(2786) Proposal to change the conserved type of Ipomoea, nom. cons.
(Convolvulaceae)

Lauren A. Eserman,1 Marc S.M. Sosef,2 Rosângela Simão-Bianchini,3 Timothy M.A. Utteridge,31
Juliana C.J. Barbosa,3,4 Maria Teresa Buril,5 Lars W. Chatrou,6 Keith Clay,7 Geadelanie Delgado,5
Thibaut E. Desquibel,8 Priscila P.A. Ferreira,9 José R. Grande Allende,10 Alexis L. Hernández,11
Guillermo Huerta-Ramos,12 Robert L. Jarret,13 Roberta K. Kojima,4 Sven Landrein,14
Juliana A.A.M. Lourenço,5 Ine De Man,6 Richard E. Miller,15 Sushant More,16
André L.C. Moreira,17,18 Ithe Mwanga-Mwanga,19 Stella Nhanala,20,21 Mayara Pastore,22
Fernanda S. Petrongari,3,4 Popnrom Pisuttimarn,23 Pinwaddee Pornponggruang,23
Joanna Rifkin,24 Francisco D.S. Santos,5 Vinod B. Shimpale,25 Simone S. Silva,4
John R. Stinchcombe,24 Paweena Traiperm,26 Liziane V. Vasconcelos,27 Ming Li Wang,13
Arthur Villordon,28 Jun Yang,29 G. Craig Yencho,30 Bettina Heider30 & Ana Rita G. Simões31

1 Conservation & Research Department, Atlanta Botanical Garden, 1345 Piedmont Ave NE, Atlanta, Georgia 30309, U.S.A.
2 Meise Botanic Garden, Nieuwelaan 38, 1860 Meise, Belgium
3 Núcleo de Pesquisa Curadoria do Herbário, Instituto de Botânica, Av. Miguel Estefano, 3687, Água Funda, São Paulo, SP, Brazil, 04301-902
4 Programa de Pós-graduação em Biodiversidade Vegetal e Meio Ambiente, Instituto de Botânica, Av. Miguel Estefano, 3687, Água Funda, São Paulo, SP, Brazil, 04301-902
5 Departamento de Biologia, Laboratório de Sistemática Integrativa (LASI), Universidade Federal Rural de Pernambuco, Campus Dois Irmãos, CEP 52171-011, Recife, Pernambuco, Brazil
6 Systematic and Evolutionary Botany Lab, Ghent University, K.L. Ledeganckstraat 35, 9000 Ghent, Belgium
7 Department of Ecology and Evolutionary Biology, Tulane University, New Orleans, Louisiana, 70118, U.S.A.
8 Lycée Descartes, 1 Avenue Lavoisier, 92761 Antony Cedex, France
9 Jardim Botânico de Porto Alegre (JBPA), Seção de Coleções, Secretaria do Meio Ambiente e Infraestrutura do Rio Grande do Sul, Avenida Salvador França, 1427, 90690-000, Porto Alegre, Rio Grande do Sul, Brazil
10 Herbario MERF, Faculdad de Farmacia y Bioanálisis, Universidad de Los Andes, Núcleo Campo de Oro, 5101 Mérida, Venezuela
11 Manuel Negrete Pte. 89, Col. Centro, C.P. 30640, Huitzila, Chiapas, Mexico
12 Laboratorio Nacional de Análisis y Síntesis Ecológica (LANASE), Escuela Nacional de Estudios Superiores (ENES), Unidad Morelia, Universidad Nacional Autónoma de México, Morelia, Michoacán C.P., 58190, México
13 USDA-ARS, Plant Genetic Resources Conservation Unit, 1109 Experiment Street, Griffin, Georgia, 30223, U.S.A.
14 Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, 666303 Menglun, Yunnan, China
15 Flower Diversity Institute, 6100 Wadsworth Blvd, Arvada, Colorado 80003, U.S.A.
16 Parle Tilak Vidyalaya Association’s Sathaye College, Mumbai, Maharashtra, India
17 Programa de Pós-Graduação em Botânica, Universidade de Brasília, Campus Darcy Ribeiro, CEP 70.910-900, Brasília, Distrito Federal, Brazil
18 Faculdade de Educação, Universidade Federal da Bahia. Av. Reiitor Miguel Calmon, s/n – Canela, CEP 40.110-100 Salvador, Bahia, Brazil
19 Centre de Recherche en Sciences Naturelles CRSN/Livro DS/Bukavu, République Démocratique du Congo
20 Department of Horticultural Science, The University of Toronto, 25 Willcocks St. Toronto, Ontario M5S 3B2, Canada
21 Department of Botany, The New College, Kolhapur, India
22 Programa de Pós-Graduação em Botânica Tropical, Museu Paraense Emílio Goeldi, Av. Perimetral, 1901, Terra Firme, 66077-830, Belém, Pará, Brazil
23 Applied Taxonomic Research Center, Department of Biology, Faculty of Science, Khon Kaen University, Khon Kaen, 40002, Thailand
24 Department of Ecology and Evolutionary Biology, The University of Toronto, 25 Willcocks St. Toronto, Ontario M5S 3B2, Canada
25 Department of Botany, The New College, Kolhapur, India
26 Department of Plant Science, Faculty of Science, Mahidol University, Rama VI Road, Ratchathewi, Bangkok, 10400, Thailand
27 Programa de Pós-Graduação em Ecologia, Universidade Federal do Pará, Instituto de Ciências Biológicas, R. Augusto Corrêa, 01, Guamá, CEP 66075-110, Belém, Pará, Brazil
28 Sweet Potato Research Station, Louisiana State University Agricultural Center, Chase, Louisiana, 71324, U.S.A.
29 Shanghai Chenshan Plant Science Research Center, Chinese Academy of Sciences, Shanghai Chenshan Botanical Garden, 3888 Chenhua Road, 201602 Shanghai, China
30 Genetics, Genomics and Crop Improvement Division, International Potato Center, Av. La Molina 1895, La Molina, Lima 15023, Peru
31 Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, United Kingdom

