



RESEARCH ARTICLE

# Notes on the nomenclature and typification of eight names in Bignoniaceae

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## Abstract

Lectotype is designated for two names, *Bignonia xylocarpa* Roxb., *Radermachera tonkinensis* Dop and second-step lectotype is also designated for six names, *Radermachera corymbosa* Steenis, *R. elegans* Steenis, *R. pentandra* Hemsl., *R. pierrei* Dop, *R. poilanei* Dop and *Stereospermum seemannii* Rolfe

## Keywords

*Bignonia*; Lamiales; lectotype; *Radermachera*; *Stereospermum*

## Introduction

The family Bignoniaceae comprises 82 genera and about 860 species, distributed predominantly in tropical regions especially South America (1). During the preparation of a proposal to add an example of lectotypification of names published before 1990 in the *Code* under Art. 9.17 (2), we have been able to study the relevant literature pertaining to the genus *Radermachera* (3, 4, 5, 6, 7, 8, 9, 10, 11). We realized that lectotypification is required for two names, *Bignonia xylocarpa* Roxb., *Radermachera tonkinensis* Dop and six names, *Radermachera corymbosa* Steenis, *R. elegans* Steenis, *R. pentandra* Hemsl., *R. pierrei* Dop, *R. poilanei* Dop and *Stereospermum seemannii* Rolfe would undergo for second-step lectotypification following Art. 9.17 and Art. 9.22 of *Shenzhen Code* (12; hereafter 'Code').

## Materials and Methods

An extensive literature survey was carried out and the protologue of each name was studied. The types were studied from online resources of A, E, HK, K, L, NY, MO, P, U, US (13), JSTOR Global Plants and the Director of BO was also consulted for study of type images. Roxburgh icons at CAL and K were also studied.

## Nomenclature and Typification

**1. *Bignonia xylocarpa*** Roxb., Fl. Ind. ed. 1832, 3: 108. 1832.

### Type

(lectotype designated here): [unpubl. icon] *Roxburgh Icon No. 2076* (K, digital image!). Remaining original material: *Roxburgh Icon No. 2076* (CAL!).

### Accepted name

*Radermachera xylocarpa* (Roxb.) Roxb. ex K.Schum. in Engler & Prantl, Nat.

Pflanzenfam. 4(3b): 243. 1895.

### Notes

*Bignonia xylocarpa* Roxb. was introduced into Calcutta Botanic Garden from Soonda by Dr. Andrew Berry (14). Roxburgh's understanding of this species was based on either live wild plants or the specimens grown in the Garden (14). We could not trace any specimens of Roxburgh but could trace Roxburgh's drawing number 2076 at CAL and K. The drawing at K is depicted with leaves tri-pinnate; panicles terminal; calyx 5-toothed; corolla large, white, tinged yellow, 5–6-lobed, lobes sub-orbicular and much curled along margins; stamens 5–6, stigma 2-lobed; fruits linear, woody, rough, tubercled; seeds winged, all matching well with characters specified in the protologue. Additionally, the Kew drawing is clear, partially coloured and comparatively better than the CAL drawing. Therefore, we designate *Roxburgh Icon No. 2076* (K) as the lectotype.

**2. *Radermachera corymbosa*** Steenis, Bull. Jard. Bot. Buitenzorg, sér. 3, 10: 249. 1928.

### Type

(first-step, lectotype designated by van Steenis 1976: 129): INDONESIA. Sumatra, Simaloer, 24 December 1918, *Achmad 811*; second-step, lectotype designated here: INDONESIA. Sumatra, Simaloer, 24 December 1918, *Achmad 811* (BO-1297608, digital image!; isolectotypes BO-1297607, L0003400, U1152289, U1152294, digital images!). Additional syntypes: INDONESIA, Sumatra, Simaloer, 4 January 1918, *Achmad 164* (BO-1295019, L0883307, digital images!).

