicolor* (from *T. C. Huang & S. F. Huang 15408*, TAI). — **I**: *D. villosa* subsp. *leiocarpa* (from *N. D. Simpson 9043*, BM). — **J**: *D. yunnanensis* (from *C. Ho, S. G. Tang & B. Q. Li 11644*, SM). — **K**: *D. yunnanensis* var. *arunachalensis* (from the holotype, CAL). p = primary leaf, l = lower leaf, u = upper leaf. Scale bar = 5 cm.

rescences (Fig. 2). This was observed in *D. truncata* (*B. Pan 200609001*, PE; *Hubei Pl. Exped. 25838*, HIB; *Shennongjia Team 20238*, HIB) and *D. yunnanensis* (*H. Collett 913*, CAL; *Kunming Institute of Botany 51063*, KUN) for living plants in the field and for herbarium specimens. The inflorescence length sometimes varies from ca. 1 cm to over 10 cm in the same plant. Therefore, it is not a reliable diagnostic character, and has little taxonomic significance.

Inflorescences are few-flowered in *D. cordifolia* and *D. hirsuta*, but many-flowered in the other taxa. Inflorescences were described as having two or three flowers per node in *D. prazeri*, one or two flowers per node in *D. yunnanensis* (as *D. nitida* var. *kurziana*), three flowers per node in *D. yunnanensis* var. *arunachalensis* (as *D. villosa* var. *arunachalensis*) (Predeep & Nayar 1990, 1991), and two bracts per node in *D. forrestii* (Wei 1995). Observations from herbarium specimens and field plants revealed that all taxa within this genus have 2-flowered and 3-bracteate fascicles in their inflorescences.

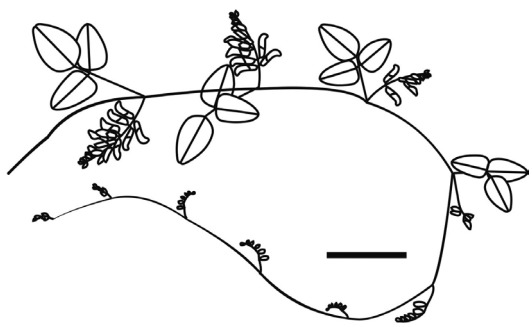

Fig. 2. Variation of inflorescences on the same branch (*Dumasia truncata* from *Hubei Pl. Exped. 25838*, HIB). Scale bar = 5 cm.

Flowers

Although the tubular truncate calyx is an important character of *Dumasia*, the flowers within the genus are quite similar (Fig. 3). Each taxon has a truncate calyx with a pair of bracteoles below, yellow petals with long claws, diadelphous stamens, a curving and dilated style and a capitate stigma. Usually the flower dissections do not provide many useful characters.

The size, bracteoles, and pubescence of the flowers have some taxonomical significance: *D. prazeri* has the smallest flowers (Fig. 3E). *Dumasia forrestii* has very large bracteoles (Fig. 3B), while those of the other taxa are very small. The ovary in *D. henryi*, *D. villosa*, and *D. vil-*

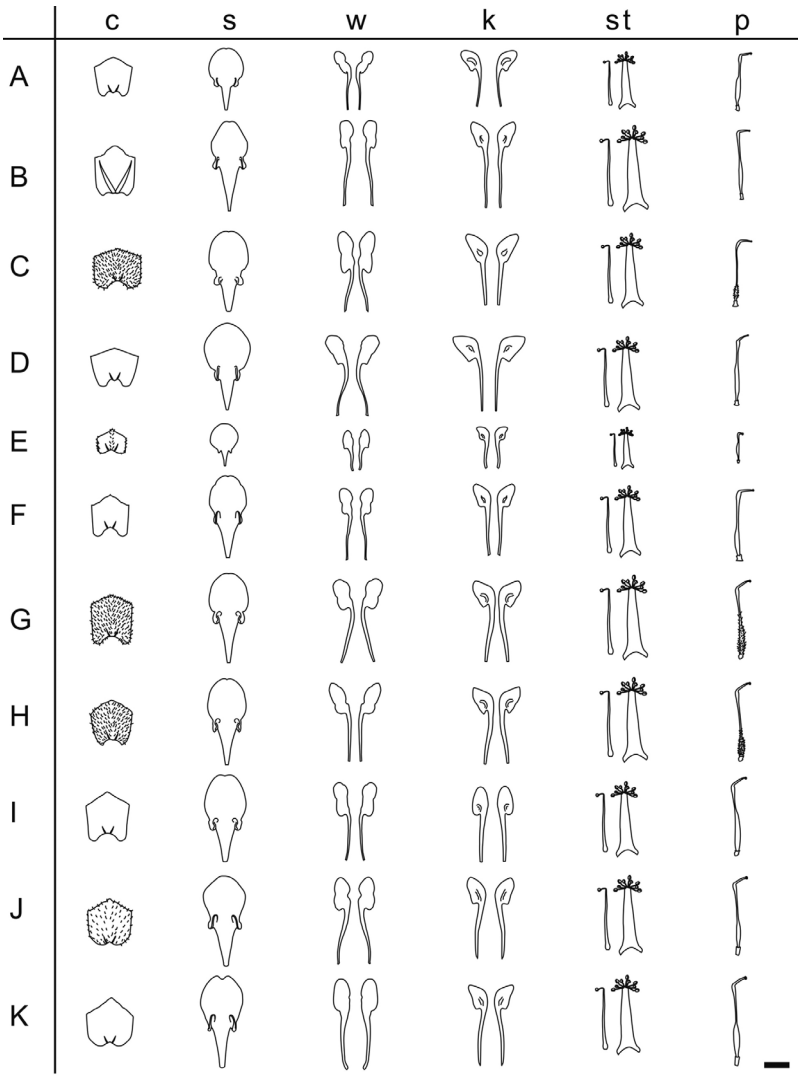

Fig. 3. Flower dissections of *Dumasia*. — **A**: *D. cordifolia* (from *B. Pan 200609013*, PE). — **B**: *D. forrestii* (from *Y. T. Chang & K. Y. Lang 924*, PE). — **C**: *D. henryi* (from *B. Pan 200609041*, PE). — **D**: *D. hirsuta* (from *Y. B. Luo 2668*, PE). — **E**: *D. prazeri* (adapted from Predeep & Nayar 1990: fig. 1). — **F**: *D. truncata* (from *B. Pan 200609001*, PE). — **G**: *D. villosa* (from *B. Pan 200609012*, PE). — **H**: *D. villosa* subsp. *bicolor* (from *C. M. Wang 4305*, PE). — **I**: D. *villosa* subsp. *leiocarpa* (from *Thwaites 663*, P). — **J**: *D. yunnanensis* (from *B. Pan 200609018*, PE). — **K**: *D. yunnanensis* var. *arunachalensis* (adapted from Predeep & Nayar 1991: fig. 2). c = calyx (opened, with a pair of bracteoles), s = standard, w = wings, k = keel, st = stamens, p = pistil. Scale bar = 5 mm.

losa subsp. *bicolor* is villous (Fig. 3C, G and H), while the ovary in the other taxa is consistently glabrous. Calyces are pubescent in *D. henryi*, *D. villosa*, and *D. villosa* subsp. *bicolor* (Fig. 3C, G and H), sparsely pubescent in *D. prazeri* and *D. yunnanensis* (Fig. 3E and J), but glabrous or subglabrous in the other taxa. However, the hairs on the calyces sometimes fall off, which reduces their taxonomic usefulness.

Pods

Pods provide important characters for species delimitation although the mature pods of *D. henryi* and *D. prazeri* are still unknown. The pods of *D. hirsuta* are linear, large, flat, and with conspicuous veins (Fig. 4C). Villous pods are only found in *D. villosa* (Fig. 4J) and *D. villosa* subsp. *bicolor* (Fig. 4K and L), while pods of the other taxa are glabrous. The pods of the three subspecies under *D. villosa* constrict between the seeds (Fig. 4J, K–M), while the other taxa do not have such torulose pods. The pods of *D. yunnanensis* var. *arunachalensis* are linear and flat (Fig. 4F), which suggests it should not be placed under *D. villosa* as it has been. Pod shape is the main character to distinguish *D. villosa* subsp. *leiocarpa* from *D. yunnanensis* since their pubescence, leaflet shape, inflorescences

and flower dissections are identical. The pods are torulose in *D. villosa* subsp. *leiocarpa* (Fig. 4M), but flat in *D. yunnanensis* (Fig. 4D and E).

