

Comments on the Typification of *Cucumis acutangula* Linnaeus and *Nyctanthus arbortristis* Linnaeus

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Abstract

Linnaeus described around 5000 species in *Species Plantarum* in 1753, out of which approximately 922 species belonging to 421 genera and 90 classes are found in Maharashtra. A large number of plant names coined by Linnaeus, are economically important. The application of a name is determined by means of its nomenclatural type. To protect the current usage of this name, designation of its type is necessary and it is also important that the application of these names remains very clear. Botanical nomenclature is governed by the type method which is ruled by International Code of Nomenclature (ICN). For the purpose of the present paper, two names, namely *Cucumis acutangulus* Linnaeus, *Nyctanthes arbortristis* Linnaeus are selected.

Key words: *Cucumis acutangulus*; *Nyctanthes arbortristis*; Identity, typification, Linnaean names

Cucumis acutangulus Linnaeus (Sp. Pl. 2: 1011.1753) is a monoecious climber. It is a native vegetable in India which is used as fruit vegetable. The accepted name for this species is *Luffa acutangula* (Linnaeus) Roxburgh (<http://epic.kew.org>). The phrase name of *Cucumis acutangulus* in *Species Plantarum* (1753) of Linnaeus is “*cucumis foliis rotundi-acutangulis*”. The first element, i.e., *Cucumis acutangulus* Linnaeus, the diagnostic phrase name appears to be coined by Linnaeus himself and seems to be based on two plates (mentioned below) which he included as synonyms.

These two citations are:

1. *Cucumis longus indicus* Grew. Mus. 229. t.17. f.2. 1681
2. *Cucumis indicus striatus operculo donates: corticoso putamine tectus* Pluk. Alm. 123. t. 172. f1?. 1692.

Habitat in Tataria, China.

Though Linnaeus has mentioned Plukenet's reference as synonym here, he was unsure of including Plukenet's reference “*Cucumis indicus striatus operculo donates : corticoso putamine tectus*” (Pluk. Alm. 123. t. 172. f 1?. 1692) as it can be understood from the question mark (?) in his protologue. The other citation in Linnaean protologue is *Grew. Mus. Reg. Soc.* 229. t.17. f.2. 1681 depicting the fruit of *C. acutangulus* Linnaeus.

Other than these two images, there was one voucher specimen in Linnaean Herbarium (LINN), Herb. Linn. No. 1152.7. This sheet bears the Linnaean annotation “*Cucum.*

acutangulus". Keraudren (1975) accepts this as 'type'. This is certainly a representative of the Linnaean specimen, but it is not certain that it forms the basis for the description of Linnaean protologue.

Jeffrey (Kew Bulletin 34: 792. 1980) followed Keraudren and accepted Herb. Linn. No. 1152.7 as type. He later on made it clear that it is probably have been taken from a cultivated plant and commented that instead of considering LINN 1152.7 as lectotype, it should be considered as neotype. However, Jarvis (2009) has not accepted the typification by Jeffrey. According to ICN, **if the original material is extant, that has to be given the priority while selecting the type and when no original material is existing, a neotype should be designated. In this case, there are other materials (images) which are the original materials (mentioned above). But, can these images be considered for typification?**

Justifications for this statement are as follows:

- The icon *Cucumis longus indicus* in Grew Mus. Reg. Soc. 229.t.17.f.2. 1681 does not resemble the morphology of *Cucumis acutangula* Linnaeus. In *C. acutangula* Linnaeus the fruit has an operculum (mentioned in protologue) which is absent in the above mentioned image. Hence, Grew. Mus. 229. T.17. f.2 cannot be considered for typification.

- The other original element of *C. acutangula* Linnaeus is Plukenet's plate. Plukenet's interpretation of *C. acutangula* is probably incorrect. He might have depicted *Luffa operculata* Cogniaux which has a lid (operculum) at the apex of the fruit. This lid separates spontaneously at maturity for seed dispersal. The distribution of this element ranges from Panama into Brazil and Peru. In *C. acutangula*, the operculum never opens up spontaneously (Roxburgh, Fl. Ind. 712). This species ranges from Central Asia and eastern Asia to Southern Asia.

