

NEW COMBINATIONS IN THE GENUS *CATTLEYA* LINDL. (ORCHIDACEAE)

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ABSTRACT

New combinations and names are proposed in *Cattleya* to accommodate species previously assigned to *Laelia* and *Sophranitis*. These are needed in order to maintain the monophyly of the genus in light of recent phylogenetic hypotheses. Comments on nomenclatural problems are also provided where necessary.

Since van den Berg et al. (2000) published sequence data of ITS nuclear DNA, it became clear that the Brazilian species of *Laelia* Lindl. did not belong with the Mexican group of species that include the type of the genus; they were related to a completely different group. The initial solution proposed was to place them in *Sophranitis* Lindl. (van den Berg & Chase 2000, 2001). Other authors, however, preferred to split these species into several segregate genera (Chiron & Castro 2002).

Recent DNA studies with nine plastid regions (van den Berg, in prep.) plus the ITS dataset (van den Berg et al. 2000) indicate that even though *Sophranitis s.l.* is always recovered using different molecular datasets, the relationships among this group, *Cattleya* Lindl., and *Brassavola* R.Br. are different from those produced with the ITS dataset alone. *Brassavola* is placed outside the *Cattleya-Sophranitis* clade and *Sophranitis s.l.* is embedded among species traditionally recognized as *Cattleya*.

Cattleya, as currently circumscribed, is paraphyletic to *Sophranitis s.l.* Therefore, even though *Sophranitis s.l.* (sensu van den Berg et al. 2000) was not contradicted, its maintenance would require the creation of new genera for the various subgroups of *Cattleya*. A more practical (and simpler) solution is to lump all *Sophranitis* species with *Cattleya* and deal with these groupings at the infrageneric level. In this way, future infrageneric changes would not require further binomial changes, providing also nomenclatural stability for artificial hybrids of species in this alliance.

Several species of the former Brazilian *Laelia* and *Sophranitis* already had previous valid combinations available in *Cattleya* and they shall be used. Recent or critical synonyms are presented here with the new combinations and new names. A review of the infrageneric taxonomy in *Cattleya* and combinations for natural hybrids will be published in a separate paper.

Cattleya Lindl., Coll. Bot. t. 33. 1821.

Sophranitis Lindl., Bot. Reg. 14: t. 1147. 1828.

Maelenia Dumort., Mem. Acad. Sc.

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Brux. 9: 13, t. 10. 1834.

Eunannos Porto & Brade, Arq. Inst. Biol. Veg. 12: 206. 1933.

Hoffmannseggella H.G.Jones, Acta Bot. Acad. Sci. Hung. 14: 69. 1968.

Dungsia Chiron & V.P.Castro, Richardiana 2: 11. 2002.

Hadrolaelia (Schltr.) Chiron & V.P.Castro, Richardiana 2: 11. 2002.

Microlaelia (Schltr.) Chiron & V.P.Castro, Richardiana 2: 11. 2002.

Cattleyella Van den Berg & M.W.Chase, Boletim CAOB 52: 100. 2004.

Schluckebieria Braem, Richardiana 4: 49. 2004.

Chironiella Braem, Richardiana 6: 108. 2006.

Brasilaelia Campacci & Gutfreund, Col. Orquid. Brasileiras 4(pré-anexo): 99. 2006.

Cattleya acuensis (Fowlie) Van den Berg, **comb. nov.**

Basionym: *Sophronitis acuensis* Fowlie, Orchid Dig. 39: 150. 1975.

Hadrolaelia acuensis (Fowlie) Chiron & V.P.Castro, Richardiana 2: 16. 2002.

Cattleya alagoensis (V.P.Castro & Chiron) Van den Berg, **comb. nov.**

Basionym: *Sophronitis alagoensis* V.P.Castro & Chiron, Richardiana 3: 101. 2003.

Cattleya alaoarii (Brieger & Bicalho) Van den Berg, **comb. nov.**

Basionym: *Laelia alaoarii* Brieger & Bicalho, Bradea 2: 108. 1976.

