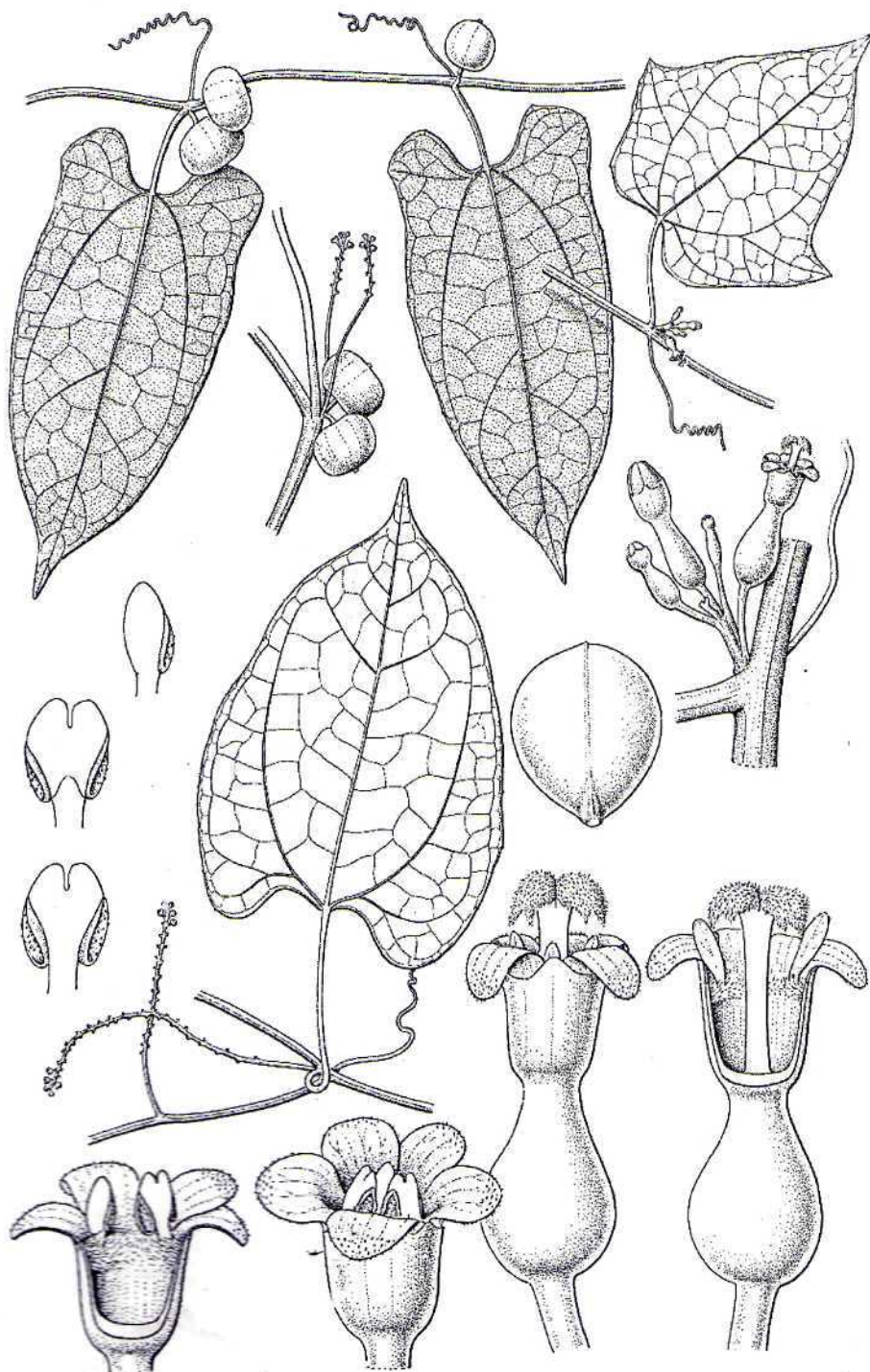




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KEDROSTIS MEDIK. (CUCURBITACEAE) IN ASIA

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ABSTRACT

DE WILDE, W.J.J.O. & DUYFJES, BRIGITTA E.E. 2004. *Kedrostis* Medik. in Asia. *Reinwardtia* 12(2):129 – 133. — *Kedrostis* (Cucurbitaceae) occurs in Africa and Madagascar and comprises 4 (5) species in Asia. Of these 2 species are found in India and Sri Lanka and 2 (3) species in western Malesia. One Malesian species is for the first time included in *Kedrostis* here, *Kedrostis bennettii* (Miq.) W.J. de Wilde & Duyfjes, and one species is described as new here, *Kedrostis hirta* W.J. de Wilde & Duyfjes. One more Malesian species is insufficiently known to be formally described.

