adansonia

2025 • 47 • 12

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art. 47 (12) — Published on 22 July 2025
www.adansonia.com

PUBLICATIONS SCIENTIFIQUES

MUSÉUM NAL HIST NATURELLE

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Adansonia *is a fast track journal published by the Museum Science Press, Paris*

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CP 41 – 57 rue Cuvier F-75231 Paris cedex 05 (France)
Tél.: 33 (0)1 40 79 48 05 / Fax: 33 (0)1 40 79 38 40
diff.pub@mnhn.fr / http://sciencepress.mnhn.fr

ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

Lectotypifications in *Ixora* L. (Rubiaceae)

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Submitted on 13 November 2024 | accepted on 23 January 2025 | published on 22 July 2025

Harishma K. H. & Nampy S. 2025. — Lectotypifications in *Ixora* L. (Rubiaceae). *Adansonia*, sér. 3, 47 (12): 251-257. https://doi.org/10.5252/adansonia2025v47a12. http://adansonia.com/47/12

ABSTRACT
During a taxonomic revision of *Ixora* L. (Rubiaceae) in India, four names were found to lack proper typification. Lectotypes are selected for *Ixora acuminata* Roxb., *I. thwaitesii* Hook.f., and *I. calycina* Thwaites, while an erroneous lectotypification for *I. brunnescens* Kurz is rectified by selecting a new lectotype.

KEY WORDS
Rubiaceae,
Ixora,
India,
lectotypifications.

RÉSUMÉ
Lectotypifications dans le genre Ixora *L. (Rubiaceae).*
Lors d'une révision taxonomique d' *Ixora* L. (Rubiaceae) en Inde, il a été constaté que quatre noms manquaient de typification appropriée. Des lectotypes sont sélectionnés pour *Ixora acuminata* Roxb., *I. thwaitesii* Hook.f. et *I. calycina* Thwaites, tandis qu'une lectotypification erronée pour *I. brunnescens* Kurz est rectifiée en sélectionnant un nouveau lectotype.

MOTS CLÉS
Rubiaceae,
Ixora,
Inde,
lectotypifications.

INTRODUCTION

Ixora L. (Rubiaceae), comprising 561 species worldwide, is distributed in the tropics and subtropics (POWO 2024). Husain & Paul (1989) reported 43 species in India. Since then a few more species have been discovered by various authors (Sivadasan & Mohanan 1991; Deb & Rout 1992; Pradeep 1997; Barbhuiya *et al.* 2012; Murugan & Prabhu 2014; Karthigeyan & Arisdason 2015; Balan & Shanmugam 2016; Sarma *et al.* 2019; Mathew & Pichan 2022) bringing the number of species in India to about 50, distributed mainly in the Northeastern regions, particularly in Assam, Meghalaya, Arunachal Pradesh, Nagaland, Mizoram, West Bengal, south Indian region and the Andaman & Nicobar Islands. Nearly 45% of the species occurring in India are endemic. As a part of ongoing revisionary study of *Ixora* in India, it is found that lectotypification is necessary for four names, as the original name is associated with multiple specimens.

The protologues, types and other relevant specimens/ digital images at various herbaria were consulted (ARUN, ASSAM, BLAT, BSD, BSI, BSJO, CAL, CALI, DD, LWG, MH, PBL, RHT, TBGT – specimens consulted; A, B, BHU, BM, BO, BR, BRISTM, C, DBN, DPU, E, G, GH, K, L, LE, LINN, LIV, MPU, MO, NMW, NY, OXF, P, PC, PDA, PH, S, TCD, TTN, U, UPS, US, W, WU – studied virtually) (Acronyms as per Thiers 2025 continuously updated).

TYPIFICATIONS

Ixora acuminata Roxb.
(Fig. 1)

Flora Indica 1: 393 (Roxburgh 1820).

TYPE MATERIAL. — **Bangladesh** • Sylhet ('Silhet'); *s.d.*; *Roxburgh s.n.*; lectotype (**designated here**): CAL [*Roxburgh Icones Number 2428*, Volume/Folder 16, digital image!]. https://archive.bsi.gov.in/botanical-details?link=525D9244C85316CY

LECTOTYPIFICATION REMARKS

Ixora acuminata was first mentioned by Roxburgh (1814) in *Hortus Bengalensis* as a *nomen nudum*. Later, it was validated in *Flora Indica* (Roxburgh 1820), along with additional notes by Wallich. In the protologue, it is indicated that the plant is native to Sylhet ('Silhet'), but there is no collection by Roxburgh from Sylhet ('Silhet') available. In his numerical list, Wallich (1828) had written '6126. *I. acuminata* Roxb.' with two materials that is, 'A. FD & HB and B. HBC [*Hortus Botanicus Calcuttensis*]'. Husain & Paul (1989) cited *6126A* and *6126B* at CAL as type. Since the numerical list was published later than the publication of the species, this cannot be considered for lectotypification. While searching extensively for Roxburgh's specimens (Sealy 1956), we found a botanical illustration of *I. acuminata* with Volume/Folder 16, *Roxburgh Icones number 2428* at CAL. So, in the absence of herbarium specimens associated with this name, here we designated Roxburgh's illustration with *Icones number 2428* as the lectotype as per the Shenzhen code Article 9.12 (Turland *et al.* 2018).