Address for correspondence: Lauren Eserman, leserman@atlantabg.org

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Typus: I. triloba L., typ. cons. prop.

Ipomoea L. is the largest (650–900 species, depending on the concept adopted) and most iconic genus in Convulvaceae, a family of c. 1880 species (data from Staples, Convulvaceae Unlimited, 2012 at: http://convulvaceae.myspecies.info), including the important crop sweetpotato, Ipomoea batatas (L.) Lam. (Tabl. Encycl. 1: 465. 1793), and several ornamental genera commonly known as “bindweeds” or “morning glories” (Wilkin in Kew Bull. 54: 853–876. 1999; Mabberley, Mabberley’s Plant-book. 2008). The genus has a long history of taxonomic and nomenclatural problems, mainly for the lack of a clear morphological circumscription and overlap with other genera. In his Species plantarum (1753), Linnaeus distinguished two genera, Convulvulus L. and Ipomoea, whose species suffered numerous re-arrangements, between Ipomoea and Convulvulus, but especially into numerous more recently described genera, which amount today to a total of 60 (Staples in World Checklist of Vascular Plants, v.2.0. 2020, http://wrcp.science.kew.org/ retrieved 2 Apr 2020).

Linnaeus included 17 species in Ipomoea. However, of these, only the first, I. quamoclit L., truly matched his earlier generic description published in 1737 (Gen. Pl.: 47; “Petasium infundibuliforme; Tubus sere cylindraceus, longissimus”). Linnaeus actually replaced the name Quamoclit of Tournefort (Inst. Rei Herb., ed. 3, 2: t. 39. 1719) with his own Ipomoea (see Manitz in Taxon 25: 193–194. 1976). Hence, I. quamoclit would be the logical type of Ipomoea. However, in the past, some argued for a separation between the genus Quamoclit Mill. and Ipomoea (Roberty in Candollea 14: 11–65. 1952) that would result in an unfortunate recombination of hundreds of Ipomoea names, and which led Manitz (l.c.) to propose to conserve the name Ipomoea with another, conserved, type, I. pes-tigridis L., which was accepted (see Taxon 30: 145. 1981, 31: 310. 1982).