Pods are also very effective in distinguishing the three subspecies of *D. villosa*. Thus, subspecies *leiocarpa* has totally glabrous pods (Fig. 4M), while the other two have densely villous pods; subspecies *bicolor* is 1- or 2-seeded (Fig. 4K and L), but subspecies *villosa* is usually 3- or 4-seeded (Fig. 4J). However, variation of seed number in *D. truncata* (Fig. 4G–I) does not have taxonomic significance, as both 1- and 2-seeded pods, plus 3-seeded pods can be found from the same populations and even within a specimen.

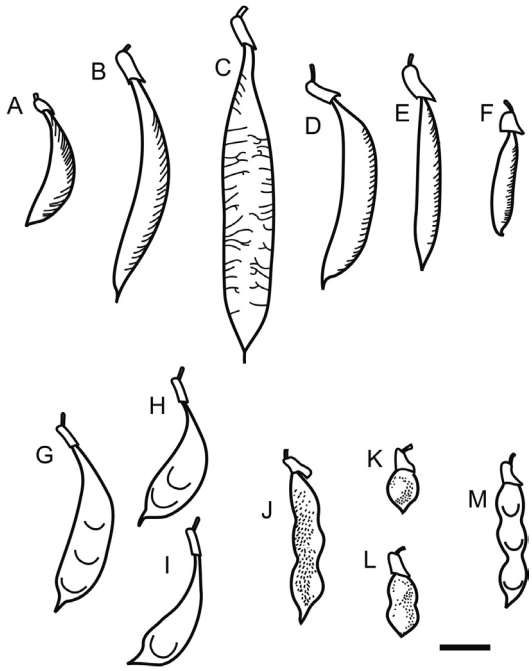

Fig. 4. Pods of *Dumasia*. — **A**: *D. cordifolia* (from *H. T. Tsai 56023*, PE). — **B**: *D. forrestii* (from *B. Pan 200609034*, PE). — **C**: *D. hirsuta* (from *J. Cavalerie 2499*, P). — **D**, **E**: *D. yunnanensis* (**D**: from *H. B. G. Garrett 365*, K; **E**: from *C. Ho, S. G. Tang & B. Q. Li 11644*, SM). — **F**: *D. yunnanensis* var. *arunachalensis* (from a paratype, ASSAM). — **G**, **H**, **I**: *D. truncata* (from *Dayaoshan Team 12535*, IBSC). — **J**: *D. villosa* (from *B. S. Li & S. Z. Cheng 02719*, PE). — **K**, **L**: *D. villosa* subsp. *bicolor* (from *Y. Tateishi & H. Hoshi 21515*, TUS). — **M**: *D. villosa* subsp. *leiocarpa* (from *Thwaites 663*, P). Scale bar = 10 mm.

Taxonomy

Dumasia DC.

Ann. Sci. Nat. (Paris) 4(13): 96. 1825.
LECTOTYPE (by Hutchinson 1964): *Dumasia villosa* DC.

Perennial twining herbs, rarely subshrubs. Leaves pinnately trifoliate, stipellate; stipules setaceous or lanceolate, striate. Leaflets ovate, elliptic, oblong, or suborbicular, pubescent or glabrous, margin entire, usually retuse and apiculate at apex; lateral leaflets usually smaller and oblique at base. Inflorescences axillary, unbranched, pseudoracemose, with 2 flowers and 3 bracts per node. Flowers medium-sized, 7–19 mm long. Calyx persistent, tubular, membranous, with 2 bracteoles below, gibbous at back, mouth obliquely truncate; lobes almost obsolete. Corolla yellow, exserted; ca. 2 × as long as calyx; all petals long clawed, nearly equal in length. Standard obovate, auriculate, margin above claw slightly inflexed; wings adherent to keel, lamina oblong; keel slightly shorter than wings, connate along ventral margin, lamina subtriangular, slightly incurved, obtuse. Stamens diadelphous, 9 + 1, vexillary stamen free; anthers uniform, alternate on long and short filaments. Ovary linear, few ovuled, with a disc at base; style long, filiform, hollow, dilated near middle, bent at a right angle, apical part cylindrical; stigma terminal, black, capitate. Pod linear, oblanceolate, or falcate, compressed or torulose, villous or glabrous. Seeds blue or black. Cotyledons hypogenous (Yeh *et al*.1987). Pollen grains hexaporate (with a very short polar axis and 3 complex apertures on angles composed of pore pairs), depressed oval in equatorial view, triangular or lobate in polar view; exine reticulate (Huang 1972, Ohashi *et al*. 2005). Chromosome number: 2n = 20, 22.

In de Candolle's original paper, two species, *Dumasia villosa* and *D. pubescens* were described, but the generitype was not indicated. Wallich (1831–1832) explicitly adopted *D. villosa* and relegated *D. pubescens* under it, though both of the names have the same priority at specific rank. However, the synonymization does not constitute selection of the generic lectotype. Hutchinson (1964) first designated *D. villosa* as the lectotype of the genus.

Key to species of *Dumasia*

1. Leaflets cordiform on upper leaves ..... *D. cordifolia*
1. Leaves without cordiform leaflets 2
2. Leaflets broadly ovate or suborbicular; bracts and bracteoles 7–8 mm long ..... *D. forrestii*
2. Leaflets ovate, elliptic or oblong; bracts and bracteoles 1–4 mm long 3
3. Leaflets oblong ..... *D. henryi*
3. Leaflets ovate or elliptic 4
4. Stems and petioles with dense branched bristles ..... *D. hirsuta*
4. Stems and petioles without branched bristles 5
5. Flowers 7–8 mm long ..... *D. prazeri*
5. Flowers 14–18 mm long 6
6. Pods not torulose 7
6. Pods torulose 9
7. Stems, petioles, and leaflets glabrous ..... *D. truncata*
7. Stems, petioles, and leaflets sparsely or densely pubescent 8
8. Leaflets without marginal pubescence ... *D. yunnanensis*
8. Leaflets ciliate ..... *D. yunnanensis* var. *arunachalensis*
9. Stems, petioles, and leaflets glabrescent; pods glabrous ..... *D. villosa* subsp. *leiocarpa*
9. Stems, petioles, and leaflets pubescent; pods villous .. 10
10. Seeds 1 or 2; confined to Taiwan ..... *D. villosa* subsp. *bicolor*
10. Seeds usually 3 or 4; widely distributed in Africa and Asia ..... *D. villosa*

Dumasia villosa DC. (Fig. 5)

Ann. Sci. Nat. (Paris). 4(13): 97. 1825. — Type: Nepal. "*Dumasia villosa*", 1821 *Wallich s.n.* (lectotype, designated here, G!; isolectotypes G!, K!).

Dumasia pubescens DC., Ann. Sci. Nat. (Paris) 4(13): 97. 1825. — Type: Nepal. 1821 *Wallich s.n.* (holotype G!).

Dumasia capensis Eckl. & Zeyh., Enum. Pl. Afric. Austral. 2: 245. 1836. — Type: South Africa. "In locis sylvarum umbrosis prope "K'Neisna" (Georg)", Dec. *C. F. Ecklon & C. Zeyher 1625* (holotype S!).

Dumasia glaucescens Miq., Fl. Ned. Ind. 1(1): 227. 1855. — Type: Java, Prov. Bandong *Zollinger 590* (holotype P!). — *Glycine parviflora* Zoll. *ex* Miq., Fl. Ned. Ind. 1(1): 227, 1855; *nom. superfl., non* Lam. (1788).

