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CHECKLIST

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The Cucurbitaceae of India: Accepted names, synonyms, geographic distribution, and information on images and DNA sequences

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Abstract

The most recent critical checklists of the Cucurbitaceae of India are 30 years old. Since then, botanical exploration, online availability of specimen images and taxonomic literature, and molecular-phylogenetic studies have led to modified taxon boundaries and geographic ranges. We present a checklist of the Cucurbitaceae of India that treats 400 relevant names and provides information on the collecting locations and herbaria for all types. We accept 94 species (10 of them endemic) in 31 genera. For accepted species, we provide their geographic distribution inside and outside India, links to online images of herbarium or living specimens, and information on publicly available DNA sequences to highlight gaps in the current understanding of Indian cucurbit diversity. Of the 94 species, 79% have DNA sequences in GenBank, albeit rarely from Indian material. The most species-rich genera are *Trichosanthes* with 22 species, *Cucumis* with 11 (all but two wild), *Momordica* with 8, and *Zehneria* with 5. From an evolutionary point of view, India is of special interest because it harbors a wide range of lineages, many of them relatively old and phylogenetically isolated. Phytogeographically, the north eastern and peninsular regions are richest in species, while the Jammu Kashmir and Himachal regions have few Cucurbitaceae. Our checklist probably underestimates the true diversity of Indian Cucurbitaceae, but should help focus efforts towards the least known species and regions.

Keywords

Conservation, revised generic boundaries, *Cucumis* wild species, India's phytogeographic regions, Cucurbitaceae tribal classification, *Trichosanthes*

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Introduction

Jeffrey's (1980) and Chakravarty's (1982) checklists of the Cucurbitaceae of India are now more than three decades old. Over this time, knowledge of the family's representatives on the Indian continent has grown considerably through botanical exploration, the additions of Naithani (1990), new treatments for Thailand (De Wilde and Duyfjes, 2008a) and China (Lu et al., 2011), and revisionary work on genera, such as *Trichosanthes* (De Boer and Thulin, 2012) and *Coccinia* (*Holstein*, in press). Added to this, the online availability of taxonomic literature and specimen images, and molecular-phylogenetic studies clarifying natural clade boundaries (e.g., Kocyan et al., 2007; Schaefer et al., 2009; Sebastian et al., 2011; De Boer et al., 2012), have led to many taxonomic and nomenclatural changes. Updating the two checklists of Indian Cucurbitaceae was therefore timely, especially since the Cucurbitaceae include several of the World's most important vegetables, such as melon (*Cucumis melo*), cucumber (*C. sativus*), watermelon (*Citrullus lanatus*), pumpkin and squash (*Cucurbita* spp.), and bitter gourd (*Momordica charantia*). Having a current list that is linked with molecular data and images may help focus phylogenetic and floristic research on undercollected species, and potentially strengthen conservation efforts.

Here we present a checklist of the Cucurbitaceae of India that treats just over 400 relevant taxon names. For each accepted species, we provide (i) type information including collecting location and herbaria, (ii) synonyms and their types, (iii) information on geographic range inside and outside India, (iv) links to online images of herbarium or living specimens, and (v) brief information on whether or not DNA sequences are available in GenBank at the National Center for Biological Information (http://www.ncbi.nlm.nih.gov), with citation of relevant studies. DNA sequences today are essential; they help in the quick identification of sterile material via characteristic sequence motifs or "barcoding" (an Asia-focussed example is Li et al., 2011) and are required for evolutionary and biogeographic studies (e.g., Sebastian et al., 2011, De Boer et al., 2012). Even DNA sequences not coming from Indian material can help place the Indian species in context and to recognize if Indian material differs from African or Chinese material going by the same name.

Materials and methods

Names that have been applied to Indian Cucurbitaceae were taken from Jeffrey (1980, 1981), Chakravarty (1982), and an unpublished compilation provided by Peter Raven (the Missouri Botanical Garden, St. Louis) and Kanchi Gandhi (Harvard University Herbaria, Boston). We also checked floras of neighboring or near-by countries, especially Naithani (1990), the *Flora of China* treatment (Lu et al., 2011), and numerous publications by De Wilde and Duyfjes (cited in our reference list). Information on the types (collector and location) of the 400 names was obtained from protologues, most of them available online. For nomenclatural types from India, we updated the

state in which the respective specimen was collected to agree with modern administrative units. Taxonomic or nomenclatural synonyms were obtained by checking relevant post-1980 treatments (cited under the respective genus or species).

Distributions within India (by state) and outside India (by country or continent) were taken mostly from Chakravarty (1946, 1959, 1982), up-dated from floristic treatments, such as Lu et al. (2011) and the work of De Wilde and Duyfjes (e.g., 2004a, b, 2006a, b, c, 2007a, b, 2008a, 2010, and as cited below). The links to images lead to type specimen images from various herbaria or the efloraofindia website (https://sites.google.com/site/efloraofindia/). This website has been created for documenting the flora of India and currently has a database of 7500 species and over one million pictures at its e-group links. For each accepted species or relevant synonyms we checked GenBank (http://www.ncbi.nlm.nih.gov) for sequences and the published studies they are related to.

Results and discussion

Comparison with the two 1980s checklists and main causes of name changes

Applying recent taxonomic changes resulted in the acceptance of 94 species. This is almost unchanged from the species number listed in previous checklists (Jeffrey, 1980: 90 species; Chakravarty, 1982: 100 species). A species no longer included is *Zehneria wallichii* from central Myanmar. Newly added species include *Trichosanthes khasiana* and *T. quinquangulata*. Compared to 1980, generic concepts have changed considerably, with many species names having been moved, especially in the genera *Cucumis* and *Zehneria*, and formerly monotypic genera having been merged (Schaefer and Renner, 2011b). Genera no longer accepted are *Biswarea* (=*Herpetospermum*), *Cucumella* (= *Cucumis*), *Dicoelospermum* (= *Cucumis*), *Edgaria* (=*Herpetospermum*), *Gymnopetalum* (=*Trichosanthes*), *Mukia* (= *Cucumis*), *Neoluffa* (= *Siraitia*), *Praecitrullus* (= *Benincasa*), and *Sechium* (= *Sicyos*). All these changes are based on molecular-phylogenetic results, cited under the respective species. *Melothria* in its modern circumscription is confined to the New World and does not occur in India. Its two Indian species have been moved to *Cucumis* and *Solena*.

Compared to other tropical regions of the size of India, for example, Brazil, the addition of new species records over the past 30 years has lagged behind. We suspect that many species new for India are awaiting discovery in the field and in yet unidentified herbarium material. Since Indian herbaria are reluctant to send out loans, their material probably is understudied.

Natives, endemics, cultivated species, and status of DNA sequencing

Of the species of Cucurbitaceae in India, at least nine are introduced cultivated vegetables from Central and South America or Africa (*Citrullus lanatus*, *Cyclanthera pedata*, *Kedrostis foetidissima*, *Sicyos edulis*, and five species of *Cucurbita*). Of the native species,

ten are endemic: *Cucumis indicus* (Kerala, Maharashtra), *C. ritchiei* (Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu), *C. setosus* (Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan), *C. silentvalleyi* (Kerala), *Momordica sahyadrica* (Kerala), *Solena amplexicaulis* (Tamil Nadu, Karnataka, Kerala), *Trichosanthes anaimalaiensis* (Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu, Tripura), *Trichosanthes khasiana*, *Zehneria hookeriana* (Tamil Nadu), and *Z. maysorensis* (Kerala). Clearly, Kerala is the state with the highest number of endemics, followed by Tamil Nadu. The most species-rich Cucurbitaceae genera in India are *Trichosanthes* with 22 species, *Cucumis* with 11 (all but two wild), *Momordica* 8, and *Zehneria* with 5.

While 86 native species, including just ten endemics, may not be large numbers, India harbors an exceptional range of tribes as seen in Fig. 1, which shows the placement of the native Indian genera on a Cucurbitaceae family tree with the family's current tribal classification (Schaefer and Renner, 2011b). Many of the Indian species, such as *Actinostemma*, *Gynostemma*, *Hemsleya, Indofevillea, Momordica* and *Siraitia* belong to old and phylogenetically isolated lineages. This is known because 79% of the Cucurbitaceae species occurring in India have been sequenced for one or more genetic markers. Cucumber and melon, which originate in India, both have had their genomes completely sequenced (Huang et al., 2009; García-Mas et al., 2012), and many have been included in family-wide phylogenetic analyses (Kocyan et al., 2007; Schaefer et al., 2009; Schaefer and Renner, 2011b). The currently 20 species without any DNA sequences in GenBank may be found by searching our checklist for "no published sequences available."

Floristic distribution within India and disjunctions between Africa and India

The highest number of species is known from the northeast and peninsular India (Kerala, Karnataka, Tamil Nadu, Andhra Pradesh), the lowest from the Jammu Kashmir and Himachal regions of Western Himalaya. Especially interesting from a phytogeographic standpoint are species ranging from Africa to India, such as *Coccinia grandis*, *Blastania cerasiformis*, *Corallocarpus conocarpus*, *C. epigaeus, C. schimperi*, *Cucumis prophetarum*, *Dactyliandra welwitschii, Luffa echinata*, *Momordica cymbalaria,* and *Zehneria thwaitesii*. The genera *Diplocyclos* and *Kedrostis* also both have species in East Africa and India, but apparently not individual species spanning both continents. These disjunctions would be interesting to study with molecular methods, which might allow inferring arrival times in India.

Conclusion

One of the great technical advances of recent years that are positively affecting taxonomy is the easy exchange of photos. Even simple snap shots of living plants (and cer-

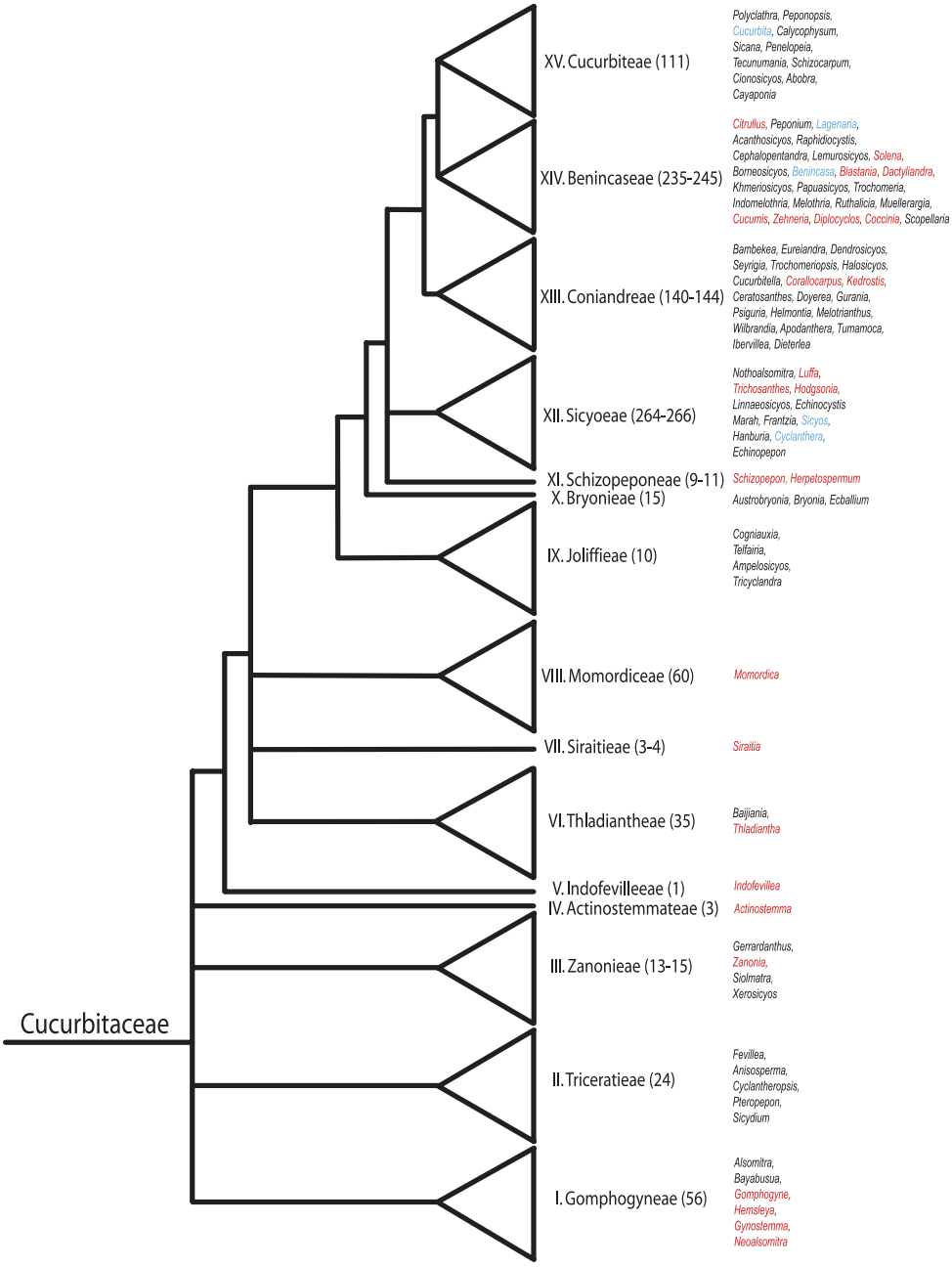

Figure 1. Tribal classification of the Cucurbitaceae with native Indian genera highlighted in red, cultivated ones in blue. Modified from Schaefer and Renner (2011a, b).

tainly type images) greatly facilitate deciding the identity of a particular plant, and we hope that our links to the efloraofindia (https://sites.google.com/site/efloraofindia/) will proof useful. The greatest caveat concerning our checklist is that the geographic

Table 1. Genera and species of Cucurbitaceae in India (94 total)

Genera	Number of species
Actinostemma	1
Benincasa	2
Blastania	2
Bryonia	2
Citrullus	2
Coccinia	1
Corallocarpus	3
Cucumis	11
Cucurbita	5 (all cultivated)
Cyclanthera	1
Dactyliandra	1
Diplocyclos	1
Gomphogyne	1
Gynostemma	1
Hemsleya	1
Herpetospermum	3
Hodgsonia	1
Indofevillea	1
Kedrostis	2
Lagenaria	1
Luffa	4
Momordica	8
Neoalsomitra	1
Schizopepon	3
Sicyos	1
Siraitia	1
Solena	3
Thladiantha	2
Trichosanthes	22
Zanonia	1
Zehneria	5

range information inside India is not directly based on specimens, but is more or less copied from Chakravarty (1982) and thus surely incomplete. It is to be hoped that the digization of Indian material in the future will help achieve a deeper study of the Cucurbitaceae of India.

Checklist

1. *Actinostemma tenerum* Griff., J. Asiat. Soc. Bengal 23(7): 643–644. 1854.

Syntypes: India, Meghalaya, Khasia Hills, *Griffith 2523* (K, W); India, Sadiya, upper Assam, also on Khasia Hills, *T.E. Cantor s.n.* (K).

Distribution in India: Arunachal Pradesh, Assam, Bihar, Meghalaya, Mizoram, Uttar Pradesh, West Bengal.

Distribution outside India: Bangladesh, Vietnam, Laos, Cambodia, Russia, China, Taiwan, Korea, and Japan (Schaefer and Renner, 2011a).

Images: *Griffith* syntype: http://herbarium.univie.ac.at/database/detail.php?ID=63181 http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742924

GenBank: Sequences from Kocyan et al. (2007), e.g., DQ491007, DQ469135.

Comments: *Actinostemma* comprises two other species, both in China. Based on genetic data, this is an isolated ancient lineage (Schaefer and Renner, 2011a, b; see also our Fig. 1). Ali Khan (2002) discusses the species' occurrence in Uttar Pradesh.

2. *Benincasa fistulosa* (Stocks) H.Schaef. & S.S.Renner, Taxon 60: 133. 2011.

Citrullus fistulosus Stocks, Hooker's J. Bot. Kew Gard. Misc. 3: 74, t. 3. 1851. *Citrullus vulgaris* Schrad. ex Eckl. & Zeyh. var. *fistulosus* (Stocks) J.L.Stewart, Punjab Pl. 96. 1869.

Praecitrullus fistulosus (Stocks) Pangalo, Bot. Zhurn. S.S.S.R. 29: 203. 1944.

Colocynthis citrullus (L.) Kuntze var. *fistulosus* (Stocks) Chakrav., Rec. Bot. Surv. India 17(1): 116. 1959.

Citrullus lanatus (Thunb.) Matsum. & Nakai var. *fistulosus* (J.L.Steward) Babu, Herb. Fl. Dehra Dun 194. 1977, invalid name because Babu erred in the basionym he cited.

Citrullus lanatus (Thunb.) Matsum. & Nakai var. *fistulosus* (Stocks) Chakrav., Fasc. Fl. India 11: 23. 1982, nom. illeg. isonym.

Type: Pakistan [India], Kurrachee, Sinde, 1 Sep. 1850, *Stocks s.n.* (K).

Distribution in India: Punjab, Rajasthan, Uttar Pradesh.

Distribution outside India: Introduced (?) in tropical Africa.

GenBank: Sequences from Dane and Lang (2004) and Kocyan et al. (2007), e.g., DQ536719, DQ648185, AY522525.

Comments: Cultivated in India and Pakistan as a vegetable. The origin of *Benincasa fistulosa* is unclear, and the species is currently only known in cultivation.

3. *Benincasa hispida* (Thunb.) Cogn. in A. & C. DC., Monog. Phan. 3: 513. 1881.

Cucurbita hispida Thunb., Nov. Acta Regiae Soc. Sci. Upsal. 4: 38. 1783.
Benincasa pruriens (Parkinson) W.J.de Wilde & Duyfjes forma *hispida* (Thunb.) W.J.de Wilde & Duyfjes, Sandakania 17: 47. 2008.
Type: Japan, *Thunberg 22775* (UPS, IDC microfiche). *Benincasa cerifera* Savi, Bibliot. Ital. (Milan) 9: 158-165, f. a-g. 1818.
Type: China, cult. in the Pisa botanical garden (herbarium?).

Distribution in India: Cultivated in tropical and subtropical regions of India.
Distribution outside India: Pakistan. India, Pakistan, Malayasia, Eastern Australia, Polynesia, China & Japan. Wild origin unclear.
Images: http://plants.usda.gov/java/profile?symbol=BEHI3
Efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/benincasa/benincasa-hispida
GenBank: Sequences from Kocyan et al. (2007), e.g., DQ282075, DQ282074.
Comments: *Benincasa* comprises only the two species that occur in India (Schaefer and Renner, 2011a; see our Fig. 1 for the phylogenetic position of the tribe Benincaseae). Nicolson and Fosberg (2003) have argued that the name *Benincasa hispida* (Thunb.) Cogn. does not need to be replaced by *Cucurbita pruriens* Parkinson (J. Voy. South Seas 44 (1773), while De Wilde and Duyfjes (2008b) maintain that the oldest available name for this species is *C. pruriens*, hence *Benincasa pruriens* (Parkinson) W.J. de Wilde & Duyfjes.

4. *Blastania cerasiformis* (Stocks) A.Meeuse, Bothalia 8: 12. 1962.

Ctenolepis cerasiformis (Stocks) Hook.f., Fl. Trop. Afr. 2: 558. 1871.
Bryonia fimbristipula Fenzl ex Stocks, Hooker's J. Bot. Kew Gard. Misc. 4: 149. 1852, nom. inval. pro syn. of *Zehneria cerasiformis* Stocks
Blastania fimbristipula Kotschy & Peyr., Pl. Tinn. 15. t. 7. 1867.
Melothria fimbristipula (Kotschy & Peyr.) G. Roberty, Bull. I.F.A.N., Ser. 16:795. 1954.
Zehneria cerasiformis Stocks, Hooker's J. Bot. Kew Gard. Misc. 4: 149. 1852.
Syntype: Africa, Sudan, Blue Nile Province, Jebal Arashkol *Kotschy* 205 (CAL 2 sheets, photos available from SSR, K); Pakistan, *Stocks* 29 (K).

Distribution in India: Wild on wastelands in Gujarat.
Distribution outside India: Old World tropics from Mauritania & Senegal east to Pakistan and in E. Africa south to Transvaal.
Image: http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=157060
GenBank: Sequences from Kocyan et al. (2007), e.g., DQ535797, DQ536803.
Comment: The genus name *Blastania* Kotschy et Peyritsch was published in July 1867 (the full publication is online at the Biodiversity Heritage Library) and has priority over *Ctenolepis* J. D. Hooker in Bentham et J. D. Hooker, Gen. 1: 832. Sep 1867.