Ixora thwaitesii Hook.f.
(Fig. 2)

Flora of British India 3: 138 (Hooker 1882).

TYPE MATERIAL. — **Sri Lanka** • ('Zeylon'); up to 3000 ft; *s.d.*; *Thwaites CP 748*; lectotype (**designated here**): CAL[CAL0000016269!]); isolectotype: CAL[CAL0000016270!].

LECTOTYPIFICATION REMARKS

Hooker (1882) described *I. thwaitesii* and cited '*I. acuminata* Thw. Enum. 155, excl. var β, not of Roxb. Thwaites in *Enumeratio Plantarum Zeylaniae* (p. 155. 1859 [Thwaites 1859: 155])' add the specimen *CP 748* under it. Husain & Paul (1989) indicated the specimen (*Thwaites CP 748*) at CAL as the type. There are two sheets at CAL with the same collection number (CAL0000016269!, CAL0000016270!). There are five more sheets of CP 748 at various herbaria (one each at BR (BR0000005316953), K (K000031363), LE (LE00017493) and two in P (P03941811 and P03941812). The sheet CAL0000016269 is well preserved with similar writing in the protologue as 'Zeylon, not very common upto an elevation of 3000 feet' is selected here as the lectotype and the other specimens as isolectotypes.

Ixora brunnescens Kurz
(Fig. 3)

Journal of the Asiatic Society of Bengal 41 (4): 317 (Kurz 1872).

TYPE MATERIAL. —— **India** • South Andamans; *s.d.*; *S.Kurz s.n.*; Lectotype (**designated here**): K[K000031389 digital image!]; isolectotype: K[K000031388 digital image!].

LECTOTYPIFICATION REMARKS

Ixora brunnescens Kurz was originally described by Kurz (1872) who cited specimen from Andamans. Husain & Paul (1989) indicated a specimen at CAL from Katchall Island in Nicobar Islands collected by Kurz in February 1875 as the type. This specimen, collected three years after the publication of the species, cannot be considered as a type.

While searching for the relevant specimens, we could locate five sheets at CAL, three from Narcondam, Andaman with vegetative parts only [CAL0000069766!, CAL0000069767!, CAL0000069768!], and two at K from south Andaman [K000031388, K000031389]. The specimen housed at K [K000031389] with fruits is selected here as the lectotype, while the rest as isolectotypes.

Ixora calycina Thwaites
(Fig. 4)

Enumeratio Plantarum Zeylaniae: 155 (Thwaites 1859).

TYPE MATERIAL. — **Sri Lanka** • 'Zeylon', Central Province; up to 7000 ft; *s.d.*; *Thwaites CP 448*; lectotype (**designated here**): CAL[CAL0000069728!]; isolectotype: CAL[CAL0000069729!].

