

April 22, 2020

The Genus *Brassiopsis* Szlachetko & Górniak (Orchidaceae) in Colombia.

Carlos Uribe-Velez¹ and Ruben P. Sauleda²

¹Calle 115 #5-23 Bogota, Colombia.

²6442 SW 107 Ct. Miami, Fl, 33173.

Abstract

The species of *Brassiopsis* Szlachetko & Górniak in Colombia are enumerated and an additional species of *Brassia* R. Br. is transferred to the genus.

John Lindley established the genus *Ada* in Folia Orchidaceae (1883-1854) based on *Ada aurantiaca*, a Colombian species. Lindley divided the genus *Brassia*, established in Hortus Kewensis 1813 by Robert Brown, into two sections, *Eubrassia* and *Glumaceae*. Williams (1972) emended the genus as described by Lindley to include species in the *Brassia* section *Glumaceae*. Based on Williams (1972) the genus *Ada* consists of eight species: *Ada aurantiaca*, *Ada farinifera*, *Ada chlorops*, *Ada elegantula*, *Ada allenii*, *Ada keiliana*, *Ada glumacea* and *Ada ocanensis*. Williams (1972) based his results on morphological analysis.

Neubig *et al.* (2012) compare 26 species, which are listed as species of *Brassia*. In the results the 26 species fall into 4 groups, which they identify as *Ada*, *Mesospinidium*, *Brassia* and *Brachtia*. These results clearly separate the species sampled into the four distinct genera. However, Neubig *et al.* (2012) based on the molecular data concludes that *Ada* is not monophyletic because *Ada allenii* (L. O. Williams ex C. Schweinf.) N. H. Williams is “sister to *Mesospinidium*. Florally, *Mesospinidium* are small versions of *Ada*. Given the shared suite of floral morphologies and habits and aberrant phylogenetic position of *Ada allenii*, lumping them all into *Brassia* seems the simplest solution”.

Additional confusion has resulted when Pridgeon *et al.* (2014) stated: Szlachetko and Górniak (2006) published *Brassiopsis* for the glumaceous species (*Brassia*), which they segregated from *Ada*, the type of which is *A. aurantiaca*, but this transfer does not provide for monophyly, even of the new genus in which *A. aurantiaca* is embedded. The earlier name, *Oncodia*, should have been used instead of describing a new genus, *Brassiopsis*; The type species of *Oncodia* is *O. glumacea*, which Szlachetko & Górniak (2006) transferred to *Brassiopsis* (MC).” *Ada aurantiaca* is not included in the new genus *Brassiopsis*.

When Lindley (1853) described the genus *Oncodia* he stated: In habit this resembles somewhat such plants as *Brassia glumacea*; but in structure it is extremely different”. Lindley continues to enumerate the differences.

Lindley (1843) had earlier described *Brassia glumacea* a totally different species from *Oncodia glumacea* as he indicated. Szlachetko & Górniak (2006) transferred *Brassia glumacea* to *Brassiopsis*, not *Oncodia glumacea* as indicated in Pridgeon *et al.* (2014). In addition, *Oncodia* is based on *Brachtia glumacea* Rchb. f., making *Oncodia* a synonym of *Brachtia* Rchb. f.