Jeffrey (1980) and Chakravarty (1982) both list *B. cerasiformis* (under *Ctenolepis*) in their checklists, but we have not seen Indian specimens.

5. *Blastania garcinii* (Burm.f.) Cogn. in A. & C. DC., Monogr. Phan. 3: 629. 1881.

Ctenolepis garcinii (Burm.f.) Benth. & Hook.f., Gen. Pl. 1(3): 832. 1867.
Bryonia garcinii (Burm.f.) Willd., Sp. Pl. 4(1): 623. 1805 (as *garcini*).
Sicyos garcinii Burm. f., Fl. Ind. 211 (err. typ. 311). 1768.
Type: India, Tamil Nadu, Chennai (formerly Madras), Tuticorin, *Garcin s.n.* (G) fide Jeffrey, 1980.

Distribution in India: Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh.
Distribution outside India: Sri Lanka.
Image: Nothing reliable found.
GenBank: No published sequences available.
Comments: *Blastania* includes *B. cerasiformis* from India and west to tropical Africa, *B. garcinii* from India and Sri Lanka, and a third species in Madagascar.

6. *Bryonia aspera* Steven ex Ledeb., Fl. Ross. 2:140. 1843.

Lectotype: Northern Caucasus, Narzan, *Bieberstein* (LE), designated by Jeffrey (1969).

Distribution in India: NW India: Jammu (Upper Chenab Valley), Himachal Pradesh (Chamba, Lahul-spiti).
Distribution outside India: Turkey, Iran, Georgia, Armenia, Azerbaijan, Turkmenistan, Norther Afghanistan, Pakistan.
Image: Nothing reliable found.
GenBank: Sequences from Volz and Renner (2009), e.g., EU683747, EU683740.
Comment: This was treated as *B. dioica* Jacq. by Chakravarty (1982), but that species does not occur as far east as India, ranging instead from Spain south to Algeria and Morocco, Sardinia, Corsica, and the Greek Peninsula and east to mid-Poland; a distribution map with all species of *Bryonia* is provided by Volz and Renner (2009).

7. *Bryonia monoica* Aitch. & Hemsl., Trans. Linn. Soc. London, Bot. 3(1): 65. 1888.

Type: Afghanistan, Badghis, *Aitchison 339* (CAL photo available from SSR, K).

Distribution in India: Probably near the Pakistani border.
Distribution outside India: Kazakhstan, Uzbekistan, Kirgizstan, Turkmenistan, Afghanistan, Iran, Pakistan.
Image: Nothing reliable found.
GenBank: Sequences from Volz and Renner (2009), e.g., EU096421, EU096419.

Comment: Chakravarty (1982) treated this under the name *B. multiflora* Boiss. & Heldr., but that species occurs instead in Turkey, Iran, Iraq and Syria (Jeffrey, 1969; Volz and Renner, 2009).

8. *Citrullus colocynthis* (L.) Schrad., Linnaea 12: 414. 1838. *Cucumis colocynthis* L., Sp. Pl. 2: 1011. 1753.

Colocynthis vulgaris Schrad., Ind. Sem. 1:fig. 99. 1950.
Type: Not designated.

Distribution in India: Andhra Pradesh, Assam, Bihar, Jahrkhand, Delhi, Goa, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh.
Distribution outside India: Afghanistan, Myanmar, Pakistan, Sri Lanka, west to the Sahara (Lybia) and Sahel region.
Images: See efloraof India at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/citrullus/citrullus-colocynthis
GenBank: Sequences from Kocyan et al. (2007), e.g., DQ536649, DQ535791.
Comments: *Citrullus colocynthis,* or colocynth, is a perennial growing wild on sandy soils in deserts areas in Western and Central India. Many authors have treated Herb. Linn. No. 1152.1 (LINN) as the type. However, this collection lacks the relevant *Species Plantarum* number and was a post-1753 addition to the herbarium; it is not original material for the name (Jarvis, 2007).

9. *Citrullus lanatus* (Thunb.) Matsum. & Nakai, Cat. Sem. & Spor. Hort. Bot. Univ. Imp. Tokyo 1916: 30. 1920 ("1916").

Momordica lanata Thunb., Prodr. Pl. Cap. 13. 1794.
Type: South Africa, Cape Province, *Thunberg s.n.* (UPS).
Cucurbita citrullus L., Sp. Pl. 2: 1010. 1753.
Type: "Habitat in Apulia, Calabria, Sicilia"; lectotype not designated.
Citrullus vulgaris Schrad. ex Eckl. & Zeyh., Enum. Pl. Afric. Austral. 2: 279. 1836.
Type: Not known fide De Wilde and Duyfjes (2010).

Distribution in India: Andaman & Nicobar Islands, Assam, Bihar, Jahrkhand, Delhi, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal.
Distribution outside India: Nepal, Pakistan; native to tropical Africa.
Images: The Thunberg holotype can be seen here: http://130.238.83.220/botanik/browserecord.php?-action=browse&-recid=371376
http://www.flowersofindia.net/catalog/slides/Watermelon.html
See also efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/citrullus/citrullus-lanatus

GenBank: Several hundred sequences.

Comments: The watermelon was probably domesticated in northern Africa (Wasylikowa and van der Veen, 2004). The extent of its native range is unclear.

10. *Coccinia grandis* (L.) Voigt, Hort. Suburb. Calcutt. 59. 1845.

Bryonia grandis L., Mant. Pl. 126. 1767.

Type: India, without location, Herb. Linn. No. 1153.2 (LINN).

Bryonia alceifolia [sphalm. *alceaefolia*] Willd. in Rottler, Neue Schriften d. Ges. Naturf. Freunde Berlin 4: 223. 1803.

Type: India, Tamil Nadu, Tiruchinapally [Tiruchirappalli], Nov. 1793, *Rottler s.n*. (K).

Coccinia indica Wight & Arn., Prodr. Fl. Ind. Orient. 1: 347. 1834, nom. superfl. & illeg. for *Bryonia grandis* L.

Coccinia wightiana M.Roem., Syn. Pepon.: 93. 1846.

Syntypes: India, Chennai, *Wallich Cat. 6711a* [D.Klein, B.Heyne or J.P.Rottler] in Herb. Madras s.n. (Paralectotype: E00174668); Nepalry, *Wallich Cat. 6711b* and 6711*e, R.Wight 1124* (Paralectotype: E00174667); Negapatam, *R.Wight 1124* (Lectotype, designated by Holstein, 2012: E00174666); *R.Wight 1124* (Paralectotype: NY, digital image).

Coccinia cordifolia (L.) Cogn. var. *wightiana* (M.Roem.) Cogn. in A. & C. DC., Monogr. Phan. 3: 531. 1881.

Coccinia grandis (L.) Voigt var. *wightiana* (M.Roem.) Greb. in R. Mansfeld & J. Schultze-Motel, Verz. Landwirtsch. u. Gaertn. Kulturpfl. 2: 929. 1986.

Cephalandra indica Naudin var. *palmata* C.B. Clarke, Fl. Brit. India 2: 621. 1879, nom. & stat. nov.

Distribution in India: Distributed in plains of India, ascending c. 300 m in Peninsular India; Andaman & Nicobar Islands, Andhra Pradesh, Assam, Bihar, Jharkhand, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Chhattisgarh, Maharashtra, Manipur, Odisha, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal.

Distribution outside India: Africa, China, Japan, Malesia, Myanmar, Pakistan, Sri Lanka.

Images: http://www.flowersofindia.net/catalog/slides/Ivy%20Gourd.html
http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742794
Efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/coccinia/coccinia-grandis

GenBank: Sequences from Holstein and Renner (2011), e.g., HQ608245, HQ608458.

Comments: The genus *Coccinia* has 35 species, all but *C. grandis* in Africa south of the Sahara (Holstein, in press). In India, *C. grandis* has been used in traditional medicine for hundreds of years (Nadkarni and Nadkarni, 1976; Ramachandran and Subramaniam, 1983).

11. ***Corallocarpus conocarpus*** (Dalzell & A.Gibson) Hook.f. ex C.B. Clarke, Fl. Brit. India 2: 628. 1879 (as *conocarpa*).

Aechmandra conocarpa Dalzell & A.Gibson, Bombay Fl. 100. 1861.
Type: India, Maharashtra, Bombay, Gujrat near Malpor and Gundar, *Dalzell 39* (K).

Distribution in India: Gujarat, Karnataka, Maharashtra, Rajasthan, Tamil Nadu.
Distribution outside India: Pakistan (fide the *Flora of Pakistan*, http://www.tropicos.org/Name/50326465?projectid=32, the species occurs also in Central Africa)
Image: http://apps.kew.org/herbcat/detailsQuery.do?imageId=375483&pageCode=3&presentPage=3&queryId=4&sessionId=CE49DA6B1178914C12C060C6D319E224&barcode=K000592620
GenBank: No published sequences available.
Comments: *Corallocarpus* has two species in Madagascar, eight in Africa (Schaefer and Renner, 2011a), and three that supposedly range from India to tropical East Africa. Chakravarty (1982) accepted four species for India, *C. conocarpus*, *C. epigaeus*, *C. gracilipes*, and *C. palmatus,* while Jeffrey (1980) considered the latter two names synonyms of *C. epigaeus* as do we, but also accepted *C. schimperi* for India.

12. ***Corallocarpus epigaeus*** (Rottler) Benth. & Hook.f. ex C.B. Clarke, Fl. Brit. India 2: 628. 1879 (as *epigaea)*.

Bryonia epigaea Rottler, Neue Schriften d. Ges. Naturf. Freunde Berlin 4: 212. 1803.
Aechmandra epigaea (Rottler) Arn., J. Bot. 3: 274. 1841.
Rhynchocarpa epigaea (Rottler) Naudin, Ann. Sci. Nat., Bot. sér. 4, 16: 178. 1862. Syntypes: Peninsular India, *Klein 395 & 771* (B-W), *Rottler 3531* (HBG), *Rottler* (K).
Rhynchocarpa epigaea var. *gracilipes* Naudin, Ann. Sci. Nat., Bot. sér. 4, 16: 179. 1862. *Corallocarpus gracilipes* (Naudin) Cogn. in A. & C. DC., Monogr. Phan. 3: 656. 1881. Type: India, *J. Lepine* (P).
Corallocarpus palmatus Cogn. in A. & C. DC., Monogr. Phan. 3: 648. 1881. Type: India, Gujarat [Gujerat] near Malpor and Gundar, *Dalzell s.n.* (K). Further synonyms are listed in Jeffrey (1967).

Distribution in India: Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.
Distribution outside India: Baluchistan, Pakistan, Sri Lanka; tropical East Africa, Sudan.
Image: http://www.arkive.org/corallocarpus/corallocarpus-epigaeus/image-G117835.html Efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/corallocarpus/corallocarpus-epigaeus

GenBank: AM981182 from an unpublished paper.
Comments: The species is used as an anthelmintic (Chopra et al., 1956).

13. *Corallocarpus schimperi* (Naudin) Hook.f., Fl. Trop. Afr. 2: 567. 1871.

Rhynchocarpa schimperi Naudin, Ann. Sc. Nat., sér. 4, 16: 180. 1862.
Type: Ethiopia, Sera-Walqua, *Schimper 413* (P).
Corallocarpus velutinus (Dalzell & A.Gibson) Hook.f. ex C.B. Clarke, Fl. Brit. India 2(6): 628. 1879.
Aechmandra velutina Dalzell & A.Gibson, Bombay Fl. 200. 1861.
Type: W. Pakistan, *Dalzell 41* (K).
Corallocarpus courbonii (Naudin) Cogn. A. & C. in DC. Monogr. Phan. 3: 655. 1881.
Type: A plant cultivated in Paris from seeds sent from Ethiopia, *A. Courbon 334* (P P00346198, http://plants.jstor.org/search?plantName=Rhynchocarpa%20courbonii).

Distribution in India: Unclear.
Distribution outside India: Pakistan and tropical East Africa and Arabia
Image: See *Flora of Pakistan*: http://www.tropicos.org/Name/9201617?projectid=32
GenBank: No published sequences available.
Comments: The supposed three species of *Corallocarpus* in India are in urgent need of taxonomic study.

14. *Cucumis hystrix* Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 896. pl. 6. 1952.

Type: India, Meghalaya [earlier in Assam], Garo Hills, Tura Mountain, alt. 3000 ft; November 1929; *N.E. Parry 859* (K).
Cucumis muriculatus Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 896. 1952.
Type: Myanmar, Ruby Mines District, Oct. 1912, *J. H. Lace 6325* (E), here synonymized by Kirkbride (1993).

Distribution in India: Arunachal Pradesh, Assam, Meghalaya, Mizoram.
Distribution outside India: Myanmar, N and W Thailand, SW China.
Image: http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742801
http://ts-den.aluka.org/fsi/img/size1/alukaplant/e/phase_01/e0000/e00301190.jpg
GenBank: Sequences from Renner et al. (2007), Sebastian et al. (2010), and many others, e.g., HM597016, HM597017.
Comments: Based on molecular data, *Cucumis* has about 25 species in Asia and Australia. *Cucumis hystrix* is the closest wild relative of the cucumber, *Cucumis sativus* (Sebastian et al., 2010).

15. *Cucumis indicus* Ghebretinsae & Thulin, Novon 17(2): 177. 2007.

Melothria ritchiei Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 898, fig. A–K. 1952.
Cucumella ritchiei (Chakrav.) C. Jeffrey, Kew Bull. 19: 215. 1965, non *Cucumis ritchiei* (C.B. Clarke) Ghebretinsae & Thulin.
Type: India, Maharasthra, Bombay Presidency, Savantvadi State, Ram Ghat, *D. Ritchie 67* (BM, E; http://plants.jstor.org/specimen/e00187895).

Distribution in India: Kerala, Maharashtra (Naithani, 1990). **Endemic.**
Image: http://ts-den.aluka.org/fsi/img/size2/alukaplant/e/phase_01/e0005/e00187895.jpg
GenBank: Sequences from Sebastian et al. (2010), e.g., HM597078, HM596966.
Comments: Molecular phylogenetic data show that the former genus *Dicaelospermum,* with the species *D. ritchiei* C.B. Clarke (1879), is nested inside *Cucumis*. The resulting nomenclatural transfer meant that the epithet "*ritchiei*" is occupied within the genus. A replacement name therefore became necessary with the transfer of *Melothria ritchiei* to *Cucumis*.

16. *Cucumis javanicus* (Miq.) Ghebretinsae & Thulin, Novon 17(2). 177. 2007.

Karivia javanica Miq., Fl. Ned. Ind. 1: 661. 1855.
Mukia javanica (Miq.) C. Jeffrey in Hooker's Icon. Pl. 37: 3, pl. 3661. 1969.
Melothria javanica (Miq.) Panigrahi & Misra, J. Econ. Tax. Bot. 5: 416. 1984.
Type: Java, *T. Horsfield s.n*. (BM, K, U).
Melothria assamica Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 897.1952.
Type: India, Assam, Cachar, *R. L. Keenan s. n.* (K).
Melothria assamica Chakrav. var. *scabra* Chakrav., J. Bombay. Nat. Hist. Soc. 50(4): 898. 1952.
Melothria javanica (Miq.) Panigrahi & Misra var. *scabra* (Chakrav.) Naithani, Flowering Plants of India, Nepal & Bhutan 179. 1990.
Type: India, Assam, Goalpara, Chirang Duar, Dec. 1890, *King's collector s.n.* (CAL, 2 sheets, photos available from SSR).

Distribution in India: Assam.
Distribution outside India: Java, China, and Thailand.
GenBank: Sequences from Renner et al. (2007) and Sebastian et al. (2010), e.g., HM597079, EF174484.
Comment: De Wilde and Duyfjes (2006a) synonymized *Melothria assamica* under *Cucumis javanicus*, which they treated as *Mukia javanica*, a genus that based on molecular data, however, is deeply nested inside *Cucumis*.

17. *Cucumis leiospermus* (Wight & Arn.) Ghebretinsae & Thulin, Novon 17(2): 177. 2007.

Bryonia leiosperma Wight & Arn., Prodr. Fl. Ind. Orient. 1: 345. 1834.
Mukia leiosperma (Wight & Arn.) Arn., Madras J. Lit. Sci. 12: 50. 1840.
Melothria leiosperma (Wight & Arn.) Cogn. in A. & C. DC., Monogr. Phan. 3: 622. 1881.
Syntypes: India, Tamil Nadu, Dindygul Hills, *Wallich Cat. no. 6708* (K); Chennai, Palni Hills, *R. Wight 1112* (BR, K). The Wallich specimen was chosen as lectotype by Jeffrey (1969).

Distribution in India: Andhra Pradesh, Assam, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Rajasthan, Sikkim, Tamil Nadu.
Distribution outside India: Sri Lanka.
Photos by A. Pandey: http://farm8.staticflickr.com/7273/7859393808_2314892118_m.jpg http://farm9.staticflickr.com/8307/7859413918_cff80f25db_m.jpg
GenBank: Sequences from Sebastian et al. (2010), e.g., HM597080, HM596911.
Comments: An understudied relative of the cucumber and melon.

18. *Cucumis maderaspatanus* L., Sp. Pl. 2: 1012. 1753.

Mukia maderaspatana (L.) M.Roem., Fam. Nat. Syn. Monogr. 2: 47. 1846
Melothria maderaspatana (L.) Cogn. in A. & C. DC., Monogr. Phan. 3: 623. 1881.
Type: India, "Cucumis Maderaspatensis fructu minimo" in Plukenet, Phytographia t. 170. f. 2. 1692. Typotype Herb. Sloane 95: 201 (BM-SL), designated by Meeuse, Bothalia 8: 14. 1962.
Bryonia cordifolia L., Sp. Pl. 2: 1012. 1753.
Coccinia cordifolia (L.) Cogn. in A. & C. DC., Monogr. Phan. 3: 623. 1881.
Type: "Habitat in Zeylonia," Lectotype: Herb. Hermann 2: 22, No. 354 (BM-000621582), designated by Jeffrey (1967).
Bryonia scabrella L.f., Suppl. Pl. 424. 1782 ("1781").
Mukia scabrella (L.f.) Arn., J. Bot. 3: 276. 1841.
Type: Northwest India, *Royle s.n.* (K, CAL photo available from SSR).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Mizoram, Rajasthan, Tamil Nadu, Tripura.
Distribution outside India: Bhutan, China, Myanmar, Nepal, Pakistan, Sri Lanka.
Images: Efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/mukia/cucumis-maderaspatanus http://www.flowersofindia.net/catalog/slides/Madras%20Pea%20Pumpkin.html
Flora of Pakistan: http://www.tropicos.org/Name/9200868?projectid=32
GenBank: Many sequences from Kocyan et al. (2007), Sebastian et al. (2010), and other studies.

19. *Cucumis melo* L., Sp. Pl. 2: 1011. 1753.

Lectotype: Herb. Linn. No. 1152.8 (LINN), designated by Meeuse, Bothalia 8: 61. 1962.

Bryonia callosa Rottler, Neue Schriften der Ges. Naturf. Freunde Berlin 4: 210. 1803.

Cucumis callosus (Rottler) Cogn. in Engl. Pflanzenr. IV. 275, 2: 129. 1924.

Type: India, Tamil Nadu, Deccan, *Rottler s.n.* (K?). Note: Rottler was a missionary in the Danish Settlement at Tranquebar (150 miles south of Madras) in the years after 1768.

Cucumis pubescens Willd., Sp. Pl., ed. 4(1): 614. 1805.

Type: Plant cultivated at Berlin; *C.L. Willdenow s.n.* (B-W, IDC microfiche 7440, specimen number 18048).

Cucumis momordica Roxb. Fl. ind. 3: 720. 1832.

Type: India, *W. Roxburgh s.n.* (K?).

Cucumis trigonus Roxb., Fl. Ind. 3: 722. 1832.

Lectotype: India, *W. Roxburgh s.n.* (K), designated by Kirkbride, Biosyst. Monogr. *Cucumis* 115. 1993.

Cucumis melo var. *pubescens* (Willd.) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 103. 1877.

Cucumis melo var. *culta* Kurz., J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 102. 1877.

Cucumis melo var. *agrestis* Naudin, Ann. Sci. Nat., Bot. sér. 4,11: 73. 1859. Lectotype: India, Union Territory, Puducherry [Pondicherry]: seeds sent by Jules Lépeire (plants cultiv. at Musée d'Histoire Naturelle, Paris); 1859; *Naudin s.n.* (P), designated by J.H. Kirkbride in Biosyst. Monogr. Gen. Cucumis 81. 1993.

Cucumis melo ssp. *agrestis* (Naudin) Pangalo in Zhukovsky, La Turquie agricole 534. 1933.

