PERSPECTIVE ARTICLE

# Towards a collaborative approach to the systematics of *Ipomoea*: A response to the "Rebuttal to (2786) Proposal to change the conserved type of *Ipomoea*, nom. cons. (Convolvulaceae)"

**Lauren A. Eserman,[1] Maria Teresa Buril,[2,3] Lars W. Chatrou,[4] Keith Clay,[5] Thibaut E. Desquilbet,[6] Priscila P.A. Ferreira,[7] José R. Grande Allende,[8] Guillermo Huerta-Ramos,[9] Roberta K. Kojima,[10] Richard E. Miller,[11] Sushant More,[12] André L.C. Moreira,[13,14] Mayara Pastore,[15] Fernanda S. Petrongari,[10,16] Ponprom Pisuttimarn,[17] Pimwadee Pornpongrungrueng,[17] Joanna Rifkin,[18,19] Vinod B. Shimpale,[20] Marc S.M. Sosef,[21] John R. Stinchcombe[18] & Ana Rita G. Simões[2]**

1 *Conservation & Research Department, Atlanta Botanical Garden, 1345 Piedmont Ave NE, Atlanta, Georgia 30309, U.S.A.*
2 *Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE, United Kingdom*
3 *Departamento de Biologia, Laboratório de Sistemática Integrativa (LASI), Universidade Federal Rural de Pernambuco, Campus Dois Irmãos, CEP 52171-011, Recife, Pernambuco, Brazil*
4 *Systematic and Evolutionary Botany lab, Ghent University, K.L. Ledeganckstraat 35, 9000 Ghent, Belgium*
5 *Department of Ecology and Evolutionary Biology, Tulane University, New Orleans, Lousiana 70118, U.S.A.*
6 *Lycée Descartes, 1 Avenue Lavoisier, 92761 ANTONY CEDEX, France*
7 *Jardim Botânico de Porto Alegre (JBPA), Seção de Coleções, Secretaria do Meio Ambiente e Infraestrutura do Rio Grande do Sul, Avenida Salvador França 1427, CEP 90690-000, Porto Alegre, Rio Grande do Sul, Brazil*
8 *Universidad de Granada, Departamento de Botánica, Campus de Fuentenueva, Facultad de Ciencias, Granada 18071, Spain*
9 *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*
10 *Programa de Pós-Graduação em Biodiversidade Vegetal e Meio Ambiente, Instituto de Botânica, Av. Miguel Estefano 3687, Água Funda, CEP 04301-902, São Paulo, SP, Brazil*
11 *Flower Diversity Institute, 6100 Wadsworth Blvd, Arvada, Colorado 80003, U.S.A.*
12 *Parle Tilak Vidyalaya Association's Sathaye College, Mumbai, Maharashtra, India*
13 *Programa de Pós-Graduação em Botânica, Universidade de Brasília, Campus Darcy Ribeiro, CEP 70910-900, Brasília, Distrito Federal, Brazil*
14 *Faculdade de Educação, Universidade Federal da Bahia, Av. Reitor Miguel Calmon, s/n Canela, CEP 40110-100, Salvador, Bahia, Brazil*
15 *Programa de Pós-Graduação em Botânica Tropical, Museu Paraense Emílio Goeldi, Av. Perimetral 1901, Terra Firme, CEP 66077-830, Belém, Pará, Brazil*
16 *Núcleo de Pesquisa Curadoria do Herbário, Instituto de Botânica, Av. Miguel Estefano 3687, Água Funda, CEP 04301-902, São Paulo, SP, Brazil*
17 *Applied Taxonomic Research Center, Department of Biology, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand*
18 *Department of Ecology and Evolutionary Biology, The University of Toronto, 25 Willcocks St., Toronto, ON M5S 3B2, Canada*
19 *Ecology and Evolutionary Biology Department, University of Michigan, Ann Arbor, Michigan, U.S.A.*
20 *Department of Botany, The New College, Kolhapur, India*
21 *Meise Botanic Garden, Nieuwelaan 38, 1860 Meise, Belgium*
Address for correspondence: *Lauren Eserman, leserman@atlantabg.org*