Apios martini H. Lév., Fl. Kouy-Tchéou 225. 1914–15, '*Martini*.' — Type: China. "Kweichow, environs de Gan-pin, commun dans les haies, fleur. jaunes, devenant noires à la maturité", 22 Sep. 1897, 29 Aug. 1897 *L. Martin & E. Bodinier 1825* (holotype E!).

Erythrina mairei H. Lév., Bull. Acad. Int. Géogr. Bot. 25: 50. 1915, '*Mairei*.' — Type: China, "Yunnan, sous bois de Pan-long-se, plante grimpante, vivace, fl. jaune d'or", 2500 m, Sep. 1912 *E. E. Maire s.n.* (holotype E!). — *Apios mairei* H. Lév., Bull. Acad. Int. Géogr. Bot. 25: 50. 1915, '*Mairei,' nom. nud., pro syn*.

Dumasia congesta Graham, Numer. List [Wallich]: n. 5524. 1831–32, *nom. nud*.

Climbing herbs or subshrubs, 1–10 m long, yellow or yellow-brown pubescent throughout, sometimes cauliflorous. Stipules linear or setaceous, minute, 2–4 mm long. Petioles 1–10 cm long. Leaflets ovate or broadly ovate, 1–9 × 0.7–7 cm, papery, pubescent on both surfaces or sometimes subglabrous above, with 4–6 secondary veins, rounded or cuneate at base, apiculate at obtuse apex. Lateral leaflets slightly smaller, oblique at base. Petiolules 2–4 mm long, pubescent. Stipels setaceous, minute. Inflorescences axillary, 1–20 cm long, many flowered, with dense brown hairs along rachises and pedicels. Flowers yellow, 15–19 mm long. Bracts and bracteoles minute, setaceous, 1–3 mm long. Pedicels 2–4 mm long. Calyx ca. 11 mm long, pubescent. Ovary linear, villous. Pod linear, 1–4 cm long, ca. 6 mm wide, brown villous, constricted between seeds. Seeds (1–)3 or 4(–5), bluish black, subglobose. 2n = 20 (Kumar & Hymowitz 1989).

Distribution: Bengal, Bhutan, China (Gansu, Guangxi, Guizhou, Shaanxi, Sichuan, Xizang, and Yunnan), Congo, Ethiopia, India, Indonesia, Kenya, Laos, Madagascar, Malawi, Mozambique, Myanmar, Nepal, Papua New Guinea, Philippines, South Africa, Tanzania, Thailand, Uganda, Vietnam, Zambia, and Zimbabwe (Fig. 6).

Ecology: Slopes of hills, valleys, roadsides, riversides, forests, or thickets, alt. 400–2800 m.

Phenology: Flowering from September to October, fruiting from November to December.

This species is the most widespread in the genus, and differs from all the other species by its villous and torulose pods.

Since there are two specimens in de Candolle's herbarium that he used when describing *D. villosa* and both are labelled as types, they are syntypes. Both have a printed label with "Mr. Wallich, 1821, Napaul." One specimen has a label written by de Candolle with "*Dumasia villosa*", and the other has no such label. The specimen determined as *D. villosa* by de Candolle is designated here as the lectotype.

Additional examined specimens (total = 666): — **China**. Sichuan: Tianquan Xian, Laochang, Xiaoluozi, *D. Y. Peng 46755* (CDBI); Dujiangyan Municipality (formerly Guan Xian), just downstream from the town of Longxi along the Longxi River, *D. E. Boufford & B. Bartholomew 24834* (BM); Xichang, Lushan, Yaochigong, *X. Q. Liu 648* (SM).

Xizang: Bomi Xian, Yigong, *T. Naito, K. Y. Lang, Y. Tateishi, T. Nemoto & B. S. Li 893B* (PE). Yunnan: On grass and scrub on the lava bed W of Tengyueh, *G. Forrest 11768* (BM); Mar-li-po, Sze-tai-po (Loa-chun-shan), *K. M. Feng 14023* (KUN, PE). — **Ethiopia**. Bulluk (Shuka), SW Bale, *H. F. Mooney 8476* (K). — **India**. Assam, Walong, *F. K. Ward 20205* (BM); Simla, *H. H. Rich 873* (K). — **Kenya**. W Kakamega rest house, *S. Paulo 557* (K). — **Madagascar**. *Forsyth Major 424* (K). — **Malawi**. N Region, Rumpi District, Nyika Plateau, below Sangule kopje, *R. K. Brummitt 10768* (K). — **Mozambique**. Manica, *N. C. Chase 8555* (K). — **Philippines**. Luzon, Province of Benguet, Bugias, *E. D. Merrill 4671* (K). — **South Africa**. Cape of Good Hope, *T. Cooper 2263* (K). — **Tanzania**. Iringa: Mufindi, Luhega Forest near Uhafiwa, *J. Lovett, T. C. E. Congdon & C. J. Kayombo 3305* (K). — **Thailand**. Doi Suthep, *A. F. G. Kerr 2814* (K). — **Uganda**. Kabarole District, Kibale Forest, Kanyawara, *G. Eilu 208* (K). — **Vietnam**. Annam, *M. Poilane 50981* (K).

Dumasia villosa subsp. ***leiocarpa*** (Benth.) B. Pan & X.Y. Zhu, *comb.* & *stat. nov.*

Basionym: *Dumasia leiocarpa* Benth., Pl. Jungh. 2: 231. 1852. — Type: Ceylon. 1800 m, *Walter s.n.* (lectotype, designated here, K!); Ceylon, Nuwara Ellia, 1800 m, *Gardner 210* (syntype K!).

D. villosa DC. var. *leiocarpa* (Benth.) Baker *in* Hook. f., Fl. Brit. India 2(4): 183. 1876, *syn. nov.*

Twining herbs. Stems slender with long internodes, glabrous or with few appressed hairs. Stipules setaceous, minute. Petioles 5–10 cm long. Leaflets ovate, 3–5 cm long, both surfaces glabrous or with few hairs beneath, very obtuse, apiculate. Inflorescences 4–20-flowered.

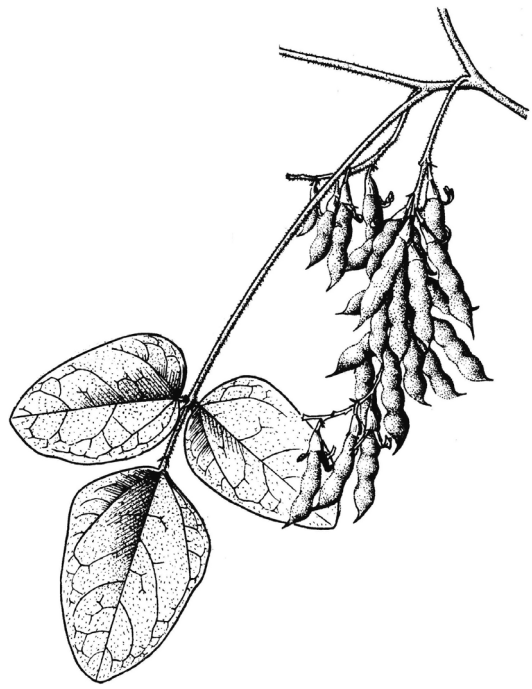

Fig. 5. *Dumasia villosa* (from Wei (1995): fig. 62(6). Drawn by X. G. Zou). Reproduced with permission from the Committee of *Flora Reipublicae Popularis Sinicae*.

Pod linear, torulose, ca. 3 cm long, completely glabrous. Seeds 2 or 3, black, ovoid.

Distribution: Sri Lanka (Fig. 6).

Habitat ecology: Upper montane zone.

Phenology: Flowering from January to March.