Cucumis melo forma *agrestis* (Naudin) W.J.de Wilde & Duyfjes, Sandakania 17: 55. 2008.

Distribution in India: Andhra Pradesh, Assam, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh.

Distribution outside India: Widely cultivated.

Images: See efloraofindia http://www.flowersofindia.net/catalog/slides/Wild%20Melon.html

Type: http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000634447
http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000794987
http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742804

GenBank: Numerous sequences from the three plant organellar genomes.

Comments: Sequences representing *C. callosus*, *C. pubescens*, and *C. trigonus* all cluster with *C. melo* (Sebastian et al., 2010) and likely present wild progenitors of domesticated *C. melo*. Jeffrey (1980) preferred to list *C. trigonus* as a separate species, and Chakravarty (1982) mentions two further varieties, *Cucumis melo* var. *momordica* Duthie & Fullar and var. *utilissima* Duthie & Fullar. Without specimens, these varieties cannot be assessed.

20. *Cucumis prophetarum* L., Cent. I. Pl. 33. 1755.

Type: Arabia, *D. Hasselquist*. Lectotype: Herb. Linn. No. 1152.4 (LINN), designated by Jeffrey (1962).

Distribution in India: Andhra Pradesh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu.
Distribution outside India: Pakistan to North Africa.
Images: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/cucumis/cucumis-prophetarum
Flora of Pakistan http://www.tropicos.org/Name/9200833?projectid=32
GenBank: Sequences from Renner et al. (2007) and Sebastian et al. (2010), e.g., DQ785879, DQ785837.

21. *Cucumis ritchiei* (C.B. Clarke) Ghebretinsae & Thulin, Novon 17(2): 178. 2007.

Dicoelospermum ritchiei C.B. Clarke, Fl. Brit. India 2: 630. 1879.
Mukia ritchiei (C.B. Clarke) W.J.de Wilde & Duyfjes, Thai Forest Bull., Bot. 34: 45. 2006.
Type: India, Karnataka, Bombay Presidency, Belgaum, *D. Ritchie 316* (K).

Distribution in India: Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu. **Endemic.**
Photos taken at Fort Panhala in Kolhapur District: http://farm9.staticflickr.com/8305/7859345614_e613f0019d_m.jpg
http://farm9.staticflickr.com/8284/7859384216_f591b5418d_m.jpg
GenBank: Sequences from Kocyan et al. (2007) and Sebastian et al. (2010), e.g., DQ536546, HM597095.
Comments: Molecular phylogenetic data show that the former genus *Dicaelospermum* is embedded among the Asian species of *Cucumis.*

22. *Cucumis sativus* L., Sp. Pl. 2: 1012. 1753.

Lectotype: Herb. Burser 17: 97 (UPS), designated by ten Pas et al., Taxon 34: 290. f. 1–3. 1985.
Cucumis sativus var. *sikkimensis* Hook.f., Bot. Mag. 102: t. 6206. 1876.
Type: Commonly cultivated in the Eastern Himalaya Mountains, 1848; *Hooker s.n.*
Cucumis hardwickii Royle, Ill. Bot. Himal. Mts. 220. t. 47. 1835.
Type: Northwestern India, *J.F. Royle s.n.* (LIV).
Cucumis sativus L. forma *hardwickii* (Royle) W.J.de Wilde & Duyfjes, Sandakania 17: 58. 2008.

Distribution in India: All evidence points to northern India (Ganges region) as the place where wild cucumbers were first cultivated and where wild populations still

occur (Sebastian et al., 2010). Wild cucumbers can be distinguished from cultivated (feral) forms by their extremely bitter fruits.
Distribution outside India: Bhutan, China, Myanmar, Nepal, Thailand.
Image: http://www.flowersofindia.net/catalog/slides/Cucumber.html
GenBank: The genomes of three domesticated lines of cucumber have been sequenced, the American pickling cucumber, a Polish line, and a Chinese line (Huang et al., 2009).
Comments: The wild progenitors of domesticated cucumber still occur in India (Sebastian et al., 2010).

23. *Cucumis setosus* Cogn. in A. & C. DC., Monogr. Phan. 3: 491. 1881.

Type: India, Karnataka, Western Ghats, Belgaum, *Ritchie 321* (E, K).

Distribution in India: Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan. **Endemic.**
Photos by Suresh Jagtap, taken near Purandhar fort:
http://farm9.staticflickr.com/8443/7859357598_fd99ecd49b_m.jpg
http://farm9.staticflickr.com/8304/7859369892_28668e0fd2_m.jpg
GenBank: Sequences from Sebastian et al. (2010), e.g., HM597106, HM596985.
Comments: A distinct species.

24. *Cucumis silentvalleyi* (Manilal, T. Sabu & P. J. Mathew) Ghebretinsae & Thulin, Novon 17: 178. 2007.

Cucumella silentvalleyi Manilal, T. Sabu & P. J. Mathew, Acta Bot. Indica 13: 283. 1985. (as *silentvalleyii*)
Type: India, Kerala, Palghat Distr., Silent Valley, Poochapara, alt. 1370 m, 20 Oct. 1982, *T. Sabu SV10662* (K, MH not seen).

Distribution in India: Kerala. **Endemic**.
Image: Photos taken near the type locality by Natalia Filipowicz, available from SSR.
GenBank: Sequences from Sebastian et al. (2010), e.g., HM597038, HM596931.
Comments: This species is one of c. 25 Asian and Australian species of *Cucumis* (Sebastian et al., 2010).

25. *Cucurbita argyrosperma* C.Huber, Cat. Graines 8. 1867.

Type: A cultivated plant.
Cucurbita mixta Pangalo, Bull. Applied Bot., Leningrad 1929-30, 23(3): 264. 1930.
Type: Mexico, Guatemala.

Distribution in India: Cultivated?
Distribution outside India: Native to Mesoamerica, widely cultivated.
Image: Many images can be found online of plants grown outside India.
GenBank: Many sequences from Sanjur et al. (2002) and further studies.
Comment: Jeffrey (1980) included this species (as *C. mixta*) in his checklist of Indian Cucurbitaceae, but it is unclear to what extent it is cultivated in India today.

26. *Cucurbita ficifolia* Bouché, Verh. Vereins Beford. Gartenbaues Königl. Preuss. Staaten 12: 205. 1837.

Type: So far unknown.

Distribution in India: Meghalaya (Naithani, 1990). Cultivated.
Distribution outside India: Native to Mesoamerica or northern South America, widely cultivated.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/cucurbita/cucurbita-filicifolia
GenBank: Sequences from Sanjur et al. (2002) and Kocyan et al. (2007), e.g., HQ438599, DQ536665.
Comments: *Cucurbita* has about 15 wild species in tropical and subtropical America (M. Nee, New York Botanical Garden, pers. comm., Feb. 2010) and five domesticated ones cultivated worldwide (*C. argyrosperma*, *C. ficifolia*, *C. maxima*, *C. moschata,* and *C. pepo*).

27. *Cucurbita maxima* Duchesne, Essai Hist. Nat. Courges 7, 12. 1786.

Type: From a cultivated plant (not found); neotype: Melo-pepo fructa albo Tournefort Inst. 1: 106. T. 34 1700.
Cucurbita maxima var. *badagarensis* Mudaliar, J. Bombay Nat. Hist. Soc. 49: 242. 1950.
Type: India, Malbar District, cultivated, collector unknown, Madras Herbarium No. 93177 and 93178 (MH).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala (Naithani, 1990), Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand.
Distribution outside India: Native to Central America.
Image: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/cucurbita/cucurbita-maxima
GenBank: Numerous sequences from the three plant organellar genomes.
Comments: Winter squash is cultivated throughout India.

28. *Cucurbita moschata* (Duchesne ex Lam.) Duchesne, Essai Hist. Nat. Courges 7. 1786.

Cucurbita pepo var. *moschata* Duchesne ex Lam., Encycl. 2: 152. 1786.
Type: "M. Duchesne presume que cette gourge est la meme que le cucurbita major rotunda, flore luteo, folia aspero de G.B. Pin 312 qui est le Cucurbita India rotunda de Dalechampe (Lugd. 616)."

Distribution in India: Arunachal Pradesh, Assam, Bihar, Delhi, Goa, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh.
Distribution outside India: Native to Central or South America.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/cucurbita/cucurbita-moschata
GenBank: Numerous sequences from the three plant organellar genomes.

29. *Cucurbita pepo* L., Sp. Pl. 2: 1010. 1753.

Lectotype: Herb. Linn. No. 1151.4 (LINN), designated by Keraudren-Aymonin in Aubréville & Leroy (ed.), Fl. Cambodge Laos Viêt-Nam 15: 105. 1975.

Distribution in India: Arunachal Pradesh, Assam, Bihar, Delhi, Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Punjab, Tamil Nadu, Tripura, Uttar Pradesh. Cultivated.
Distribution outside India: Native to Central or South America.
Image: http://www.flowersofindia.net/catalog/slides/Pumpkin.html
GenBank: Numerous sequences from the three plant organellar genomes.
Comments: See Barrie (Taxon 55: 795-796. 2006) for a history of this name. Chakravarty (1982) also mentions the varietis var. *melopepo* Alef. and var. *ovigera* Alef.; we are unsure about their validity.

30. *Cyclanthera pedata* (L.) Schrad., Index Seminum, Gottingen 1831: 2. 1831; emend in Linnaea 8(Litt.): 22–27. 1833.

Momordica pedata L., Sp. Pl. 2: 1009. 1753.
Lectotype: Peru, "Momordica fructu striato, Laevi, vulgo Caigua" in Feuillée, J. Obs., 2: 754. t. 41. 1714, designated by Jeffrey in Kew Bull. 34: 796. 1980.

Distribution in India: Cultivated in northern India.
Distribution outside India: Native to South America; cultivated also in Bhuthan.
Images: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/cyclanthera/cyclanthera-pedata
GenBank: Sequences from Decker-Walters et al. (2004), e.g., AY396221, AJ748597.

Comments: *Cyclanthera* has c. 40 species in the Southwestern USA, Mexico, Central and South America, one species on the Galapagos archipelago (Schaefer and Renner, 2011a).

31. *Dactyliandra welwitschii* Hook.f., Fl. Trop. Afr. 2: 557. 1871.

Ctenolepis welwitschii (Hook.f.) Jafri, Fl. Karachi 327 (1966)
Type: Lower Guinea, sandy thickets in Luanda, *Welwitsch 832* (BM).

Distribution in India: Gujarat, Haryana, Rajasthan (fide Chakravarty, 1982).
Distribution outside India: Southwest Africa (Namibia, Angola); coastal West Pakistan (Karachi; Khatoon, 2006).
Image: Nothing reliable found online.
GenBank: Sequences from Kocyan et al. (2007) and Schaefer and Renner (2011b), e.g., HQ201973, DQ535750.
Comments: The genus *Dactyliandra* has two African species of which one, *D. welwitschii*, also occurs in India and Pakistan (Bhandari and Singh, 1964; Khatoon, 2006), apparently as a natural introduction since the species has no known uses and is not cultivated.

32. *Diplocyclos palmatus* (L.) C. Jeffrey, Kew Bull. 15(3): 325. 1962.

Bryonia palmata L., Sp. Pl. 2: 1012. 1753, excl. syn.
Coccinia palmata M.Roem. Synopsis peponiferarum 93. 1846.
Lectotype: Sri Lanka, Herb. Hermann 2: 58, No. 353 (BM-000621700), designated by Jeffrey (1962).
Diplocyclos palmatus var. *walkeri* (Chakrav.) Babu, Herb. Fl. Dehra Dun 198. 1977.
Bryonopsis laciniosa (L.) Naudin var. *walkeri* Chakrav., Bot. Surv. India 17(1): 183 (1959).
Type: Sri Lanka, *Walker s.n.* (E).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Bihar, Jharkhand, Goa, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Chhattisgarh, Maharashtra, Manipur, Rajasthan (Naithani, 1990), Tamil Nadu, Tripura, Uttar Pradesh.
Distribution outside India: Bhutan, China, Nepal, Pakistan, Thailand, South Japan, Sri Lanka, Philippines, Indonesia, Peninsular Malaysia, Papua New Guinea, NE Australia.
Images: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/diplocyclos/diplocyclos-palmatus
Flora of Pakistan: http://www.tropicos.org/Name/9201644?projectid=32
GenBank: Sequences from Kocyan et al. (2007) and Holstein and Renner (2011), e.g., DQ536671, DQ536769.
Comments: The other three species of *Diplocyclos* occur in tropical Africa. The name *Bryonopsis laciniosa* (L.) Naudin refers to a species that does not occur in India (see *Misapplied names and species erroneously or doubtfully recorded from India*).

33. *Gomphogyne cissiformis* Griff., Account Bot. Coll. Cantor 26, pl. 4: 1–7. 1845. emend, J. Asiat. Soc. Bengal 23(7): 645. 1854.

Type: Himalaya Range, *Edgeworth* 88 (neotype K), designated by Keraudren-Aymonin (1975)

Gomphogyne cissiformis var. *villosa* Cogn in A. & C. DC., Monogr. Phan. 3: 925. 1881.

Gomphogyne cissiformis forma *villosa* (Cogn.) Mizush., J. Jap. Bot. 41: 259. 1966.

Type: India, Sikkim, *Hooker s.n.,* 2 Oct. 1843 (K).

Distribution in India: Arunachal Pradesh, Himachal Pradesh, Mizoram, Sikkim, Uttar Pradesh, West Bengal.

Distribution outside India: Nepal, Bhutan, China (Yunnan).

Image: Nothing reliable found online.

GenBank: Sequences from Schaefer et al. (2009), e.g., EU436354.

Comments: The genus *Gomphogyne* has at least two species, *G. cissiformis* Griff. and *G. nepalensis* W.J.de Wilde & Duyfjes (De Wilde et al., 2007). A third species, *G. cirromitrata* W.J.de Wilde & Duyfjes, based on molecular data, belongs in *Hemsleya* (as *H. cirromitrata* (W.J.de Wilde & Duyfjes) H. Schaef. & S.S. Renner; Schaefer and Renner, 2011b).

34. *Gynostemma pentaphyllum* (Thunb.) Makino, Bot. Mag. (Tokyo) 16: 179. 1902.

Vitis pentaphylla Thunb., Syst. Veg., ed. 14: 244. 1784.

Type: Japan, *Thunberg 5858* (UPS).

Gynostemma pedatum Blume, Bijdr. Fl. Ned. Ind. 1: 23. 1825 (as *pedata*).

Lectotype: Java, Tjanjor & Krawang, *Blume 1429* (L, barcode L0588327), designated by De Wilde and Duyfjes, Blumea 52(2): 271. 2007.

Gynostemma simplicifolium Blume, Bijdr. Fl. Ned. Ind. 1: 24. 1825 (as *simplicifolia*).

Gynostemma pentaphyllum forma *simplicifolium* (Blume) W.J.de Wilde & Duyfjes, Blumea 52(2): 271. 2007.

Lectotype: Java, Mt Krawang, *Blume 1493* (L, barcode L0588361), designated by De Wilde and Duyfjes, Blumea 52(2): 271. 2007.

Gynostemma laxum (Wall.) Cogn. in A. & C. DC., Monogr. Phan. 3: 914. 1881 (as *laxa*).

Zanonia laxa Wall., Pl. Asiat. Rar. 2: 29. 1831.

Type: Bangladesh [India], Silhet; *Wallich Cat. 3727 A-B* (K, K-W, BM).

(Further synonyms are listed in De Wilde and Duyfjes, 2007.)

Distribution in India: Cultivated in Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

Distribution outside India: Bangladesh, Bhutan, China, Myanmar, Sri Lanka.

Image: Many images of this frequently cultivated species are found online.

GenBank: Sequences from Zhang et al. (2006), Chen et al. (2010) and other studies.

Comments: The species is used to make herbal teas. Its natural range is currently unclear. The genus *Gynostemma* has some ten species, all in Asia (Schaefer and Renner, 2011a).

35. *Hemsleya macrocarpa* (Cogn.) C. Y. Wu ex C. Jeffrey, Kew Bull. 36: 739. 1982.

Gomphogyne macrocarpa Cogn. in Engl. Pflanzenr. IV. 275, 1 (Heft 66): 40. 1916.
Holotype: India, Manipur, Laimatak, alt. 1300 m, November 1907, *A. Meebold 6522* (Wroclaw University, Poland: BRSL, not seen).

Distribution in India: Assam, Arunachal Pradesh, Manipur, Nagaland (Naithani, 1990).
Distribution outside India: China (Yunnan).
Image: Nothing reliable found online.
GenBank: Sequences from Li et al. (2010) and Li et al. (2011), e.g., JF976573, JN044854.
Comments: *Hemsleya* is thought to comprise 30 species mostly in China, a few in Indochina and East Malesia (Schaefer and Renner, 2011a). Further synonyms of *H. macrocarpa* are listed in Lu et al. (2011).

36. *Herpetospermum darjeelingense* (C.B. Clarke) H.Schaef. & S.S.Renner, Taxon 60(1): 134. 2011.

Edgaria darjeelingensis C.B. Clarke, J. Linn. Soc. 15: 114. 1876.
Type: India, West Bengal, Darjeeling, 1 Oct 1875, *C.B. Clarke 26857* (CAL photo available from SSR, K).
Edgaria darjeelingensis var. *clarkeana* S. N. Biswas, J. Econ. Taxon. Bot. 18(1): 173, f. A-1-6. 1994 (as *clarkiana*).
Type: India, West Bengal, Darjeeling, alt. 2100 m, 9 Sep. 1875, *Griffith s.n.* (K).

Distribution in India: Arunachal Pradesh, Sikkim, West Bengal.
Distribution outside India: Bhutan, Nepal, China (Xizang).
Image: See above, photo of type collection.
GenBank: Sequences from Kocyan et al. (2007), e.g., DQ536550.
Comments: The genus *Herpetospermum* has three species in India, Myanmar, Nepal, Tibet, and China (Yunnan). In the herbarium, *H. darjeelingense* can be confused with *H. pedunculosum*, from which it is distinguished by its narrow and glabrous calyx-tube with filiform lobes (Chakravarty, 1982).

37. *Herpetospermum pedunculosum* (Ser.) Baill. Hist. Pl. 8:445. 1885.

Bryonia pedunculosa Ser., Prodr. 3: 306. 1828.
Isotypes: Nepal, *Wallich* s.n. (G-DC, K), *Wallich 6761* (K-W).

Distribution in India: Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim, Uttar Pradesh, West Bengal.
Distribution outside India: Bhutan, Nepal, China.

Images: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/herpetospermum/herpetospermum-pedunculosum
http://www.flowersofindia.net/catalog/slides/Beej%20Karela.html
GenBank: Sequences from Schaefer and Renner (2011) and Li et al. (2011), e.g., JN044888, JF941910.
Comments: The *Flora of British India* (Clarke, 1879) lists the name *Herpetospermum caudigerum* Wall. ex C.B. Clarke, but that is an illegitimate name for *Bryonia pedunculosa* Ser.

38. *Herpetospermum tonglense* (C.B. Clarke) H. Schaef. & S.S. Renner, Taxon 60(2): 615 (2011c).

Warea tonglensis C.B. Clarke in J. Linn. Soc., Bot. 15: 129. 1876.
Biswarea tonglensis (C.B. Clarke) Cogn. in A. & C. DC., Monogr. Phan. 3: 403. 1881.
Type: India, West Bengal, Darjeeling, Rungbee, *C.B. Clarke 12183A* (K).

Distribution in India: Assam, Manipur, Sikkim, West Bengal, Eastern Himalyan ranges
Distribution outside India: China, Nepal, Myanmar.
Image: Nothing reliable found online.
GenBank: Sequences from Kocyan et al. (2007), e.g., JQ933236, DQ536637.
Comments: Based on plastid and nuclear gene topologies, this species is the sister species to *H. pedunculosum*, and Schaefer and Renner (2011a, b) therefore merged the monotypic genus *Biswarea* with *Herpetospermum*.

39. *Hodgsonia heteroclita* (Roxb.) Hook.f. & Thomson, Proc. Linn. Soc. London 2: 257. 1854 ("1855").

Trichosanthes heteroclita Roxb., Fl. Ind. 3: 705-707. 1832.
Type: Bangladesh [India, Bengal] *W. Roxburgh s.n.* (K) "Native of the eastern parts of Bengal. From Silhet Mr. Robert Keith Dick, the Judge of that district, sent plants to the botanic garden in 1805."

