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Nomenclatural notes on Laeliinae-VIII. Overlooked new combinations in *Cattleya*, and new infrageneric nothotaxa

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ABSTRACT

During standard taxonomic practice, I have found some names published in *Hoffmannseggella* that were overlooked by indexation in both International Plant Names Index (IPNI) and World Checklist of Selected Plant Families (WCSPF). In order to keep the taxonomy up to date, I provide new combinations for these taxa, all belonging to *Cattleya* series *Parviflorae.* I also propose new infrageneric nothotaxa in *Cattleya* to accommodate nothospecies between different infrageneric taxa.

1 | INTRODUCTION

Cattleya Lindl. (Orchidaceae) is currently recognized by most indexes in its expanded version (sensu van den Berg 2008), which includes *Sophronitis* Lindl. and the Brazilian species previously placed in *Laelia* Lindl., that were taxonomically dispersed in various genera by Chiron & Castro (2002). These species correspond to subgenus *Cattleya* section *Crispae* (Pfitzer) Van den Berg (van den Berg 2014), which in turn is divided in five series (*Cattleya* ser. *Cattleyodes, Cattleya* ser. *Hadrolaelia, Cattleya* ser. *Microlaelia*, *Cattleya* ser. *Parviflorae* and *Cattleya* ser. *Sophronitis*).

Cattleya series *Parviflorae* is the largest infrageneric taxon in *Cattleya,* with some species of broad distribution and many mostly rupicolous and endemic species. They generally have succulent, thickened pseudobulbs, a single leaf, and relatively long inflorescences with small flowers compared to the remaining of the genus. When the full infraspecific taxonomy of *Cattleya* was proposed (van den Berg 2014) the list included 47 species in this series. After that, van den Berg (2016) transferred *Cattleya locatellii* (F.E.L.Miranda) Van den Berg, and van den Berg (2018) transferred *Cattleya aracuaiensis* (Campacci & E.L.F.Menezes) Van den Berg, *Cattleya guaicuhyensis* (Rosim) Van den Berg, *Cattleya haroldoi* (V.P.Castro & E.L.F.Menezes) Van den Berg, *Cattleya havenithii* (Campacci & E.L.F.Menezes) Van den Berg, *Cattleya neocardimii* (Rosim) Van den Berg and *Cattleya novyi* (E.L.F.Menezes) Van den Berg. Furthermore, Shaw (2016) transferred *Cattleya campaccii* (P.A.Harding & Bohke) J.M.H.Shaw, *Cattleya nevesiana* (V.P.Castro & K.G.Lacerda) J.M.H.Shaw and *Cattleya nevesii* (Campacci) J.M.H.Shaw, bringing the total species in the series to 57.

van den Berg – New combinations and nothotaxa in *Cattleya*

Recently, I found some obscure *Hoffmannseggella* names that were not transferred to *Cattleya* probably because they were not indexed in the International Plant Names Index (IPNI) and World Checklist of Selected Plant Families (WCSPF). Here I present new combinations for three of them, and a replacement name for *Hoffmannseggella zaslawskii* V.P.Castro, since the name was previously occupied in *Cattleya* by *Cattleya* × *zaslawskii* (L.C.Menezes) Van den Berg. I also combine *Cattleya aromatica* (Rosim & E.L.F.Menezes) and *C.* × *dolteana* (Rosim) Van den Berg, which is the natural hybrid between *C. ghillanyi* (Pabst) Van den Berg (van den Berg 2008: 7) and *C. neocardimii* (Rosim) Van den Berg (van den Berg 2018: 2).

After publishing most of the combinations necessary to keep *Cattleya* monophyletic (van den Berg 2008), the missing natural hybrids within the genus and with other genera were transferred (van den Berg 2010, 2018). In 2014 there were at least 89 natural hybrids described within the genus and five have been described since (van den Berg 2013, 2014; reproduced in Fig. 1). However, the appropriate infrageneric taxa required to accommodate these nothospecies have not been provided. Thus I propose here three nothoseries for hybrids between series, seven nothoseries for hybrids between series and other infrageneric ranks, and two nothosections for hybrids between sections and subgenera. This is in accordance with the Code of Nomenclature of Algae, Fungi and Plants (Shenzen Code, Turland et al. 2018) that indicates that when nothotaxa are of unequal ranks, the name for the hybrid should be published at the lowest rank between the parent taxa.