This subspecies differs by the subglabrous leaves and glabrous pods. Considering its iso-

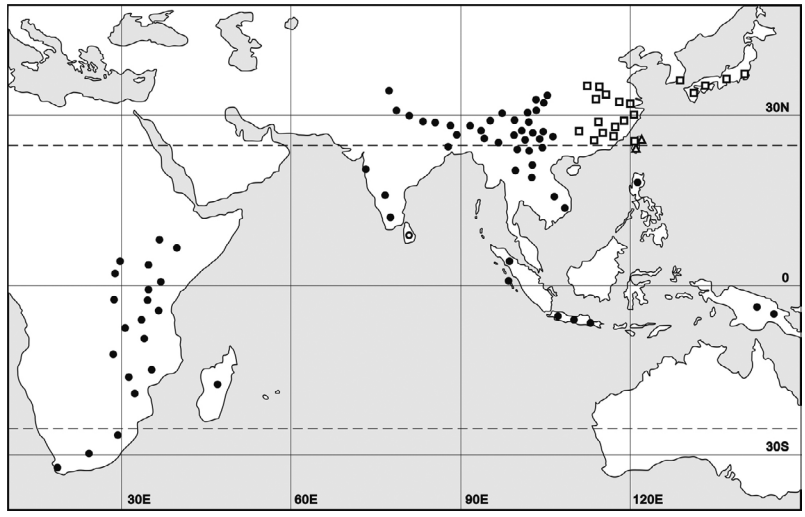

Fig. 6. Distribution of *Dumasia truncata* (□) and *D. villosa* (●), *D. villosa* subsp. *leiocarpa* (○), and *D. villosa* subsp. *bicolor* (△).

lated distribution in Sri Lanka, we treat it as a subspecies.

In this study, we found many specimens of *D. yunnanensis* were misidentified as *D. leiocarpa* or *D. villosa* var. *leiocarpa* because of their similar appearance. Bentham (1852) established *D. leiocarpa* on specimens from Ceylon (= Sri Lanka), but the pod shape was not emphasized. We found that pods of *D. villosa* subsp. *leiocarpa* are all torulose according to herbarium specimens and Trimen's description (1893), and this plant only occurs in Sri Lanka. However, Baker (1876) treated *D. leiocarpa* as a variety of *D. villosa*, and cited their specimens very concisely "Sikkim, Khasia (NE India), Ceylon." Later, Kurz (1876) used *D. leiocarpa* for the Burmese plant, though he noted that the Burmese plant "differs from the glabrous Ceylon plant chiefly in the smaller leaves and in the pods, which are not torulose." Craib (1912, 1931) used either *D. leiocarpa* or *D. villosa* var. *leiocarpa* for the plant from Thailand, and cited some specimens "*Kerr 883*; *Hosseus 205*; *Garrett 365*." We examined specimens from Khasia (*H. Collett s.n.*, CAL), Myanmar (Burma) (*H. Collett 913*, CAL; *J. H. Lace 6004*, K) and Thailand (*A. F. G. Kerr 883*, BM & K; *H. B. G. Garrett 365*, K), and found their pods are all flat. The correct name for this plant with flat pods is *D. yunnanensis*, and it suggests that Baker misapplied *D. villosa* var. *leiocarpa* to it from the beginning.

Additional examined specimens (total = 7): — **Sri Lanka**. Hakgala, *N. D. Simpson 9043* (BM); Hanguranketta, *N. D. Simpson 9207* (BM); Nuwara Ellia, *Thwaites 663* (BM, K, NY, P).

Dumasia villosa subsp. ***bicolor*** (Hayata) H. Ohashi & Tateishi

Sci. Rep. Tohoku Univ., Ser. 4, Biol. 38(4): 310. 1984.

Basionym: *Dumasia bicolor* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(Art. 19): 75. 1908. — Type: China. Taiwan, "Suizan, in montibus Morrison", 2300 m, 30 Oct. 1905 *S. Nagasawa 667* (lectotype, by Ohashi *et al*. 1984: 310, TI, not seen).

Twining herbs. Leaves trifoliate, soft hairy. Petioles 5–8 cm long. Terminal leaflets ovate, 3–6 × 1.5–2.5 cm, acute at apex. Lateral leaflets slightly smaller. Stipules setaceous, ca. 4 mm long. Flowers paired in axillary dense inflorescences. Bracts and bracteoles minute, setaceous. Calyx tubular, ca. 9 mm long. Corolla yellow, ca. 14 mm long. Pods terete or torulose, villous, 1- or 2-seeded.

Distribution: China (Taiwan) (Fig. 6).

Habitat ecology: Open forest or thickets, roadsides, slopes of hills, and grasslands, alt. 500–2500 m.

Phenology: Flowering from August to October, fruiting from November to the following January.

This subspecies is distinguished by its 1- or 2-seeded pods.

Ohashi *et al*. (1984) reduced *D. bicolor* as a subspecies of *D. villosa* and designated the lectotype. Afterward, Huang and Ohashi (1993) described a hybrid, *viz*. *D. miaoliensis* × *D. villosa* subsp. *bicolor*, based on two specimens, "Miaoli: Tahu, *Huang & Huang 13248, 13249* (TAI)." However, the *13249* specimen, which bears oblanceolate pods and truncate bases in lateral leaflets, was also cited under *D. miaoliensis* on the same page. The *13248* specimen turned out to be *D. villosa* subsp. *bicolor*, judging from its terete pods and lateral leaflets with rounded bases. Liu and Huang (2001a, 2001b) tried to prove the hybrid hypothesis with both morphological and molecular evidence, but without much support. The hypothesis is self-contradictory, and the name of this hybrid is rejected.

Additional examined specimens (total = 140): — **China**. Taiwan: Taoyuan Hsien, along road from Shang Paling to Lalashan Nature Preserve, *T. G. Lammers 8519* (IBSC, K, KUN, TAI); Miaoli Co., Erpensung, 1984 *H. Ohashi, Y. Tateishi, Y. Endo & T. Nemoto 20741* (TUS); *E. H. Wilson 9650* (K).

Dumasia truncata Siebold & Zucc. (Fig. 7)

Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(2): 119. 1845. — Type: Japan. "In locis fruticosis prope pagum Fimi ins Kiu Siu", *J. Pierot 130* (lectotype, designated here, L!).

Dumasia miaoliensis Y. C. Liu & F. Y. Lu, Quart. J. Chin. Forest. 10(3): 87. 1977, *syn. nov.* — Type: China. Taiwan, Miaoli, Tahu, 28 Oct. 1970 *Y. C. Liu & C. H. Ou 262* (holotype TCF?, not seen).

Dumasia nitida Chun *ex* Y. T. Wei & S. K. Lee, Guihaia 5(3): 161. 1985, *syn. nov.* — Type: China. Guangxi, Xiang

Xian, Yaoshan, 15 Oct. 1936 *C. Wang 40175* (holotype IBK!); Guangxi, Dayaoshan Xian, Jinxiu Gongshe, Jinxiu, Laoshan, at roadside in mountainous region, 28 Sep. 1959 *Q. H. Lu 4641* (paratype IBK!); He Xian, Guposhan, Gupodu, in thickets along roadside in the valley, sunny places, 4 Sep. 1958 *Y. K. Li 401446* (paratype IBSC!).

Twining herbs, 1–3 m long, glabrous. Stems usually purplish black, slender, finely striate. Stipules lanceolate, minute, 2–4 mm long. Petioles 0.2–8 cm long, glabrous. Leaflets ovate or ovate-lanceolate, 1.3–10 × 0.7–5 cm, membranous, both surfaces glabrous, with 5–7 secondary veins, apex rounded or retuse, apiculate. Terminal leaflets broadly cuneate at base, lateral ones truncate at base. Stipels setaceous, ca. 1 mm long. Petiolules 2–3 mm long, glabrous. Inflorescences axillary, 0.5–16 cm long, many flowered, usually glabrous. Flowers 14–17 mm long. Bracts and bracteoles minute, 1–3 mm long. Pedicels 1–3 mm long. Calyx green, tubular, ca. 8 mm long, glabrous. Corolla yellow or light yellow, all petals subequal in length, claw ca. 10 mm long. Ovary linear, stipitate, glabrous. Pod purple when mature, oblanceolate, falcate, or linear, 3–6 cm long, ca. 9 mm wide, attenuate at base. Seeds 1–5, black. 2n = 20 (Yeh *et al*. 1983).

Distribution: China (Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Taiwan, and Zhejiang), Japan, and Korea (Fig. 6).

Habitat ecology: Valleys, slopes of hills, roadsides, riversides, forest margins, and thickets, alt. 300–1500 m.