Keywords: *Kedrostis*, *Cucurbitaceae*, SE Asia, taxonomy

ABSTRAK

DE WILDE, W.J.J.O. & DUYFJES, BRIGITTA E.E. 2004. *Kedrostis* Medik. di Asia. *Reinwardtia* 12(2):129 – 133. — *Kedrostis* (Cucurbitaceae) ada di Afrika dan Madagaskar dan terdiri atas 4 (5) jenis ada di Asia. Dua jenis diantaranya ditemukan di India dan Sri Lanka dan 2 (3) jenis ada di Malesia bagian barat. Salah satu jenis dari Malesia yang pertama kali dimasukkan dalam *Kedrostis*, yaitu *Kedrostis bennettii* (Miq.) W.J. de Wilde & Duyfjes, dan satu jenis dipertelakan sebagai jenis baru disini, *Kedrostis hirta* W.J. de Wilde & Duyfjes. Satu jenis lagi dari Malesia yang belum cukup untuk dapat dipertelakan secara resmi.

Kata kunci: *Kedrostis*, *Cucurbitaceae*, Asia Tenggara, taksonomi

INTRODUCTION

Kedrostis Medik. is an Old World genus occurring in Africa and Madagascar with c. 20 species and in SE Asia with 5 species. In Asia the distribution is restricted to two separate areas: 2 species (of which *K. foetidissima* also in Africa) in S India and Sri Lanka and 3 (including one insufficiently known and not formally described species from Peninsular Malaysia) in West Malesia. The genus is notably absent from northern India, China and Indochina. The three West Malesian species are somewhat distinct from the Indian ones; they are stouter in habit, and in the widely distributed (but scattered) *K. bennettii* (Miq.) W.J. de Wilde & Duyfjes the male inflorescences may grow into long spikes with ebracteate persistent pedicels. In all three species the fruit contains only 1 (or 2) seeds (in other species [of *Kedrostis*] usually more). *Kedrostis bennettii* is offensively smelling when crushed, similar as is known for the Indian *K. foetidissima* (Jacq.) Cogn.

Most of the older species were originally described in other genera, until Cogniaux (1881, 1916). Later noteworthy treatments redefining the genus are by Jeffrey (1967) for East Africa and Keraudren (1966) for Madagascar. As in many

more *Cucurbitaceae*, the material available for study is scanty and recent collections are often absent, the neglect possibly due to very local occurrence, destruction of habitat, short flowering period, and inconspicuous caducous flowers.

The notion that the Asian genus *Cerasiocarpum* is identical with *Kedrostis* (described from Africa) was brought forward by C. Jeffrey (1962). However, *Kedrostis courtallensis* (from India and Sri Lanka) and *Cerasiocarpum bennettii* (from West Malesia) were not regarded as specifically different at the time. Therefore, the combination *Kedrostis bennettii* (Miq.) W.J. de Wilde & Duyfjes is made on the present occasion.

Of all species concerned, complete material has been studied only for Malesia, and only for the widespread *K. bennettii* was it sufficient to allow for a full description.

The records of the occurrence of *Kedrostis* in New Guinea must be regarded as erroneous, as noted under *K. bennettii*.

KEDROSTIS Medik.

Kedrostis Medik. (1791) 69. — Type: S. Africa, *K. africana* (L.) Cogn. (1881: 643).

Rhynchocharpa Endl. (1839) 936. — Type: Africa, *R. foetidissima* (Jacq.) Walpers (1843: 197) [*Tricho-*

santhes foetidissima Jacq. (1789: 341); *K. foetidissima* (Jacq.) Cogn. (1881: 634)].

Achmandra Arn. (1840) 49; (1841) 274 (*Aechmandra*); Wight (1842) 267. — Lectotype (Pfeiffer, 1873): S India, *A. rostrata* (Rottler) Arn. (1841: 274) [*Bryonia rostrata* Rottler (1803: 212) = *K. foetidissima* (Jacq.) Cogn.].