**DOI** https://doi.org/10.1002/tax.13081

**Abstract** A proposal to change the conserved type of *Ipomoea* was published in December 2020, and recommended by the Nomenclature Committee in 2023. This was done in the light of the possible negative consequences for a name change in the crop sweetpotato, which risk our proposal would significantly minimize. Recently, Muñoz-Rodríguez & al. have published a rebuttal to this proposal, which we respond to here. The objections raised by these authors focus as much on the expertise and credibility of our group of authors as on the merits of our arguments. In this "rebuttal to the rebuttal", we respond to the scientific questions raised, highlight demonstrated misinterpretation of the specialised literature relevant to this discussion and counter the assertion that a reclassification of Ipomoeeae is impossible given existing evidence. While the currently recognised genera of Ipomoeeae are not all monophyletic, the proposal to change the conserved type of *Ipomoea* is a necessary step that will allow exploring an improved classification for the tribe Ipomoeeae, either in the form of a better recircumscription of the genera or an efficient infrageneric classification for *Ipomoea*. Previously published literature has not advocated for the integration of all genera into a single genus, as Muñoz-Rodríguez and co-authors have incorrectly suggested, and instead have recommended a reanalysis of the high morphological diversity of the group

**Article history:** Received: 13 Jul 2023 | returned for (first) revision: 10 Aug 2023 | (last) revision received: 5 Sep 2023 | accepted: 11 Sep 2023 | published online: 8 Oct 2023 | **Associate Editor:** Dirk C. Albach | © 2023 International Association for Plant Taxonomy.

in the context of expanded phylogenetic studies, with the possible maintenance of some of the existing genera. We believe that, in a concerted collaborative approach and with the contribution of experts from different regions and scientific backgrounds, an improved classification of Ipomoeeae that integrates the principles of monophyly and diagnosability may soon be achieved, and until when some uncertainty may need to be accommodated, with the added reassurance that, regardless of the direction of future systematic rearrangements, the stability of the scientific name of sweetpotato would be preserved.

**Keywords** Convolvulaceae; *Ipomoea*; Ipomoeeae; rebuttal

## ■ INTRODUCTION

On 29 May 2023, a "Rebuttal to '(2786) Proposal to change the conserved type of *Ipomoea*, nom. cons. (Convolvulaceae)'", by Pablo Muñoz-Rodríguez, John R.I. Wood, Tom Wells, Tom Carruthers, Alex Sumadijaya and Robert W. Scotland was published in *Taxon* (Muñoz-Rodríguez & al., 2023).

This publication presents an expression of disagreement with our previously published proposal to change the type of *Ipomoea* L. from *I. pes-tigridis* L. to *I. triloba* L. (Eserman & al., 2020), which was published in December 2020, and recommended by the Nomenclature Committee in February 2023, with the acknowledgement that "Regardless of the geographic distribution of the species that would lose the familiar generic name—for those who choose to adopt this division—the enormous economic, cultural, and scientific importance of *I. batatas* militates in favor of keeping the name *Ipomoea* for its half of the group. Therefore, conservation is recommended" (Applequist, 2023).

While we appreciate the opportunity for scientific discourse and welcome differing opinions on our proposal to change the type of *Ipomoea* (Eserman & al., 2020), we are compelled to address both the derogatory tone towards our group of authors as well as the rebuttal's scientific inconsistencies resulting from misinterpretation of existing literature.

## ■ REPLY AND DISCUSSION

Muñoz-Rodríguez & al. (2023: 644) state that "the majority [of the authors] have little to no experience of taxonomic or systematic research on *Ipomoea*". This condescending assertion dismisses the sizeable contribution to *Ipomoea* and Convolvulaceae systematics and taxonomy the authors have collectively produced over decades, especially on sweetpotato (*I. batatas* (L.) Lam.) and wild relatives. The many authors of our proposal (Eserman & al., 2020) are established nationally and internationally as experts in this field, and this is reflected in both their credentials and their publication records: in total, the authors (not "signatories", as incorrectly asserted) of our proposal have produced more than 100 publications on taxonomy and systematics of *Ipomoea*, sweetpotato, and wild relatives across the global distribution of the Ipomoeeae, and at a range of taxonomic scales: species, genus and family level.