Sophronitis alaoarii (Brieger & Bicalho) Van den Berg & M.W.Chase, Lindleyana 15: 115. 2000. *Hadrolaelia alaoarii* (Brieger & Bicalho) Chiron & V.P.Castro, Richardiana 2: 20. 2002.

Cattleya alaoarii (Brieger & Bicalho) Van den Berg f. *dietliana* (O.Gruss) Van den Berg, **comb. nov.**

Basionym: *Laelia alaoarii* Brieger & Bicalho f. *dietliana* O.Gruss, Die Orchidee

Suppl. 3: 12. 1996.

Sophronitis alaoarii (Brieger & Bicalho) Van den Berg & M.W.Chase f. *dietliana* (O.Gruss) Van den Berg & M.W.Chase, Lindleyana 16: 110 (2001).

Cattleya alvaroana (F.E.L.Miranda) Van den Berg, **comb. nov.**

Basionym: *Laelia alvaroana* F.E.L.Miranda, Bradea 8: 124. 1999.

Sophronitis alvaroana (F.E.L.Miranda) Van den Berg & M.W.Chase, Lindleyana 15: 115. 2000. *Hoffmannseggella alvaroana* (F.E.L.Miranda) V.P.Castro & Chiron, Richardiana 2: 21. 2002.

Cattleya angereri (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia angereri* Pabst, Orchid. Dig. 39: 153. 1975.

Sophronitis angereri (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 115. 2000. *Hoffmannseggella angereri* (Pabst) V.P.Castro & Chiron, Richardiana 2: 21. 2002.

Cattleya bicalhoi Van den Berg, **nom. nov.**

Basionym: *Laelia dayana* Rchb.f., Gard. Chron. n. s., 6: 772. 1876.

Sophronitis dayana (Rchb.f.) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Hadrolaelia dayana* (Rchb.f.) Chiron & V.P.Castro, Richardiana 2: 20. 2002.

Cattleya × *dayana* Rolfe was previously used for a natural hybrid, and therefore a new name is necessary when *Laelia dayana* is transferred to *Cattleya*. The name honors H.D.Bicalho, who published a detailed account about the differences of this species in relation to *C. pumila* Hook. and *C. praestans* (Rchb.f.) Van den Berg.

Cattleya blumenscheinii (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia blumenscheinii* Pabst, Bradea 1: 487.1975.

Sophronitis blumensehainii (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Hoffmannseggella blumensehainii* (Pabst) V.P.Castro & Chiron, Richardiana 2: 21. 2002.

Cattleya bradei (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia bradei* Pabst, Bradea 1: 332. 1973.

Sophronitis bradei (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Hoffmannseggella bradei* (Pabst) V.P.Castro & Chiron, Richardiana 2: 21. 2002.

Cattleya brevicaulis (H.G.Jones) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella brevicaulis* H.G.Jones, Rhodora 74: 284. 1972.

Sophronitis brevicaulis (H.G.Jones) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Dungisia brevicaulis* (H.G.Jones) Chiron & V.P.Castro, Richardiana 2: 19. 2002.

Cattleya brevipedunculata (Cogn.) Van den Berg, **comb. nov.**

Basionym: *Sophronitis wittigiana* Barb.Rodr. var. *brevipedunculata* Cogn. in Mart., Fl. bras. 3(5): 318. 1901.

Sophronitis brevipedunculata (Cogn.) Fowlie, Orchid. Digest 36: 192. 1972. *Hadrolaelia brevipedunculata* (Cogn.) Chiron & V.P.Castro, Richardiana 2: 21. 2002.

Cattleya briegeri (Blumensch. ex Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia briegeri* Blumensch. ex Pabst, Bradea 1: 367. 1973.

Sophronitis briegeri (Blumensch. ex Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Hoffmannseggella briegeri* (Blumensch. ex Pabst) V.P.Castro & Chiron, Richardiana 2: 22. 2002.

Cattleya caulescens (Lindl.) Van den Berg, **comb. nov.**

Basionym: *Laelia caulescens* Lindl., Edward's Bot. Reg. 27: sub t. 1. 1841.

Hoffmannseggella caulescens (Lindl.) H.G.Jones, Caldasia 10: 493. 1970. *Sophronitis caulescens* (Lindl.) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000.