### Accepted name

*Radermachera quadripinnata* (Blanco) Seem., J. Bot. 8: 147. 1870.

### Notes

The protologue cites two gatherings, *Achmad 164*, and *Achmad 181* (15). We have been able to trace two specimens (BO, L) belonging to *Achmad 164* and five specimens (BO, L) belonging to *Achmad 811* [181 as error in the protologue]. The protologue associated the vernacular name *koedo koedo paya* with collection number 181. The collection number 181 in the protologue is erroneous because all five specimens (BO and L) with vernacular name *koedo koedo paya* bear the collection number 811. Among all specimens, two sheets belonging to *Achmad 811* at BO were annotated as "Type specimen!". Moreover, 'type specimen' was also cited with *Achmad 811* (BO) in the protologue, therefore, these two specimens as well as three specimens at L can be considered as syntypes. van Steenis (7) cited "Type: *Achmad 181* (BO, L). N. Sumatra, Simalur I" and his indication of type should be considered as inadvertent first-step lectotypification because specifying herbaria was not necessary before 1990 under Art. 9.22 of the Code and *Achmad 811* (181 as error) is a single gathering. The specimen BO-1297607 is in brittle condition and bears three fragments devoid of leaves, flowers, fruits, two detached leaves and van Steenis' annotation 'Type specimen!'. We designate *Achmad 811* (BO-1297608) (Fig. 1) as the second-step lectotype because the specimen is in good condition and bears a single fragment with leaves and the annotation 'Type specimen!' in van Steenis' handwriting.



**Fig. 1.** Second-step lectotype of *Radermachera corymbosa* Steenis (BO-1297608) © Herbarium Bogoriense, Indonesia. Reproduced with the permission.

**3. *Radermachera elegans*** Steenis, Bull. Jard. Bot. Buitenzorg, sér. 3, 10: 252. 1928.

### Type

(first-step, lectotype designated by van Steenis 1976: 129): INDONESIA. Celebes, Minahasa (Manado), Kojoewatoe, 11 March 1895, *Koorders 16256β*; second-step, lectotype designated here: INDONESIA. Celebes, Minahasa (Manado), Kojoewatoe, 11 March 1895, *Koorders 16256β* (BO-1897992, digital image!; isolectotype L0003398, digital image!). Additional syntypes: INDONESIA. Celebes. Minahasa, *Koorders 16253β* (L0483430), digital image!; *Koorders 16254β* (L0483426, digital image!); *Koorders 16255β* (L0483427, digital image!).

### Accepted name

*Radermachera quadripinnata* (Blanco) Seem., J. Bot. 8: 147. 1870.

### Notes

*Radermachera elegans* Steenis was described based on the gatherings *Koorders 16253β*, *16254β*, *16255β*, *16256β*, and *16257β* collected from Sulawesi (Celebes) which can be considered as syntypes. We could trace three specimens belonging to *Koorders 16253β*, *16254β*, *16255β* at L and there are no extant specimens at BO. Furthermore, *Koorders 16256β* (BO, L) was cited as the "type specimen" in the protologue and we have been able to trace two

specimens of this collection at BO and L. van Steenis (7) cited “Type: Koorders 16256 (BO, L), NE Celebes, Minahasa” and it should be considered as inadvertent first-step lectotypification following Art. 7.11 and 9.22. Therefore, we designate here *Koorders 16256* $\beta$  (BO-1897992) (Fig. 2) as second-step lectotype because it bears the annotation “type specimen!” in van Steenis’ handwriting.



**Fig. 2.** Second-step lectotype of *Radermachera elegans* Steenis (BO-1897992) © Herbarium Bogoriense, Indonesia. Reproduced with the permission

**4. *Radermachera pierreii*** Dop, Bull. Mus. Natl. Hist. Nat. 32: 234. 1926.

### Type

(first-step, lectotype designated by van Steenis 1976: 126): CAMBODIA, Mt Schral, *Pierre 570*; second-step, lectotype designated here: CAMBODIA, Mt Schral, *Pierre 570* (P00609721, digital image!; isolectotypes A00093057, A00093058, K000779274, L0003387, NY00328907, NY00328908, P00609719, P00609720, digital images!).