Bryonopsis Arn. (1840) 49; (1841) 274. — Type: S India, *B. courtallensis* Arn. (1841: 274) [*K. courtallensis* (Arn.) C. Jeffrey (1962: 353)].

Cerasiocarpum Hook f. (1867) 832; Cogn. (1881) 728; (1919) 238. — Type: Sri Lanka, *C. zeylanicum* (Thwaites) C.B. Clarke (1879: 629) [*Aechmandra zeylanica* Thwaites (1859: 125) = *K. foetidissima* (Jacq.) Cogn.].

Herbaceous or woody climbers, (sub-)perennial, with or without rootstock or tubers; glabrous or hairy; monoecious or dioecious (not in Asia?). *Leaves* simple, subentire or (deeply) lobed; petiole long. *Tendrils* simple or 2-branched (not in Asia). *Probract* absent. *Flowers* yellow or whitish (not in Asia). *Male flowers* in short or long peduncled racemes. *Pedicels* short or long, without or with (not in Asia) small bract. *Receptacle tube* cup-shaped. *Sepals* 5, small. *Petals* 5, free or very shortly united (not in Asia), imbricate, glabrescent or short (glandular) hairy. *Stamens* 3 or 5 (not in Asia), inserted in or close to the mouth of the receptacle tube. *Anthers* when 3: two 2-theous, one 1-theous, when 5 then all 1-theous; anthers with or without apically produced connective; thecae straight or little (much) curved. *Filaments* short. *Disc* minute, basal, unlobed, or carnosic but not apparent because it is fused with the base of the receptacle tube. *Female flowers* single or in a short, few-flowered raceme, sometimes co-axillary with male raceme; perianth resembling male. *Ovary* ovoid, glabrous or hairy, 2- or 3- (or 4-) locular; ovules few; style distinct; stigma subglobose, consisting of 2 or 3 (or 4) papillose lobes. *Staminodes* absent or usually 3 or 5, inserted in the mouth of the tube. *Disc* absent or not apparent. *Fruits* solitary or few-fascicled, fleshy, glabrous or hairy, subglobose, ovoid or fusiform, rarely dehiscent (not in Asia). *Seeds* mostly few, tumid, usually smooth.

An Old World genus of c. 25 species, of which 4 (5) species in Asia; not in Australia.

KEY TO THE SPECIES

1. a. Plant usually markedly hairy. [Male raceme up to 10-flowered]. Connective of anthers produced dorsally upwards. Ovary hairy. Fruit ovoid,

rostrate. Seeds 5—7, pyriform, subcompressed.

- *Africa, S India, Sri Lanka*. 3. *K. foetidissima*
- b. Plant subglabrous or with sparse appressed coarse hairs. Connective swollen but not much produced. Ovary (sub)glabrous. Fruit subglobose, not rostrate. Seeds (sub)globose, not or but little compressed..... 2
2. a. Male raceme (2-) 5—10-flowered. Stigma lobes stalked. Seeds 2—6, subglobose, c. 5 mm diameter. — *S. India, Sri Lanka*..... 2. *K. courtallensis*
- b. Male raceme (incompletely known in *K. hirta* & *K. species*) 10—40-flowered. Stigma lobes sessile. Seeds 1 or 2, globose, c. 7 mm diameter..... 3
3. a. Leaves with sparse appressed coarse hairs. — *Sumatra*..... 4. *K. hirta*
- b. Leaves glabrous..... 4
4. a. Female flowers 1—4 fascicled at the node. — *W. Malesia*..... 1. *K. bennettii*
- b. Female flowers several in a short (branched) raceme. — *Peninsular Malaysia*..... 5. *K. species*

1. *Kedrostis bennettii* (Miq.) W.J. de Wilde & Duyfjes, *comb. nov.* — Fig. 1.

Bryonopsis bennettii Miq. (1856) 657. — *Cerasiocarpum bennettii* (Miq.) Cogn. (1881) 729; (1916) 239, p.p., excl. fig. 55 and material from India and Sri Lanka; Backer (1964) 298. — Type: Java, *Horsfield s.n.* (holotype U; isotype K).