Cattleya cernua (Lindl.) Van den Berg, **comb. nov.**

Basionym: *Sophronitis cernua* Lindl., Bot. Reg. 14: sub t. 1147. 1828.

"*Cattleya cernua*" (Lindl.) Beer, Prakt. Orch. 209. 1854. *nom. inval.*

Sophronitis pterocarpa Lindl. & Paxton, Paxton's Fl. Gard. 3: 11. 1853.

The name "*Cattleya cernua*" (Lindl.) Beer is listed by the International Plant Names Index (IPNI), but a careful examination of the original publication (Beer 1854) reveals it to be an invalid name. The combination is simply a cross-reference to the treatment under *Sophronitis*, implying the name was not accepted by the author, which renders the combination invalid under the International Code of Botanical Nomenclature (ICBN, McNeill et al. 2006), article 34.1, provision a): "A name is not validly published when it is not accepted by the author in the original publication". Zappi (1994) proposed to the IAPT committee the conservation of *Cattleya violacea* (Kunth) Rolfe against "*C. violacea*" Beer, for the same reasons as in "*C. cernua*" Beer. The committee rejected this proposal on the grounds that "*C. violacea*" Beer was surely invalid and conservation was unnecessary (Brummitt 1996). *Sophronitis pterocarpa* is a name that has been applied to an allegedly distinct taxon from Paraguay and western Brazil. However, examination of the type revealed it to be conspecific with *C. cernua*. The type specimen was also collected in Rio de Janeiro, where only *C. cernua*

occurs. If the taxon in Paraguay represents a new taxonomic entity, it will require a different name.

Cattleya cinnabarina (Bateman ex Lindl.) Van den Berg, **comb. nov.**

Basionym: *Laelia cinnabarina* Batem. ex Lindl., Sert. Orch. t. 28. 1839.

"*Cattleya cinnabarina*" (Batem. ex Lindl.) Beer, Prakt. Orch. 209. 1854. *nom. inval.* *Hoffmannseggella cinnabarina* (Bateman ex Lindl.) H.G.Jones, Acta Bot. Acad. Sci. Hung. 14: 69. 1968. *Sophronitis cinnabarina* (Bateman ex Lindl.) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000.

The combination proposed by Beer (1854) is invalid by the same reason explained under the comments on *C. cernua*. Therefore, a valid combination is proposed here.

Cattleya coccinea Lindl. f. ***rossiteriana*** (Barb.Rodr.) Van den Berg, **comb. nov.**

Basionym: *Sophronitis rossiteriana* Barb.Rodr., Gen. Sp. Orchid. 1: 77. 1877.

Cattleya colnagoi (Chiron & V.P.Castro) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella colnagoi* Chiron & V.P.Castro, Richardiana 5: 8. 2005.

"*Sophronitis colnagoi*" (Chiron & V.P.Castro) Campacci, Bol. CAOB 58: 51. 2005. *nom. inval.*

When Baptista et al. (2005) proposed 22 new combinations (including "*Sophronitis colnagoi*"), they clearly stated in the introduction: "despite our belief that the name by us used is the correct one, we decided to make new combinations for some of these species" (my translation). This implies that the authors did not accept the names as they were proposing, which renders them invalid under Article 34.1 of the ICBN. For this reason, at least the combinations in *Sophronitis* and *Prosthechea* Knowles & Westc. (which

these authors explicitly did not accept in other papers), if not all the combinations proposed in that paper, should be considered invalid.

Cattleya concepcionensis (V.P.Castro & Campacci) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella concepcionensis* V.P.Castro & Campacci, Richardiana 2: 113. 2002. *Sophronitis concepcionensis* (V.P.Castro & Campacci) Van den Berg & M.W.Chase, Kew Bull. 59: 566. 2005.

Cattleya crispata (Thunb.) Van den Berg, **comb. nov.**

Basionym: *Cymbidium crispatum* Thunb., Pl. Bras. 2: 18. 1818.

Hoffmannseggella crispata (Thunb.) H.G.Jones, Hawaii Orchid J. 3: 15. 1974. *Sophronitis crispata* (Thunb.) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000.