Furthermore, taxonomy is integral to studies of evolution, agriculture, ecology, and many more fields, and considering the impact of the change in conserved type of *Ipomoea* for a range of fields, we strategically included contributions from experts in a variety of disciplines, all of whom have a strong stake in *Ipomoea* taxonomy. As such, our proposal integrates contributions from experts on taxonomy and systematics of the tribe Ipomoeeae, from different career stages and regions of the world where the group is most biodiverse, combined with viewpoints from experts in other fields of *Ipomoea* research, such as genetics, breeding, and ecology. Additionally, we incorporated the view of experts on the taxonomy of other plant groups who have faced similar problems (Eserman & al., 2020). These experts added diverse perspectives to the proposal and demonstrated its importance beyond taxonomy and systematics alone.

With this point addressed, we now discuss the scientific arguments raised by Muñoz-Rodríguez and co-authors. First, the authors of the rebuttal raise the inaccurate claim that the consequences of changing the type of *Ipomoea*, both in favour and against, have not been thoroughly discussed. Their claim is incorrect because specific "for" and "against" points were made in the original proposal (Eserman & al., 2020). We specifically outline the consequences of splitting *Ipomoea* into smaller genera were the type of *Ipomoea* to remain as *I. pes-tigridis* (in the Argyreiinae clade), specifically the number of potential name changes of economically and scientifically important species, e.g., *I. batatas*, and the destabilizing effect these name changes would have on the broader scientific and agricultural community for those who choose to adopt this division. Further, we present consequences of accepting the proposal to change the type to *I. triloba* (in the Astripomoeinae clade), specifically, the possibility to develop a new classification of the tribe Ipomoeeae while protecting the name of cultivated sweetpotato.

Second, Muñoz-Rodríguez & al. (2023: 644) assert that the proposal "is unnecessary because all previous attempts to recognise segregate genera within *Ipomoea* have been unsuccessful" and that "the proposal implies the continued acceptance and extension of a system of non-monophyletic and non-diagnosable genera nested within several hundreds of species of *Ipomoea*". We wholeheartedly disagree with these assertions and contend that the failures of previous attempts to segregate diagnosable, monophyletic genera within *Ipomoea* should not limit potential future scientific progress. To be clear, we do not support a system of non-monophyletic and non-diagnosable genera; suggesting that we do is a gross mischaracterization and misinterpretation of our proposal. Rather, our proposal is meant to support future taxonomic and systematic studies in the tribe Ipomoeeae, with the acknowledgement that skilled taxonomists will continue to grapple with this tangled clade. Additionally, diagnosable infrageneric groups have been proposed within *Ipomoea*, which have

later proved to be monophyletic in studies of molecular phylogenetics and have the potential to be resurrected as separate genera (e.g., the Arborescens group, McPherson, 1979, 1981; *Calonyction*, Gunn, 1972; McDonald, 1993; *Stictocardia*, Austin & Demissew, 1997). Arguing for the "impossibility" of reconciling monophyly and diagnosability in Ipomoeeae is, in our view, a simplistic view that dismisses key available literature in this taxonomic group and falls short of further exploring effective solutions, e.g., a more adequate generic recircumscription, or a comprehensive infrageneric classification.