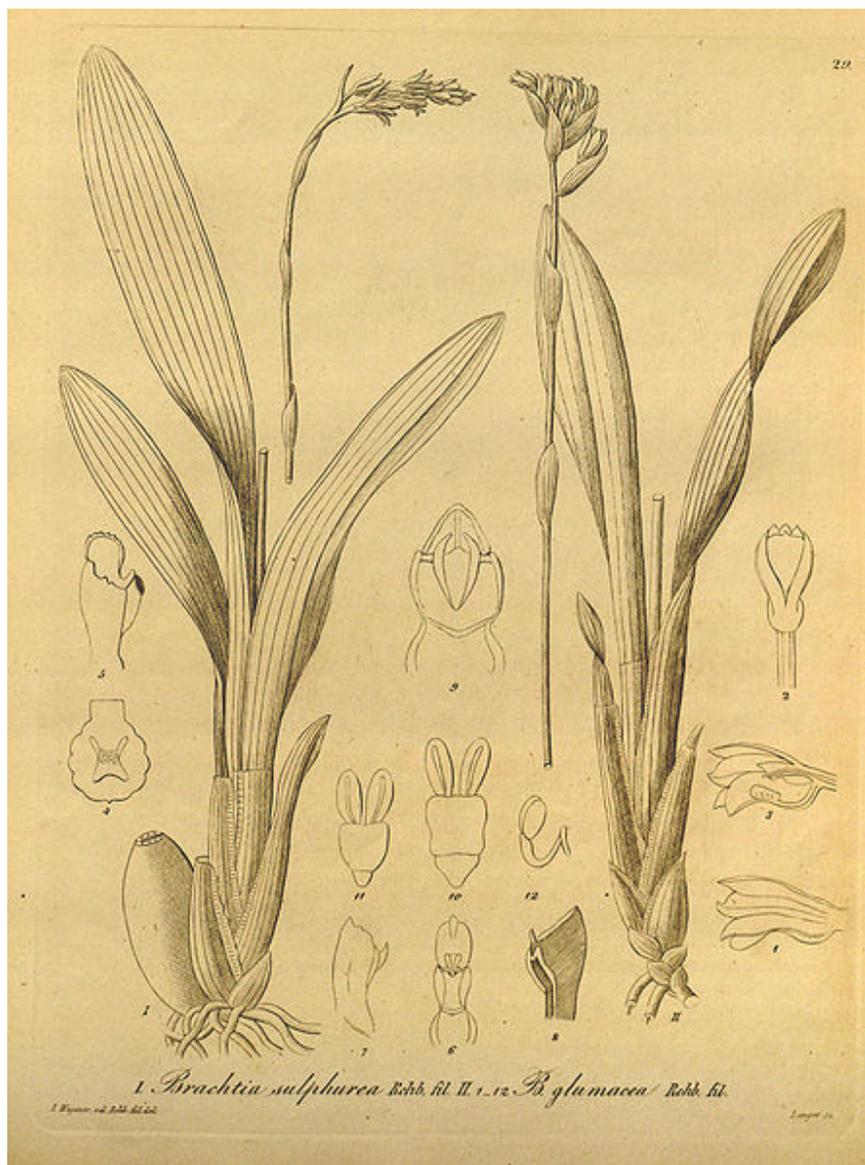


Illustration of *Brachtia glumacea* Rchb. in *Xenia Orchidacea*, vol. 1, pl. 29. 1858.