Laelia flava Lindl., Bot. Reg. 25: misc. 88. 1839. "*Cattleya flava*" (Lindl.) Beer, Prakt. Stud. Orchid: 210. 1854. *nom. inval.* *Hoffmannseggella flava* (Lindl.) H.G.Jones, Caldasia 10: 494. 1970.

Cattleya dichroma Van den Berg, **nom. nov.**

Basionym: *Sophronitis bicolor* F.E.L. Miranda, Die Orchidee 42: 227. 1991. *Hadrolaelia bicolor* (F.E.L.Miranda) Chiron & V.P.Castro, Richardiana 2: 20. 2002.

Because of the pre-existing *Cattleya bicolor* Lindl., a new name is necessary when transferring *Sophronitis bicolor* to *Cattleya*. We used a Greek version of the same epithet for this purpose.

Cattleya duveenii (Fowlie) Van den Berg, **comb. nov.**

Basionym: *Laelia duveenii* Fowlie, Orchid Digest 52: 180. 1988.

Sophronitis duveenii (Fowlie) Van den Berg & M.W.Chase, Lindleyana 15: 116. 2000. *Hoffmannseggella duveenii* (Fowlie)

V.P.Castro & Chiron, *Richardiana* 2: 22. 2002.

Cattleya endsfeldzii (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia endsfeldzii* Pabst, *Bradea* 2: 51. 1975.

Sophronitis endsfeldzii (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 116. 2000. *Hoffmannseggella endsfeldzii* (Pabst) V.P.Castro & Chiron, *Richardiana* 2: 22. 2002.

Cattleya esalqueana (Blumensch. ex Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia esalqueana* Blumensch. ex Pabst, *Bradea* 1: 367. 1973.

Sophronitis esalqueana (Blumensch. ex Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 116. 2000. *Hoffmannseggella esalqueana* (Blumensch. ex Pabst) V.P.Castro & Chiron, *Richardiana* 2: 22. 2002.

Cattleya fidelensis (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia fidelensis* Pabst, *Orquídea* (Rio de Janeiro) 29: 11, t.6. 1967.

Sophronitis fidelensis (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Hadrolaelia fidelensis* (Pabst) Chiron & V.P.Castro, *Richardiana* 2: 17. 2002. *Chironiella fidelensis* (Pabst) Braem, *Richardiana* 6: 109. 2006. *Brasilaelia fidelensis* (Pabst) Gutfreund, Colet. *Orquídeas Brasil*. 4(pré-anexo): 99. 2006.

Cattleya flavasulina (F.E.L.Miranda & K.G.Lacerda) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella flavasulina* F.E.L.Miranda & K.G.Lacerda, *Orchids*, *Mag. Amer. Orchid Soc.* 72: 850. 2003.

Sophronitis flavasulina (F.E.L.Miranda & K.G.Lacerda) Van den Berg & M.W.Chase, *Kew Bull.* 56: 566. 2005.

Cattleya fournieri (Cogn.) Van den Berg, **comb. nov.**

Basionym: *Laelia longipes* Rchb.f. var. *fournieri* Cogn., *Chron. Orchid.* 1: 27. 1897.

Laelia fournieri (Cogn.) F.E.L.Miranda, *Bradea* 6: 156. 1993. *Sophronitis fournieri* (Cogn.) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Hoffmannseggella fournieri* (Cogn.) V.P.Castro & Chiron, *Richardiana* 2: 22. 2002.

Cattleya ghillanyi (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia ghillanyi* Pabst, *Bradea* 1: 332. 1973.

Hoffmannseggella ghillanyi (Pabst) H.G.Jones, *Hawaii Orchid J.* 3: 16. 1974. *Sophronitis ghillanyi* (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000.

Cattleya gloedeniana (Hoehne) Van den Berg, **comb. nov.**

Basionym: *Laelia gloedeniana* Hoehne, *Bol. Agric. (São Paulo)* 34: 624. 1934.

Sophronitis gloedeniana (Hoehne) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Hoffmannseggella gloedeniana* (Hoehne) V.P.Castro & Chiron, *Richardiana* 2: 22. 2002.