Third, multiple factual errors are presented in the rebuttal by Muñoz-Rodríguez & al. (2023). The authors incorrectly assert that the clade names "Astripomoeinae" and "Argyreiinae" were based on a phylogenetic analysis of Ipomoeeae with reduced sampling by Eserman & al. (2014). However, the clade names were first presented by Stefanović & al. (2003) in a study to classify the family Convolvulaceae based on clades resolved in previous molecular phylogenetic studies (i.e., McDonald & Mabry, 1992; Wilkin, 1999; Miller & al., 1999, 2002; Manos & al., 2001; Stefanović & al., 2002). Furthermore, they state (p. 645) that "Only by using a poorly sampled and cherry-picked phylogeny of *Ipomoea* in the broad sense, not including any 'Argyreiinae' *Ipomoea* species (as by Simões & al., 2022), can an artificial split between *Ipomoea* and the current non-monophyletic segregate genera be misleadingly portrayed." Simões & al. (2022) not only included four species of the Argyreiinae clade, but also the study was not designed to assess relationships within the tribe Ipomoeeae but to provide a backbone phylogeny of the entire Convolvulaceae family. Considering that the tribe Ipomoeeae has been shown to be monophyletic for over 20 years (Manos & al., 2001; Stefanović & al., 2002), the sampling within this tribe was not relevant to the overall relationships at family level that this study was attempting to grasp. The split between these two major clades is not a recent conclusion but is a topology that has been repeatedly recovered in previous studies. In both of these two major clades, a large number of *Ipomoea* species is present, rendering the genus in its current circumscription polyphyletic. However, this does not obscure the fact that these two large clades, sister to each other, could be morphologically characterized in the future, with the possible generic reassignment of the *Ipomoea* species present in the Argyreiinae clade to another genus or multiple genera, if that is proved to be a suitable solution. Additionally, Muñoz-Rodríguez & al. (2023) cite Manos & al. (2001) as support for prior literature arguing for a single large *Ipomoea* and dismissal of recognizing the existing smaller genera. However, Manos & al. (2001) have never advocated for a single, large *Ipomoea*. Instead, they demonstrated that *Ipomoea* was not monophyletic and described the vast morphological variation within the group using the most updated phylogenetic hypothesis at the time. They also questioned whether several of the traditionally recognized genera were, in fact, monophyletic, and whether they share a suite of character states that would make them unique; they further suggested that future studies which would analyse morphological characters in an evolutionary context could result in the recognition of additional clades or subclades, not yet formally recognized, with unique combinations of morphological characteristics. Therefore, these authors did not, at any point, advocate for a reclassification of the tribe Ipomoeeae in which all species would be combined into *Ipomoea*, but instead left open the possibility for exploration of the morphological diversity of the group towards a better characterization of the resolved clades (Manos & al., 2001).

Finally, Muñoz-Rodríguez & al. (2023) assert that we do not provide a proposed new classification of Ipomoeeae. However, that is not a requirement of the proposal for change of the conserved type of *Ipomoea* and should not be an impediment to it. What we are proposing is a simple modification which will provide a solid foundation for future studies, allowing for reclassifications without undesirable nomenclatural effects such as a name change for sweetpotato. Taxonomic and systematic progress can be achieved through small adjustments as well as large-scale restructurings and may happen in a single move or a series of taxonomic moves over a long period of time. It is good practice to start the (re-)classification with a broad-scale phylogenetic hypothesis, after which clades can subsequently be characterized through reciprocal illumination between molecular phylogenetic hypotheses and pre-existing or newly observed morphological characters. For the tribe Ipomoeeae, such a broad-scale phylogenetic hypothesis has been published only recently (Muñoz-Rodríguez & al., 2019), and this work can be a valuable foundation for the classification of the tribe Ipomoeeae into manageable genera that are both monophyletic and recognizable by means of morphology. Precedents of such a prudent approach abound in the literature. For example, the reclassification of the large and polyphyletic genus *Polyalthia* Blume (Annonaceae), started with a broad-scale phylogeny (Mols & al., 2004), and it was only 16 years later that it was possible to fully reclassify the species of this genus into several other genera, some of which were newly described (e.g., Mols & al., 2008), while others were reinstated (Xue & al., 2012). Further examples exist in the literature of taxonomic revisions of large genera that required the submission of nomenclatural proposals to maximize the stability of classification (e.g., Van Welzen & al., 2009). Within Convolvulaceae, there is the example of the polyphyletic and morphologically highly variable genus *Merremia* Hallier f. (Simões & al., 2015; Simões & Staples, 2017). While a nomenclatural proposal was not necessary to advance with systematic studies of this group, it is a clear example where a large-scale generic reclassification was possible with an integrative approach that combined molecular phylogenetics and morphological evidence. This is also a possible outcome for Ipomoeeae, given the available evidence and the examples of success in other genera with similar systematic challenges.