Distribution in India: Arunchal Pradesh, Assam, Meghalaya, Sikkim, Tripura, West Bengal.
Distribution outside India: Bangladesh, Bhutan, Cambodia, Laos, Myanmar, Thailand, Vietnam.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/hodgsonia/hodgsonia-macrocarpa
GenBank: Sequences from Schaefer and Renner (2011b) and De Boer et al. (2012), e.g., HE661403, HQ201981.
Comment: Jeffrey (1980) considered *H. heteroclita* a synonym of *H. macrocarpa* (Blume) Cogn. (see under misapplied names and species erroneously or doubtfully recorded from India), while De Wilde and Duyfjes (2001) recognize two species.

40. *Indofevillea khasiana* Chatterjee, Kew Bull. 2(2): 121. f.1-7. 1948 ("1947").

Type: India, Meghalaya [Assam], Khasia Hills, 1886, *G.Mann s.n.* (CAL, 2 sheets, photos available from SSR).

Distribution in India: Arunachal Pradesh, Assam, Meghalaya.
Distribution outside India: Bhutan, Tibet.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/indofevillea-khasiana/indofevillea-khasiana
GenBank: Sequences from Schaefer and Renner (2011b), e.g., DQ501256, HQ201983.
Comments: Based on molecular data, *I. khasiana* represents an isolated ancient lineage of Cucurbitaceae (Schaefer and Renner, 2011a; our Fig. 1).

41. *Kedrostis courtallensis* (Arn.) C. Jeffrey, Kew Bull. 15: 353. 1962.

Bryonopsis courtallensis Arn., J. Bot. 3: 274. 1841.
Type: Sri Lanka, *Wight 1147* (K).
Cerasiocarpum zeylanicum (Thwaites) C.B. Clarke, Fl. Brit. India 2: 629. 1879.
Aechmandra zeylanica Thwaites, Enum. Pl. Zeyl. 2: 125. 1859.
Type: Sri Lanka, *Thwaites 3002* (CAL, 2 sheets, photos available from SSR), *3500* (CAL, 2 sheets, K).
Cerasiocarpum bennettii (Miq.) Cogn. in A. & C. DC., Monogr. Phan. 3: 729. 1881.
Kedrostis bennettii (Miq.) W.J.de Wilde & Duyfjes, Reinwardtia 12(2): 130. 2004.
Bryonopsis bennettii Miq., Fl. Ned. Ind. 1: 657. 1855.
Type: Java, in Banjoemas door, *T. Horsfield s.n.* (K, U).

Distribution in India: Andhra Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu.
Distribution outside India: Myanmar, Sri Lanka.
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: The genus *Kedrostis* comprises about 20 species in tropical and subtropical Africa and Arabia, six species in Madagascar, and perhaps four in India, Sri Lanka, and West Malesia (De Wilde and Duyfjes, 2004a; Schaefer and Renner, 2011a).

42. *Kedrostis foetidissima* (Jacq.) Cogn. in A. & C. DC., Monogr. Phan. 3: 634. 1881.

Trichosanthes foetidissima Jacq., Collectanea 2: 841. 1788.
Type: West Africa, plant cultivated in Vienna and depicted in Jacq. , Collectanea 4. 1790, pl. 624.
Bryonia rostrata Rottler, Neue Schriften der Ges. Naturf. Freunde Berlin 4: 212. 1803.
Aechmandra rostrata (Rottler) Arn., J. Bot. 3: 274. 1841.
Rynchocarpa rostrata (Rottler) Naudin, Ann. Sci. Nat., Bot. sér. 4,16: 177. 1862.
Kedrostis rostrata (Rottler) Cogn. in A. & C. DC., Monogr. Phan. 3: 636. 1881.
Type: India, Tamil Nadu, Nandaradah, *Rottler 766* (B-W, K).

Distribution in India: Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu. Cultivated.
Distribution outside India: A West African species cultivated in India, Bangladesh, Myanmar, Pakistan, Sri Lanka.
Image: For a detailed description and links to images see http://plants.jstor.org/flora/ftea001850
GenBank: Sequences from a plant from Benin (Africa): AM981179, AM981180.
Comments: Fruits and leaves are used as a vegetable, and the roots (and fruits) also medicinally.

43. *Lagenaria siceraria* (Molina) Standl., Publ. Field Mus. Nat. Hist. Chicago, Bot. Ser. 3: 435. 1930.

Cucurbita siceraria Molina, Sag. Stor. Nat. Chili 133. 1782.
Type: Chile, *Molina s.n.* (lost), lectotype: LINN-1151.1
Cucurbita lagenaria L., Sp. Pl. 2: 1010. 1753.
Type: America, Herb. Linn. No. 1151.1 (LINN), designated by Jeffrey (1967).

Distribution in India: Cultivated throughout India.
Distribution outside India: Native of tropical Africa.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/lagenaria/lagenaria-siceraria and http://www.flowersofindia.net/catalog/slides/Bottle%20Gourd.html
GenBank: Hundreds of sequences from the three plant organellar genomes.
Comments: The bottle gourd is a native of tropical Africa and is cultivated throughout the tropics (further information and references see Schaefer and Renner, 2011a).

44. *Luffa acutangula* (L.) Roxb. Hort. Beng. 70. 1814.

Cucumis acutangulus L., Sp. Pl. 2: 1011. 1753.
Type: "Habitat in Tataria, China." Type not designated.
Luffa amara Roxb., Fl. Ind. 3: 715. 1832.
Luffa acutangula var. *amara* (Roxb.) C.B. Clarke, Fl. Brit. India 2: 615. 1879.
Luffa acutangula forma *amara* (Roxb.) W.J.de Wilde & Duyfjes, Sandakania 17: 68. 2008.
Lectotype: India, Ic. Roxb. 460 (K) designated by Jeffrey (1980).
Luffa hermaphrodita Singh & Bhandari, Baileya 11(4): 136, Fig. 13. 1964.
Type: India, Rajasthan, cultivated at Botanical Gardens, Jaswant College, Jodhpur from seeds collected at Agra by D. Singh, 20 Aug. 1962, *Bhandari 1527A* (CAL photo available from SSR).
Cucurbita umbellata Willd., Sp. Pl., ed. 4(1): 608. 1805.
Luffa umbellata (Willd.) M.Roem., Fam. Nat. Syn. Monogr. 2: 63. 1846.

Syntypes: East India, *Klein* 769 (B-W 18033) and *Klein s.n.* (K) fide Jeffrey (1992).
Luffa kleinii Wight & Arn., Prodr. Fl. Ind. Orient. 1: 344. 1834.
Type: India, Kreala, Travancore, Mirittupadu, *Klein s.n.* (K?).

Distribution in India: Native and cultivated throughout India.
Distribution outside India: Cultivated worldwide.
Image: See efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/luffa/luffa-acutangula
http://www.flickr.com/photos/83425416@N02/7649353846/in/photostream
GenBank: Sequences from Kocyan et al. (2007), e.g., HE661305, HE661476.
Comments: The genus *Luffa* has eight species, three in the Neotropics, one in Australia, and four in Africa and Asia. The Indian species are discussed in Pandey et al. (2006). Jeffrey (1980) and later authors treated Herb. Linn. No. 1152/7 (LINN) as the (lecto)type. However, this collection lacks the relevant *Species Plantarum* number and was a post-1753 addition to the herbarium (Jarvis, 2007).

45. *Luffa cylindrica* (L.) M.Roem., Fam. Nat. Syn. Monogr. 2: 63. 1846.

Momordica cylindrica L., Sp. Pl. 2: 1009. 1753.
Type: Sri Lanka and China. Lectotype: Herb. Linn. No. 1150.9 (LINN), designated by Wunderlin in Ann. Missouri Bot. Gard. 65: 329. 1978.
Luffa aegyptiaca Mill., Gard. Dict., ed. 8. Luffa no. 1. 1768.
Type: Presumably a cultivated plant (Jeffrey, 1962). Lectotype: Pepo indicus reticulatus eminibus nigris Herm., Hort. Acad. Lugd.-Bat. Cat.: 482 (1687), designated by Jeffrey (1992).
Luffa sylvestris Miq., Fl. Ned. Ind. 1: 666. 1855.
Luffa cylindrica (L.) M.Roem. var. *minor* Chakrav., nom. nud. (CAL photo available from SSR).
Luffa aegyptiaca forma *sylvestris* (Miq.) W.J.de Wilde & Duyfjes, Sandakania 17: 70. 2008.
Type: "Petola silvestris" in Rumph., Herb. Amboin. 5, p. 409, t. 150. 1746.

Distribution in India: Native and cultivated throughout India.
Distribution outside India: From India to Egypt and Sudan; cultivated widely.
Image: http://www.flowersofindia.net/catalog/slides/Sponge%20Gourd.html
GenBank: Sequences from Sebastian et al. (2012) and numerous other sequences from unvouchered material, some under *L. cylindrica*, others under *L. aegyptiaca*.
Comments: There has been considerable discussion on whether the correct name for this species is *L. cylindrica* or *L. aegyptiaca*. The former view was held by Jeffrey (1980), while the latter was adopted by Schubert (Taxon, 24: 174, 1975) and Heiser and Schilling (Biotropica 20(3): 185-191, 1988). Nicolson and colleagues (1988) discuss the issue and prefer *L. aegyptiaca.*

46. *Luffa echinata* Roxb., Fl. Ind. 3: 716. 1832.

Lectotype: India, Coromandel, Ic. Roxb. 1694 (K), designated by Jeffrey (1980).
Luffa echinata var. *longistyla* C.B. Clarke, Fl. Brit. India 2: 615. 1879.
Type: India, *M.P. Edgeworth 3018* (K).

Distribution in India: Assam, Bihar, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal.
Distribution outside India: Wild from Egypt to Niger and maybe further to the West (H. Schaefer, pers. comm., Dec. 2012).
Images: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/luffa/luffa-echinata
http://www.flickr.com/photos/83425416@N02/7648878220/in/photostream/
http://www.flickr.com/photos/83425416@N02/7649327834/in/photostream
http://www.flickr.com/photos/83425416@N02/7649413904/in/photostream
GenBank: Sequences from Decker-Walters et al. (2004) and Schaefer et al. (2009), e.g., HE661478, EU436357.

47. *Luffa graveolens* Roxb., Fl. Ind. 3: 716. 1832.

Type: Jharkhand (earlier a part of Bihar State) "A native of the Rajmahl hills, from thence the seeds were brought to the botanical garden, where the plants blossom during the rainy season, and the seed ripens about three mounts afterwards." Lectotype: Ic. Roxb. 1693 (K), designated by Jeffrey (1980).

Distribution in India: Bihar, Maharashtra, Sikkim, Uttar Pradesh.
Distribution outside India: Nepal.
Image: Photos available upon request from A. Pandey or SSR.
GenBank: Sequences from Decker-Walters et al. (2004) and Schaefer et al. (2009), e.g., HE661308, EU436358.
Comments: The application of this name to Australian material was erroneous (Telford et al., 2011). The flowers of *L. graveolens* are yellow, while those of *L. echinata* are white.

48. *Momordica balsamina* L., Sp. Pl. 2: 1009. 1753.

Type: "Habitat in India," plant cultivated at Hartekamp, The Netherlands. Lectotype: Herb. Linn. No. 1150.1 (LINN), designated by Meeuse in Bothalia 8: 49. 1962.

Distribution in India: Cultivated in Gujarat, Haryana, Rajasthan?
Distribution outside India: Native in the dry savannas of Southernmost Africa and the northern margin of the tropical belt (H. Schaefer, pers. comm., Dec. 2012). Naturalized in parts of tropical Asia, the Americas and most of the Pacific islands.
Image: Flora of Pakistan: http://www.mobot.org/mobot/PakistanImages/154-Cucurbitaceae/Momordica_balsamina.jpg

GenBank: Sequences from Schaefer and Renner (2010), e.g., HM367595, GQ163349.
Comments: *Momordica* has about 60 species in tropical and subtropical Africa, Arabia, (sub) tropical Asia, Malesia and Northeastern Australia (Schaefer and Renner, 2010, 2011a).

49. *Momordica charantia* L., Sp. Pl. 2: 1009. 1753.

Type: "Habitat in India." Lectotype: Herb. Clifford: 451, Momordica 2 (BM-000647445), designated by Jeffrey (1967).
Momordica charantia L. var. *muricata* (Willd.) Chakrav., Fasc. Fl. India 11: 92. 1982. *Momordica muricata* Willd., Sp. Pl., ed. 4(1): 602. 1805.
Type: "Habitat in India Orientali," Plate 10 in Rheede Hort. Mal. Ind. 8. 1688.

Distribution in India: Large fruited forms cultivated all over India as vegetable; small wild forms occur in forest pockets in the Western and Eastern Ghats, Chhattisgarh (Bastar), Jharkhand and all over Central and South India (Joseph and Antony, 2010).
Distribution outside India: Native in tropical and subtropical Africa, naturalized in parts of tropical Asia.
Image: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/momordica/momordica-charantia
http://www.flowersofindia.net/catalog/slides/Bitter%20Gourd.html
GenBank: Sequences from Schaefer and Renner (2010) and Liao et al. (2012), e.g., DQ501269, HE585488.

50. *Momordica cochinchinensis* (Lour.) Spreng., Syst. Veg., ed. 16, 3: 14. 1826. *Muricia cochinchinensis* Lour., Fl. Cochinch. 2: 596. 1790.

Type: Vietnam, *Loureiro s.n.* (BM, http://plants.jstor.org/specimen/bm000944651).
Momordica macrophylla Gage, Rec. Bot. Surv. India 3: 61. 1908.
Type: Myanmar (Burma), Mergui, April 1911, *A. Meebold s.n.* (CAL?).

Distribution in India: Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Karnataka, Manipur, Nagaland, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.
Distribution outside India: Native from India in the West to New Guinea/Australia in the Southeast.
Image: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/momordica/momordica-cochinchinensis and
http://www.flowersofindia.net/catalog/slides/Chinese%20Cucumber.html
GenBank: Sequences from Schaefer and Renner (2010), e.g., GQ163379, GQ163256.
Comments: Jeffrey (1980; 2001) and De Wilde and Duyfjes (2002) have synonymized *M. macrophylla* under *M. cochinchinensis*.

51. *Momordica cymbalaria* Fenzl ex Naudin, Ann. Sci. Nat., Bot., Sér. 4, 12: 134. 1859.

Type: Africa, Sudan, Kordofan, Mt. Arasch Cool (Arashkol), 9 Oct. 1839, *Kotschy 147* (CAL, 2 sheets, photos available from SSR).

Momordica tuberosa (Roxb.) Cogn. in A. & C. DC., Monogr. Phan. 3: 454. 1881, nom. illeg., non Dennst. 1818.

Luffa tuberosa Roxb., Fl. Ind. 3: 717. 1832.

Lectotype: India, Ic. Roxb. 461 (K), designated by Jeffrey (1980).

Distribution in India: Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Tamil Nadu (fide Parvathi and Kumar, 2002).

Distribution outside India: North and East Africa.

Image: See http://en.wikipedia.org/wiki/Momordica_cymbalaria#cite_note-dist-1.

GenBank: An ITS sequence from an Indian specimen, Karuppusamy 28631 from Andhra Pradesh (Ali et al., 2009; GQ183046), is available and is identical to sequences from Africa (Schaefer and Renner, 2010).

Comments: We disagree with John and Antony (2010) that Jeffrey's (1980) synonymization of *Luffa tuberosa* with the African *Momordica cymbalaria* is erroneous. Likely introduced to Asia as a vegetable and medicinal plant (Lokesha and Vasudeva, 2001).

52. *Momordica denudata* (Thwaites) C.B. Clarke, Fl. Brit. India 2: 618. 1879.

Momordica dioica Roxb. ex Willd. var. *denudata* Thwaites, Enum. Pl. Zeyl. 2: 126. 1859.

Type: Sri Lanka, *Thwaites 1615* (K, CAL photo available from SSR, PDA).

Distribution in India: Gujarat, Maharashtra, Karnataka, Kerala (Chakravarty, 1982).

Distribution outside India: Sri Lanka.

Image: Several of the type specimens can be found online.

GenBank: Schaefer and Renner (2010) generated sequences from *Thwaites 28* (K), collected in Sri Lanka, e.g., GQ163385, GQ163262.

Comments: Joseph and Antony (2010) doubt that Chakravarty (1982) is correct in considering *M. denudata* distinct from *M. dioica*, while De Wilde and Duyfjes (2002) also consider *M. denudata* as distinct.

53. *Momordica dioica* Roxb. ex Willd., Sp. Pl., ed. 4(1): 605. 1805.

Type: East India; *Klein 768* (B-Willdenow 18027).

Distribution in India: Joseph and Antony (2010) consider *M. dioica* sensu stricto restricted to the Deccan plateau and Central India.

Distribution outside India: Bangladesh, China, Myanmar, Nepal, Pakistan.

Image: efloraofinda at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/momordica/momordica-dioica also Flora of Pakistan.

GenBank: Sequences from Schaefer and Renner (2010), e.g., GQ163389, GQ163387.

54. *Momordica sahyadrica* Kattuk. & V.T. Antony, Nordic J. Bot. 24(5): 541, Fig. 1. 2007.

Type: India, Kerala, Thrissur District: NH-47, Thrissur-Palakkad road at Erumbupalam, outskirts of Peechi-Vazhani wildlife sanctuary, December 23, 2003, *Joseph John Kattukunnel 4822* (CAL labeled as holotype, photo available from SSR).

Distribution in India: Kerala. **Endemic.**
Image: The species is illustrated in the original publication.
GenBank: No published sequences available.
Comments: Based on morphology, this appears to be a hybrid (H. Schafer, pers. comm. 2009). Kattuk. is the standard form of the author Joseph John Kattukunnel, who has revised Indian *Momordica* (Joseph and Antony, 2010). The holotype bears the collection number 4833, not 133 as given in the protologue.

55. *Momordica subangulata* Blume, Bijdr. Fl. Ned. Ind. 15: 928. 1826.

Type: Java, Mt. Salak, *Blume 769* (L).
Momordica subangulata subsp. *renigera* (Wall. ex G. Don) W.J.de Wilde, Bot. Zhurn. (Moscow & Leningrad) 87(3): 147. 2002.
Momordica renigera Wall. ex G. Don, Gen. Hist. 3: 36. 1834.
Type: Myanmar, Pome hills, *Wallich Cat.* 6743 (K?).

Distribution in India: Karnataka, Kerala, Maharashtra, Meghalaya, Sikkim, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mezoram, Nagaland, Sikkim, Tripura, West Bengal.
Distribution outside India: China, Bangladesh, Indonesia (Java, Sumatra), Laos, Peninsular Malaysia, Myanmar, Thailand, Vietnam.
Image: Nothing reliable found online.
GenBank: Sequences from Schaefer and Renner (2010), e.g., GQ163451, GQ163332.
Comments: Molecular data are needed to confirm that the name *Momordica renigera* described from Myanmar really applies to material from Java and India.

56. *Neoalsomitra clavigera* (Wall.) Hutch., Ann. Bot. (Oxford), ser. 2,6: 101. 1942.

Zanonia clavigera Wall., Pl. Asiat. Rar. 2: 28. t. 133. 1831.
Alsomitra clavigera (Wall.) M.Roem., Fam. Nat. Syn. Monogr. 2: 118. 1846, nom. nud.
Type: Bangladesh, Sylhet, *Wallich Cat. 3725A* (K).
Neoalsomitra clavigera (Wall.) Hutch. var. *hookeri* (C.B. Clarke) Chakrav., Rec. Bot. Surv. India 17(1): 197. 1959.
Type: Bangladesh, Sylhet, *Freire De Silva 203* (K-W, BM).
Gynostemma integrifoliolum Cogn. in A. & C. DC., Monogr. Phan. 3: 916. 1881. [as *integrifoliola*]

Alsomitra integrifoliola (Cogn.) Hayata, J. College Science, Imperial Univ. Tokyo 30(1): 121. 1911.
Neoalsomitra integrifoliola (Cogn.) Hutch., Ann. Bot. 6: 99. 1942
Syntypes: The Philippines, Luzon, *Cuming 767* (G-DC), Calanony, *Cuming 517* (G-BOISS).
Alsomitra pubigera Prain, J. As. Soc. Bengal, Pt. 2, Nat. Hist. 67: 292. 1898
Type: Myanmar, Mt. Kachin, King's collector (herbarium?).

Distribution in India: Arunachal Pradesh, Assam, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Sikkim, Punjab, Uttar Pradesh, West Bengal.
Distribution outside India: Bangladesh, Bhutan, Myanmar, S China (especially Yunnan and Hainan), Vietnam, Laos, Cambodia, N Sumatra, the Philippines, east to NE Australia (Queensland) and the Pacific (Solomon Island and east to Fiji); absent from the tropical everwet rain forests of Java and Borneo.
Image: Many photos of this large-fruited and large-seeded species can be found online.
GenBank: Sequences from Kocyan et al. (2007), e.g., DQ536573, DQ535830.
Comments: *Neoalsomitra* has 11 further species in Malesia, S China, New Guinea, Australia, and Fiji (De Wilde and Duyfjes, 2003; Schaefer and Renner, 2011a). Its phylogenetic position can be seen in Fig. 1.