Cattleya gracilis (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia gracilis* Pabst, *Bradea* 2: 314. 1979.

Sophronitis gracilis (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Hoffmannseggella gracilis* (Pabst) V.P.Castro & Chiron, *Richardiana* 2: 21. 2002.

Cattleya harpophylla (Rchb.f.) Van den Berg, **comb. nov.**

Basionym: *Laelia harpophylla* Rchb.f., *Gard. Chron.* (1873): 542. 1873.

Hoffmannseggella harpophylla (Rchb.f.) H.G.Jones, *Caldasia* 10: 494. 1970. *Sophronitis harpophylla* (Rchb.f.) Van den

Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Dungsia harpophylla* (Rchb.f) Chiron & V.P.Castro, Richardiana 2: 11. 2002.

Cattleya hatae (V.P.Castro & K.G.Lacerda) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella hatae* V.P.Castro & K.G.Lacerda, Icon. Orchid. Bras. 2: t. 155. 2006.

Cattleya hegeriana (Campacci) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella hegeriana* Campacci, Colet. Orquídeas Brasil. 5: 158. 2007.

Cattleya hispidula (Pabst & A.F.Mello) Van den Berg, **comb. nov.**

Basionym: *Laelia hispidula* Pabst & A.F.Mello, Bradea 2: 227. 1978.

Sophronitis hispidula (Pabst & A.F.Mello) Van den Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Hoffmannseggella hispidula* (Pabst & A.F.Mello) V.P.Castro & Chiron, Richardiana 2: 22. 2002.

Cattleya hoehnei Van den Berg, **nom. nov.**

Basionym: *Laelia mixta* Hoehne, Arch. Bot. São Paulo 1: 20. 1938.

Sophronitis mixta (Hoehne) Van den Berg & M.W.Chase, Lindleyana 15: 118. 2000. *Hoffmannseggella mixta* (Hoehne) V.P.Castro & Chiron, Richardiana 2: 23. 2002.

This *nomen novum* is necessary because *Cattleya ×mixta* L.C.Men. was already taken for a natural hybrid. The name honors F.C. Hoehne, who originally described this species.

Cattleya itambana (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia itambana* Pabst, Bradea 1: 333. 1973.

Sophronitis itambana (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Hoffmannseggella itambana* (Pabst)

V.P.Castro & Chiron, Richardiana 2: 23. 2002.

Laelia cardimii Pabst & A.F.Mello, Bradea 2: 226. 1978. "*Sophronitis cardimii*" (Pabst & A.F.Mello) Campacci, Bol. CAOB 58: 51. 2005. *nom. inval.*

Although the name *Laelia cardimii* Pabst & A.F.Mello has been commonly used for a distinctive species under cultivation (Miranda 1998), the type and description of this name is conspecific with *Laelia itambana* and therefore does not belong to the current concept being applied to this species, which remains undescribed to date. Apparently unaware of this fact, Campacci in Baptista et al. (2005) published a new combination for it, which was also invalid for the same reasons explained under the comments of *C. colnagoi*.

Cattleya jongheana (Rchb.f.) Van den Berg, **comb. nov.**

Basionym: *Laelia jongheana* Rchb.f., Gard. Chron. (1872): 425. 1872.

Sophronitis jongheana (Rchb.f.) Van den Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Hadrolaelia jongheana* (Rchb.f.) Chiron & V.P.Castro, Richardiana 2: 20. 2002.

Cattleya kautskyiana (V.P.Castro & Chiron) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella kautskyana* V.P.Castro & Chiron, Richardiana 3: 65. 2003.

"*Sophronitis kautskyana*" (V.P.Castro & Chiron) Baptista, Bol. CAOB 58: 51. 2005. *nom. inval.*

Cattleya kettieana (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia kettieana* Pabst, Bradea 2: 1. 1976.

Sophronitis kettieana (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Hoffmannseggella kettieana* (Pabst)

V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

Cattleya liliputana (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia liliputana* Pabst, *Bradea* 1: 334. 1973.