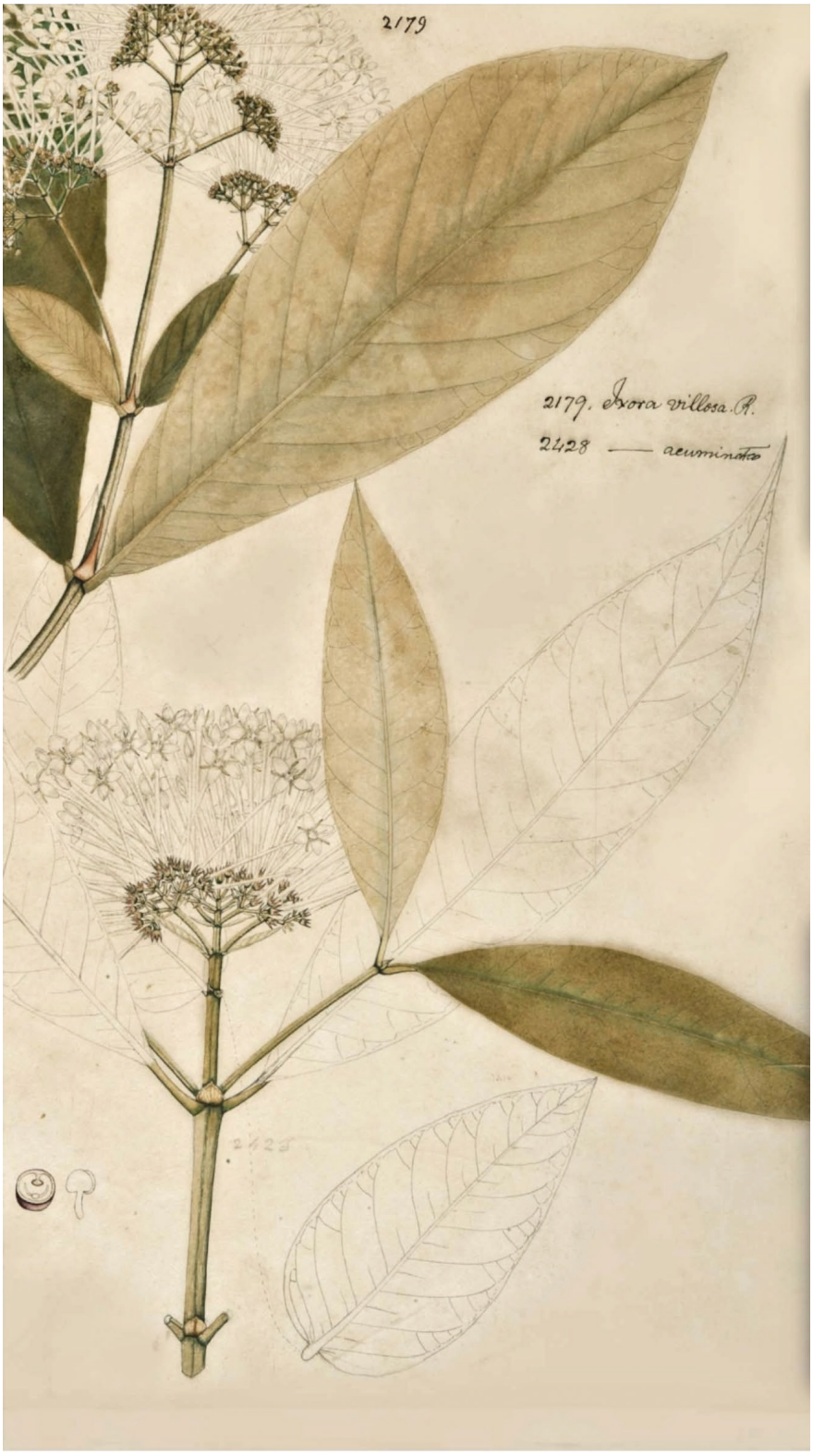

Fig. 1. — Lectotype of *Ixora acuminata* Roxb. (CAL [*Roxburgh Icones Number 2428*]).https://archive.bsi.gov.in/botanical-details?link=525D9244C85316CY © The Director, Botanical Survey of India, Kolkata (reproduced with permission).

Lectotypification remarks

Thwaites (1859) described *Ixora calycina* and cited *CP 448* along with 'Hab. Central Province, up to an elevation of 7000 feet'. Husain & Paul (1989), mentioned the specimen at CAL as the type. But there are two sheets available with the same collection number, *CP 448* (CAL0000069728,

FIG. 2. — Lectotype of *Ixora thwaitesii* Hook.f. (CAL [CAL0000016269]). © The Director, Botanical Survey of India, Kolkata (reproduced with permission).

CAL0000069729). Hence lectotypification is needed as Husain & Paul (1989) did not specify which of the two duplicates available in CAL is the lectotype. There are 12 more sheets with the same collection number in different herbaria: two at K in a single sheet (K000031359, K000031360), five at P (P03987727, P00836689, P00836690, P00836691, P00836692), one each at BR (BR0000005317400), FR (FR0031479), GH (GH00096724), LE (LE00017471),

FIG. 3. — Lectotype of *Ixora brunnescens* Kurz (K [K000031389]). © RBG Kew (reproduced with permission).

MH (MH00002969), NYBG (NY00131979) and TCD (TCD0018033). The sheet CAL0000069728, which has the same location details as in the protologue is chosen here as the lectotype, and the rest as isolectotypes.

Acknowledgements
The authors are thankful to the Head, Department of Botany, University of Calicut for facilities and also to The Director, Botanical Survey of India, Kolkata and the Cu-

Fig. 4. — Lectotype of *Ixora calycina* Thwaites (CAL [CAL0000069728]). © The Director, Botanical Survey of India, Kolkata (reproduced with permission).

rators of all the herbaria, especially Kew herbarium and MNHN herbarium for providing the high-resolution images of herbarium sheets. HKH acknowledges CSIR-HRDG (New Delhi) for the fellowship and SN to Anusandhan National Research Foundation (New Delhi) for funding. The authors are grateful to the reviewers, Drs Thierry Deroin and Arnaud Mouly, for their valuable suggestions and feedback.

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Submitted on 13 November 2024;
accepted on 23 January 2025;
published on 22 July 2025.