Though Linnaeus has included Plukenet's plate in the synonymy of *Cucumis acutangulus* (1753), he was unsure of its inclusion (as understood from the question mark in the protologue).

Hence, it is now clear that *Cucumis acutangula* Linnaeus interpreted by Plukenet (1692) and Linnaeus (1753) are different and those cannot be considered for the typification.

Linnaeus in his protologue mentioned that *C. acutangulus* is a plant from Tataria, China.

Cucumis acutangulas Linnaeus is a native vegetable in India. Linnaeus seems to have confused China and India or regarded them as forming one region. In his protologue, 'habitat' for a species might be the place of cultivation of the plant (Alexandra Cook 2009).

In the present study, it is clear that there is no original element of *C. acutangulas* Linnaeus that can be considered for typification of the name.

Jeffrey (Kew Bulletin 34: 792. 1980) rightly treated Herb. Linn. No. 1152.7 as the neotype of *C. acutangulas* Linnaeus. In Linnaean Plant Name Typification Project Jarvis did not accept Jeffrey's decision giving justification as "*this collection lacks the relevant Species Plantarum number (i.e. "3") and was a post-1753 addition to the herbarium, and is not original material for the name*" and hence, did not follow Jeffrey's decision of typification of *Cucumis acutangulus* Linnaeus." On the basis of my study I strongly believe that Herb. Linn. No. 1152.2 (LINN) is the neotype of *Cucumis acutangula* Linnaeus *vide* Jeffrey (Kew Bulletin 34: 792. 1980).

Nyctanthes arbortristis Linnaeus (Sp. Pl. 1:6.1753), the generitype of the genus *Nyctanthes* Linnaeus is a small tree (commonly known in India as *coral jasmine*, *tree of sorrow*, *Parijataka*, *Sepalika*), branches tetragonal; leaves opposite-decussate, scabrous above. Inflorescence panicle; corolla hypocrateriform, deciduous at sunrise, tube orange red, cylindrical, limb white, spreading; stamens 2, inserted just below the corolla tube; Capsule cordate, compressed, 2 celled; seed compressed. This tree is native to India (Linnaeus 1753), and is widely cultivated in the warmer parts of both Eastern and Western hemispheres.

The original elements for the name *Nyctanthes arbortristis* Linnaeus are

- “*Nyctanthes caule tetragono, foliis ovatis acuminates, pericarpiis membranaceis, compressis*” *Flora zeylanica* 11. 1747
- “*Arbor tristis Myrto Similis*” *Bauhin Pinax* 469. 1671; and
- “*Manjapumerum*” *Rheede, Hort. Mal. 1: p. 35, f. 21. 1672.*

Moldenke & Moldenke (in Dassanayake and Forsberg, Revised Flora of Handbook of Ceylon 4: 179. 1993) indicated “Grimm 116” LINN as type, but no such specimen has been traced (C.E. Jarvis, “Order out of Chaos 694. 2007). There is no accepted type of this name and designation of a type is necessary to protect the identity and for unambiguous identification with reference to a type of the name.

The species concept of *Nyctanthus arbortristis* was based on Linnaeus’s own *Flora Zeylanica* (Fl. Zeyl. 11, 1747). The species could not be located in any of the herbaria where Hermann’s specimens (BM or L or P) are preserved.

There is no specimen stored at Linnaean herbarium (LINN) under the name *Nyctanthes arbor-tristis*. The present author is also of the same opinion with Moldenke & Moldenke that GRIMM 116 at LINN does not exist.