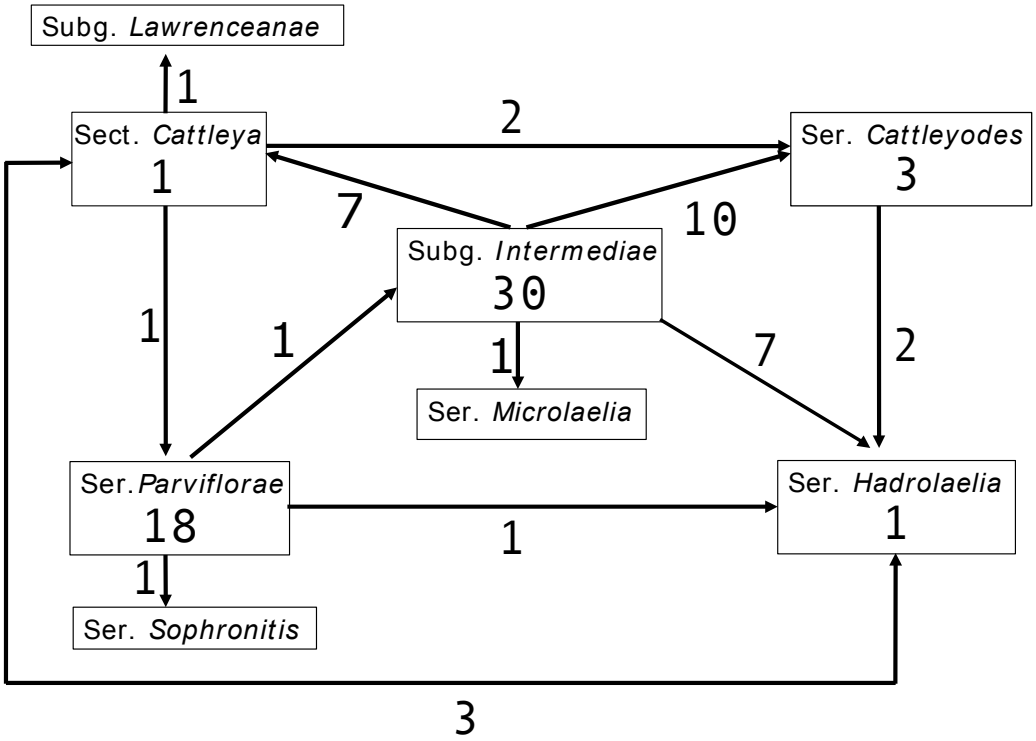

Figure 1. Frequency of natural hybrids between different infrageneric taxa of *Cattleya* (Orchidaceae). Updated from van den Berg (2014).

2 | TAXONOMY

New combinations in *Cattleya*

Cattleya aromatica (Rosim & E.L.F.Menezes) Van den Berg, ***comb. nov.***
Basionym: *Hoffmannseggella aromatica* Rosim & E.L.F.Menezes, Coletânea de Orquídeas Brasileiras 15: 602. 2019.

Cattleya adelinae (V.P.Castro) Van den Berg, ***comb. nov.***
Basionym: *Hoffmannseggella adelinae* V.P.Castro & E.L.F.Menezes, Boletim CAOB 97/98: 33. 2015.

Cattleya cruziana (V.P.Castro & E.L.F.Menezes) Van den Berg, ***comb. nov.***
Basionym: *Hoffmannseggella cruziana* V.P.Castro & E.L.F.Menezes, Boletim CAOB 97/98: 29. 2015.

Cattleya × dolteana (Rosim) Van den Berg, ***comb. nov.***
Basionym: *Hoffmannseggella × dolteana* Rosim, Coletânea de Orquídeas Brasileiras 15: 606. 2019.

Cattleya lourdesiana (V.P.Castro) Van den Berg, ***comb. nov.***
Basionym: *Hoffmannseggella lourdesiana* V.P.Castro, Boletim CAOB 93: 28. 2014.

Cattleya neozaslawskii Van den Berg, ***nom. nov.***
Basionym: *Hoffmannseggella zaslawskii* V.P.Castro, Boletim CAOB 92: 136. 2013.

New infrageneric taxa to accomodate natural hybrids in equal ranks

The first three names proposed are nothoseries within sect. *Crispae* (Pfitzer) Van den Berg (in van den Berg 2014). These and the remaining names have their authorities and publication data in Table 1, to avoid repetitions in each formula.

Cattleya nothoser. ***Hadrocattleyodes*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Hadrolaelia* × *Cattleya* ser. *Cattleyodes*

Cattleya nothoser. ***Hadroparviflorae*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Hadrolaelia* × *Cattleya* ser. *Parviflorae*

Cattleya nothoser. ***Parvinitis*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Parviflorae* × *Cattleya* ser. *Sophronitis*

New infrageneric taxa to accomodate natural hybrids between unequal ranks

Cattleya nothoser. ***Cattleyocattleya*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Cattleyodes* × *Cattleya* sect. *Cattleya*

Cattleya nothoser. ***Hadrocattleya*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Hadrolaelia* × *Cattleya* sect. *Cattleya*

Table 1. Publication data for infrageneric names that are used in the hybrid formulas of the of the new hybrid infrageneric taxa proposed in the current paper.

Name	Authors	Reference
Cattleya sect. *Cattleya*	autonym	
Cattleya ser. *Cattleyodes*	(Schltr.) Van den Berg	van den Berg (2014: 79)
Cattleya subg. *Intermediae*	(Cogn.) Withner	Withner (2000: 168)
Cattleya subg. *Lawrenceanae*	Van den Berg	van den Berg (2014: 82)
Cattleya ser. *Hadrolaelia*	(Schltr.) Van den Berg	van den Berg (2014: 81)
Cattleya ser. *Microlaelia*	(Schltr.) Van den Berg	van den Berg (2014: 81)
Cattleya ser. *Parviflorae*	(Lindl.) Van den Berg	van den Berg (2014: 82)
Cattleya ser. *Sophronitis*	(Lindl.) Van den Berg	van den Berg (2014: 82)

Cattleya nothoser. ***Hadrointermediae*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Hadrolaelia* × *Cattleya* subg. *Intermediae*

Cattleya nothosect. ***Intercattleya*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* subg. *Intermediae* × *Cattleya* sect. *Cattleya*

Cattleya nothoser. ***Interleyodes*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* subg. *Intermediae* × *Cattleya* ser. *Cattleyodes*

Cattleya nothosect. ***Lawrenceya*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* subg. *Lawrenceanae* × *Cattleya* sect. *Cattleya*

Cattleya nothoser. ***Microintermediae*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Microlaelia* × *Cattleya* subg. *Intermediae*

Cattleya nothoser. ***Parvintermediae*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Parviflorae* × *Cattleya* subg. *Intermediae*

Cattleya nothoser. ***Parvicattleya*** Van den Berg, **nothoser. nov.**
Hybrid formula: *Cattleya* ser. *Parviflorae* × *Cattleya* sect. *Cattleya*

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