### Accepted name

*Radermachera hainanensis* Merr., Philipp. J. Sci. 21: 353. 1922.

### Notes

A single gathering, *Pierre 570* was cited in the protologue (16). We have been able to trace nine specimens at A, K, L, NY and P and all are syntypes under Art. 40 Note 1 of the *Code* and McNeill (17). van Steenis (7) cited “Type: *Pierre 570* (A, K, P), Cambodia, Mt. Schral”. Although three herbaria were cited by van Steenis (7), but before 1990 speci-

fying herbaria was not necessary for effective lectotypification under Art. 9.22 of the *Code*. As *Pierre 570* is single gathering, therefore, citation of type should be accepted as inadvertent first-step lectotypification under Art. 9.17. Therefore, second-step lectotype designation is required and we designate *Pierre 570* (P00609721) as second-step lectotype because it bears Dop’s annotation and a packet bearing flowers and seeds are also attached.

**5. *Radermachera pentandra*** Hemsl., Hooker’s Icon. Pl. 28: t. 2728. 1902.

### Type

(first-step, lectotype designated by van Steenis 1976: 129): CHINA. Yunnan, Mengtze, 5000 ft, *A. Henry 10909*; second-step, lectotype designated here: CHINA. Yunnan, Mengtze, 5000 ft, *A. Henry 10909* (K000779284, digital image!; isolectotypes A00093053, A00093054, A00093055, E00265701, E00265702, K000779285, K000779283, K000779282, L0003391, MO-091367, MO-091368, MO-091369, MO-091370, NY00328931, NY00328930, US00125940, US00125939, digital images!).

### Notes

Hemsley (18) described the species based on the single gathering *A. Henry 10909* from Yunnan, China. We have been able to trace 18 specimens at A, E, K, L, MO, NY and US which should be considered as syntypes following McNeill (17) and Art. 40 Note 1 of the *Code*. van Steenis (7) cited “Type: *A. Henry 10909* (A, K), Yunnan, Mengtze” and his indication of “type” must be accepted as inadvertent first-step lectotypification following Art. 9.17 and Art. 9.22 because *A. Henry 10909* is a single gathering. However, two herbaria were mentioned by van Steenis but specifying herbaria were not necessary before 1990 for effective lectotype designation under Art. 9.22. Therefore, the name would undergo second-step lectotype designation and we designate here the specimen K000779284 as second-step lectotype because Hemsley was based at Kew.

**6. *Radermachera poilanei*** Dop, Bull. Mus. Natl. Hist. Nat., sér. 2, 2: 155. 1930.

### Type

(first-step, lectotype designated by Santisuk 1974: 30): VI-ETNAM. Annam, Ca-na, Prov. Phanrang, 1 April 1923, *Poilane 5953*; second-step, lectotype designated here: VI-ETNAM. Annam, Ca-na, Prov. Phanrang, 1 April 1923, *Poilane 5953* (P00609723, digital image!; isolectotypes A00093059, NY0328909, P00609722, P00609724, digital images!). Additional syntypes: VIETNAM. Annam, Ca-na, Prov. Phanrang, 25 November 1923, *Poilane 8759* (K000779275, P00609725, P00609726, digital images!).

### Accepted name

*Radermachera hainanensis* Merr., Philipp. J. Sci. 21: 353. 1922.

### Notes

Dop (19) described *Radermachera poilanei* based on two gatherings, *Poilane 5953*, and *Poilane 8759*. We have been able to trace five specimens belonging to *Poilane 5953* at A, NY, P and three specimens belonging to *Poilane 8759* at

K, P. Santisuk (4) cited “Type–Annam: Ca-na, Phanrang, 1-4-23, *Poilane* 5953 (K, P)” and this citation of type should be accepted as effective lectotypification under Art. 7.11 of the *Code* because specifying herbaria were not necessary before 1990 under Art. 9.22. As *Poilane* 5953 is a single gathering deposited at A, NY, P, a second-step lectotypification is required under Art. 9.17. Thus, we designate here *Poilane* 5953 (P00609723) as second-step lectotype because the specimen bears Dop’s annotation.