Instead, in Linnaean herbarium (LINN), there are two specimens under the generic name *Scabrita* (LINN No. 124.1 and LINN 124.2) which were identified by Smith as *Scabrita katomarian*. These vouchers do not give any collection history. *Scabrita* is another genus of Linnaeus (*Systema Naturae*, ed. 12 2: 107, 115. 1767) which is now correctly known as *Nyctanthes* Linnaeus. (<http://www.theplantlist.org>)

Later on Smith had identified Herb. Linn. No. 124.1 as *Nyctanthes arbortristis* Linnaeus. These perfectly resemble Linnaeus’s protologue “*Nyctanthus caule tetragono, foliis ovatis-acuminatis, pericarpiis membranaceis compressis*”. No annotation on the voucher to confirm whether it was referred by Linnaeus while describing *Nyctanthes arbortristis* (Sp. Pl. 1:6.1753). Hence, this is not the original element of *Nyctanthes arbortristis* Linnaeus and cannot be considered as lectotype.

The ‘*Manjapumerum*’ *Rheede, Hort. Mal. 1: p. 35, f. 21. 1672* is one of the original elements and the best representation of the name *Nyctanthes arbour-tristis* and closest to the current use. **Hence, ‘*Manjapumerum*’ *Rheede, Hort. Mal. 1: p. 35, f. 21. 1672* [icon] is designated (here) as the lectotype of *Nyctanthes arbortristis* Linnaeus and Linnaean Herbarium No. 124.1 is designated (here) as the epitype of *Nyctanthes arbour-tristis* Linnaeus.**

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LITERATURE CITED

- Bauhin, C. 1671. *Pinax Theatri Botanici, Sive Index in Theophrasti, Dioscoridis, Plini et Botanicorum qui a Saeculo Scripserunt Opera*. p 469. Sumptibus & Typis Ludovici Regis.
- Cook, A. 2009. Linnaean and Chinese Plants: A test of the linguistic imperialism thesis. *Notes Record of Royal Society*, rsnr. 2009.0051 (published online). London
- Dassanayake, M.D.; Fosberg, F.R. & Clayton, W.D. 1993. *A Revised Handbook to the Flora of Ceylon*: 4: 179. NHBS.
- Grew, N. 1681. *Musaeum Regalis Societatis*. 229.t.17.f.2. W. Rawlins, London.
- Jarvis, C.E. 2007. *Order out of chaos*. Linnaean Society of London, London
- Jeffrey, C. 1980a. Further Notes on Cucurbitaceae: V. The Cucurbitaceae of the Indian Subcontinent. *Kew Bull.* 34: 792.
- Linnaeus, C. 1747. *Flora Zeylanica; sistens Plantas Indica Zeloniae Insulae*, p.11. Holmiae, Sumtu & Literis Laurentii Salvii.
- Linnaeus, C. 1753. *Species Plantarum*, Holmiae: Impensis Laurentii Salvii .
- Linnaeus, C. 1762. *Species Plantarum*, Holmiae: Impensis Laurentii Salvii
- Linnaeus, C. 1767. *Systema Naturae*. Holmiae: Impensis Laurentii Salvii
- McNeill, J., et al. 2012. *International Code of Nomenclature for Algae, Fungi and Plants*, Melbourne Code. International Association for Plant Taxonomy
- Plukenet, L. 1692. *Phytographia. Sumptibus Autoris.*, p.123. t.172.f.1. Londini.
- Van Rheedee 1672. *Hortus Indicus Malabaricus*. Amstelaedami : 1: p. 35, f. 21. Sumptibus Johannis van Someren, et Joannis van Dyck,
- Roxburgh, W. 1832. *Flora Indica or, Description of Indian Plants*. Ed. 2 (Carey Ed.). 712. W. Thacker, Serampore.
- International Plant Name Index (<http://www.nhm.ac.uk>)
- Linnaean Plant name Typification Project (www.nhm.ac.uk/research-curation/projects/linnaean-typification/)
- Index Nominum Genericum* (botany.si.edu/ing/)
- Herbarium of Linnaean Society of London (www.linnaean-online.org/view/plants_alpha/plants_alpha.html)
- Herbarium of Kew Herbarium (www.kew.org/collections/herbcol.html)
- Herbarium of British Museum (<http://www.nhm.ac.uk/research-curation/research/projects>)
- The Plant List (<http://www.theplantlist.org/>)