## ■ CONCLUSIONS

Muñoz-Rodríguez & al. (2023: 644) discredit our proposal by claiming that "the majority [of the authors] have little

to no experience of taxonomic or systematic research on *Ipomoea*", which has no factual basis, considering the demonstrated collective expertise of our group of authors, and projects a discriminating tone that we consider unhealthy to the scientific debate. We counter that our proposal is strengthened by diverse perspectives from Ipomoeeae researchers from around the world, from different career stages and with expertise in multiple disciplines, as well as experts from other taxonomic groups who have grappled with complex taxonomic issues in their own study systems. We believe the future of the systematics of this intricate taxonomic group will be collaborative and inclusive.

From a scientific standpoint, our proposal to change the type of *Ipomoea* has been contested by Muñoz-Rodríguez & al. (2023) on the basis that (1) it is unnecessary, (2) it will bring no more nomenclatural stability to the group than their proposal to merge all the existing genera into *Ipomoea*; (3) a reclassification of the tribe Ipomoeeae that respects monophyly and morphological diagnosability of clades or genera has not yet been proposed and/or is not possible. We argue that changing the conserved type of *Ipomoea* is the necessary step that will open avenues for a reassessment of the current non-monophyletic genera in Ipomoeeae, some of which seem to have a unique suite of morphological characters, as discussed in previous literature, and be broadly reclassified based on an integrative approach, as has been successfully done in other groups.

We are enthusiastic with the prospect that a much-needed new classification of Ipomoeeae will soon be possible by integrating several sources of evidence (molecular phylogenetics, morphological, palynological, and others) and incorporating contributions of a diverse group of authors with good knowledge of the species and genera involved, worldwide. While Muñoz-Rodríguez & al. (2023) are entitled to disagree with the need to reclassify Ipomoeeae, or may not be confident that this is achievable, our efforts are now focused on making positive progress on the systematics of tribe Ipomoeeae, which is the greater challenge.

## ■ AUTHOR CONTRIBUTIONS

All authors contributed to the ideas and writing of the work presented in this article. — LAE, https://orcid.org/0000-0002-0208-6632; MTB, https://orcid.org/0000-0001-9615-2057; LWC, https://orcid.org/0000-0003-0131-0302; KC, https://orcid.org/0000-0002-3956-0887; TED, https://orcid.org/0000-0002-2119-4524; PPAF, https://orcid.org/0000-0003-1134-7918; JRGA, https://orcid.org/0000-0002-7066-0608; GH-R, https://orcid.org/0000-0002-8209-0366; RKK, https://orcid.org/0000-0002-8538-8694; REM, https://orcid.org/0000-0002-5802-2267; SM, https://orcid.org/0000-0002-7712-7785; ALCM, https://orcid.org/0000-0003-0862-0135; MP, https://orcid.org/0000-0002-2936-8920; FSP, https://orcid.org/0000-0002-8380-843X; PPisuttimarn, https://orcid.org/0000-0003-1746-1439; PPornpongrungrueng, https://orcid.org/0000-0002-7998-2064; JR, https://orcid.org/0000-0003-1980-5557; VBS, https://orcid.org/0000-0002-7028-1114; MSMS, https://orcid.org/0000-0002-6997-5813; JRS, https://orcid.org/0000-0003-3349-2964; ARGS, https://orcid.org/0000-0001-7267-8353

## ■ ACKNOWLEDGEMENTS

We are grateful to Bob Jarret for thoughtful comments on this manuscript.

