



Untangling some knotted ropes — nomenclatural notes on *Gnetum funiculare*

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Summary. The binomial *Gnetum funiculare* derives from the pre-Linnaean designation ‘Gnemon funicularis’ that first appeared in Rumphius’s *Herbarium amboinense* in 1747. At least four different authors have based plant names on the Rumphius element or designation but in a different sense each time. We attempt to disentangle the nomenclature of these taxa. Three new lectotypifications are presented, one at the second step.

Key Words. Asia, Gnetaceae, lectotype.

Georg Eberhard Rumpf or Rumphius (1627 – 1702) included descriptions of three species of *Gnetum* (Gnetaceae) in his *Herbarium Amboinense* (Rumphius 1747). One of these he referred to as the rope gnetum (Gnemon funicularis, Gnemon tali, touwachtige Gnemon-struyk in Latin, Malay and Dutch respectively). This plant, native of Ambon, the island in the Moluccas where Rumphius lived for nearly 50 years, was described and illustrated in volume 5 of the *Herbarium Amboinense*.

The great work of Rumphius has been a major source of information for plant taxonomists since its publication, and many plant names are wholly or partly based on Rumphius’s designations, descriptions and illustrations (Merrill 1917). ‘Gnemon funicularis’ is no exception.

The first post-Linnaean botanist to cite ‘Gnemon funicularis’ was Loureiro (Merrill 1917). In *Flora Cochinchinensis* (Loureiro 1790), Loureiro cited Rumphius’s designation under his *Abutua indica* which he knew from the forests of Central Vietnam (which Loureiro called Cochinchina and which at that time extended further north than during the French colonial era). Merrill (1917) transferred Loureiro’s name to *Gnetum*, and considered it the correct name for a species widespread in Mainland South-East Asia and Malesia. This species had previously been referred to as *Gnetum latifolium* Blume, and soon was again by Markgraf (1930) who informally rejected both *Abutua indica* Lour. and ‘Gnemon funicularis Rumph.’ on the grounds that both were too poorly defined with the material available to be resolved.

Sir James Edward Smith (1810) was the first to employ Rumphius’s epithet in a valid species name. Smith referred to an unpublished manuscript of Francis Buchanan-Hamilton, as well as ‘Gnemon funicularis’

of Rumphius and ‘Ula’ of *Hortus malabaricus* of Henrik van Rheede tot Draakestein (hereafter Rheede, though note volumes of the work were published under various different spellings of his name). Although not cited, there is a specimen in the Smith Herbarium that he received from Buchanan-Hamilton in 1800. It bears a typical Buchanan-Hamilton specimen label that cites the Rumphius and Rheede elements as listed by Smith in the protologue. It also refers to ‘Cat. N. 68’. Smith’s name, the first validly published *Gnetum funiculare*, has generally languished in obscurity. Robert Wight (1853) was a notable exception in referring to it.

The next author to publish *Gnetum funiculare* was the French botanist Brongniart (1829) who seems to have based his *Gnetum funiculare* entirely on Rumphius’s ‘Gnemon funicularis’.

Blume (1833) published *Gnetum funiculare* again. He made no direct reference to any earlier use of this binomial, but he did cite both the Rumphian element and *Abutua indica* Lour. *Gnetum funiculare* Blume is therefore superfluous and to be typified by the type of Loureiro’s name.

Almost a century later, Markgraf (1930) published *Gnetum latifolium* Blume var. *funiculare*, clearly considering it a new combination based on *G. funiculare* Blume at a new rank (comb. et stat. nov.). As *Gnetum funiculare* Blume is illegitimate, both as a superfluous renaming of *Abutua indica* Lour. and as a later homonym, it cannot act as a basionym for Markgraf’s variety. Markgraf (1930) explicitly rejected *Abutua indica* Lour. from his treatment of *Gnetum* arguing that the sterile type material was impossible to identify with certainty. Similarly, he excluded ‘Gnemon funicularis’ of Rumphius, considering the description and illustration inadequate. *Gnetum latifolium* var. *funiculare* Markgr. therefore has to be considered as a novel taxon with priority from its date of publication.

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Typification and identification

There are three herbarium sheets in BM that are original material of *Abutua indica* Lour. One of these also bears material of a Rutaceae species, not pertinent to Loureiro's published description of *Abutua indica*. Merrill (1917) referred to Loureiro's type as a specimen in BM. This is an effective first-step lectotypification. We here refine the selection to one of the two sheets only bearing *Gnetum* material that has the larger number of leaves and twig fragments. As noted by Merrill (1917) and Markgraf (1930), there is no fertile material, other than a piece of crushed seed (Hou *et al.* 2016), to aid in identifying the Loureiro specimens. As Merrill wrote on one of the specimens, the material is a reasonable match for a specimen collected on the Chinese island of Hainan (McClure 8978). Merrill took the McClure specimen to be *Gnetum latifolium* f. *parvifolium* Warb. This taxon is now generally referred to as *Gnetum parvifolium* (Warb.) W.C.Cheng (1964). However, Hou *et al.* (2016) referred the McClure specimen to *Gnetum luofuense* C.Y.Cheng (syn. *Gnetum hainanense* C.Y.Cheng ex L.K.Fu, Y.F.Yu & M.G.Gilbert). Given this uncertainty, we remain unable to resolve the identity of Loureiro's plant.