Phenology: Flowering from August to September, fruiting from October to November.

This species is highly variable in the inflorescence length and seed number. Our examination of specimens reveals that the inflorescence length ranges from 0.5 to 16 cm, and the seed number varies from 1–3 or even 5 within a specimen. *Dumasia miaoliensis* and *D. nitida* were published in 1977 and 1985, respectively. Both were claimed to be allied to *D. truncata*, and characterized by 1 or 2(or 3)-seeded pods and longer, loosely flowered inflorescences (Lu 1977, Wei & Lee 1985). These quantitative characters showed continuous variation and cannot be used as reliable diagnostic characters. Therefore, we reduce both names as synonyms of *D. truncata*.

Dumasia truncata was published without any illustrations or citations of specimens (Siebold & Zuccarini 1845). We examined Siebold's specimens of this species deposited at L and designate a lectotype for it.

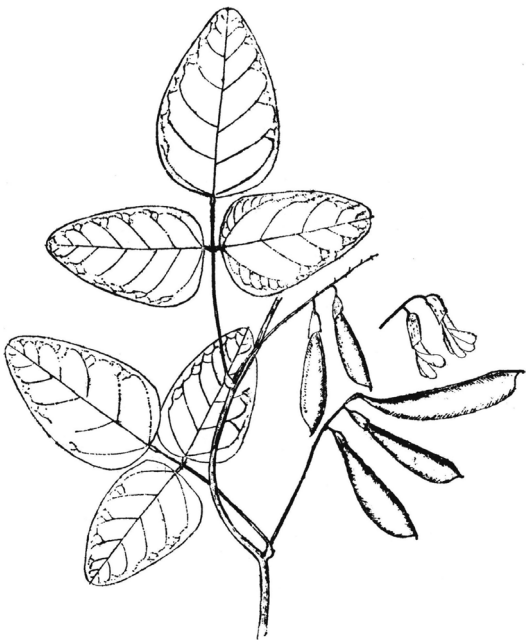

Fig. 7. *Dumasia truncata* (from Ding & Wang (1988): fig. 1161). Reproduced with permission from the Committee of *Flora Honanensis*.

Additional examined specimens (total = 136): — **China**. Anhui: Qianshan Xian, Tianzhushan, *B. A. Shen 485* (PE). Henan: Tongbai Xian, Taibaiding, *Pl. Resource Exped. T0634* (PE). Guangdong: Renhua Xian, Chengkou Xiang, Xinbaishe, Shanggaopo, *L. Deng 7575* (IBSC, KUN, PE, SZ). Guangxi: Waitsap District, Tongshan, near Sap-luk Po Village, *W. T. Tsang 22910* (IBSC, SYS, P). Hubei: Shennongjia, Yangriwan, Shawan, *Shennongjia Team 20238* (HIB, PE); Nanqianshan, Ta-pin, *R. C. Silvestri 1072* (FI). Taiwan: Miaoli Co., Erpensung, *S. F. Huang, T. C. Huang & C. C. Liu 16778 & 16789* (TAI). Zhejiang: Taishun Xian, Liguang Xiang, Hengping, Longjingxia, *S. Y. Chang 3673* (PE). — **Japan**. Hondo: Pref. Hyogo, Prov. Harima, *M. Furuse 37703* (PE).

Dumasia cordifolia Benth. *ex* Baker (Fig. 8)

in Hook. f., Fl. Brit. India 2(4): 183. 1876. — Type: India. Khasia, 1500 m, *J. D. Hooker & T. Thomson s.n.* (holotype K!; isotype P!).

Small climbing herbs. Stem 1–3 m long, very slender, with sparse short hairs when young,

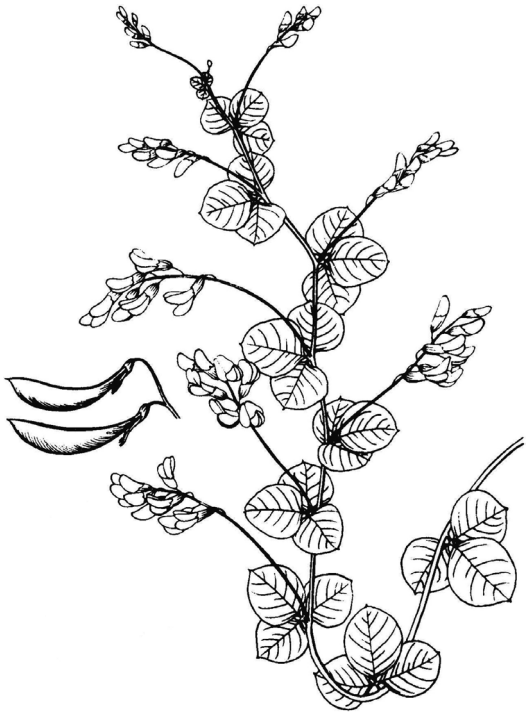

Fig. 8. *Dumasia cordifolia* (from Institute of Botany, Chinese Academy of Sciences (1972): fig. 2710). Reproduced with permission from the Committee of *Iconographia Cormophytorum Sinicorum*.

glabrescent. Stipules setaceous, minute, 1–2 mm long. Leaflets large, ovate, and long petiolate on lower leaves; but small, cordiform, subpetiolate on upper ones; 0.5–3.5 × 0.5–4 cm, membranous, glabrous or slightly pubescent along larger veins below. Petioles 0.1–5 cm long. Stipels minute, setaceous. Petiolules short, 1–2 mm long. Pseudoracemes axillary, 1–9 cm long, slender, 2 to few flowered, glabrous or slightly pubescent. Bracts and bracteoles linear, very minute. Calyx tube ca. 7 mm long, glabrous. Corolla light yellow, ca. 12 mm long. Ovary glabrous, stipitate. Style filiform, dilated at middle. Pod laterally compressed, oblanceolate or falcate, ca. 3 cm long, 6 mm wide, with a short stalk. Seeds 3–6, brownish black, ca. 3 mm long, elliptic. 2n = 22 (Bir & Kumari 1975).

Distribution: China (Guangxi, Guizhou, Sichuan, Xizang, and Yunnan) and India (Fig. 9).

Habitat ecology: Slopes of hills, valleys, grasslands, thickets, forests, or forest margins, alt. 1200–2800 m.

Phenology: Flowering from August to September, fruiting from October to December.

This species is easily distinguished from the other taxa by its cordiform leaflets on upper leaves and by its very slender stems.

Additional examined specimens (total = 137): — **China**. Sichuan: Tianquan Xian, Erlangshan, Ganhaizi, *D. Y. Peng 46310* (CDBI, IBSC). Yunnan: W flank of range dividing the Taiping and Irrawadi basins, *G. Forrest 9062* (E, PE); Jinping Xian, Watershed, Radar Station, *D. D. Tao 216* (HITBC); Dali, Wuliqiao, Yujufeng, *H. C. Wang 1485* (KUN, PE); Mengtse, *A. Henry 10326* (NY, P). — **India**. Shillong, *C. B. Clarke 44600B* (BM); Ukhrul, *F. K. Ward 18094* (BM).

Dumasia yunnanensis Y.T. Wei & S.K. Lee (Fig. 10)

Guihaia 5(3): 159. 1985. — Type: China. Yunnan, Kunming, 9 Nov. 1938 *H. K. Teng 171* (holotype KUN, not seen); Yunnan, Kunming, Xishan, Qiongzhusi, in open thickets, 4 Oct. 1946 *K. M. Feng 10401* (paratype KUN!); Yunnan, Sung-ming, Kuo-Tung, 2200 m, on slopes, 24 Aug. 1958 *B. Y. Qiu 54981* (paratype PE!); Yunnan, Sung-ming, Kuo-Tung, 2200 m, in thickets, 10 Oct. 1950 *P. I. Mao 156* (paratype KUN!); Sichuan, Huili Xian, Beimashe, 2550 m, at roadside, 3 Oct. 1958 *C. Ho 11544* (paratype SM!).