57. *Schizopepon bicirrhosus* (C.B. Clarke) C. Jeffrey, Kew Bull. 34(4): 802. 1980.

Melothria bicirrhosa C.B. Clarke, Fl. Brit. India 2: 627. 1879.
Type: Myanmar (Burma), *Griffith 2522* (K).
Schizopepon wardii Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 900, pl. 6. 1952.
Type: Assam, Delei Valley, alt. 11000 ft, Rhododendron-Conifer Forest, open Gullies facing north; August 23, 1928, *F. Kingdon Ward 8667* (K).

Distribution in India: Northeast India (Meghalaya, Manipur).
Distribution outside India: China (S. Xizang), Myanmar.
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: The synonymization of *S. wardii* here follows Jeffrey (1980) and Lu et al. (2011). Chakravarty (1982) instead accepted *S. wardii* and wrote that it had "affinity towards *S. macranthus* Handel-Mazzetti, but differs in the following characters: (i) leaves not lobed (ii) pedicels longer and (iii) connective produced beyond the loculi." Besides its four species listed here, *Schizopepon* has another five species in Russia, China, and Japan (Schaefer and Renner, 2011a; Lu et al., 2011).

58. *Schizopepon longipes* Gagnep., Bull. Mus. Natl. Hist. Nat. 24(5): 378. 1918.

Type: China, Sechuan, near Ta-tsien-lou, *Mussot s.n.* (P).

Distribution in India: Northeast India.

Distribution outside India: China (S. Xizang), Myanmar.
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comment: The *Flora of Bhutan* (2(1): 260. 1991) records this species from Bhutan and Darjeeling in West Bengal. Jeffrey (1980, 1982) changed his mind about Indian material that he first identified as *S. dioicus* Cogn., but later as *S. longipes*.

59. *Schizopepon macranthus* Handel-Mazzetti, Symb. Sin. 7(4): 1064. 1936.

Type: China, Sichuan, Muli, Lijiacun, 2850-3000 m, 23 July 1915 *Handel-Mazzetti 7153* (B, destroyed?).

Distribution in India: Possibly Northeast India.
Distribution outside India: China (W Sichuan and NW Yunnan).
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comment: Jeffrey (1980) does not mention this species, while Chakravarty (1982) discusses its similarity to *S. wardii*, here considered a synonym of *S. bicirrhosus.* The *Flora of China* (Lu et al., 2011), recognizes it as a distinct species.

60. *Sicyos edulis* Jacq., Enum. Syst. Pl. 32. 1760.

Sechium edule (Jacq.) Sw., Fl. Ind. Occid. 2(2): 1150. 1800.
Type: "In insulis Caribaeis vicinaque Americes continente detexit novas."
Sechium americanum Poir., Encycl. (Lamarck) 7: 50. 1806.
Type: "Cette planté croît naturellement à la Jamaique, où on la cultive aussi à cause de ses fruits que l'on mange, & qui s'imploient dans les ragouts."

Distribution in India: Cultivated throughout India.
Distribution outside India: Native to Mexico, cultivated throughout the tropics.
Image: http://www.flowersofindia.net/catalog/slides/Chaco.html
GenBank: Sebastian et al. (2012) and numerous other sequences.
Comments: Molecular data show that *Sechium* is embedded within the genus *Sicyos* (Sebastian et al., 2012).

61. *Siraitia sikkimensis* (Chakrav.) C. Jeffrey, Kew Bull. 36(4): 737. 1982.

Neoluffa sikkimensis Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 895, pl. 3. 1952.
Type: India, Sikkim Himalaya, near Sittong, alt. 1500 ft, 12 May 1876, *G. King s.n.* (CAL, 3 sheets, photos available from SSR)

Distribution in India: Sikkim, West Bengal.
Distribution outside India: China (S Yunnan).
Image: Nothing reliable found online.

GenBank: No published sequences available.

Comments: The genus *Siraitia* has five species, four in India, Indonesia, Peninsular Malaysia, Thailand, South and Southwest China, and one Southern Tanzania and Southeast Nigeria (Schaefer and Renner, 2011a, b). The cucurbitane-type triterpene glycoside constituents of *S. grosvenorii* are the source of plant-derived sweeteners.

62. *Solena amplexicaulis* (Lam.) Gandhi in Saldanha & Nicolson, Fl. Hassan Distr. 179. 1976.

Bryonia amplexicaulis Lam., Encycl. 1: 496. 1785.
Karivia amplexicaulis (Lam.) Arn., J. Bot. 3: 275. 1841.
Melothria amplexicaulis (Lam.) Cogn. in A. & C. DC., Monogr. Phan. 3: 621. 1881.
Type: S India, *Sonnerat s.n.* (P-LAM).

Distribution in India: Tamil Nadu, Karnataka, Kerala. **Endemic.**

Images: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/solena/solena-amplexicaulis

GenBank: Sequences from Chen et al. (2010), e.g., GQ436395, GQ435029.

Comments: Following De Wilde and Duyfjes (2004c), *Solena* comprises three or four species while in the past, only one species, *S. amplexicaulis*, was recognized, which supposedly ranged from NE Afghanistan through India and Sri Lanka. Based on several vegetative and reproductive differences, De Wilde and Duyfjes instead recognize *S. amplexicaulus* from South India, *S. umbellata* from South India and Sri Lanka, and *S. heterophylla* with two subspecies, one from NE Afghanistan eastward, the other in N India and east to China. The *Flora of China* (Lu et al., 2011) follows this treatment.

63. *Solena heterophylla* Lour., Fl. Cochinch. 2: 514. 1790.

subsp. **heterophylla**

Melothria heterophylla (Lour.) Cogn. in A. & C. DC., Monogr. Phan. 3: 618. 1881.
Type: Vietnam, *Loureiro s.n.* (BM http://plants.jstor.org/specimen/bm000944657).
Bryonia rheedei Blume, Bijdr. Fl. Ned. Ind. 15: 925. 1826
Karivia rheedei (Blume) M.Roem., Fam. Nat. Syn. Monogr. 2: 45. 1846
Type: Java, *Blume s.n.* (L, Barcode: L0127474).
Bryonia sagittata Blume, Bijdr. Fl. Ned. Ind. 15: 925. 1826.
Type: Java, *Blume s.n.* (L, Barcode: L0127475).
Melothria ovata Cogn. in Engl. Pflanzenr. IV. 275, 1 (Heft 66): 114. 1916.
Type: India, Sikkim, near Labdah, 650 m a.s.l., Aug. 1884, *collector unknown* (G-BOISS).

Distribution in India: Widely distributed all over India (Chakravarty, 1982).

Distribution outside India: NE Afghanistan, Indonesia (Java), Peninsular Malaysia, Myanmar, Nepal, Thailand, Vietnam (Lu et al., 2011).

GenBank: Sequences from Kocyan et al. (2007), e.g., DQ536737, DQ536870.

Comments: See under *S. amplexicaulis.*

subsp. **napaulensis** (Ser.) W.J.de Wilde & Duyfjes, Blumea 49(1): 75. 2004.
Bryonia napaulensis Ser., Prodr. 3: 307. 1828.
Zehneria umbellata (Klein ex Willd.) Thwaites var. *napaulensis* (Ser.) C.B. Clarke, Fl. Brit. India 2: 625. 1879.
Type: Nepal, *Wallich s.n.* (G).

Distribution in India: Western Himalaya (Garhwal, Kumaon hills, Uttarakhand).
Distribution outside India: China (Yunnan), Myanmar, Nepal (Lu et al., 2011).
GenBank: No published sequences available.
Comments: See under *S. amplexicaulis.*

64. *Solena umbellata* (Willd.) W.J. de Wilde & Duyfjes, Blumea 49(1): 77. 2004.

Bryonia umbellata Willd., Sp. Pl., ed. 4(1): 618. 1805.
Momordica umbellata (Willd.) Roxb., Hort. Bengal. 79. 1832.
Karivia umbellata (Willd.) Arn., J. Bot. 3: 275. 1841.
Zehneria umbellata (Willd.) Thwaites, Enum. Pl. Zeyl. 2: 125. 1859.
Type: South India, *J. G. Klein 765* (lecto B-W), designated by De Wilde and Duyfjes (2004).
Melothria angulata Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 899. 1952.
Zehneria angulata (Chakrav.) J. L. Ellis, Bull. Bot. Surv. India 9(1-4): 8. 1968 ("1967").
Solena angulata (Chakrav.) Babu, Herb. Fl. Dehra Dun 203. 1977.
Type: South India, Gomata, alt. 5500 ft, *Malcolmpeth 81* (CAL photo available from SSR).

Distribution in India: Goa, Karnataka, Kerala, Tamil Nadu.
Distribution outside India: Sri Lanka.
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: The genus *Melothria* is restricted to tropical Central and South America, where it has about 12 species (Schaefer and Renner, 2011a). Based on molecular data, the Asian species formerly assigned to *Melothria* belong in *Cucumis*, *Solena*, and other genera. For the number of species of *Solena* see comment under *S. amplexicaulis.*

65. *Thladiantha hookeri* C.B. Clarke, Fl. Brit. India 2(6): 631. 1879.

Syntypes: India, Meghalaya [Assam], *Griffith s.n.* (K). Khasia Hills, alt. 4000–6000 ft; *J.D. Hooker & Thomson s.n.* (CAL photo available from SSR, K). Myrung and Nunklow, *J.D. Hooker & Thomson s.n.* (K).
Thladiantha hookeri C.B. Clarke var. *palmatifolia* Chakrav., Notes Roy. Bot. Gard. Edinburgh 20(48): 122. 1948.
Type: India, Manipur [Assam], Kala Naga Hills, *Watt 7306* (E).
Hemsleya trifoliolata Cogn., Repert. Spec. Nov. Regni Veg. 6(15/20): 304. 1909. *Thladiantha hookeri* forma *trifoliolata* (Cogn.) Chakrav., Notes Roy. Bot. Gard.

Edinburgh 20: 122. 1948 = *Thladiantha hookeri* var. *irregularis* Chakrav., Fasc. Fl. India 11: 104. 1982, nom. nov.
Type: China, Yunnan, A. *Henry 12295D* (Z).
Thladiantha pentadactyla Cogn. in Engl. Pflanzenr. IV. 275, 1 (Heft 66): 52. 1916.
Type: China, Yunnan, alt. 1700 m, *A. Henry 12295D* (B), same type as previous name.
Thladiantha heptadactyla Cogn. in Engl. Pflanzenr. IV. 275, 1 (Heft 66): 52. 1916.
Type: China, Yunnan, Lou Kong, alt. 2800m, May 1886, *Delavay s.n.* (P).

Distribution in India: Assam, Manipur, Meghalaya, Nagaland.
Distribution outside India: China (Yunnan), Bhutan, Laos, Myanmar, Thailand, Vietnam.
Image: http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000036903
GenBank: Sequences from Kocyan et al. (2007) and Li et al. (2011), e.g., JF978932, DQ536601.
Comments: *Thladiantha* has c. 30 species in China, Taiwan, Tibet, India, Korea, Japan, Thailand, Vietnam, Indonesia, Philippines, and New Guinea.

66. *Thladiantha cordifolia* (Blume) Cogn. in A. & C. DC., Monogr. Phan. 3: 424. 1881. *Luffa cordifolia* Blume, Bijdr. Fl. Ned. Ind. 15: 929. 1826.

Type: Java, *Blume 1464*, fruit (lectotype L, barcode L0001624, designated by De Wilde & Duyfjes (2006); isotype L; CAL has two sheets without collection numbers).
Thladiantha calcarata (Wall.) C.B. Clarke, J. Linn. Soc., Bot. 15: 126. 1876, nom. nud.
Momordica calcarata Colebr. ex Wall., Cat. No. 6740. 1832, nom. nud.
Thladiantha calcarata (Wall.) C.B. Clarke [nom. nud.] var. *subglabra* Cogn. in A. & C. DC., Monogr. Phan. 3: 424. 1881. (Listed as "*Thladiantha cordifolia* (Blume) Cogn. var. *subglabra* Cogn." by Chakravarty, 1982.)
Type: India, Meghalaya, Khasia, 1300 m, *J.D. Hooker & T. Thomson 1* (CAL 2 sheets, photos available from SSR, K).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Sikkim, Tamil Nadu, Tripura, West Bengal.
Distribution outside India: Nepal, China (Guangdong, Guangxi, Sichuan, Yunnan), Indonesia (Java, Sumatra), Laos, Peninsular Malaysia, Myanmar, Thailand, Vietnam.
Image: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/thladiantha/thladiantha-cordifolia
GenBank: Sequences from Schaefer and Renner (2010) and Li et al. (2011), e.g., JF978906, GQ163340.
Comments: Further synonmys are given in Lu et al. (2011).

67. *Trichosanthes anaimalaiensis* Bedd., Madras J. Lit. Sci. 3,1: 47. 1864.

Type: India, Tamil Nadu, Anaimalai Mts., *Beddome 3234* (BM http://plants.jstor.org/specimen/bm000885793)

Trichosanthes bracteata (Lam.) Voigt var. *tomentosa* (C.B. Clarke) Chakrav., Rec. Bot. Surv. India 17(1): 47. 1959, nom. illeg., because its type, *Abdul Khalil s.n.* (CAL photo available from SSR) from Myanmar, Southern Shan State, Indine, is a syntype of *T. burmensis* Kundu (see under *T. rubriflos*).

Trichosanthes palmata L. var. *tomentosa* Heyne ex C.B. Clarke, Fl. Brit. India 2(6): 607. 1879.

Syntypes: India, Deccan Peninsular Mountains; *Wight no. 1134 (*HBG online at JSTOR*), 1136 partly*, *G. Thomson s.n.*; Sri Lanka, alt. 2600 ft, *Gardner s.n.* (K).

Distribution in India: Andaman & Nicobar Islands (Naithani, 1990), Andhra Pradesh, Arunachal Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu, Tripura. **Endemic.**

Image: Nothing reliable found online.

GenBank: No published sequences available.

68. *Trichosanthes bracteata* (Lam.) Voigt, Hort. Suburb. Calcutt. 58. 1845.

Modecca bracteata Lam., Encycl. 4: 210. 1797.

Type: India, *Sonnerat s.n.* (P-LAM).

Distribution in India: Peninsular India, Khasia Hills, Dehra Doon, Bengal.

Distribution outside India: China (Guizhou), Nepal (? see comments).

Image: Nothing reliable found online.

GenBank: Sequences from De Boer et al. (2012) from Indian material, e.g., HE661317, HE661484.

Comments: Jeffrey (1980) and Lu et al. (2011) treat *T. bracteata* as a synonym of *T. tricuspidata*, which ranges from China (Guizhou), Peninsular Malaysia, Nepal, Thailand, to Vietnam, while Chakravarty (1982) recognized *T. bracteata* with two varieties, var. *bracteata* from throughout India, Myanmar, China, and Australia, and var. *tomentosa* (an illegitimate name here treated under *T. anaimalaiensis*) on the Andaman and Nicobar islands, and in Arunachal Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu, Tripura, as well as Myanmar and Java. Another species concept is that of De Wilde and Duyfjes (2008a, 2010).

69. *Trichosanthes cordata* Roxb. Fl. Ind. 3: 703 1832.

Type: Bangladesh, mouth of the river Meghna, *Wallich Cat. No*. 6686A (K, CAL).

Trichosanthes macrosiphon Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 41: 308. 1872.

Type: Myanmar, Tenasserim, *W.S. Kurz* (CAL, no image seen).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal

Distribution outside India: Bangladesh, Bhutan, China, Myanmar, Nepal.

Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: C.B. Clarke (1879: 608) synomized *T. macrosiphon* under *T. cordata* Roxb. because the protologue does not contain anything uniquely distinctive compared to the protologue of *T. cordata*. The personal herbarium of Wilhelm Sulpiz Kurz is at CAL, but that we have not received the requested type image.

70. *Trichosanthes costata* Bl., Bijdr. Fl. Ned. Ind. 15: 933. 1826.

Type: Java, *Blume s.n.* (L, barcode L0589632), designated by De Wilde and Duyfjes (2006).
Gymnopetalum chinense (Lour.) Merr., Philipp. J. Sci. 15: 256. 1919.
Euonymus chinensis Lour., Fl. Cochinch. 1: 156. 1790 (as *Evonymus*).
Type: Untraced. Neotype: South China, *Levine 1705* (holotype A, designated by De Wilde and Duyfjes, 2008b).
Tripodanthera cochinchinensis (Lour.) M.Roem., Fam. Nat. Syn. Monogr. 2: 48. 1846.
Gymnopetalum cochinchinense (Lour.) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 40: 57. 1871.
Bryonia cochinchinensis Lour., Fl. Cochinch. 2: 595. 1790.
Type: Vietnam, *Loureiro 595* (BM, http://plants.jstor.org/specimen/viewer/bm000944642).
Momordica tubiflora Roxb., Fl. Ind. 3: 711. 1832.
Scotanthus tubiflorus (Roxb.) Naudin, Ann. Sci. Nat., Bot. sér. 4, 16: 172, f. 3. 1862, nom. superfl.
Type: India, *Wallich Cat. 6749* (K).
Gymnopetalum quinquelobum Miq., Fl. Ned. Ind. 1: 681. 1855.
Type: Java, Soerakarta, *T. Horsfield s.n.* (BM image seen)
Gymnopetalum heterophyllum Kurz, J. Bot. 13: 326. 1875.
Type: Kamorta Island (part of the Nicobar Islands); *Wallich Cat. 6711* (K).

Distribution in India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Manipur, Meghalaya, Sikkim, Tripura, Uttar Pradesh, West Bengal.
Distribution outside India: China, Java, Myanmar, Sri Lanka, Vietnam.
Images: Photos available upon request from A. Pandey or SSR.
GenBank: Schaefer et al. (2008), most sequences under the name *Gymnopetalum chinense*, e.g., HE661294, HQ201978.
Comments: Based on molecular data, *Gymnopetalum chinense* belongs in the genus *Trichosanthes* (De Boer et al., 2012; contra De Wilde and Duyfjes, 2006c). In *Trichosanthes*, however, the epithet *chinense* is already occupied by *Trichosanthes chinensis* Ser. (1828). The second name in line of priority would be *G. cochinchinensis*, based on the basionym *Bryonia cochinchinensis*. However, the combination *T. cochinchinensis* (Lour.) M.Roem. (based on *T. cucumerina* Lour.) blocks that transfer, too. The third available name is *T. costata* Blume, and this name must be used for *Gymnopetalum chinense* if the species is placed in *Trichosanthes* (De Boer and Thulin, 2012).

71. ***Trichosanthes cucumerina*** L., Sp. Pl. 2: 1008. 1753.

Lectotype: India, Kerala, "Padavalam" in Rheede, Hort. Malab. 8: 29. t. 15. 1688, designated by Keraudren-Aymonin in Aubréville & Leroy (ed.), Fl. Cambodge Laos Viêt-Nam 15: 91. 1975.

Trichosanthes anguina L., Sp. Pl. 2: 1008. 1753.

Lectotype: China, "Anguina Sinensis, flore albo, elegantissimo, capillamentis tenuissimis ornato, fructu longo intorto, sub initium ex albo, & viridi variegato, per maturitatem prorsus rubro" in Micheli, Nov. Pl. Gen. 12. t. 9. 1729, designated by Jeffrey in Jarvis & al. (ed.), Regnum Veg. 127: 95. 1993.

Cucumis anguinus L., Sp. Pl., ed. 10. 2: 1279. 1759.

Type: "Habitat [in India.], Sp. Pl., ed. 2, 2: 1438. 1763." Lectotype: "Petola Anguina" in Rumphius, Herb. Amboin. 5: 407. t. 148, 1747, designated by Merrill in Interpret. Rumph. Herb. Amb. 494. 1917.

Trichosanthes pachyrrhachis Kundu, J. Bot. 77: 9. 1939.

Syntypes: Northwest India, 1844, *M.P. Edgeworth 63* (K), Mangalor, 1847, *R.F. Hohenacker* (herbarium?), synonymized here by Chakravarty (1959) and Jeffrey (1980).

Trichosanthes brevibracteata Kundu, J. Bot. 77: 10. 1939.

Paratypes (Art. 9.4): India, Karnal, Punjab, 1885-1888, *J.R. Drummond 25031* (herbarium?), Ahmedabad, July 1920, *L.J. Sedgwick* (herbarium?), NW India, *Thomson s.n.* (herbarium?); synonymized here by Chakravarty (1959) and Jeffrey (1980).