Climber 2—5 m; glabrous (in young parts with minute greyish hairs and brown gland-hairs), cystoliths usually obvious; monoecious or seemingly dioecious. *Leaves*: blade glabrous at both surfaces, (sub)entire or ± 5-angular or shallowly (deeply) 3(—5)-lobed, subcircular, or ovate or ovate-oblong in outline, 5—17 by 8—15 cm, apex acuminate, margin minutely sparsely dentate; petiole 3—6 cm long. *Male raceme* spike-like, up to 15 cm long, (10—)20—40-flowered, flowers rather spaced, peduncle 3—7 cm long, solitary or co-axillary with female flower(s). *Male flowers*: pedicel persistent, 1—2(—5) mm long, faintly articulate 0.5—1 mm below receptacle tube, bract absent; receptacle tube (2—)2.5—3 by (2—)3—5 mm, throat densely hairy, hairs white, 0.5—1 mm long; sepals triangular, (0.5—)1 by 0.7—0.1 mm, glabrous (except few minute brown gland-hairs); petals ± curved downward, bright light yellow, (ob)ovate, 2.5—3 by 2—2.5 mm, apex obtuse or rounded, in apical part densely fine hairy outside, densely gland-hairy inside; filaments 1(—1.5) mm long, with minute (gland) hairs, anthers connivent, dorsifixed above halfway, giving the anthers a ‘nodding’ aspect, (1—)1.5 by c. 1(—1.5) mm,

connective broad, \pm swollen, split at base and apex to c. $\frac{1}{4}$ deep, apical lobes broadly rounded, thecae narrow, c. 1 mm long, vertical, straight, \pm introrsely opening; disc (or pistillode) absent. *Female flowers*: 1—4 (sub)fascicled at the node; pedicel 2—5 mm long; ovary ovoid (-oblong), 3—4 by 2—3 mm, glabrous; perianth as in male; throat of receptacle tube densely hairy, hairs whitish, c. 0.5 mm long; staminodes 5, minute, c. 0.5 mm long or larger and broader, petal-like, 1(—1.5) mm long; style columnar, 2.5—3 by 0.5—0.7 mm, glabrous; stigma c. 2.5 mm diam., 2-lobed, lobes sessile, (\pm woolly) hairy, each shallowly 2 (or 3) lobed; ovary 2- (or 4?) locular, in basal part each locule with 1 ovule. *Fruit* globose or \pm transversely ellipsoid, 1—1.2 by 1—1.7 cm, shiny yellow, smooth, when dry pale brown, finely wrinkled, dull; fruiting pedicel 5—10 mm long. *Seeds* 1 or 2, subglobose, 7—8 mm diam., greyish or brownish, faintly low-margined, smooth.

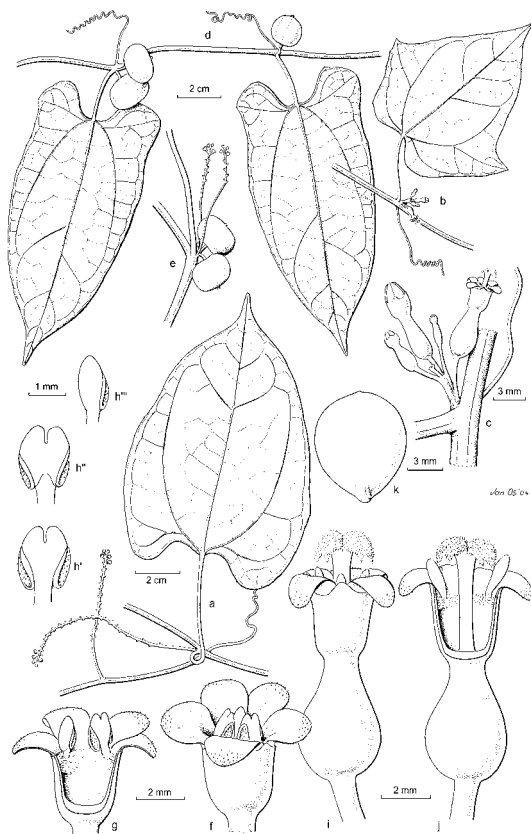


Fig. 1. *Kedrostis bennettii* (Miq.) W.J. de Wilde & Duyfjes. a. twig with male inflorescences; b. twig with female inflorescence; c. ditto, in detail; d. twig with fruits; e. twig with two male inflorescences and two fruits at the node; f. male flower; g. male flower, opened; h, h', h'', h'''. anther, seen abaxially, adaxially, and laterally respectively; i. female flower; j. female flower, opened; k. seed.

DISTRIBUTION. West Malesia (see notes): Sumatra, W & C Java.; Borneo (Sabah, E Kalimantan), Sulawesi.