Dumasia nitida Chun *ex* Y.T. Wei & S.K. Lee var. *kurziana* S.V. Predeep & M.P. Nayar, J. Jap. Bot. 66(5): 275. 1991, *syn. nov.* — Type: Myanmar. "Burma, Pegu, Pookie Pine 7", 1200–1500 m, *S. Kurz 1699* (holotype & isotype CAL, not seen). China. Yunnan, Szemao, West Mount Forests, 1500 m, *A. Henry 12453 & 12872* (paratypes K!).

Twining herbs, perennial. Stem 1–6 m long, slender, sparsely pubescent, sometimes with a woody rootstock. Stipules ovate or lanceolate, minute, 1–2 mm long, striate, glabrescent. Leaflets membranous, usually sparsely pubescent above, more hairy below, with 4–6 secondary veins; terminal leaflets elliptic or elliptic-ovate, 1–5 × 0.6–3 cm; rounded or broadly cuneate at base, obtuse or rounded at apex, retuse and apiculate. Lateral leaflets smaller, ovate, rarely elliptic, subtruncate or truncate at base. Leaflets on primary leaves suborbicular. Petioles 0.3–9 cm long, glabrous or pubescent. Stipels minute, setaceous. Petiolules ca. 2 mm long, pubescent. Pseudoracemes axillary, 1–8 cm long, many flowered, sparsely pubescent. Flowers yellow, 14–17 mm long. Bracts and bracteoles minute, 1–2 mm long. Pedicels short, ca. 2 mm long. Calyx tube ca. 9 mm long, sparsely pubescent. Ovary linear,

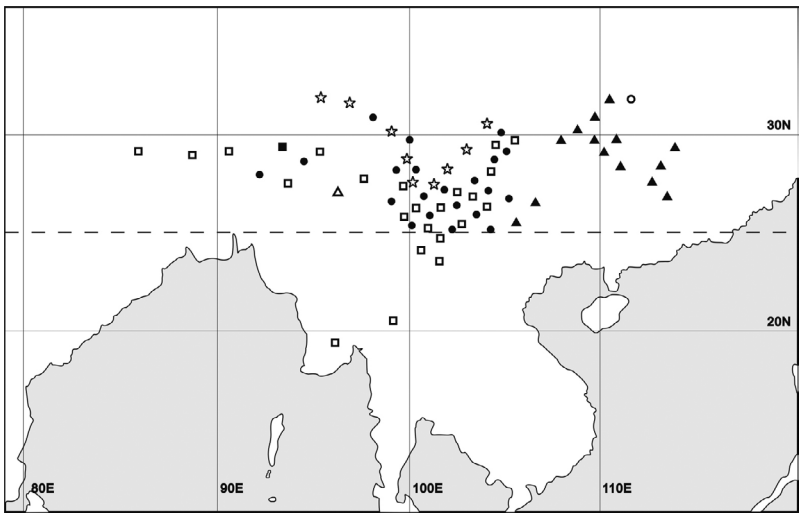

Fig. 9. Distribution of *Dumasia cordifolia* (●), *D. forrestii* (☆), *D. henryi* (○), *D. hirsuta* (▲), *D. prazeri* (△), *D. yunnanensis* (□), and *D. yunnanensis* var. *arunachalensis* (■).

glabrous. Pod purplish when mature, falcate or subfalcate, 3–5 cm long, 5–8 mm wide, attenuate at base. Seeds 2–6, brownish black, ellipsoid, slightly compressed. 2n = 20 (Fig. 11).

Distribution: Bhutan, China (Sichuan and Yunnan), India, Myanmar, Nepal, and Thailand (Fig. 9).

Habitat ecology: Roadsides, slopes of hills, forests, or thickets, alt. 800–2500 m.

Phenology: Flowering from September to October, fruiting from November to December.

This species much resembles *D. villosa* subsp. *leiocarpa*, but differs in having flat pods and smaller leaflets.

Dumasia nitida var. *kurziana* was described based on Kurz's collection from Myanmar and claimed to be allied to *D. nitida* (synonymized with *D. truncata* in this paper), but distinguishable from it in having 3–6-seeded pods rather than 1- or 2-seeded pods (Predeep & Nayar 1991). However, *D. truncata* is totally glabrous, and has much larger leaflets (1.3–10 cm long), with the terminal ones ovate or ovate-lanceolate, rather than elliptic. In addition, *D. truncata* is not distributed in Myanmar. After careful examination of the paratypes and original description of *D. nitida* var. *kurziana*, we found it is identical with *D. yunnanensis* in every detail: both have sparse hairs, elliptic or elliptic-ovate terminal leaflets, and 3–6-seeded pods. Moreover, they have the same distribution. Therefore, we treat *D. nitida* var. *kurziana* as a synonym of *D. yunnanensis*.

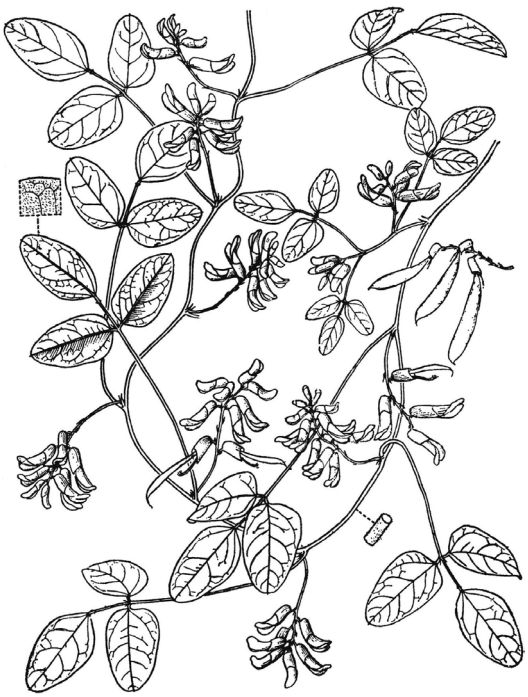

Fig. 10. *Dumasia yunnanensis* (from Wei & Lee (1985): fig. 2). Drawn by S. Q. He. Reproduced with permission from *Guihaia*.

Additional examined specimens (total = 116): — **China**. Sichuan: Dechang, Leyue, Fujiashan, *s.coll. 0454* (SM). Yunnan: Kunming, Qiongzhusi, *A. J. Li 7858* (PE); Xishuangbanna, Menghun to Lahu, *P. I. Mao 7401* (IBSC); Yuanjiang Xian, Er Qu, Yangchajie, *Y. H. Li 6041* (HITBC). — **Nepal**. W Nepal, *H. Flatt 105* (BM). — **Thailand**. Doi

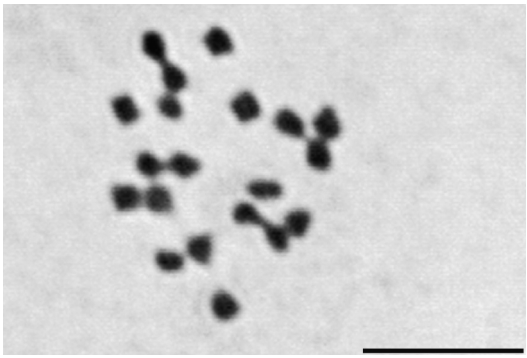

Fig. 11. Chromosomes of *Dumasia yunnanensis* (from *B. Pan 200609018*, PE). Scale bar = 5 μm.

Suthep, Chiengmai, *A. F. G. Kerr 883* (BM, K); Doi Suthep, Chiengmai, *C. C. Hosseus 205* (K).

Dumasia yunnanensis var. ***arunachalensis*** (S.V. Predeep & M.P. Nayar) B. Pan & X.Y. Zhu, *comb. nova*

Basionym: *D. villosa* DC. var. *arunachalensis* S.V. Predeep & M.P. Nayar, J. Jap. Bot. 66(5): 276. 1991. — Type: India. N. E. F. A. (Arunachal Pradesh), But camp, 22 Oct. 1955 *R. S. Rao 1457* (holotype & isotype CAL!); N. E. F. A. (Arunachal Pradesh), Jabrang, 16 Oct. 1955 *R. S. Rao 1307* (paratypes CAL!, ASSAM!).