Hoffmannseggella liliputana (Pabst) H.G.Jones, *Hawaii Orchid J.* 3: 16. 1974. *Sophronitis liliputana* (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000.

Cattleya longipes (Rchb.f.) Van den Berg, **comb. nov.**

Basionym: *Laelia longipes* Rchb.f., *Xenia Orchid.* 2: 59. 1874.

Sophronitis longipes (Rchb.f.) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Hoffmannseggella longipes* (Rchb.f.) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

Cattleya luetzelburgii Van den Berg, **nom. nov.**

Basionym: *Laelia bahiensis* Schltr., *Repert. Spec. Nov. Regni Veg.* 17: 272. 1921.

Hoffmannseggella bahiensis (Schltr.) H.G.Jones, *Novosti Sist. Vyssh. Rast.* 12: 141. 1975. *Sophronitis bahiensis* (Schltr.) Van den Berg & M.W.Chase, *Lindleyana* 15: 116. 2000.

A *nomen novum* is necessary because the name *Cattleya* × *bahiensis* Rolfe is already taken for a natural hybrid. We honor Luetzelburg, who was the first to collect this species in Bahia.

Cattleya lundii (Rchb.f. & Warm.) Van den Berg, **comb. nov.**

Basionym: *Bletia lundii* Rchb.f. & Warm., *Otia Bot. Hamburg.* 2: 92. 1881.

Laelia lundii (Rchb.f. & Warm.) Rchb.f., *Otia Bot. Hamburg.* 2: 92. 1881. *Sophronitis lundii* (Rchb.f. & Warm.) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000. *Microlaelia lundii* (Rchb.f. &

Warm.) Chiron & V.P.Castro, *Richardiana* 2: 11. 2002.

Cattleya lundii* f. *alba (L.C.Men.) Van den Berg, **comb. nov.**

Basionym: *Laelia lundii* var. *alba* L.C.Men., *Bol. CAOB* 33: 68. 1998.

Cattleya macrobulbosa (Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia macrobulbosa* Pabst, *Bradea* 1: 335. 1973.

Hoffmannseggella macrobulbosa (Pabst) H.G.Jones, *Hawaii Orchid J.* 3: 16. 1974. *Sophronitis macrobulbosa* (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 117. 2000.

Cattleya mantiqueirae (Fowlie) Van den Berg, **comb. nov.**

Basionym: *Sophronitis coccinea* subsp. *mantiqueirae* Fowlie, *Orchid. Digest* 32: 273. 1968.

Sophronitis mantiqueirae (Fowlie) Fowlie, *Orchid. Dig.* 36: 183. 1972. *Hadrolaelia mantiqueirae* (Fowlie) Chiron & V.P.Castro, *Richardiana* 2: 21. 2002.

Cattleya marcaliana (Campacci & Chiron) Van den Berg, **comb. nov.**

Basionym: *Dungsia marcaliana* Campacci & Chiron, *Richardiana* 2: 77. 2002.

Sophronitis marcaliana (Campacci & Chiron) Van den Berg & M.W.Chase, *Kew Bull.* 56: 566. 2005.

Cattleya milleri (Blumensch. ex Pabst) Van den Berg, **comb. nov.**

Basionym: *Laelia milleri* Blumensch. ex Pabst, *Bradea* 1: 367. 1973.

Sophronitis milleri (Blumensch. ex Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hoffmannseggella milleri* (Blumensch. ex Pabst) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

Cattleya mirandae (K.G.Lacerda & V.P.Castro) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella mirandae* K.G.Lacerda & V.P.Castro, Richardiana 5(1): 16. 2005.

"*Sophronitis neomirandae*" Baptista, Bol. CAOB 58: 51. 2005. *nom. inval.*

Cattleya munchowiana (F.E.L.Miranda) Van den Berg, **comb. nov.**

Basionym: *Laelia munchowiana* F.E.L.Miranda, Bradea 8: 126. 1999.

Sophronitis munchowiana (F.E.L.Miranda) Van den Berg & M.W.Chase, Lindleyana 15: 118. 2000. *Hoffmannseggella munchowiana* (F.E.L.Miranda) V.P.Castro & Chiron, Richardiana 2: 23. 2002.