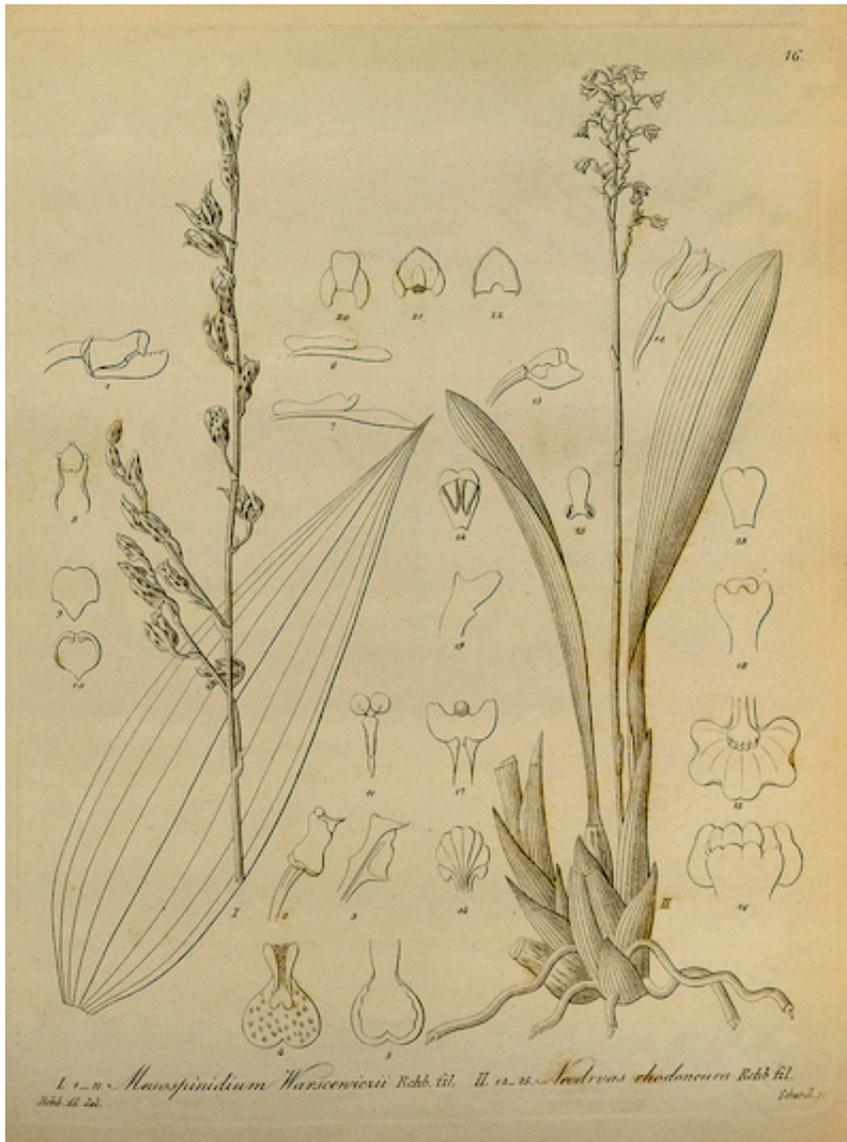


Illustration of *Mesospinidium warszewiczii* Rehb. f. type species in *Xenia Orchidacea*, vol. 1, pl. 16. 1858.

Szlachetko & Górnjak (2006) removed the *Glumaceae* species of *Brassia* from *Ada* and established a new genus *Brassiopsis* Szlachetko & Górnjak for these species, thus leaving *Ada* again as a monotypic genus. Szlachetko & Górnjak cite pollinarium organization, especially tegula morphology as a distinguishing character of the genus. They cite that the bright orange color of the flowers of *Ada* indicate hummingbird pollination, where *Brassia* and the new genus *Brassiopsis* have colors which indicate wasps pollinate them.

If a group of species is different from the genus they are included in, then they should be removed and placed in a new genus, not emend an existing genus to accommodate these species. Szlachetko & Górnjak established a new genus *Brassiopsis* Szlach. & Górnjak, *Biodivers. Res. Conservation* 1-2: 12 (2006) for the *Glumaceae* species of *Brassia* that Williams (1972) transferred to *Ada*.

The molecular analysis of Neubig *et al.* (2012) clearly groups the 26 species sampled into the 4 genera they had previously been placed. This grouping is further supported by the earlier results of the molecular analysis of Chase & Palmer (1992) and Williams *et al.* (2001). Our interpretation of this molecular data combined with the morphological study of Williams (1972), the study of Szlachetko & Górniak (2006) and our observations of live material of both *Ada*, *Brassiopsis* and *Brassia* species leads us to accept the separation of *Brassiopsis* (*Glumaceae* species of *Brassia*) from *Ada* and the separation of *Brachtia* Rchb. f. and *Mesospinidium* Rchb. f. from *Brassia*.

The differences, which can be used to separate the genera, are the pollinarium organization, especially tegula morphology as indicated by Szlachetko & Górniak (2006) and the lamellae on the labellum. *Brassia* usually have two parallel lamellae, *Brassiopsis* have two parallel lamellae always terminating with two tooth-like projections. *Ada* has two parallel shallow lamellae with two small tooth-like projections near the apex of the lamellae, which are confluent on the disc of the labellum.



Brachtia glumacea Rchb. f. type species.
Photograph courtesy of Nicolas Gutierrez.



Brachtia andenia Rchb. f.



Mesospinidium incantans Rchb. f.



Brassia with two parallel lamellae on labellum.

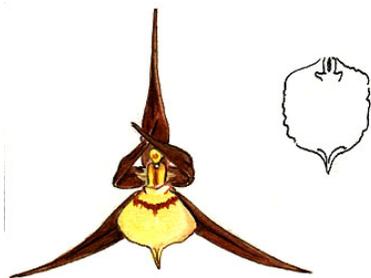


Brassiopsis with two parallel lamellae on labellum. terminated with two tooth-like projections.

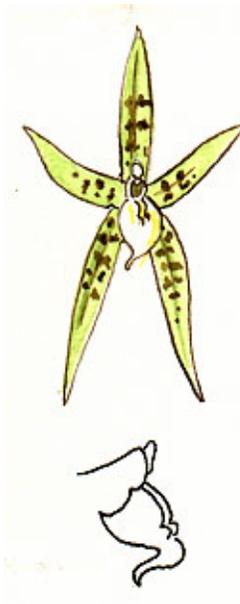


Ada aurantiaca with parallel lamellae on labellum extending full length of labellum with tooth-like projections near center of lamellae. Photograph courtesy of Luis Carlos Piña.

The following are illustrations from the archive of Pedro Ortiz Valdieso and photographs of the author of the species of *Brassiopsis* Szlach. & Górnjak found in Colombia.