More recently, molecular phylogenetic analyses have greatly assisted in obtaining a better understanding of the classification and phylogeny of the family as a whole and a much more stable taxonomy is now emerging. These studies have also shown that within the tribe Ipomoeae Hall. f. s.l., Ipomoea is paraphyletic with 10 genera nested within it: Argyreia Lour., Astripomoea A. Meeuse, Blinkworthia Choisy, Lepistem Blume, Lepistemomonopis Hammer, Mina Cerv., Paralepistememon Lejoly & Lisowski, Rivea Choisy, Stictocardia Hall. f., and Turbinia Raf. (Wilkin, l.c.; Manos & al. in Syst. Bot. 26: 585–602. 2001; Miller & al. in Syst. Biol. 51: 740–753. 2002; Stefanović & al. in Amer. J. Bot. 89: 1510–1522. 2002, in Syst. Bot. 28: 701–806. 2003; Eserman & al. in Amer. J. Bot. 101: 92–103. 2014; Simões & al. in Bot. J. Linn. Soc. 179: 374–387. 2015). This furthered the debate about the actual identity of Ipomoea. Wilkin (l.c.) proposed the inclusion of all genera of Ipomoeaceae into an Ipomoea s.l. This was recently taken up by Munoz-Rodriguez & al. (in Nature, Pl. 5: 1136–1154. 2019), soaring the genus to c. 900 species, without proposing any infrageneric classification and allowing huge morphological variation.

As molecular phylogenetic results have also demonstrated, tribe Ipomoeaceae can be subdivided into two main clades (Stefanović & al., l.c. 2003; Wood & al. in Phytokeys 143: 1–823. 2020) with the informal names “Astriptomoeinae” and “Argyreinae”. While the first concentrates a large diversity of the Neotropical Ipomoea, the latter is more widely distributed throughout Africa, Asia, Australia, and many of the Pacific islands, and is mostly absent from the Neotropics. Unfortunately, “Argyreinae” includes the presently conserved type of Ipomoea, I. pes-tigridis L. Hence, implementing a new classification with the distinction of several clades at genus level would result in around 600 name changes for the Ipomoea within the “Astriptomoeinae” clade, affecting mostly the American species of the genus, many of which have ornamental value. Moreover, the most economically important species, I. batatas (L.) Lam., also does not belong to the clade including the type; therefore, a potential segregation of Ipomoea s.l. into smaller genera would result in the renaming of sweetpotato. With an annual production of over 90 million metric tons (data from Shahbandeh, Global sweet potato production volume 2010–2018. 2020, https://www.statista.com/statistics/812343/global-sweet-potato-production) and hundreds if not thousands of registered cultivars (in Asia and the Pacific region alone, there exists an estimated 12,000 landraces, while in 1994 the International Potato Center (CIP) in Peru held a total of 6500 sweetpotato accessions; Takagi & al. in Flach & Rumawas, PROSEA 9, Plants Yielding Non-seed Carbohydrates: 102–107. 1999), a name change in sweetpotato would certainly result in a very costly and extreme effort by the commercial enterprises involved.

As shown above (Wilkin, l.c.; Munoz-Rodriguez & al., l.c.), some authors regard the presence of the type of Ipomoea in the “Argyreinae” clade as an obstacle towards a most useful renewal of the re-circumscription of the genera in tribe Ipomoeaceae because of the sheer amount of necessary name changes and have preferred to advocate the inclusion of all the taxonomic diversity into a mega-genus Ipomoea. We think nomenclature should not block the development of a more stable and logical classification and here propose to replace the conserved type of the genus with a species included in the “Astriptomoeinae” clade. This would permit those who wish to create a new classification to do so with far fewer nomenclatural consequences. Thus, the generic name Ipomoea would be retained for the clade with the highest taxonomic diversity (c. 600 species), while preventing a name change in the economically important I. batatas.