Cattleya neokautskyi Van den Berg, **nom. nov.**

Basionym: *Laelia kautskyi* Pabst, Orchid. Rev. 78: 321. 1970.

Hoffmannseggella kautskyi (Pabst) H.G.Jones, Rhodora 74: 285. 1972. *Sophronitis kautskyi* (Pabst) Van den Berg & M.W.Chase, Lindleyana 15: 117. 2000. *Dungisia kautskyi* (Pabst) Chiron & V.P.Castro, Richardiana 2: 19. 2002.

Cattleya ×*kaustkyi* Pabst was described for a natural hybrid, and therefore a new name is necessary for this species.

Cattleya pabstii (F.E.L.Miranda & K.G.Lacerda) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella pabstii* F.E.L.Miranda & K.G.Lacerda, Orchids, Mag. Amer. Orchid. Soc. 72: 851. 2003.

Sophronitis pabstii (F.E.L.Miranda & K.G.Lacerda) Van den Berg & M.W.Chase, Kew Bull. 59: 566. 2005.

Cattleya pendula (R.C.Mota, P.L.Viana & K.G.Lacerda) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella pendula* R.C.Mota, P.L.Viana & K.G.Lacerda, Richardiana 4: 1. 2003.

Sophronitis pendula (R.C.Mota, P.L.Viana &

K.G.Lacerda) Van den Berg & M.W.Chase, Kew Bull. 59: 566. 2005.

Cattleya pfisteri (Pabst & Senghas) Van den Berg, **comb. nov.**

Basionym: *Laelia pfisteri* Pabst & Senghas, Orchidee 26: 254. 1975.

Sophronitis pfisteri (Pabst & Senghas) Van den Berg & M.W.Chase, Lindleyana 15: 118. 2000. *Hoffmannseggella pfisteri* (Pabst & Senghas) V.P.Castro & Chiron, Richardiana 2: 23. 2002.

Cattleya praestans (Rchb.f.) Van den Berg, **comb. nov.**

Basionym: *Laelia praestans* Rchb.f., Allg. Gartenzeitung 25: 336. 1857.

Sophronitis praestans (Rchb.f.) Van den Berg & M.W.Chase, Lindleyana 15: 118. 2000. *Hadrolaelia praestans* (Rchb.f.) Chiron & V.P.Castro, Richardiana 2: 20. 2002.

Cattleya presidentensis (Campacci) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella presidentensis* Campacci, Bol. CAOB 57: 28. 2005.

"*Sophronitis presidentensis*" (Campacci) Campacci, Bol. CAOB 58: 51. 2005. *nom. inval.*

Cattleya purpurata (Lindl. & Paxton) Van den Berg, **comb. nov.**

Basionym: *Laelia purpurata* Lindl. & Paxton, Paxton's Fl. Gard. 3: 111: 1852.

"*Cattleya purpurata*" (Lindl. & Paxton) Beer, Prakt. Orch. p.213. 1854. *nom. inval.* *Sophronitis purpurata* (Lindl. & Paxton) Van den Berg & M.W.Chase, Lindleyana 15: 118. 2000. *Hadrolaelia purpurata* (Lindl. & Paxton) Chiron & V.P.Castro, Richardiana 2: 19. 2002. *Chironiella purpurata* (Lindl. & Paxton) Braem, Richardiana 6: 109. 2006. *Brasilaelia purpurata* (Lindl. & Paxton) Campacci, Colet. Orquídeas Brasil. 4(pré-anexo): 100. 2006.

The new combination in *Cattleya* for this species was listed in the International Plant Name Index (IPNI) as proposed by Beer (1854) but it is invalid for the reasons explained in the comments under *C. cernua*. Beer's combination was used by Chadwick & Chadwick (2006), but because they did not include the original basionym in their listing, it could not also constitute a valid publication of this combination.

***Cattleya pygmaea* (Pabst) Van den Berg, comb. nov.**

Basionym: *Sophronitis coccinea* subsp. *pygmaea* Pabst, *Bradea* 2(12): 70. 1976.