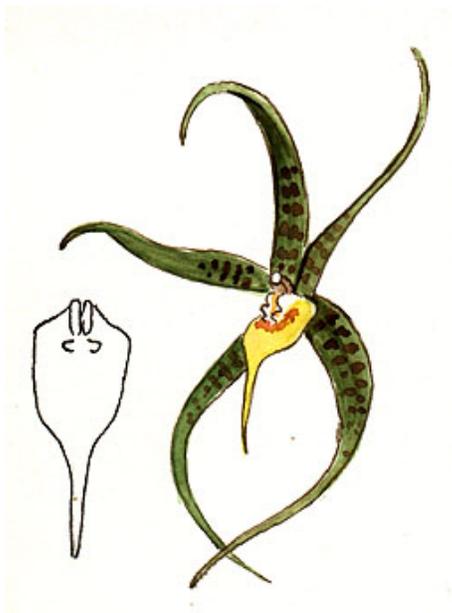


Brassiopsis allenii (L. O. Williams ex C. Schweinf.) Szlach. & Górnjak.
Ada allenii (L. O. Williams ex C. Schweinf.) N. H. Williams.



Brassiopsis elegantula (Rchb. f.) Szlach. & Górnjak.
Ada elegantula (Rchb. f.) N. H. Williams.

WCSP (2018) lists *A. elegantula* in Colombia as a synonym of *Brassia euodes* Rchb. f. However, *B. elegantula* clearly demonstrates the callus structure of a *Brassiopsis* and *Brassia euodes* Rchb. f. demonstrates the typical callus of a *Brassia* and clearly is morphologically different from *B. elegantula*.



Ada escobariana (Garay) Dodson.

Brassia escobariana Garay.

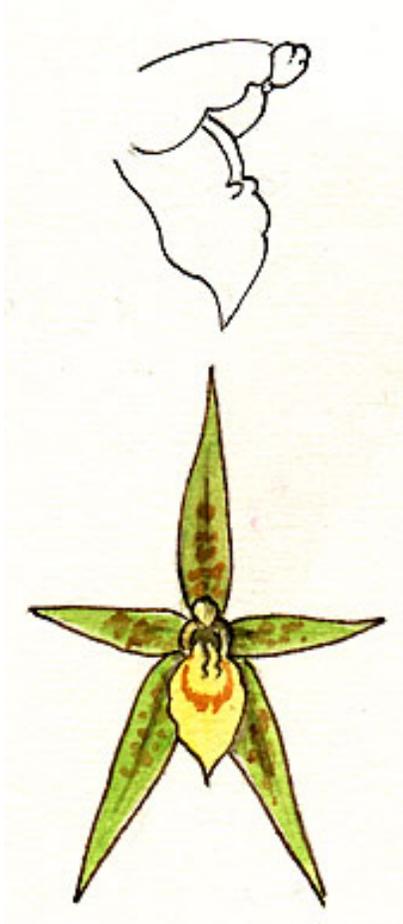
Brassiopsis escobariana (Garay) Uribe-Velez & Sauleda.

Brassia escobariana clearly demonstrates the callus structure of a *Brassiopsis* but has not been transferred to the genus *Brassiopsis*.

We here make the transfer:

Brassiopsis escobariana (Garay) Uribe-Velez & Sauleda, *comb. nov.*

Basionym: *Brassia escobariana* Garay, 1973. *Orquideología*; *Revista de la Sociedad Colombiana de Orquideología* 8: 57.



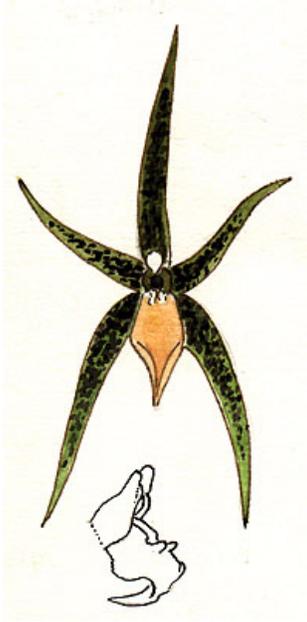
Brassiopsis glumacea (Lindl.) Szlach. & Górnjak.
Basionym: *Brassia glumacea* Lindl., *Orchidaceae Lindenianae*. P. 17. 1846.
(not *Oncodia glumacea* Lindl.)
Ada glumacea (Lindl.) N. H. Williams.



Brassiopsis keiliana (Rchb. f. ex Lindl.) Szlach. & Górnjak.
Ada keiliana (Rchb. f. ex Lindl.) N. H. Williams.



Brassiopsis keiliana (Rchb. f. ex Lindl.) Szlach. & Górnjak.