HABITAT & ECOLOGY. A rare species of scattered distribution on damp, rich soil, also known from near limestone; at altitudes (to 1400 m).

NOTES. The records for New Guinea, far away from the species-area in West Malesia, are doubtful. Warburg (1891: 444) mentioned as doubtful a sterile collection from mountainous areas in Papua New Guinea. The same specimen was cited by Schumann & Lauterbach (1900: 590) and by Cogniaux (1916: 239) with the addition of *Schlechter 18623*, and by Harms (1925: 153) with the additional specimens *Ledermann 11855* and *12208b* (flowers pale yellow, at high altitudes). We have not seen any of these specimens (probably lost), and the species seems not to have been collected any more in New Guinea. We suspect, however, that the specimens discussed belong to a different genus, possibly *Zehneria*.

SPECIMENS EXAMINED. Sumatra: *Beccari 293*, Padang; *Forbes 2810*, fr., Tandjong Nine; *Korthals 30, 31, 1017*, s.n. (Aug. 1878), all fr., all Ajer Mantjoer. Java: *Amdjah 218*, fr., Noesa Kambangan; *Bakhuizen van den Brink 835*, fr., Gunung Sadong; *1836*, fr., Tjampea; *4074*, fl., Gunung Pantjari; *Beumée 6606*, fl., Depok; *6067*, ♂, fr., Depok; *Blume 32*, ♂, without locality; *Broeder J. D38042*, fr., Purwokerto; *Den Berger 389*, fr., near Tjampea; *Horsfield s.n.*, Banjoemas; *Koorders 30745* fr., Tjampea; *44080*, ♂, Depok; *47946*, fr., Noesagedeh; *47947*, Preanger; *Van Steenis 2701* fr., Tjampea. Borneo: Sabah: *De Wilde, Lim & Postar SAN 139452*, ♂, fr., Sandakan, near Gomantong Cave; *De Wilde, Duyfjes, Postar, Tawadong & Samor SAN 14452*, ♂, ♀, fruit; *Krispinus SAN 113831*, fr., Keningau, Crocker Range; *Van Balgooy 7271*, ♀, fr., Sandakan, near Gomantong Cave; Kalimantan: *Kostermans 21532* fr., Berau. C. Sulawesi: *Kjellberg 2472*, ♀, fr.

2. *KEDROSTIS COURTALLENSIS* (Arn.) C. Jeffrey

Kedrostis courtallensis (Arn.) C. Jeffrey (1962) 353; (1980) 792, excl. synonym *Bryonopsis bennettii* Miq.; Philcox (1997) 33. — *Bryonopsis courtallensis* Arn. (1841) 274. — Type: India, *Wight 1147* (Holotype K).

Aechmandra zeylanica Thwaites (1859) 125. — *Cerasiocarpum zeylanicum* (Thwaites) C.B. Clarke

(1879) 629.— Syntype: Sri Lanka, *Thwaites C.P. 3002, 3500* (CAL, K).

Cerasiocarpum bennettii auct. non (Miq.) Cogn.: Cogn. (1881) 729; (1916) 239, fig. 55; Chakravarty (1959) 167, all p.p., for the Indian and Sri Lanka material only.

DISTRIBUTION. S India, Sri Lanka.

NOTES. *Kedrostis courtallensis* is possibly a montane species, in India recorded at 1000 m, in Sri Lanka between 1000 and 1700 m altitude.

3. *KEDROSTIS FOETIDISSIMA* (Jacq.) Cogn.

Kedrostis foetidissima (Jacq.) Cogn. (1881) 634; (1916) 140; C. Jeffrey (1967) 137, fig. 23, 11; Matthew (1982) plate 298: 1—4 & 7--14; (1983) 645. — *Trichosanthes foetidissima* Jacq. (1789) 341; (1790) t. 624. — *Rhynchosarpha foetida* Schrad., nom. illegit.: C.B. Clarke (1879) 627. — Type: a plant sent from W Africa, cultivated at Vienna and depicted in Jacq. 1790: t. 624.

Bryonia rostrata Rottler (1803) 212; Willd. (1805) 616; Ser. (1828) 304; Wight & Arn. (1834) 346. — *Aechmandra rostrata* (Rottler) Arn. (1841) 274. — *Rhynchosarpha rostrata* (Rottler) Naudin (1862) 177; Kurz (1877) 105. — *Kedrostis rostrata* (Rottler) Cogn. (1881) 636; (1916) 142; Chakrav. (1959) 166, fig. 74: 82. — Type: India, Nandaradah Rottler 766, (holotype B-Willd., cat. nr. 18054; isotype K, not seen).