As noted above, *Gnetum funiculare* Buch.-Ham. ex Sm. is a name that has eluded many works on *Gnetum*. Although not cited by Smith, the specimen in his herbarium was clearly available to him when preparing his description. Indeed, the features of the leaf venation described by Smith that Wight (1853) considered to be anomalous ('lateral veins of the leaves separate to the margin', 'the leaves are 4–5 inches long, various in breadth, pointed, firm, shining, distinguished by their veins continuing distinct to the edge of the leaf'), appear to be present in the specimen. Smith received the specimen from Buchanan-Hamilton in 1800, and so it would seem likely it was collected either on Buchanan-Hamilton's journey to Ava in what was then Burma, or a later tour to Chittagong. However, consultation of Buchanan-Hamilton's catalogue of the plants collected on the Ava trip held in the Botany Library of the Natural History Museum London, established that it did not include a species of *Gnetum* under number 68. No mention of *Gnetum* or of a catalogue of plants is included in the edited version of Buchanan-Hamilton's journal of the tour to Chittagong (van Schendel 1992). The specimen in the Smith Herbarium is *Gnetum montanum* Markgr. Collection of this in what is now North-East India or Bangladesh is plausible (Khuraijam *et al.* 2020) given Buchanan-Hamilton's movements during the period. The Rheede element cited by Smith refers to *Gnetum edule* (Willd.) Blume. The identity of Rumphius's 'Gnemon funicularis' is not fully resolved. It is likely *Gnetum latifolium* Blume sensu lato. In the interests of nomenclatural stability it seems best to typify *Gnetum funiculare* Buch.-Ham. ex Sm. so that the name does not replace a name in current use. This can

be done by selecting the Rheede plate as lectotype. As the Buchanan-Hamilton specimen was not cited by Smith in the protologue, it is not a syntype and does not take precedence in the selection of a lectotype (ICN (Turland *et al.* 2018) Art. 9.12). Therefore, the Rheede plate is here selected as lectotype making *Gnetum funiculare* Buch.-Ham. ex Sm. a homotypic synonym of *Gnetum edule* (Willd.) Blume. Another favourable argument for this course is that the use of the name by Wight (1853) remains congruent with the typification to an element from South India.

Rumphius's illustration is here designated lectotype of *Gnetum funiculare* Brongn.

Khuraijam *et al.* (2020) designated a Blume specimen in B as lectotype of *Gnetum latifolium* var. *funiculare* Markgr. Although they cited the name as though based on *Gnetum funiculare* Blume, the typification must also apply to Markgraf's variety.

Gnetum indicum (Lour.) Merr. (Merrill 1917: 77). Type: Loureiro s.n. (lectotype, selected at the first step by Merrill (1917) and at the second step here: BM!, [BM000959865]).

Abutua indica Lour. (Loureiro 1790: 630).

Gnetum funiculare Blume (1833: 32), nom. illegit., superfl., non Sm. ex Buch.-Ham (Smith 1810), nec Brongn. (Brongniart 1829).

Gnetum edule (Willd.) Blume (1833: 31). Type: [published illustration] (lectotype, selected by Turner (2013): 'Ula', van Rhede tot Draeckstein, *Hort. Malab.* 7: t. 22 (Rheede 1688)).

Thoa edulis Willd. (Willdenow 1805: 477).

Gnetum ula Brongn. (Brongniart 1829: 12), nom. illegit., superfl.

Gnetum funiculare Buch.-Ham. ex Sm. (Smith 1810: [unpaged]). Type: [published illustration] (lectotype, selected here: 'Ula', van Rhede tot Draeckstein, *Hort. Malab.* 7: t. 22 (Rheede 1688)).

Gnetum latifolium Blume (1833: 30). Type: Java, Blume s.n. (lectotype, selected by Khuraijam *et al.* (2020): L!, image seen [L0050746]).

Gnetum funiculare Brongn. (Brongniart 1829: 12), nom. illegit., non Buch.-Ham. ex Sm. (Smith 1810), as 'funicularis'. Type: [published illustration] (lectotype, selected here): Rumphius, *Herb. Amboin.* 5: t. 8 (1747)).

Gnetum latifolium var. *funiculare* Markgr. (Markgraf 1930: 463). Type: Java, Blume s.n. (lectotype, selected by Khuraijam *et al.* (2020): B!, image seen [B 10 0001473]).

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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