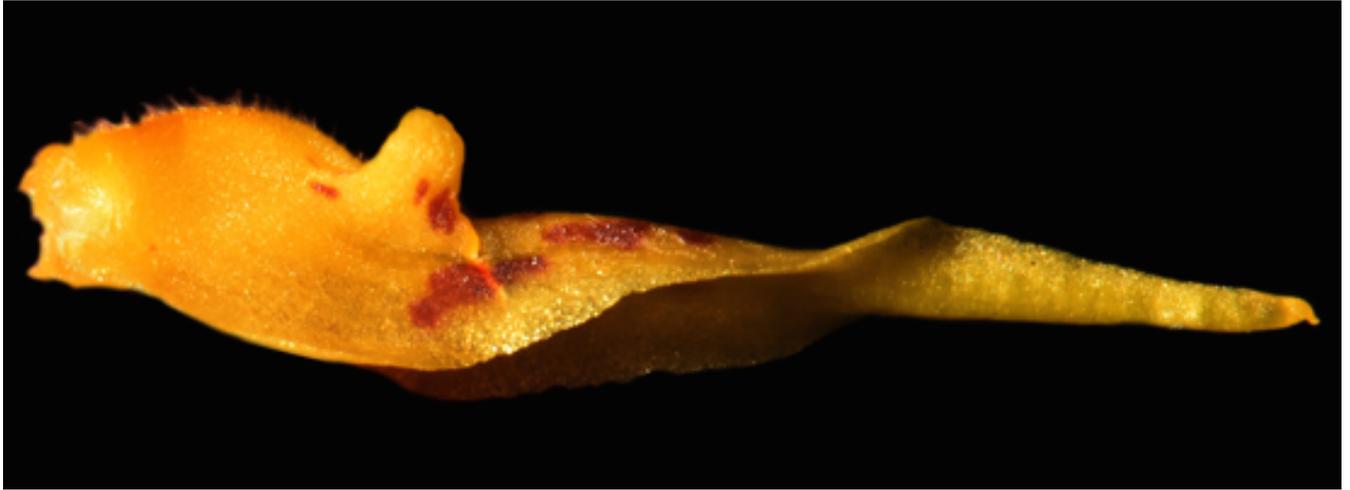


Brassiopsis ocanensis (Lindl.) Szlach. & Górnjak.
Ada ocanensis (Lindl.) N. H. Williams.

7



Brassiopsis colombiana Saulea & Uribe-Velez.



Brassiopsis colombiana Saulea & Uribe-Velez detail of lamellae on labellum.

Literature Cited

Chase, M. W. and J. D. Palmer. 1992. Floral morphology and chromosome number in Subtribe *Oncidiinae* (Orchidaceae): evolutionary insights from a phylogenetic analysis of chloroplast DNA restriction site variation. Pp. 340–359 in P. S. Soltis, D. E. Soltis, & J. J. Doyle, eds. *Molecular Systematics of Plants*. Chapman and Hall, London.

Lindley, J. 1853. *Folia orchidacea*, an enumeration of the known species of orchids, Volume 1, Part 4.

Neubig, K. M., W. M. Whitten, N. H. Williams, M. A. Blanco, L. Endara, J. G. Burleigh, K. Silvera, J. C. Cushman and M. W. Chase. 2012. Generic recircumscriptions of *Oncidiinae* (Orchidaceae: *Cymbidieae*) based on maximum likelihood analysis of combined DNA datasets. *Botanical Journal of the Linnean Society*, 2012, 168, 117–146. With 12 figures.

Pridgeon, A. M., P. J. Cribb, M. W. Chase, F. N. Rasmussen. 2014. *Genera Orchidacearum* Volume 6: Epidendroideae (Part 3). Oxford.

Szlachetko, D. L. and M. Górniak. 2006. New taxa in the subtribe *Oncidiinae* (Orchidaceae). *Biodiv. Res. Conserv.* 1-2: 11-13.

WCSP. 2018. *World Checklist Of Selected Plant Families*. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet.

Williams, N. H. 1972. A Reconsideration of *Ada* and the *Glumaceous* Brassias (Orchidaceae). *Brittonia*. 24. 93-110. 10.2307/2805551.

Williams, N. H., M. W. Chase, T. Fulcher, & W. M. Whitten. 2001. Molecular systematics of the *Oncidiinae* based on evidence from four DNA sequence regions: expanded circumscriptions of *Cyrtochilum*, *Erycina*, *Otoglossum*, and *Trichocentrum* and a new genus (Orchidaceae). *Lindleyana* 16(2): 113–139.