Twining herbs, 3–5 m long. Stems slender, sparsely pubescent when young. Stipules lanceolate, 2–3 mm long. Leaves 4.5–8 cm long; leaflets ovate or elliptic, rarely suborbicular, 1–3.5 × 1–2.5 cm, sparsely to densely pubescent above, sparsely so below, densely spreading pubescent along margin, obtuse to rounded at base in terminal leaflets, subtruncate or truncate in lateral leaflets, retuse or obtuse at apex. Inflorescences axillary. Flowers yellow, ca. 18 mm long, in 2-flowered fascicles. Calyx ca. 9 mm long, sparsely pubescent. Ovary stipitate. Pod linear, compressed, 2.2–2.8 cm long, 4–5 mm wide, glabrous, 3–5-seeded.

Distribution: India (Fig. 9).

Habitat ecology: Unknown.

Phenology: Flowering in October.

This variety is distinctly different by its ciliate leaflets. It is morphologically more allied to *D. yunnanensis* than it is to *D. villosa* considering its glabrous and compressed pods, and suborbicular leaflets on primary leaves. Therefore, a new combination *D. yunnanensis* var. *arunachalensis* is proposed here.

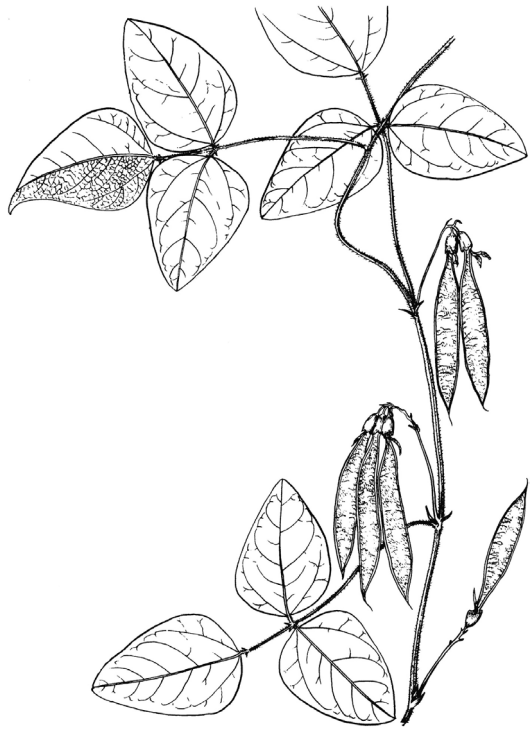

Fig. 12. *Dumasia hirsuta* [from Wei (1995): fig. 61(9)]. Drawn by M. F. Xin. Reproduced with permission from the Committee of *Flora Reipublicae Popularis Sinicae*.

Dumasia hirsuta Craib (Fig. 12)

in Sargent, Pl. Wilson. 2(1): 116. 1914. — Type: China. "W Hupeh: Patung Hsien", 1000–1300 m, Jul. 1907 *E. H. Wilson 3483* (lectotype, designated here, K!; isolectotype BM!); "Hupeh: Patung", *A. Henry 6115* (syntypes BM!, K!, NY!, P!); "Chiensi", *E. H. Wilson 1330* (syntype K!).

Twining herbs, 1–3 m long. Stems and petioles with dense, brown, branched bristles. Stipules lanceolate, 5–7 mm long. Petioles 2–13 cm long. Leaflets ovate or broadly ovate, 1–9 × 1–7 cm, membranous, glabrous or sparsely pubescent below, with 4–6 secondary veins, retuse at apex, apiculate. Terminal leaflets rounded or broadly cuneate at base, lateral ones truncate and oblique at base. Stipels minute, setaceous. Petiolules 2–3 mm long, with brown hairs. Inflorescences axillary, 2- to few flowered, 1–10 cm long, pubes-

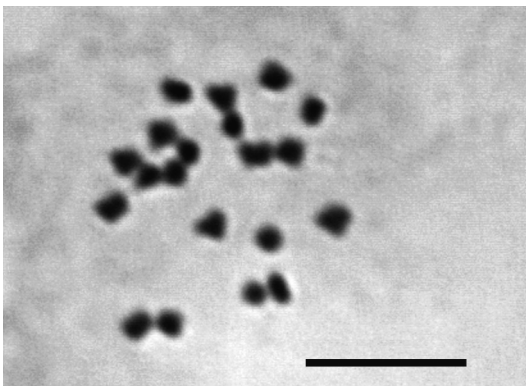

Fig. 13. Chromosomes of *Dumasia hirsuta* (from *M. B. Ren J01*, PE). Scale bar = 5 μm.

cent. Bracts and bracteoles minute, setaceous. Pedicels 2–3 mm long. Flowers yellow, ca. 18 mm long. Calyx tube ca. 8 mm long, membranous, glabrous or with sparse appressed hairs. Pod linear, compressed, 4–7 cm long, ca. 10 mm wide, glabrous, with raised veins, attenuate at base, beaked at apex. Seeds 4–7, brownish black. 2n = 20 (Fig. 13).

DISTRIBUTION: China (Chongqing, Guangdong, Guizhou, Hubei, Hunan, Jiangxi, and Yunnan) (Fig. 9).

HABITAT ECOLOGY: Valleys, forests, slopes of hills, moist places, roadsides, or thickets, alt. 400–2100 m.

PHENOLOGY: Flowering and fruiting from June to August.

This species is well characterized by its dense, branched bristles.

ADDITIONAL EXAMINED SPECIMENS (total = 59): — **China**. Chongqing: Fengjie, Xinglong Qu, Zhonghe Xiang, Shiguanyin River, *T. Y. Chang 25437* (HIB, IBSC, PE, SZ). Guizhou: Fanjingshan, Macao River, Jinzigou, *T. P. Zhu & Z. C. Liu 1120* (KUN). Hunan: Longshan, Wuya Xiang, *L. H. Liu 1967* (IBSC, KUN, PE). Jiangxi: Xiushui Xian, Huanghegang, *S. S. Lai 3379* (PE). Yunnan: Xichou Xian, Fadou, *C. W. Wang & Y. Liu 85700* (PE).

Dumasia forrestii Diels (Fig. 14)

Notes Royal Bot. Garden Edinburgh 5(25): 247. 1912, '*Forrestii*'. — TYPE: China. NW Yunnan, amongst scrub in the Mekong Wei-Hsi valleys, 27°–28°N, 2100–2700 m, Oct. 1904 *G. Forrest 1124* (holotype E!).

Dumasia bracteosa Gagnep., Notul. Syst. (Paris) 3: 191. 1915. — TYPE: China. "Yunnan, Hay-tien, près Pin-Y", 26 Aug. 1904 *F. Ducloux 3142* (lectotype, designated here, P!); "Brousse des coteaux à La-kou, plant vivace, grimpante, fl. jaunes", *E. E. Maire s.n.* (syntype P!).

Fig. 14. *Dumasia forrestii* (from Li & Ni (1985): fig. 231(1)). Drawn by G. L. Lu. Reproduced with permission from the Committee of *Flora Xizangica*.