There are numerous examples of changes in nomenclature that are rejected by the scientific community when they cause significant destabilization. For example, the recent taxonomic changes in “monkeyflowers” (Mimulus, Phrymaceae; Barker & al. in Phytoneuron 39: 1–60. 2012, Lowry & al. in Taxon 68: 617–623. 2019, Nesom & al. in Taxon 68: 624–627. 2019) were rejected by the evolutionary biology community and have brought to the forefront discussions about when nomenclatural changes are appropriate. Most scientists recognize the importance of naming groups based on evolutionary lineages, but to what extent this is applied must be done with the utmost consideration. As it concerns Ipomoea, it is a priority to allow the possibility to subdivide the genus into smaller genera, while maintaining maximal nomenclatural stability.

Manitz (l.c.), in proposing to conserve Ipomoea with a conserved type, identified the early confusion in the circumscription of Ipomoea and Convulvulus and acknowledged the need to stabilize nomenclature. His argument followed previous authors, especially House (in Ann. New York Acad. Sci. 18: 181–263. 1908) in considering that, although I. quamoclit would be the “historically correct” species to be selected, its morphological particularities (red tubular corolla) might have blocked those who wanted to regard Quamoclit as a distinct genus because of the very high number of new names that would then be needed to accommodate the remainder of the Ipomoea species. What Manitz did not know, was that the type House had already proposed, Ipomoea pes-tigridis L., and which he selected for conservation, would later lead to almost the same situation.

In view of the recent molecular and systematic works that suggest the phylogenetic position of I. pes-tigridis as distantly related to the largest part of the genus Ipomoea, we would propose alternatively I. triloba L. as the conserved type for the genus. The broad-
scale molecular phylogenetic study of Wood & al. (l.c.) demonstrated with ample sampling that I. triloba is one of the most closely related species to I. batatas. A range of important ornamental species are also fairly closely related to I. batatas and I. triloba, when considering a broader clade (e.g., I. nil (L.) Roth, I. tricolor Cav., and I. purpurea (L.) Roth). Therefore, our proposed type will allow future studies to re-assess the generic delimitation within tribe Ipomoeae, without the fear of destabilizing the nomenclature of the group, in particular the species with greatest economic importance.

Author information
LAE, https://orcid.org/0000-0002-0208-6632
MSMS, https://orcid.org/0000-0002-6997-5813
RS-B, https://orcid.org/0000-0001-9738-9494
TMAU, https://orcid.org/0000-0003-2823-0337
JCJB, https://orcid.org/0000-0002-8753-4915
MTB, https://orcid.org/0000-0001-9615-2057
LWC, https://orcid.org/0000-0003-0131-0302
KC, https://orcid.org/0000-0002-3956-0887
GD, https://orcid.org/0000-0002-6693-1540
TED, https://orcid.org/0000-0002-2119-4524
PPAF, https://orcid.org/0000-0003-1134-7918
JRGA, https://orcid.org/0000-0002-7066-0608
ALH, https://orcid.org/0000-0003-2172-6356
GH-R, https://orcid.org/0000-0002-8209-0366
RLJ, https://orcid.org/0000-0002-0426-6186
RKK, https://orcid.org/0000-0002-8538-8694
SL, https://orcid.org/0000-0003-0028-2450
JAAML, https://orcid.org/0000-0003-4741-1723

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(2787) Proposal to conserve the name Graffenrieda against Centronia (Melastomataceae: Merianiae)

Jhon S. Murillo-Serna,1 Fabián A. Michelangeli2 & Fernando Alzate-Guarin1

1 Grupo de Estudios Botánicos (GEOBOTA) and Herbario Universidad de Antioquia (HUA), Instituto de Biología, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia
Address for correspondence: Fabián A. Michelangeli, fabian@nybg.org

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