## ■ LITERATURE CITED

**Applequist, W.L.** 2023. Report of the Nomenclature Committee for Vascular Plants: 73. *Taxon* 72: 179–204. https://doi.org/10.1002/tax.12871.

**Austin, D.F. & Demissew, S.** 1997. Unique fruits and generic status of *Stictocardia* (Convolvulaceae). *Kew Bull.* 52(1): 161–169. https://doi.org/10.2307/4117848

**Eserman, L.A., Tiley, G.P., Jarret, R.L., Leebens-Mack, J.H. & Miller, R.E.** 2014. Phylogenetics and diversification of morning glories (tribe Ipomoeeae, Convolvulaceae) based on whole plastome sequences. *Amer. J. Bot.* 101: 92–103. https://doi.org/10.3732/ajb.1300207

**Eserman, L.A., Sosef, M.S.M., Simão-Bianchini, R., Utteridge, T.M.A., Barbosa, J.C.J., Buril, M.T., Chatrou, L.W., Clay, K., Delgado, G., Desquilbet, T.E., Ferreira, P.P.A., Grande A., José R., Hernández, A.L., Huerta-Ramos, G., Jarret, R.L., Kojima, R.K., Landrein, S., Lourenço, J.A.A.M., De Man, I., Miller, R.E., More, S., Moreira, A.L.C., Mwanga-Mwanga, I., Nhanala, S., Pastore, M., Petrongari, F.S., Pisuttimarn, P., Pornpongrungrueng, P., Rifkin, J., Santos, F.D.S., Shimpale, V.B., Silva, S.S., Stinchcombe, J.R., Traiperm, P., Vasconcelos, L.V., Wang, M.L., Villordon, A., Yang, J., Yencho, G.C., Heider, B. & Simões, A.R.G.** 2020. Proposal to change the conserved type of *Ipomoea*, nom. cons. (Convolvulaceae). *Taxon* 69: 1369–1371. https://doi.org/10.1002/tax.12400

**Gunn, C.R.** 1972. Moonflowers, *Ipomoea* section *Calonyction*, in temperate North America. *Brittonia* 24: 150–168. https://doi.org/10.2307/2805866

**Manos, P.S., Miller, R.E. & Wilkin, P.** 2001. Phylogenetic analysis of *Ipomoea*, *Argyreia*, *Stictocardia*, and *Turbina* suggests a generalized model of morphological evolution in morning glories. *Syst. Bot.* 26: 585–602. https://doi.org/10.1043/0363-6445-26.3.585

**McDonald, J.A.** 1993. A new species of *Ipomoea* (Convolvulaceae) from Costa Rica and notes on the circumscription of section *Calonyction* (Choisy) Griseb. *Harvard Pap. Bot.* 1: 53–56.

**McDonald, J.A. & Mabry, T.J.** 1992. Phylogenetic systematics of New World *Ipomoea* (Convolvulaceae) based on chloroplast DNA restriction site variation. *Pl. Syst. Evol.* 180: 243–259. https://doi.org/10.1007/BF00941155

**McPherson, G.D.** 1979. *Studies in the genus Ipomoea*. Ph.D. dissertation. University of Michigan, Ann Arbor, Michigan, U.S.A.

**McPherson, G.D.** 1981. Studies in *Ipomoea* (Convolvulaceae) I. The *Arborescens* Group. *Ann. Missouri Bot. Gard.* 68: 527–545. https://doi.org/10.2307/2398887

**Miller, R.E., Rausher, M.D. & Manos, P.S.** 1999. Phylogenetic systematics of *Ipomoea* (Convolvulaceae) based on ITS and *waxy* sequences. *Syst. Biol.* 24: 209–227. https://doi.org/10.2307/2419549

**Miller, R.E., Buckley, T.R. & Manos, P.S.** 2002. An examination of the monophyly of morning glory taxa using Bayesian phylogenetic inference. *Syst. Biol.* 51: 740–753. https://doi.org/10.1080/10635150290102401