Trichosanthes brevibracteata Kundu var. *sublobata* Kundu, J. Bot. 77: 11. 1939.

Type: India, Nagpur-Wardha, C.P., Sep. 2012, *Haines* (K).

Trichosanthes brevibracteata Kundu var. *longirostrata* Kundu, J. Bot. 77: 11. 1939.

Type: Myanmar, 15 Aug. 1908, *J. H. Lace 6335* (K).

Distribution in India: Native and cultivated throughout India.

Distribution outside India: Sri Lanka and tropical China through Malesia into W, N, and NE Australia.

Image: http://www.flowersofindia.net/catalog/slides/Snake%20Gourd.html
http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742697
http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742699

GenBank: Sequences from Schaefer and Renner (2011b) and De Boer et al. (2012), e.g., HE661410, HE661486.

Comments: Widely cultivated for its edible fruits (Duyfjes and Pruesapan, 2004). In 1959, Chakravarty synonymized *T. pachyrrhachis* Kundu and *T. brevibracteata* Kundu under *T. cucumerina*, but his 1982 checklist omitted both names.

72. ***Trichosanthes cucumeroides*** (Ser.) Maxim., Franch. & Sav. Enum. Pl. Jap. 1: 172. 1873.

Bryonia cucumeroides Ser., Prodr. 3: 308. 1828.

Trichosanthes ovigera subsp. *cucumeroides* (Ser.) C. Jeffrey, Mansfeld's Encycl. 3: 1528. (6: 2825). 2001.

Type: "Patria ignotus, Seringe manuscript" perhaps a Wallich specimen (herbarium?).

Trichosanthes dicaelosperma C.B. Clarke, Fl. Brit. India 2: 609. 1879.

Trichosanthes cucumeroides var. *dicaelosperma* (C.B. Clarke) S. K. Chen, Bull. Bot. Res., Harbin 5(2): 118. 1985.

Syntypes: India, Sikkim, J.D. Hooker s.n. (K), Khasia Mts., *Hooker* & *Thomson* (CAL photos available from SSR, K).

Distribution inside India: Meghalaya, Sikkim, Uttar Pradesh, West Bengal.

Distribution outside India: Guangxi, SE Xizang.

Image: Many images of this much-cultivated species can be found online.

GenBank: Several sequences, e.g., HQ829602, HQ829602.

Comment: Jeffrey (in Lu et al., 2011) prefers to treat *T. cucumeroides* as a synonym of *T. pilosa* Lour. (Fl. Cochinch. 2: 588. 1790). In his 1980 checklist, he does not list *T. cucumeroides* and treats *T. dicaelosperma* as a synonym of *T. ovigera.* Lu et al. (2011) instead recognize *T. cucumeroides*, with *T. dicaelosperma* as one of its varieties.

73. *Trichosanthes dioica* Roxb., Fl. Ind. 3: 701. 1832.

Type: India, West Bengal, "It is much cultivated by the natives about Calcutta, during the rains." Ic. Roxb. Lectotype?

Trichosanthes dioica Roxb. var. *sagittifolia* Chakrav., Rec. Bot. Surv. India 17(1): 55. 1959.

Type: Northwest India, without precise locality, *cult. (Stewart 1228)* (E).

Distribution in India: Arunachal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Punjab, Rajasthan, Uttar Pradesh, West Bengal Distribution outside India: Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

Image: efloraofindia at https://sites.google.com/site/efloraofindia/species/a---l/cl/cucurbitaceae/trichosanthes/trichosanthes-dioica

GenBank: Sequences from Ali, Pandey, and Lee (2009) and De Boer et al. (2012), e.g., GQ240881, HE661322.

Comments: The female gametophytes were studied by Pandey et al. (1997, 2003) and pollen germination behavior by Kumari et al. (2009). The synonyimization of var. *sagittifolia* follows Jeffrey (1980).

74. *Trichosanthes dunniana* H. Lév., Repert. Spec. Nov. Regni Veg.10: 148. 1911.

Type: China, Guizhou, *Esquirol* 726, (E, K).

Trichosanthes majuscula (C.B. Clarke) Kundu, J. Bot. 77: 12. 1939.

Trichosanthes multiloba Miq. var. *majuscula* C.B. Clarke, Fl. Brit. India 2(6): 608. 1879.

Trichosanthes wallichiana (Ser.) Wight var. *majuscula* (C.B. Clarke) Cogn. in A. & C. DC., Monog. Phan. 3: 369. 1881.
Type: India, Meghalaya, Khasia Hills, alt. 4000 ft., *J.D. Hooker & Thomson s.n. (Herb. Ind. Or. Trichosanthes sp. 7)* (K).
Trichosanthes prazeri Kundu, J. Bombay Nat. Hist. Soc. 43(2): 378. 1942.
Type: Upper Myanmar, May 1888, Khoni, *J.C. Prazer s.n.* (CAL, 3 sheets, photos available from SSR).

Distribution in India: Minimally Meghalaya.
Distribution outside India: China, Myanmar, Thailand.
Image: Some of the type specimens can be found online.
GenBank: Several sequences.e.g., HQ829503, HQ829605.
Comments: The acceptance of *T. dunniana* for India and the synonymization of *T. majuscula* follow Jeffrey (1982). Chakravarty (1959) recognized *Trichosanthes majuscula*, saying that the species required further examination. The leaves are larger than in *T. wallichiana* proper; otherwise it closely agrees with that species.

75. *Trichosanthes kerrii* Craib, Bull. Misc. Inform. Kew. 1914: 7. 1914.

Type: North Thailand, *Kerr* 2454 (BM, K).
Trichosanthes tomentosa Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 894, f. 45. 1952.
Type: India, Nagaland, Kohima and Naga Hill, alt. 4500 ft; 22 May 1895; *Watt 11640* (CAL, 3 sheets, photos available from SSR).

Distribution in India: Nagaland, Mongsemdi Naga hills (Chakravarty, 1982).
Distribution outside India: China (SW Yunnan), Laos, N Thailand, N Vietnam.
Image: See type images.
GenBank: Sequences from Schaefer et al. (2008) and De Boer et al. (2012), e.g., HE661333, HE661498.
Comments: Jeffrey (1982), Duyfjes and Pruesapan (2004), and Lu et al. (2011) all list *T. tomentosa* as a synonym of *T. kerrii*.

76. *Trichosanthes khasiana* Kundu, J. Bot. 77: 11. 1939.

Type: India, Meghalaya, Khasia Hills, Hooker & Thomson (K, http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000102020)

Distribution in India: Meghalaya.
Distribution outside India: **Endemic.**
Image: Nothing found online other than the type image.
GenBank: No published sequences available.
Comments: Jeffrey (1982) and De Boer and Thulin (2012) recognize this species as distinct.

77. *Trichosanthes lepiniana* (Naudin) Cogn. in A. & C. DC., Monogr. Phan. 3: 377. 1881.

Involucraria lepiniana Naudin in Huber, Cat. 11. 1868.
Syntypes?: India, Union Territory, Pondichery, *J. Lepine s.n.* (P http://plants.jstor.org/specimen/bm000900967); Sikkim, *J.D. Hooker & Thomson 14* (K, P).

Distribution in India: Union Territory.
Distribution outside India: Unclear, see comments.
Image: Nothing found online other than the type image.
GenBank: Sequences from De Boer et al. (2012) from Nepalese and Chinese material, e.g., HE661507, HE661341.
Comments: Jeffrey (1980) initially considered *T. lepiniana* a synonym of *T. tricuspidata*, but he later (1982) recognized it as a separate species, as did Chakravarty (1982).

78. *Trichosanthes lobata* Roxb., Fl. Ind. 3: 703. 1832.

Type: India, "This plant grows in hedges, and among bushes." *Roxburgh 992* (K)
Trichosanthes perrottetiana Cogn. in A. & C. DC., Monogr. Phan. 3: 362. 1881.
Type: India, Union Territory, Pondichery, *Perrottet 256* (G-BOISS, W).

Distribution in India: Andhra Pradesh, Karnataka, Kerala, Puducherry, Tamil Nadu, Uttar Pradesh, West Bengal.
Distribution outside India: China.
Image: Nothing found online.
GenBank: No published sequences available.
Comments: Chakravarty (1982) recognizes both *T. lobata* and T. *perrottetiana*, while Jeffrey (1980) synonoymizes T. *perrottetiana* (and also *T. villosula*) under *T. lobata*. We have followed Lu et al. (2011) in maintaining *T. villosula* separate.

79. *Trichosanthes nervifolia* L., Sp. Pl. 2: 1008. 1753.

Lectotype: India, Kerala, Tota-piri, in Rheede, Hort. Malab. 8: 33, t. 17. 1688, designated by Majumdar & Bakshi in Taxon 28: 354. 1979.
Trichosanthes cuspidata Lam., Encycl. 1: 190. 1783.
Type: India, Rheede, Hort. Malab. 8; 31, t. 16.

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.
Distribution outside India: Sri Lanka.
Image: Nothing found online.

GenBank: Sequences from De Boer et al. (2012) from Sri Lankan material, e.g., HE661514, HE661350.

80. ***Trichosanthes ovigera*** Blume, Bijdr. Fl. Ned. Ind. 15: 934. 1826.

Type: Java, Gunung Salak, *Blume s.n*. (L barcodes L0130442, L0130439 , P).

Trichosanthes ovigera Blume var. *sikkimensis* Kundu, J. Bombay. Nat. Hist. Soc. 43(3): 383. 1942.

Type: India, Selim, Sikkim, 1000 feet, Oct. 1884, *C.B. Clarke* (CAL). Other cited sheets: India, Rungtung, Sikkim Dec. 1876, *A.B.* (King's Collector) (CAL); Sikkim, 5000 feet, 23 Sep. 1875, *G. King* (CAL?); Runjeet, Darjeeling, Sep. 1884, *C.B. Clarke* (CAL); Kobo, Abor Expedition, Assam. Dec. 1911, *J.H. Burkill 37420* (K).

Trichosanthes horsfieldii Miq., Fl. Ned. Ind. 1: 677. 1855.

Type: Java, Priangan, *T. Horsfield 15* (BM, K, U).

Trichosanthes himalensis C.B. Clarke, Fl. Brit. India 2(6): 608. 1879.

Type: India, Sikkim, alt. 2000-5000 ft, from Yoksun to the plains; *J.D. Hooker, C.B. Clarke s.n.* (K).

Trichosanthes himalensis var. *glabrior* C.B. Clarke, Fl. Brit. India 2(6): 608. 1879.

Type: India, Meghalaya, Khasia, alt. 4000 ft, *Trichosanthes sp. 9 in J.D. Hooker & T. Thomson s.n.* (K).

Trichosanthes himalensis var. *indivisa* Chakrav., Rec. Bot. Surv. India 17(1): 51. 1959, nom. illeg. Sikkim, 3500 feet, 11 Dec. 1877, *G. King* (CAL, photo available from SSR)

Trichosanthes himalensis var. *sikkimensis* (Kundu) Thoth., Bull. Bot. Surv. India 2(1&2): 169. 1960.

Distribution in India: Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Meghalaya, Sikkim, Tripura, Uttar Pradesh, West Bengal.

Distribution outside India: Australia, Bangladesh, China, Japan, Java, Myanmar, Nepal.

Image: A few of the type specimens can be found online.

GenBank: Sequences from Kocyan et al. (2007) and Schaefer et al. (2008) from Japanese and Australian material, e.g., DQ536604, DQ536875.

Comments: The list of synonyms of *T. ovigera* follows Jeffrey (1980) except for *T. dicaelosperma*, which he also synonymizes here, while we have followed Lu et al. (2011) who consider *T. dicaelosperma* one of the varieties of *T. cucumeroides*. Lu et al. (2011) and De Wilde and Duyfjes (2008a, b) both consider *T. ovigera* a synonym of *T. pilosa*. Morphological and molecular work is needed to clarify species boundaries in *Trichosanthes*.

81. ***Trichosanthes rubriflos*** Thorel ex Cayla, Bull. Mus. Natl. Hist. Nat. 14: 170. 1908.

Trichosanthes pubera Blume subsp. *rubriflos* (Thorel ex Cayla) Duyfjes & Pruesapan, Thai Forest Bull., Bot. 32: 94. 2004.

Lectotype: Cambodia, Stung-streng, *Thorel* 2126 (K, P), designated by Keraudren (1975).

Trichosanthes burmensis Kundu, J. Bombay Nat. Hist. Soc. 43(2): 381. 1942.
Syntypes: Upper Myanmar, Southern Shan State, Indine, 1893, *Abdul Khalil s.n.* (CAL, 3 sheets, photos available from SSR), Pegu, *W.S. Kurz 1062* (CAL, no image seen).

Distribution in India: Unknown.
Distribution outside India: China, Myanmar, Cambodia, Thailand.
GenBank: Sequences from De Boer et al. (2012) based on material from Thailand, mostly under *T. pubera* subsp. *rubriflos*, e.g., HE661533, HE661451.
Comments: In his 1980 checklist of the Indian Cucurbitaceae, Jeffrey recognized *T. rubriflos* with two doubful synonyms, *T. prazeri* Kundu and *T. burmensis* Kundu, but in 1982, he moved *T. prazeri* into the synonymy of *T. dunniana*. Chakravarty (1959, 1982) also listed T. *rubriflos* for India, but kept *T. majuscula* and *T. prazeri* separate, and considered *T. burmensis* a synonym of *T. bracteata*, which is in error. Duyfjes and Pruesapan (2004) considered *T. rubriflos* a subspecies of *T. pubera* Blume, described from Java. According to the *Trichosanthes* expert Hugo De Boer (pers. comm. 24 Oct. 2012), the holotype of *T. burmensis*, *Abdul Khalil s.n.*, resembles material of *T. rubriflos* from Thailand, and the label notes that the flowers are red. Another form of *Trichosanthes* described by Kundu, *T. burmensis* var. *alba* Kundu is a synonym of *T. tricuspidata* (see below).

82. *Trichosanthes quinquangulata* A. Gray, U.S. Expl. Exped., Phan. 1: 645. 1854.

Type: Philippines, Mangsee, *Wilkes s. n. 1842/2* (US).

Distribution in India: Andaman Islands (voucher: L. *Rasingam 17583*, PBL).
Distribution outside India: South China, Myanmar, Thailand, Vietnam, Cambodia, Laos, Peninsular Malaysia, Singapore, Indonesia (Sumatra, Borneo, Java, Moluccas, New Guinea (West Papua and Papua New Guinea, Philippines.
Image: Nothing reliable found online.
GenBank: Sequences from De Boer et al. (2012), e.g., HE661535, HE661375.
Comment: The occurrence of this species on the Andaman Islands is a discovery of Rasingam (2012).

83. *Trichosanthes scabra* Lour., Fl. Cochinch. 2: 589. 1790.

Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes, Reinwardtia 12: 268. 2008.
Type: Vietnam, Annam, *Poilane 11322* (neotype P; isoneotype L), designated by De Wilde and Duyfjes (2008b).
Cucumis integrifolius Roxb., Fl. Ind. 3: 724. 1832.
Gymnopetalum integrifolium (Roxb.) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 40: 58. 1871.
Trichosanthes integrifolia (Roxb.) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46: 99. 1877.
Type: Myanmar (Burma), *Wallich Cat. 6730* (K-W).

Gymnopetalum integrifolium (Roxb.) Kurz var. *pectinatum* W.J.de Wilde & Duyfjes, Blumea 51: 287. 2006.
Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes var. *pectinatum* (W.J. de Wilde & Duyfjes) W.J.de Wilde & Duyfjes, Reinwardtia 12: 268. 2008.
Trichosanthes scabra Lour. var. *pectinata* (W.J.de Wilde & Duyfjes) H.J.De Boer, Phytokeys 12: 30. 2012.
Type: Java, Indonesia, *W.J. de Wilde and Duyfjes 21692* (L).
Gymnopetalum penicaudii Gagnep. (1918) Bull. Mus. Natl. Hist. Nat. 24: 374.
Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes var. *penicaudii* (Gagnep.) W.J.de Wilde & Duyfjes, Reinwardtia 12: 268. 2008.
Trichosanthes scabra Lour. var. *penicaudii* (Gagnep.) H.J.De Boer, Phytokeys 12: 30. 2012.
Type: China, Hainan *Pénicaud 43* (lectotype P).

Distribution in India: The range of this species is unclear.
Distribution outside India: China, Cambodia, Indonesia, Laos, Peninsular Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam (fide Lu et al., 2011).
Image: Some of the type specimens can be found online.
GenBank: Sequences from Kocyan et al. (2007) and De Boer et al. (2012) from Chinese and Thai material, all under *Gymnopetalum scabrum*, e.g., HE661469., HE661297.
Comments: The synonymizations for the most part follow Lu et al. (2011), except for the recently published varieties whose status needs further evaluation.

84. *Trichosanthes tricuspidata* Lour., Fl. Cochinch. 2: 589. 1790.

Type: Vietnam, *Loureiro s.n.* (not at BM fide John Hunnex, 23 Aug 2012; herbarium ?).
Trichosanthes tricuspidata Lour. var. *strigosa* Mitra & Bandyop., J. Bombay. Nat. Hist. Soc. 96(2): 374. 1998.
Type: India, West Bengal, Coochbehar (Jamalda), 22 Aug. 1995, *S. Bandyopadhyay 2904* (not seen).
Trichosanthes palmata Roxb., Fl. Ind. 3: 704. 1832, non L., 1753, nom. illeg.
Trichosanthes burmensis Kundu var. *alba* Kundu, J. Bombay. Nat. Hist. Soc. 43(3): 382. 1942. Type: Upper Myanmar, Maymyo, July 1888, *Badul Khan* (*King's Collector*) 130 (CAL).

Distribution in India: West Bengal?
Distribution outside India: Myanmar, Thailand, Vietnam.
Image: http://www.flowersofindia.net/catalog/slides/Indrayan.html
GenBank: Sequences from De Boer et al. (2012) from two Thai specimens that appear to represent different species: HE661459, HE661544.
Comments: Duyfjes and Pruesapan (2004) doubt the occurrence of *T. tricuspidata* in India. According to them, the species only occurs in Myanmar, Thailand and Vietnam, West Malaysia, and east to the Moluccas. Fide Hugo De Boer (pers. comm.

24 Oct. 2012), the type of *T. burmensis* var. *alba* Kundu resembles material of *T. tricuspidata* subsp. *tricuspidata* from Thailand. The collection label states that the flowers were white, which also matches *T. tricuspidata.*

85. *Trichosanthes truncata* C.B. Clarke, Fl. Brit. India 2(6): 608. 1879.

Syntypes: India, Meghalaya, alt. 1000 ft, *J.D. Hooker s.n.* Khasia Hills, alt. 4000 ft, (Cherra Coal-pit), *J.D. Hooker & Thomson s.n.,* 1188 (CAL photo available from SSR, K), Darjeeling, 10 March 1871, *C.B. Clarke 13973B* (CAL photo available from SSR, K).

Trichosanthes ovata Cogn. in A. & C. DC., Monogr. Phan. 3: 365. 1881.

Type: India, Sikkim, *Thomson s.n.* (L, LE).

Distribution in India: Andhra Pradesh, Arunachal Pradesh, Assam, Meghalaya, Sikkim, West Bengal.

Distribution outside India: Bangladesh, Bhutan, China, Thailand, Vietnam.

Image: Nothing reliable found online.

GenBank: Sequences from De Boer et al. (2012), e.g., HE661547, HE661461.

Comments: Further synonymous names listed by Lu et al. (2011).

Comments: The synonymization of *T. ovata* follows Jeffrey (1980, 1982).

86. *Trichosanthes tubiflora* (Wight & Arn.) H.J.De Boer, Phytokeys 12: 29. 2012. *Bryonia tubiflora* Wight & Arn., Prodr. Fl. Ind. Orient. 1: 347. 1834.

Gymnopetalum tubiflorum (Wight & Arn.) Cogn. in A. & C. DC., Monogr. Phan. 3: 388. 1881.

Type: Sri Lanka, Trincomalee, 1 Feb. 1796, *Rottler s.n.* ex Herb. Klein in Herb. Wight Cat. 1118 (K, E).

Gymnopetalum wightii Arn., Madras J. Lit. Sci. 12: 52. 1840 and J. Bot. 3: 278. 1841.

Type: Sri Lanka, *Wight 1146* (K).

Distribution in India: Kerala.

Distribution outside India: Sri Lanka.

Image: A photo of the flowers is included in De Boer et al. (2010).

GenBank: No published sequences available.

Comments: Based on molecular data, this is close to *T. dioica*, not the other species formerly placed in the genus *Gymnopetalum.*

87. *Trichosanthes villosula* Cogn. in A. & C. DC., Monogr. Phan. 3: 362. 1881.