DISTRIBUTION. Africa & Asia: India, east to Myanmar (Chakravarty, 1959; Jeffrey, 1980; from Myanmar we have seen only a photograph of Wallich cat. 6713).

NOTES. 1. In S India and Sri Lanka *K. foetidissima* may be confused with *Solena amplexicaulis*, both with rostrate fruit; see De Wilde & Duyfjes (2004).

2. According to Philcox (1997) for Sri Lanka and Matthew (1982, 1983) for S India, the species is markedly hairy, but in the diagnosis of the synonym *Bryonia rostrata* Rottler it is stated that the plant is glabrous. We examined only a photocopy of the type-specimen in B-WILLD.

4. *Kedrostis hirta* W.J. de Wilde & Duyfjes, *spec. nov.*

Kedrostidi bennettii similis, planta toto pubescenti, inflorescentiis masculis brevioribus 0.5--2 cm longis floribus paucioribus differt. — Typus: Sumatra, *De Wilde & Duyfjes 19257* (Holotypus L).

Climber, 2—5 m; sparsely (brown-) grey hairy; stem 1.5—5 mm diam., with curved hairs 0.1(–0.2) mm long, cystoliths not obvious; monoecious. *Leaves*: blade with sparse appressed hairs c 1 mm long at both surfaces, 3- or 5-lobed to 1/3—3/4, subcircular in outline, 9—13 cm diam., lobes narrowly triangular or oblong, 3—9 cm long, base shallowly broadly cordate, apex acute-acuminate, margin with sparse brown-black soft teeth to 1 mm long; petiole 3—4 cm long, with curved hairs c. 0.5 mm long, the lower portion ± twisted on drying. *Male raceme* with 5—10 flowers in a condensed spike 0.5—1 cm long, peduncle c. 1.5 cm long, co-axillary with female flowers. *Male flowers*: pedicel c. 1 mm long, bract absent; flowers unknown. *Female flowers*; solitary or 2—5 fascicled at the node or with (presumably male flowers) arranged in 0.5—3 cm long short-shoots. *Fruit* subglobose-ellipsoid, 1—1.3 cm long, dull brown, coarsely wrinkled on drying; fruiting pedicel c. 3 mm long. *Seed* 1, globose, c. 7 mm diam., dark brown with a faint paler margin, smooth.

DISTRIBUTION. Endemic to Sumatra.

HABITAT & ECOLOGY. Forest edges or open places in forest, to 400 m altitude. Fruiting in July.

NOTE. *Kedrostis hirta* is similar to *K. bennettii*, but the latter differs in being totally glabrous and in having a long many-flowered male inflorescence, to 15 cm long.

5. *Kedrostis* sp.

Climbers; glabrous, except minute gland-hairs on inflorescences, cystoliths not obvious; mono-ecious? (see note). *Leaves*: blade entire or with an odd shallow side-lobe, elliptic-oblong, 8—15 by 4—9 cm, base subtruncate, apex long-acuminate, margin entire (without sparse minute teeth); petiole 1.5—3 cm long. *Inflorescences* 2- or 3-branched, c. 1 cm long, 10—20-flowered, in basal portion of branches with 1 or 2 fruits, and several persistent pedicels c. 2 mm long of presumably female flowers, at apex with few more slender persistent pedicels c. 3 mm long of presumably male flowers. *Male* and *female* flowers not known. *Fruit* ovoid(-globose), c. 1.5 cm long, shiny brown-green (red when ripe), coarsely wrinkled on drying; fruiting pedicel c. 3 mm long. *Seeds* 1 (or 2?), globose, grey-brown, 7 mm diam., with a low margin all around, smooth.

DISTRIBUTION, HABITAT & ECOLOGY. Malaya, Pahang, Ulu Krau, G. Benom Game Reserve. Known only from one collection, *Rahim Ismail KEP 100114*, from primary forest on hillside; fruiting in April.

NOTE. This obviously distinct species is left unnamed because the flowers are unknown and the nature of the male inflorescence remains unclear. It is close to *K. bennettii* and *K. hirta*, especially in the similar globose seeds.

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