**Mols, J.B., Gravendeel, B., Chatrou, L.W., Pirie, M.D., Bygrave, P.C., Chase, M.W. & Kessler, P.J.A.** 2004. Identifying clades in Asian Annonaceae: Monophyletic genera in the polyphyletic Miliuseae. *Amer. J. Bot.* 91: 590–600. https://doi.org/10.3732/ajb.91.4.590

**Mols, J.B., Kessler, P.J.A., Rogstad, S.H. & Saunders, R.M.K.** 2008. Reassignment of six *Polyalthia* species to the new genus *Maasia*

(Annonaceae): Molecular and morphological congruence. *Syst. Bot.* 33: 490–494. https://doi.org/10.1600/036364408785679752

**Muñoz-Rodríguez, P., Carruthers, T., Wood, J.R.I., Williams, B.R.M., Weitemier, K., Kronmiller, B., Goodwin, Z., Sumadijaya, A., Anglin, N.L., Filer, D., Harris, D., Rausher, M.D., Kelly, S., Liston, A. & Scotland, R.W.** 2019. A taxonomic monograph of *Ipomoea* integrated across phylogenetic scales. *Nature Pl.* 5: 1136–1144. https://doi.org/10.1038/s41477-019-0535-4

**Muñoz-Rodríguez, P., Wood, J.R.I., Wells, T., Carruthers, T., Sumadijaya, A. & Scotland, R.W.** 2023. Rebuttal to "(2786) Proposal to change the conserved type of *Ipomoea*, nom. cons. (Convolvulaceae)". *Taxon* 72: 644–646. https://doi.org/10.1002/tax.12976

**Simões, A.R.G. & Staples, G.** 2017. Dissolution of Convolvulaceae tribe Merremieae and a new classification of the constituent genera. *Bot. J. Linn. Soc.* 183: 561–586. https://doi.org/10.1093/botlinnean/box007

**Simões, A.R.G., Culham, A. & Carine, M.** 2015. Resolving the unresolved tribe: A molecular phylogenetic framework for the Merremieae (Convolvulaceae). *Bot. J. Linn. Soc.* 179: 374–387. https://doi.org/10.1111/boj.12339

**Simões, A.R.G., Eserman, L.A., Zuntini, A.R., Chatrou, L.W., Utteridge, T.M.A., Maurin, O., Rokni, S., Roy, S., Forest, F., Baker, W.J. & Stefanović, S.** 2022. A bird's eye view of the systematics of Convolvulaceae: Novel insights from nuclear genomic data. *Frontiers Pl. Sci. (Online journal)* 13: 889988. https://doi.org/10.3389/fpls.2022.889988

**Stefanović, S., Krueger, L. & Olmstead, R.G.** 2002. Monophyly of the Convolvulaceae and circumscription of their major lineages based on DNA sequences of multiple chloroplast loci. *Amer. J. Bot.* 89: 1510–1522. https://doi.org/10.3732/ajb.89.9.1510

**Stefanović, S., Austin, D.F. & Olmstead, R.G.** 2003. Classification of Convolvulaceae: A phylogenetic approach. *Syst. Bot.* 28: 791–806.

**Van Welzen, P.C., Kulju, K.K.M. & Sierra, S.E.C.** 2009. How to tackle revisions of large genera: Lessons from *Macaranga* and *Mallotus* (Euphorbiaceae). *Blumea* 54: 25–28. https://doi.org/10.3767/000651909X474078

**Wilkin, P.** 1999. A morphological cladistic analysis of the Ipomoeeae (Convolvulaceae). *Kew Bull.* 54: 853–876. https://doi.org/10.2307/4111164

**Xue, B., Su, Y.C.F., Thomas, D.C. & Saunders, R.M.K.** 2012. Pruning the polyphyletic genus *Polyalthia* (Annonaceae) and resurrecting the genus *Monoon*. *Taxon* 61: 1021–1039. https://doi.org/10.1002/tax.615009