Climbing herbs, glabrous or subglabrous. Stems 1–3 m long, conspicuously 4-angled. Stipules large, lanceolate, 6–8 mm long, longitudinally striate. Petioles 0.5–13 cm long. Terminal and lateral leaflets isometric or nearly so, broadly ovate or suborbicular, 1.5–6 × 1–6 cm, subpapery, with 4–6 secondary veins, subtruncate or broadly cuneate at base, rounded or truncate at apex, usually slightly retuse and apiculate. Inflorescences axillary, 1–9 cm long, glabrous or slightly pubescent, many flowered. Bracts and bracteoles persistent, lanceolate, 7–8 mm long, 1–2 mm wide, striate. Pedicels 1–3 mm long. Flowers yellow, ca. 18 mm long, paired in pseudoracemes. Calyx green, tubular, ca. 9 mm long, glabrous. Ovary linear, stipitate. Pod purple when mature, linear or falcate, 3–6

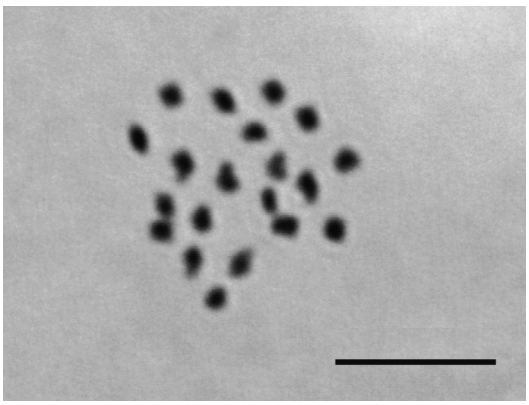

Fig. 15. Chromosomes of *Dumasia forrestii* (from *B. Pan 200609034*, PE). Scale bar = 5 μm.

cm long, ca. 6 mm wide, glabrous. Seeds 3–5, brownish black, oblong. 2n = 20 (Fig. 15).

Distribution: China (Sichuan, Xizang, and Yunnan) (Fig. 9).

Habitat ecology: Forests, dry slopes, grassy slopes, roadsides, riversides, or thickets, alt. 1800–3200 m.

Phenology: Flowering from August to September, fruiting in October.

This species is readily distinguished from its congeners by its suborbicular leaflets and large bracts and bracteoles.

Additional examined specimens (total = 64): — **China**. Sichuan: Mountains between Wa-Erh-Dje and Muli Gomba, *J. F. Rock 16932* (SYS). Xizang: Yigrong Gorge, Tsangpo Valley, *F. K. Ward 12171* (BM); Tangmai to Lunang, *Y. T. Chang & K. Y. Lang 924* (KUN, PE). Yunnan: High plateau between Talifu and Likiang to the foot of the Likiang Snow Range, *J. F. Rock 6057* (K). NE of the Yangtze bend, *G. Forrest 11206* (BM, PE).

Dumasia henryi (Hemsl.) R. Sa & M. G. Gilbert (Fig. 16)

Basionym: *Rhynchosia? henryi* Hemsl. *in* Forb. & Hemsl., J. Linn. Soc., Bot. 23: 196, 1887; 489, 1888. '*Henryi*.' — Type: China. Hubei. "Ichang, Nanto and mountains to the northward", *A. Henry 3068* (holotype K!).

Dumasia oblongifoliolata F. T. Wang & T. Tang *ex* Y. T. Wei & S. K. Lee, Guihaia 5(3): 161. 1985. — Type: fig. 3 "*Dumasia oblongifoliolata* Wang et Tang" in Guihaia 5(3): 162. 1985 (lectotype, designated here).

Twining herbs, 1–3 m long, densely shortly grayish hairy. Stipules minute, 1–2 mm long.

Fig. 16. *Dumasia henryi* (from Wei & Lee (1985): fig. 3). Drawn by S. Q. He. Reproduced with permission from *Guihaia*.

Petioles 1–5 cm long. Leaflets oblong or oblong-elliptic, 1.3–5 × 0.8–2 cm, papery, densely pubescent above and below, with 4–7 secondary veins, rounded or cuneate at base, rounded at apex, retuse and apiculate. Stipels ca. 1 mm long, setaceous. Pseudoracemes axillary, 2–8 cm long, many flowered, with dense pubescence all over rachises. Flowers yellow, ca. 18 mm long. Bracts and bracteoles minute, ca. 1 mm long. Pedicels ca. 1 mm long, pubescent. Calyx tubular, ca. 8 mm long, with gray appressed hairs. Ovary linear, few ovuled, villous. Pod unknown.

Distribution: China (Hubei and Sichuan) (Fig. 9).

Habitat ecology: Thickets, alt. 200 m.

Phenology: Flowering from October to November.

There was some suspicion about the placement of *Rhynchosia henryi* due to its tubular truncate calyx, and it was later regarded as a variety of *D. villosa* (Forbes & Hemsley 1886–1888). Merrill (1910) treated it as a synonym of *D. villosa*. This species indeed resembles *D. villosa*, but differs in having oblong leaflets, and larger wings (Fig. 3C). *Dumasia oblongifoliolata*, published

nearly 100 years later (Wei & Lee 1985) is conspecific with *Rhynchosia henryi*. Pan (2007) erroneously treated *Rhynchosia henryi* as a synonym of *D. oblongifoliolata*. At specific rank the epithet "*henryi*" has priority, and Sa and Gilbert (2010) proposed the combination *D. henryi*. The type of *D. oblongifoliolata* is lost, and the illustration in the original paper is chosen here as the lectotype.

Additional examined specimens (total = 6): — **China**. Hubei: Yichang, Sanyoudong, *G. H. Chen 403* (HIB); Yichang, Sanyoudong, W of Liufeng Castle, *B. Pan 200609041* (PE); Yichang and immediate neighborhood, *A. Henry 3319* (K); W China, Yichang, *E. H. Wilson 1752* (K). W China, *E. H. Wilson 3427* (BM, K).

Dumasia prazeri S.V. Predeep & M.P. Nayar (Fig. 17)

J. Jap. Bot. 65(4): 109. 1990. — Type: Myanmar. "Upper Burma, W slope of Chattiah hill", 4 Dec. 1900, *J. C. Prazer s.n.* (holotype & isotype CAL!).

Climbing herbs. Stems slender, brownish villous, glabrescent with age. Stipules ovate-lanceolate, 3–4 mm long, 1–1.5 mm wide, pubescent, glabrescent when old. Petioles 2–7 cm long. Leaflets elliptic or ovate, 4–7 × 2–5 cm, papery, rounded or obtuse at base and apex, apiculate at apex. Leaflets densely pubescent above, more hairy below, with 5–7 secondary veins. Stipels setaceous, 2–3 mm long. Pseudoracemes axillary, 5–12 cm long, many flowered. Flowers yellow, 7–8 mm long. Pedicels 1–2 mm long, pubescent. Bracts lanceolate, 3.5–4 mm long. Bracteoles 2, below calyx. Calyx tube 4–5 mm long, sparsely pubescent. Ovary shortly stipitate, subfalcate, with 3 or 4 ovules. Style slender, dilated near middle, upcurved part cylindrical. Pod subfalcate, glabrous. Seeds unknown.

Distribution: Myanmar (Fig. 9).

Habitat ecology: Unknown.

Phenology: Flowering in December.

This species has the smallest flowers in the genus, only 7–8 mm long.

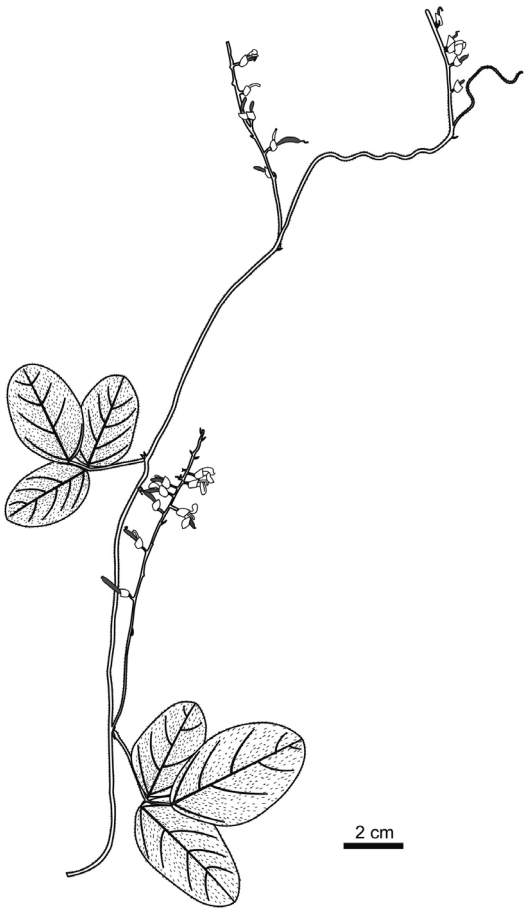

Fig. 17. *Dumasia prazeri* (from the holotype).

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