Type: India, Tamilnadu, near Mt. Nilgiri, *Hohenacker 1507* (G-BOISS, P, K).

Trichosanthes villosula Cogn. var. *nilgirrensis* Kundu, J. Bombay Nat. Hist. Soc. 43(3): 375. 1942.

Type: India, Kerala, Coonoor, Nilgiris, alt. 6000 ft., Nov. 1884, *J.S. Gamble 15733* (CAL photo available from SSR).

Distribution in India: Andhra Pradesh, Assam, Karnataka, Kerala, Nagaland, Tamil Nadu, West Bengal.
Distribution outside India: Banagladesh, China.
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: Jeffrey (1980) placed *T. villosula* under *T. lobata*; we here follow the more recent treatment by Lu et al. (2011) in maintaining *T. villosula* as separate.

88. *Trichosanthes wallichiana* (Ser.) Wight, Madras J. Lit. Sci. 12: 52. 1840.

Involucraria wallichiana Ser., Mém. Soc. Phys. Genéve 3(1): 25, 31. t. 5. 1825.
Type: Nepal, *Wallich s.n.* (G-DC).
Trichosanthes palmata L. var. *scotanthus* C.B. Clarke, Fl. Brit. India 2(6): 607. 1879, nom. nud.
Trichosanthes bracteata (Lam.) Voigt var. *scotanthus* (C.B. Clarke) Handel-Mazzetti, Symb. Sin. 7(4): 1065. 1936.
Type: Eastern India, *Sonnerat s.n.* (P).

Distribution in India: Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim, Tripura, West Bengal
Distribution outside India: Nepal, China (Guangdong, Guangxi, Guizhou, Xizang, Yunnan).
Image: Nothing reliable found online.
GenBank: No published sequences available.
Comments: Chakravarty (1982) writes that *T. wallichiana* is "very closely allied to *T. bracteata* (Lam.) Voigt from which it can be separated by the membranous leaves with black-dotted glands at the base."

89. *Zanonia indica* L., Sp. Pl., ed. 2. 2: 1457. 1763.

Type: India, Kerala, Malabaria. Lectotype: "Penar-valli mas" in Rheede, Hort. Malab. 8: 39. t. 49, 1688, designated by Keraudren-Aymonin in Aubréville & Leroy (ed.), Fl. Cambodge Laos Viêt-Nam 15: 18. 1975.
Zanonia indica L. var. *pubescens* Cogn. in A. & C. DC., Monogr. Phan. 3: 927. 1881.
Syntypes: India, Himalaya and East Bengal, *Griffith 2521* (K, P). Java, *Blume s.n.* (Herb. Lung. Bat., P). Borneo, *Korthals s.n.* (Herb. Lung. Bat.), Bangarmassing, *J. Motley 804 et 920* (K).

Distribution in India: Andaman and Nicobar Islands, Assam, Goa, Karnataka, Kerala, Maharashtra, Meghalaya, Sikkim, Tamil Nadu, West Bengal.

Distribution outside India: Sri Lanka, S China, Indochina, through Malesia east to New Guinea.
Image: See De Wilde and Duyfjes (2007a).
GenBank: Sequences from Schaefer et al. (2009), e.g., EU436396, EU436345.
Comments: De Wilde and Duyfjes (2007a) discuss the species' unusual morphology.

90. *Zehneria bodinieri* (H. Lév.) W.J.de Wilde & Duyfjes, Thai Forest Bull., Bot. 32: 17. 2004.

Melothria bodinieri H. Lév., Fl. Kouy-Tchéou 112. 1914.
Pilogyne bodinieri (H. Lév.) W.J.de Wilde & Duyfjes, Reinwardtia 12(5): 410. 2009.
Lectotype designated by De Wilde & Duyfjes (2004b): China, Guangzhou, Kouyan, *Bodinier 1957* (E, P).
Melothria perpusilla (Blume) Cogn. var. *subtruncata* Cogn. in A. & C. DC., Monog. Phan. 3: 608. 1881.
Syntypes: India, *Wight 1151* (CAL image available from SSR; K, LE, W), Sri Lanka, *Thwaites 1613* (BR, CAL image available from SSR, G, K, LE, P).

Distribution in India: Karnataka, Kerala, Tamil Nadu, also North India.
Distribution outside India: China, Myanmar, Sri Lanka, Sumatra, Malaysia, Sabah also Thailand, Vietnam, Cambodia, Laos, Vietnam, Peninsular Malaysia, Philippines (Palawan)
Image: Nothing reliable found online.
GenBank: Sequences from Kocyan et al. (2007) and Schaefer and Renner (2011b), e.g., DQ536614, HQ202008.
Comments: The synonymization of *Melothria perpusilla* (Blume) Cogn. var. *subtruncata* Cogn. follows Wilde and Duyfjes (2006). Jeffrey (1980), on the other hand, considers this name a synonym of *Zehneria maysorensis*.

91. *Zehneria hookeriana* (Wight & Arn.) Arn., J. Bot. 275. 1841.

Bryonia hookeriana Wight & Arn., Prodr. Fl. Ind. Orient. 1: 345. 1834.
Type: South India, *Wight Cat. no. 1117* (K).

Distribution in India: South India, Tamil Nadu. **Endemic.**
Image: http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000036887
GenBank: No published sequences available.
Comments: Endemic to India fide De Wilde and Duyfjes (2006).

92. *Zehneria japonica* (Thunb.) H.Y. Liu, Bull. Natl. Mus. Nat. Sci. (Taichung) 1: 40. 1989.

Bryonia japonica Thunb., Syst. Veg., ed. 14, 870. 1784.

Melothria japonica (Thunb.) Cogn. in A. & C. DC., Monogr. Phan. 3: 599. 1881.
Neoachmandra japonica (Thunb.) W.J. de Wilde & Duyfjes, Blumea 51(1): 22. 2006.
Type: Japan, Nagasaki, *Thunberg* (UPS-THUNB 22826).
Neoachmandra indica (Lour.) W.J. de Wilde & Duyfjes, Blumea 51(1): 21. 2006.
Zehneria indica (Lour.) Keraudren-Aymonin in Aubréville & Leroy (ed.), Fl. Cambodge Laos Viêt-Nam 15: 52. 1975.
Aechmandra indica (Lour.) Arn., Hook. Journ. Bot. 3: 274. 1841
Melothria indica Lour., Fl. Cochinch. 1: 35. 1790.
Type: Vietnam, Tourane, *Loureiro s.n.* (not found in BM fide J. Hunnex, 6 Sep. 2012, contra de Wilde and Duyfjes, Thai. Bull. 2004), neotype *Squires 14* (BM), designated by Jeffrey (1980).
Bryonia leucocarpa Blume, Bijdr. Fl. Ned. Ind. 15: 924. 1826.
Melothria leucocarpa (Blume) Cogn. in A. & C. DC., Monogr. Phan. 3: 601. 1881.
Neoachmandra leucocarpa (Blume) W.J.de Wilde & Duyfjes, Blumea 51(1): 23. 2006
Lectotype: Java, *Blume s.n.* (L, barcode L0130099).
Melothria leucocarpa (Blume) Cogn. var. *triloba* (C.B. Clarke) Chakrav., Chakrav., Rec. Bot. Surv. India 17(1): 154. 1959.
Lectotype: India, *Wallich Cat. No. 6707* (K-W).
Melothria odorata C.B. Clarke, Fl. Brit. India 2(6): 626. 1879.
Neoachmandra odorata (C.B. Clarke) W.J.de Wilde & Duyfjes, Blumea 51(1): 27. 2006.
Syntypes: India, *Hamilton* in *Wallich Cat. 6706A,B,C* (herbarium), as *Bryonia odorata* Buch.-Ham. Northwest Himalaya; *Royle s.n.* (herbarium), "Throughout the plain of East Bengal, common, and ascending the hills to 700ft alt."
Melothria odorata C.B. Clarke var. *triloba* C.B. Clarke, Fl. Brit. India 2(6): 626. 1879.
Melothria zehnerioides Haines, J. Proc. Asiat. Soc. Bengal 15: 315. 1920.
Type: N India, *Haines 4510* (herbarium?).

Distribution in India: Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Meghalaya, Nagaland, Punjab, Sikkim, Uttar Pradesh, Uttarakhand, West Bengal.
Distribution outside India: Thailand, China, Japan; Indonesia (Java, Sumatra).
Image: Nothing reliable found online.
GenBank: Sequences from Kocyan et al. (2007), as *Neoachmandra japonica*, e.g., DQ536753, DQ648192.
Comments: De Wilde and Duyfjes (2006b) have a very different concept of *Zehneria japonica* than does Jeffrey (most recently in Lu et al., 2011, Flora of China). They consider *Neoachmandra indica, Neoachmandra leucocarpa,* and *Neoachmandra odorata* separate species. They also provide a key and color photos of many *Zehneria* species. Molecular-phylogenetic work is needed to resolve the status of these various entities.

93. *Zehneria maysorensis* (Wight & Arn.) Arn., J. Bot. 3: 275. 1841.

Pilogyne maysorensis (Wight & Arn.) W.J.de Wilde & Duyfjes, Reinwardtia 12(5): 410. 2009.

Bryonia maysorensis Wight & Arn., Prodr. Fl. Ind. Orient. 1: 345. 1834.
Lectotype: South India, *Wight 1116* (K, P), designated by de Wilde and Duyfjes (2006b).
Zehneria maysorensis (Wight & Arn.) Arn. var. *umbellata* (Chakrav.) Kumari, Fl. Tamil Nadu Ind., Ser. 1: 175. 1983.
Melothria mucronata (Blume) Cogn. var. *umbellata* Chakrav., Rec. Bot. Surv. India 17(1): 150. 1959.
Syntypes: Peninsular India, Lower Pulneys, 1600 m, Sep., *Rodriguez 1955* (CAL 2 sheets, photos available from SSR), *Wight* (CAL, photo available from SSR).
Zehneria maysorensis (Wight & Arn.) Arn. var. *oblonga* V.P.Prasad & M.Prasad J. Econ. Taxon. Bot. 17(2): 471. 1993.
Type: India, Kerala State, Idukki District, Lower camp to Kumily area, 26 Dec. 1974, *K. Vivekananthan 45710* (MH).

Distribution in India: Andhra Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Tamil Nadu. **Endemic.**
Image: http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000742778
GenBank: No published sequences available.
Comment: De Wilde and Duyfjes (2004b) suggest that *Zehneria mucronata* (Blume) Miq., which is based on a Blume collection from Java (L) and widespread in Southeast Asia and Malesia, may be the same as *Z. maysorensis*, in which case it would be the older name.

94. *Zehneria thwaitesii* (Schweinf.) C. Jeffrey, Kew Bull. 15: 371. 1962.

Cucumella thwaitesii (Schweinf.) M.R. Almeida, Fl. Maharashtra 2: 314. 1998.
Melothria thwaitesii Schweinf., Reliq. Kotschy. 44, t. 29. 1868.
Lectotype: Sri Lanka, *Thwaites CP 2581* (K, BM, P, W) designated by de Wilde and Duyfjes (2004b).
Melothria zeylanica C.B. Clarke in Hook. f., Fl. Brit. Ind. 2: 626 (1879), nom. inval.
Bryonia deltoidea Arn., Pugill.: 19 (1836), nom illeg., non Schumach., 1827 = *Melothria deltoidea* (Arn.) Thwaites, Enum.: 124 (1859) nom. illegit., non (Schumach.) Benth. 1849. = *Neoachmandra deltoidea* (Arn.) W.J.de Wilde & Duyfjes, Blumea 51(1): 18 (79). 2006. Material: Sri Lanka, *Walker 273* (K).

Distribution in India: Kerala.
Distribution outside India: Africa, Madagascar, Sri Lanka (Wilde and Duyfjes, 2006).
Image: Nothing reliable found.
GenBank: Unpublished sequences from Asian material of *Neoachmandra deltoidea* (EF065485) and African material of *Zehneria thwaitesii (*AM981145).
Comment: C.B. Clarke (1879) applied the invalid name *Melothria zeylanica* to this species. De Wilde and Duyfjes (2006) treat *Zehneria thwaitesii* under *Neoachmandra deltoidea.* Molecular data are needed to clarify the genus boundaries of *Zehneria.*

Misapplied names and species erroneously or doubtfully recorded from India:

Bryonia dioica Jacq.

Comment: The distribution range given for *B. dioica* by Chakravarty (1982) "Afganistan, Iran, Iraq, Tropical Africa, Syria, Palestine" is based on an exceedingly broad concept of this species. A narrower circumscription (Jeffrey, 1969) is supported by nuclear and plastid molecular data (Volz and Renner, 2009). *Bryonia dioica* then occurs from Spain throughout Eurasia south to Algeria and Morocco, Sardinia, Corsica, and the Greek Peninsula and east to mid-Poland; a distribution map is shown in Volz and Renner (2009).

Bryonia multiflora Boiss. & Heldr.

Comment: Listed by Chakravarty (1982) based on misidentification of *B. monoica* (see under that species).

Cayaponia laciniosa (L.) C. Jeffrey, Kew Bull. 15(3): 346. 1962.

Bryonopsis laciniosa (L.) Naudin, Ann. Sci. Nat., Bot. sér. 5: 6. 1866.

Bryonia laciniosa L., Sp. Pl. 2: 1013. 1753. Type: "Habitat in Zeylona." (Country assignment in error). Lectotype: Cultivated in the Netherlands, Hartekamp in 1736–1737, Herb. Clifford: 452, *Bryonia 1* (BM-000647451), designated by Jeffrey (1962).

Comment from M. Nee, New York Botanical Garden, pers. comm. to S. Renner in 2010: In 1962, Jeffrey thought that *C. laciniosa* was the correct name for *C. racemosa* (Mill.) Cogn. By 1971, however, he decided that *C. laciniosa* was a local Jamaican endemic. The fullest description would be from Hort. Cliff. 452 based on living plants that Linnaeus saw; Linnaeus erroneously equated syntypes of this plant with literature of a different genus and species from Asia.

Citrullus ecirrhosus Cogn., Verh. Bot. Vereins Prov. Brandenburg 30:151. 1888.

Colocynthis ecirrhosus (Cogn.) Chakrav., Science & Culture 15: 32. 1949.

This species is from Africa and not a synonym of *Benincasa fistulosa*.

Hemsleya graciliflora (Harms) Cogn. in Engl. Pflanzenr. IV. 275, 1 (Heft 66): 24, f. 7A–H. 1916.

Alsomitra graciliflora Harms, Bot. Jahrb. Syst. 29(5): 602. 1901.

Syntypes: China, W Wenchuan, Niangtzuling, *BvR 3134, 3136*, Hubei, *Henry 4452*, Sichuan, Wenchuan, Niangziling; *von Rosthorn 3134, 3136* (B, destroyed in WWII)

Comment: Accepted for India by Chakravarty (1982), while Jeffrey (1980) states that records for India are based on misidentifications of *Gomphogyne macrocarpa* (*Hemsleya macrocarpa*).

Hodgsonia macrocarpa (Blume) Cogn. in A. & C. DC., Monogr. Phan. 3: 349. 1881.
Trichosanthes macrocarpa Blume, Bijdr. Fl. Ned. Ind. 15: 935. 1826.
Type: Java, Mt. Salak, *Blume s.n.* (L).
Trichosanthes listeri Chakrav., J. Bombay Nat. Hist. Soc. 50(4): 895, pl. 2. 1952.
Type: Bangladesh [Bengal], Chittagong Hill Tracts, Burkul, March 4, 1876, *Lister 349* as to the flowers (CAL photo available from SSR). As Jeffrey (1982) noted, the type is a mixed collection, the flowers coming from *Hodgsonia macrocarpa* (now *H. heteroclita*), the shoot from *Thladiantha cordifolia*. Jeffrey designated the flowers as the lectotype.

Comment: *Hodgsonia* has two species, *H. macrocarpa* in Java, and *H. heteroclita* in Northeast India, Bhutan, South China, Myanmar, Laos, Cambodia, Vietnam, Thailand, and Peninsular Malaysia. Jeffrey's (1980) and Chakravarty's (1982) listing of this name for India is based on a broader species concept, in which *H. heteroclita* was part of *H. macrocarpa* (De Wilde and Duyfjes, 2001).
Trichosanthes thwaitesii Cogn. in A. & C. DC., Monogr. Phan. 3: 387. 1881, nom. illegit.

Zanonia heterosperma Wall., Pl. Asiat. Rar. 2: 29. 1831.
Gomphogyne heterosperma (Wall.) Kurz, J. Asiat. Soc. Bengal 46: 105. 1877.
Alsomitra heterosperma (Wall.) M.Roem., Syn. Monogr. 2: 118. 1846.
Hemsleya heterosperma (Wall.) C. Jeffrey, Kew Bull. 36: 739. 1982.
Type: Myanmar (Burma), Ava, Mt. Taong Daong, *Wallich 1038* (K-W 3728).

Comment: Listed by Jeffrey (1982) as occurring in India, but according to De Wilde et al. (2007), the species is restricted to East Myanmar and Thailand.

Zehneria perpusilla (Blume) Bole & M.R. Almeida, J. Bombay Nat. Hist. Soc. 79(2): 315. 1983.
Melothria perpusilla (Blume) Cogn. in A. & C. DC., Monogr. Phan. 3: 607. 1881.
Cucurbita perpusilla Blume, Cat. Gew. Buitenzorg (Blume) 105. 1823.
Lectotype: Java, *Blume s.n.* (L, barcode L0048312).

Comment: According to De Wilde and Duyfjes (2006), this Javanese species does not occur in India.

Zehneria wallichii (C.B. Clarke) C. Jeffrey, Kew Bull. 34(4): 802. 1980.
Neoachmandra wallichii (C.B. Clarke) W. J.de Wilde & Duyfjes, Blumea 51(1): 32. 2006.
Melothria wallichii C.B. Clarke, Fl. Brit. India 2: 626. 1879.
Type: Myanmar, Pyay (formerly Prome), *Wallich 6706D* (K-W).
This species, included in Jeffrey's (1980) Indian checklist, was collected in the center of Myanmar and appears not to occur in India. Chakravarty (1982) does not mention the name.

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Appendix

Names treated in this checklist

Accepted names for species occurring in India are set in bold, species only mentioned in comments are shown in non-bold, and synonymized names in italics.

Actinostemma tenerum Griff.
Aechmandra conocarpa Dalzell & A.Gibson
Aechmandra epigaea (Rottler) Arn.
Aechmandra indica (Lour.) Arn.
Aechmandra rostrata (Rottler) Arn.
Aechmandra velutina Dalzell & A.Gibson
Aechmandra zeylanica Thwaites
Alsomitra clavigera (Wall.) M.Roem., nom. nud.
Alsomitra graciliflora Harms
Alsomitra heterosperma (Wall.) M.Roem.
Alsomitra integrifoliola (Cogniaux) Hayata
Alsomitra pubigera Prain
Benincasa cerifera Savi
Benincasa fistulosa (Stocks) H. Schaef. & S.S. Renner
Benincasa hispida (Thunb.) Cogn.
Benincasa pruriens (Parkinson) W.J.de Wilde & Duyfjes L. forma *hispida* (Thunb.) W.J.deWilde & Duyfjes
Biswarea tonglensis (C.B. Clarke) Cogn.
Blastania cerasiformis (Stocks) A. Meeuse
Blastania fimbristipula Kotschy & Peyr.
Blastania garcinii (Burm.f.) Cogn.
Bryonia alceifolia Willd.

Bryonia amplexicaulis Lam.
Bryonia aspera Steven ex Ledeb.
Bryonia callosa Rottler
Bryonia cochinchinensis Lour.
Bryonia cordifolia L.
Bryonia cucumeroides Ser.
Bryonia deltoidea Arn., nom. illeg.
Bryonia dioica Jacq.
Bryonia epigaea Rottler
Bryonia fimbristipula Fenzl ex Stocks, nom. inval.
Bryonia garcinii (Burm.f.) Willd.
Bryonia grandis L.
Bryonia hookeriana Wight & Arn.
Bryonia japonica Thunb.
Bryonia laciniosa L.
Bryonia leiosperma Wight & Arn.
Bryonia leucocarpa Blume
Bryonia maysorensis Wight & Arn.
Bryonia monoica Aitch. & Hemsl.
Bryonia multiflora Boiss. & Heldr.
Bryonia napaulensis Ser.
Bryonia palmata L.
Bryonia pedunculosa Ser.
Bryonia rheedei Blume
Bryonia rostrata Willd.
Bryonia sagittata Blume
Bryonia scabrella L.f.
Bryonia tubiflora Wight & Arn.
Bryonia umbellata Willd.
Bryonopsis bennettii Miq.
Bryonopsis courtallensis Arn.
Bryonopsis laciniosa (L.) Naudin
Bryonopsis laciniosa (L.) Naudin var. *walkeri* Chakrav.
Cayaponia laciniosa (L.) C. Jeffrey
Cephalandra indica Naudin var. *palmata* C.B. Clarke, nom. superfl.
Cerasiocarpum bennettii (Miq.) Cogn.
Cerasiocarpum zeylanicum (Thwaites) C.B. Clarke
Citrullus colocynthis (L.) Schrad.
Citrullus fistulosus Stocks
Citrullus vulgaris Schrad. ex Eckl. & Zeyh. var. *fistulosus* (Stocks) J. L. Stewart
Citrullus lanatus (Thunb.) Matsum. & Nakai
Citrullus lanatus (Thunb.) Matsum. & Nakai var. *fistulosus* (Steward) Babu, nom. inval.
Citrullus lanatus (Thunb.) Matsum. & Nakai var. *fistulosus* (Stocks) Chakrav., nom. illeg.