**7. *Radermachera tonkinensis*** Dop, Bull. Mus. Natl. Hist. Nat. 32: 233. 1926.

### Type

(lectotype designated here): VIETNAM. Without precise locality, 27 November 1924, *M. Poilane* 10859 (P00609733, digital image!; isolectotypes L0003404, P00609734, P00609735, digital images!). Additional syntypes: VIETNAM. Tonkin, “In montibus Ban Phet”, 16 January 1884, *H. Bon* 2420 (L0003404), P00609731, P00609732, digital images!).

### Accepted name

*Radermachera sinica* (Hance) Hemsl., Hooker's Icon. Pl. 28: t. 2728. 1902.

### Notes

The protologue cites four gatherings, *H. Bon* 2710, 2753, 2420, *Poilane* 10859 (16). We have been able to trace seven specimens belonging to two gatherings, *H. Bon* 2420 (fruiting) and *Poilane* 10859 (flowering) at L and P. All five specimens at P bear Dop’s annotation. Dop (16) cited “Cette espècees troisine du *Stereospermum* (*Radermachera*) *sinicum* Hance. Elle en diffère par les feuilles coriaces et acuminées-caudées, les fleurs blanches plus grandes, le calice beaucoup plus long” [this species is close to *Stereospermum* (*Radermachera*) *sinicum* Hance. It differs from it by coriaceous and acuminate-caudate leaves, the larger white flowers, the much longer calyx]. Thus, flowers are more informative for identity of the species. The specimens belonging to *H. Bon* 2420 bear ruptured fruits without seeds. Among the three flowering specimens of *Poilane* 10859, the only sheet bearing the annotation “sp. n.” in Dop’s handwriting is the specimen with barcode [P00609733], which is here designated as the lectotype.

**8. *Stereospermum seemanii*** Rolfe, J. Linn. Soc., Bot. 21: 314. 1884.

### Type

(first-step, lectotype designated by van Steenis 1976: 129): PHILIPPINES. Luzon, Prov. Albay, *H. Cuming* 996; second-step, lectotype designated here: PHILIPPINES. Luzon, Prov. Albay, *H. Cuming* 996 (K000779261, digital image!; isolectotypes K000779259, P02892526, digital images!).

### Accepted name

*Radermachera quadripinnata* (Blanco) Seem., J. Bot. 8: 147. 1870.

### Notes

Rolfe (20) cited a single gathering, *Cuming* 996 from Philippines in the protologue of *Stereospermum seemanii*.

There are two specimens at K and one specimen at P which can be considered as syntypes following McNeill (17) and Art. 40 Note 1 of the *Code*. van Steenis (7) cited “Type: *Cuming* 996 (BM, K), Philippines” and his indication of “type” should be considered as inadvertent lectotypification following Art. 7.11 and 9.22 because specifying herbaria were not necessary before 1990. The specimen K000779259 consists of a flowering fragment without leaves, and is mounted together with another specimen, with barcode K000779260, bearing the annotation “This lower specimen is *Stereospermum chelonoides* DC., and is probably not from the Philippines at all” by an unknown hand. We have chosen to designate the specimen K000779261 as second-step lectotype because it is unambiguously a part of the type gathering and bears Rolfe’s annotation “*Stereospermum seemanii* Rolfe!” in his own handwriting. .

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### Authors contributions

AK executed the research and prepared the manuscript. TC planned the research. All authors read and approved the final manuscript.

### Compliance with ethical standards

**Conflict of interest:** Authors do not have any conflict of interests to declare.

**Ethical issues:** None.

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