Citrullus vulgaris Schrad. ex Eckl. & Zeyh.
Coccinia cordifolia (L.) Cogn.
Coccinia cordifolia (L.) Cogn. var. *wightiana* (M.Roem.) Cogn.
Coccinia grandis (L.) Voigt
Coccinia grandis (L.) Voigt var. *wightiana* (M.Roem.) Greb.
Coccinia indica Wight & Arn., nom. superfl., nom. illeg.
Coccinia palmata M.Roem.
Coccinia wightiana M.Roem.
Colocynthis citrullus (L.) Kuntze var. *fistulosus* (Stocks) Chakrav.
Colocynthis ecirrhosus (Cogn.) Chakrav.
Colocynthis vulgaris Schrad.
Corallocarpus conocarpus (Dalzell & A.Gibson) Hook.f. ex C.B. Clarke
Corallocarpus courbonii (Naudin) Cogn.
Corallocarpus epigaeus (Rottler) Benth. & Hook.f. ex C.B. Clarke
Corallocarpus gracilipes (Naudin) Cogn.
Corallocarpus palmatus Cogn.
Corallocarpus schimperi (Naudin) Hook.f.
Corallocarpus velutinus (Dalzell & A.Gibson) Hook.f. ex C.B. Clarke
Ctenolepis cerasiformis (Stocks) Hook.f.,
Ctenolepis garcinii (Burm.f.) Benth. & Hook.f.
Ctenolepis welwitschii (Hook.f.) Jafri
Cucumella ritchiei (Chakrav.) C. Jeffrey
Cucumella silentvalleyi Manilal, T. Sabu & P. J. Mathew
Cucumella thwaitesii (Schweinf.) M.R. Almeida
Cucumis acutangulus L.
Cucumis anguinus L.
Cucumis callosus (Rottler) Cogn.
Cucumis colocynthis L.
Cucumis hardwickii Royle
Cucumis hystrix Chakrav.
Cucumis indicus Ghebretinsae & Thulin
Cucumis integrifolius Roxb.
Cucumis javanicus (Miq.) Ghebretinsae & Thulin
Cucumis leiospermus (Wight & Arn.) Ghebretinsae & Thulin
Cucumis maderaspatanus L.
Cucumis melo L.
Cucumis melo L. forma *agrestis* (Naudin) W.J.de Wilde & Duyfjes
Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo
Cucumis melo L. var. *agrestis* Naudin
Cucumis melo L. var. *culta* Kurz
Cucumis melo L. var. *momordica* Duthie & Fullar
Cucumis melo L. var. *pubescens* (Willd.) Kurz
Cucumis melo L. var. *utilissima* Duthie & Fullar

Cucumis momordica Roxb.
Cucumis muriculatus Chakrav.
Cucumis prophetarum L.
Cucumis pubescens Willd.
Cucumis ritchiei (C.B. Clarke) Ghebretinsae & Thulin
Cucumis sativus L.
Cucumis sativus L. forma *hardwickii* (Royle) W.J.de Wilde & Duyfjes
Cucumis sativus L. var. *sikkimensis* Hook.f.
Cucumis setosus Cogn.
Cucumis silentvalleyi (Manilal, T. Sabu & P.J. Mathew) Ghebretinsae & Thulin
Cucumis trigonus Roxb.
Cucurbita argyrosperma C.Huber
Cucurbita citrullus L.
Cucurbita ficifolia Bouché
Cucurbita hispida Thunb.
Cucurbita lagenaria L.
Cucurbita maxima Duchesne
Cucurbita maxima Duchesne var. *badagarensis* Mudaliar
Cucurbita mixta Pangalo
Cucurbita moschata (Duchesne ex Lam.) Duchesne
Cucurbita pepo L.
Cucurbita pepo L. var. *melopepo* Alef.
Cucurbita pepo L. var. *moschata* Duchesne ex Lam.
Cucurbita pepo L. var. *ovigera* Alef.
Cucurbita perpusilla Blume
Cucurbita siceraria Molina
Cucurbita umbellata Willd.
Cyclanthera pedata (L.) Schrad.
Dactyliandra welwitschii Hook.f.
Dicaelospermum ritchiei C.B. Clarke
Diplocyclos palmatus (L.) C. Jeffrey
Diplocyclos palmatus (L.) C. Jeffrey var. *walkeri* (Chakrav.) Babu
Edgaria darjeelingensis C.B. Clarke
Edgaria darjeelingensis C.B. Clarke var. *clarkeana* S. N. Biswas
Euonymus chinensis Lour.
Gomphogyne cirromitrata W.J.de Wilde & Duyfjes
Gomphogyne cissiformis Griff.
Gomphogyne cissiformis Griff. forma *villosa* (Cogn.) Mizush.
Gomphogyne cissiformis Griff. var. *villosa* Cogn.
Gomphogyne heterosperma (Wall.) Kurz
Gomphogyne macrocarpa Cogn.
Gomphogyne nepalensis W.J.de Wilde & Duyfjes
Gymnopetalum chinense (Lour.) Merr.

Gymnopetalum cochinchinense (Lour.) Kurz
Gymnopetalum heterophyllum Kurz
Gymnopetalum integrifolium (Roxb.) Kurz
Gymnopetalum integrifolium (Roxb.) Kurz var. *pectinatum* W.J.de Wilde & Duyfjes
Gymnopetalum penicaudii Gagnep.
Gymnopetalum quinquelobum Miq.
Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes
Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes var. *pectinatum* (W.J. de Wilde & Duyfjes) W.J.de Wilde & Duyfjes
Gymnopetalum scabrum (Lour.) W.J.de Wilde & Duyfjes var. *penicaudii* (Gagnep.) W.J.de Wilde & Duyfjes
Gymnopetalum tubiflorum (Wight & Arn.) Cogn.
Gymnopetalum wightii Arn.
Gynostemma integrifoliolum Cogn.
Gynostemma laxum (Wall.) Cogn.
Gynostemma pedatum Blume
Gynostemma pentaphyllum (Thunb.) Makino
Gynostemma pentaphyllum (Thunb.) Makino forma *simplicifolium* (Blume) W.J.de Wilde & Duyfjes
Gynostemma simplicifolium Blume
Hemsleya cirromitrata (W.J.de Wilde & Duyfjes) H. Schaef. & S.S.Renner
Hemsleya graciliflora (Harms) Cogn.
Hemsleya heterosperma (Wall.) C. Jeffrey
Hemsleya macrocarpa (Cogn.) C. Y. Wu ex C. Jeffrey
Hemsleya trifoliolata Cogn.
Herpetospermum caudigerum Wall. ex C.B. Clarke, nom. illeg.
Herpetospermum darjeelingense (C.B. Clarke) H.Schaef. & S.S.Renner
Herpetospermum pedunculosum (Ser.) Baill.
Herpetospermum tonglense (C.B. Clarke) H. Schaef. & S.S. Renner
Hodgsonia heteroclita (Roxb.) Hook.f. & Thomson
Hodgsonia macrocarpa (Blume) Cogn.
Indofevillea khasiana Chatterjee
Involucraria lepiniana Naudin
Involucraria wallichiana Ser.
Karivia amplexicaulis (Lam.) Arn.
Karivia javanica Miq.
Karivia rheedei (Blume) M.Roem.
Karivia umbellata (Willd.) Arn.
Kedrostis bennettii (Miq.) W.J.de Wilde & Duyfjes
Kedrostis courtallensis (Arn.) C. Jeffrey
Kedrostis foetidissima (Jacq.) Cogn.
Kedrostis rostrata (Willd.) Cogn.
Lagenaria siceraria (Molina) Standl.

Luffa acutangula (L.) Roxb.
Luffa acutangula (L.) Roxb. var. *amara* (Roxb.) C.B. Clarke
Luffa acutangula (L.) Roxb. forma *amara* (Roxb.) W.J.de Wilde & Duyfjes
Luffa aegyptiaca Mill.
Luffa aegyptiaca Mill. forma *sylvestris* (Miq.) W.J.de Wilde & Duyfjes
Luffa amara Roxb.
Luffa cordifolia Blume
Luffa cylindrica (L.) M.Roem.
Luffa cylindrica (L.) M.Roem. var. *minor* Chakrav., nom. nud.
Luffa echinata Roxb.
Luffa echinata Roxb. var. *longistyla* C.B. Clarke
Luffa graveolens Roxb.
Luffa hermaphrodita Singh & Bhandari
Luffa kleinii Wight & Arn.
Luffa sylvestris Miq.
Luffa tuberosa Roxb.
Luffa umbellata (Willd.) M.Roem.
Melothria amplexicaulis (Lam.) Cogn.
Melothria angulata Chakrav.
Melothria assamica Chakrav.
Melothria assamica Chakrav. var. *scabra* Chakrav.
Melothria bicirrhosa C.B. Clarke
Melothria bodinieri H. Lév.
Melothria deltoidea (Arn.) Thwaites, nom. illeg.
Melothria fimbristipula (Kotschy & Peyr.) G. Roberty
Melothria heterophylla (Lour.) Cogn.
Melothria indica Lour.
Melothria japonica (Thunb.) Cogn.
Melothria javanica (Miq.) Panigrahi & Misra
Melothria javanica (Miq.) Panigrahi & Misra var. *scabra* (Chakrav.) Naithani
Melothria leiosperma (Wight & Arn.) Cogn.
Melothria leucocarpa (Blume) Cogn.
Melothria leucocarpa (Blume) Cogn. var. *triloba* (C.B. Clarke) Chakrav.
Melothria maderaspatana (L.) Cogn.
Melothria mucronata (Blume) Cogn. var. *umbellata* Chakrav.
Melothria odorata C.B. Clarke
Melothria odorata C.B. Clarke var. *triloba* C.B. Clarke
Melothria ovata Cogn.
Melothria perpusilla (Blume) Cogn.
Melothria perpusilla (Blume) Cogn. var. *subtruncata* Cogn.
Melothria ritchiei Chakrav.
Melothria thwaitesii Schweinf.
Melothria wallichii C.B. Clarke

Melothria zehnerioides Haines
Melothria zeylanica Koen. ex Wight & Arn., nom. inval.
Modecca bracteata Lam.
Momordica balsamina L.
Momordica calcarata Colebr. ex Wall., nom. nud.
Momordica charantia L.
Momordica charantia L. var. *muricata* (Willd.) Chakrav.
Momordica cochinchinensis (Lour.) Spreng.
Momordica cylindrica L.
Momordica cymbalaria Fenzl ex Naudin
Momordica denudata (Thwaites) C.B. Clarke
Momordica dioica Roxb. ex Willd.
Momordica dioica Roxb. ex Willd. var. *denudata* Thwaites
Momordica lanata Thunb.
Momordica macrophylla Gage
Momordica muricata Willd.
Momordica pedata L.
Momordica renigera Wall. ex G. Don
Momordica sahyadrica Kattuk. & V.T.Antony
Momordica subangulata Blume
Momordica subangulata Blume subsp. *renigera* (Wall. ex G. Don) W.J.de Wilde
Momordica tuberosa (Roxb.) Cogn.
Momordica tubiflora Roxb.
Momordica umbellata (Willd.) Roxb.
Mukia javanica (Miq.) C. Jeffrey
Mukia leiosperma (Wight & Arn.) Arn.
Mukia maderaspatana (L.) M.Roem.
Mukia ritchiei (C.B. Clarke) W.J.de Wilde & Duyfjes
Mukia scabrella (L.f.) Arn.
Muricia cochinchinensis Lour.
Neoachmandra deltoidea (Arn.) W.J.de Wilde & Duyfjes
Neoachmandra indica (Lour.) W.J.de Wilde & Duyfjes
Neoachmandra japonica (Thunb.) W.J.de Wilde & Duyfjes
Neoachmandra leucocarpa (Blume) W.J.de Wilde & Duyfjes
Neoachmandra odorata (C.B. Clarke) W.J.de Wilde & Duyfjes
Neoachmandra wallichii (C.B. Clarke) W.J.de Wilde & Duyfjes
Neoalsomitra clavigera (Wall.) Hutch.
Neoalsomitra clavigera (Wall.) Hutch. var. *hookeri* (C.B. Clarke) Chakrav.
Neoalsomitra integrifoliola (Cogniaux) Hutchinson
Neoluffa sikkimensis Chakrav.
Pilogyne bodinieri (H. Lév.) W.J.de Wilde & Duyfjes
Pilogyne maysorensis (Wight & Arn.) W.J.de Wilde & Duyfjes
Praecitrullus fistulosus (Stocks) Pangalo

Rhynchocarpa epigaea (Rottler) Naudin
Rhynchocarpa epigaea (Rottler) Naudin var. *gracilipes* Naudin
Rhynchocarpa schimperi Naudin
Rynchocarpa rostrata (Rottler) Naudin
Schizopepon bicirrhosus (C.B. Clarke) C. Jeffrey
Schizopepon longipes Gagnep.
Schizopepon macranthus Handel-Mazzetti
Schizopepon wardii Chakrav.
Scotanthus tubiflorus (Roxb.) Naudin
Sechium americanum Poir.
Sechium edule (Jacq.) Sw.
Siraitia sikkimensis (Chakrav.) C. Jeffrey
Sicyos edulis Jacq.
Sicyos garcinii Burm.f.
Solena amplexicaulis (Lam.) Gandhi
Solena angulata (Chakrav.) Babu
Solena heterophylla Lour. subsp. **heterophylla**
Solena heterophylla Lour. subsp. **napaulensis** (Ser.) W.J.de Wilde &Duyfjes
Solena umbellata (Willd.) W.J. de Wilde & Duyfjes
Thladiantha calcarata C.B. Clarke var. *subglabra* Cogn.
Thladiantha calcarata C.B. Clarke, nom. nud.
Thladiantha cordifolia (Blume) Cogn.
Thladiantha heptadactyla Cogn.
Thladiantha hookeri C.B. Clarke
Thladiantha hookeri C.B. Clarke var. *irregularis* Chakrav.
Thladiantha hookeri C.B. Clarke var. *palmatifolia* Chakrav.
Thladiantha hookeri C.B. Clarke forma *trifoliolata* (Cogn.) Chakrav.
Thladiantha pentadactyla Cogn.
Trichosanthes anguina L.
Trichosanthes anaimalaiensis Bedd.
Trichosanthes bracteata (Lam.) Voigt
Trichosanthes bracteata (Lam.) Voigt var. *scotanthus* (C.B. Clarke) Handel-Mazzetti
Trichosanthes bracteata (Lam.) Voigt var. *tomentosa* (C.B. Clarke) Chakrav., nom. illeg.
Trichosanthes brevibracteata Kundu
Trichosanthes brevibracteata Kundu var. *longirostrata* Kundu
Trichosanthes brevibracteata Kundu var. *sublobata* Kundu
Trichosanthes burmensis Kundu
Trichosanthes burmensis Kundu var. *alba* Kundu
Trichosanthes chinensis Ser.
Trichosanthes cordata Roxb.
Trichosanthes costata Bl.
Trichosanthes cucumerina L.
Trichosanthes cucumeroides (Ser.) Maxim.

Trichosanthes cucumeroides (Ser.) Maxim. var. *dicaelosperma* (C.B. Clarke) S. K. Chen
Trichosanthes cuspidata Lam.
Trichosanthes dicaelosperma C.B. Clarke
Trichosanthes dioica Roxb.
Trichosanthes dioica Roxb. var. *sagittifolia* Chakrav.
Trichosanthes dunniana H. Lév.
Trichosanthes foetidissima Jacq.
Trichosanthes heteroclita Roxb.
Trichosanthes himalensis C.B. Clarke
Trichosanthes himalensis C.B. Clarke var. *glabrior* C.B. Clarke
Trichosanthes himalensis C.B. Clarke var. *himalensis*
Trichosanthes himalensis C.B. Clarke var. *indivisa* Chakrav., nom. illeg.
Trichosanthes himalensis C.B. Clarke var. *sikkimensis* (Kundu) Thoth.
Trichosanthes horsfieldii Miq.
Trichosanthes integrifolia (Roxb.) Kurz
Trichosanthes kerrii Craib
Trichosanthes khasiana Kundu
Trichosanthes lepiniana (Naudin) Cogn.
Trichosanthes listeri Chakrav.
Trichosanthes lobata Roxb.
Trichosanthes macrocarpa Blume
Trichosanthes macrosiphon Kurz
Trichosanthes majuscula (C.B. Clarke) Kundu
Trichosanthes multiloba Miq. var. *majuscula* C.B. Clarke
Trichosanthes nervifolia L.
Trichosanthes ovata Cogn.
Trichosanthes ovigera Blume
Trichosanthes ovigera Blume var. *sikkimensis* Kundu
Trichosanthes ovigera Blume subsp. *cucumeroides* (Ser.) C. Jeffrey
Trichosanthes pachyrrhachis Kundu
Trichosanthes palmata L. var. *scotanthus* C.B. Clarke, nom. nud.
Trichosanthes palmata L. var. *tomentosa* Heyne ex C.B. Clarke
Trichosanthes palmata Roxb., nom. illeg.
Trichosanthes perrottetiana Cogn.
Trichosanthes pilosa Lour.
Trichosanthes prazeri Kundu
Trichosanthes pubera Blume subsp. *rubriflos* (Thorel ex Cayla) Duyfjes & Pruesapan
Trichosanthes quinquangulata A. Gray
Trichosanthes rubriflos Thorel ex Cayla
Trichosanthes scabra Lour.
Trichosanthes scabra Lour. var. *pectinata* (W.J.de Wilde & Duyfjes) H.J.De Boer
Trichosanthes scabra Lour. var. *penicaudii* (Gagnep.) H.J.De Boer
Trichosanthes thwaitesii Cogn.

Trichosanthes tomentosa Chakrav.
Trichosanthes tricuspidata Lour.
Trichosanthes tricuspidata Lour. var. *strigosa* Mitra & Bandyop.
Trichosanthes truncata C.B. Clarke
Trichosanthes tubiflora (Wight & Arn.) H.J.De Boer
Trichosanthes villosula Cogn.
Trichosanthes villosula Cogn. var. *nilgirrensis* Kundu
Trichosanthes wallichiana (Ser.) Wight
Trichosanthes wallichiana (Ser.) Wight var. *majuscula* (C.B. Clarke) Cogn.
Tripodanthera cochinchinensis (Lour.) M.Roem.
Vitis pentaphylla Thunb.
Warea tonglensis C.B. Clarke
Zanonia clavigera Wall.
Zanonia heterosperma Wall.
Zanonia indica L.
Zanonia indica L. var. *pubescens* Cogn.
Zanonia laxa Wall.
Zehneria angulata (Chakrav.) J. L. Ellis
Zehneria bodinieri (H. Lév.) W.J.de Wilde & Duyfjes
Zehneria cerasiformis Stocks
Zehneria hookeriana (Wight & Arn.) Arn.
Zehneria indica (Lour.) Keraudren-Aymonin
Zehneria japonica (Thunb.) H.Y. Liu
Zehneria maysorensis (Wight & Arn.) Arn.
Zehneria maysorensis (Wight & Arn.) Arn. var. *oblonga* V.P.Prasad & M.Prasad
Zehneria maysorensis (Wight & Arn.) Arn. var. *umbellata* (Chakrav.) Kumari
Zehneria mucronata (Blume) Miq.
Zehneria perpusilla (Blume) Bole & M.R. Almeida
Zehneria thwaitesii (Schweinf.) C. Jeffrey
Zehneria umbellata (Klein ex Willd.) Thwaites
Zehneria umbellata (Klein ex Willd.) Thwaites var. *napaulensis* (Ser.) C.B. Clarke
Zehneria wallichii (C.B. Clarke) C. Jeffrey