Sophronitis pygmaea (Pabst) Withner, *Cattleyas & Relatives* 3: 77. 1993. *Hadrolaelia pygmaea* (Pabst) Chiron & V.P.Castro, *Richardiana* 2: 21. 2002.

***Cattleya reginae* (Pabst) Van den Berg, comb. nov.**

Basionym: *Laelia reginae* Pabst, *Bradea* 2: 24. 1975.

Sophronitis reginae (Pabst) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hoffmannseggella reginae* (Pabst) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

***Cattleya rupestris* (Lindl.) Van den Berg, comb. nov.**

Basionym: *Laelia rupestris* Lindl., *Bot. Reg.* 28: sub. t. 62. 1842.

Sophronitis mirandae Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. (“*mirandai*”). *Hoffmannseggella rupestris* (Lindl.) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

***Cattleya sanguiloba* (Withner) Van den Berg, comb. nov.**

Basionym: *Laelia sanguiloba* Withner, *Cattleyas and Relatives* 2: 122. 1990.

Sophronitis sanguiloba (Withner) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hoffmannseggella sanguiloba*

(Withner) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

***Cattleya sincorana* (Schltr.) Van den Berg, comb. nov.**

Basionym: *Laelia sincorana* Schltr., *Orchis* 11: 72. 1917.

Sophronitis sincorana (Schltr.) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hadrolaelia sincorana* (Schltr.) Chiron & V.P.Castro, *Richardiana* 2: 20. 2002.

***Cattleya tereticaulis* (Hoehne) Van den Berg, comb. nov.**

Basionym: *Laelia tereticaulis* Hoehne, *Arch. Bot. São Paulo, n.s.,* 2: 163. 1952. (“*teretecaulis*”).

Hoffmannseggella tereticaulis (Hoehne) H.G.Jones, *Florida Orchidist* 17: 156. 1974. *Sophronitis tereticaulis* (Hoehne) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000.

***Cattleya verboonenii* (F.E.L.Miranda) Van den Berg, comb. nov.**

Basionym: *Laelia verboonenii* F.E.L.Miranda, *Bradea* 6: 157. 1993.

Sophronitis verboonenii (F.E.L.Miranda) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hoffmannseggella verboonenii* (F.E.L.Miranda) V.P.Castro & Chiron, *Richardiana* 2: 23. 2002.

***Cattleya virens* (Lindl.) Van den Berg, comb. nov.**

Basionym: *Laelia virens* Lindl., *Edward's Bot. Reg.* 30: misc. 1. 1844.

Sophronitis virens (Lindl.) Van den Berg & M.W.Chase, *Lindleyana* 15: 118. 2000. *Hadrolaelia virens* (Lindl.) Chiron & V.P.Castro, *Richardiana* 2: 17. 2002. *Chironiella virens* (Lindl.) Braem, *Richardiana* 6: 110. 2006. *Brasilaelia virens* (Lindl.) Campacci, *Colet. Orquídeas Brasil.* 4(pré-anexo): 100. 2006.

Cattleya viridiflora (Verola & Semir) Van den Berg, **comb. nov.**

Basionym: *Hoffmannseggella viridiflora* Verola & Semir, Novon 17(1): 126. 2007.

Cattleya wittigiana (Barb.Rodr.) Van den Berg, **comb. nov.**

Basionym: *Sophronitis wittigiana* Barb.Rodr., Rev. Hort. (1878): 24. 1878.

Hadrolaelia wittigiana (Barb.Rodr.) Chiron & V.P.Castro, Richardiana 2: 21. 2002.

Cattleya wittigiana (Barb.Rodr.) Van den Berg f. ***candida*** (Roeth & O.Gruss) van den Berg, **comb. nov.**

Basionym: *Sophronitis wittigiana* (Barb.Rodr.) Fowlie f. *candida* Roeth & O.Gruss, Die Orchidee 56(1): 54. 2005.

Cattleya xanthina (Lindl.) Van den Berg, **comb. nov.**

Basionym: *Laelia xanthina* Lindl., Bot. Mag. 85: t. 5144. 1859.

Sophronitis xanthina (Lindl.) Van den Berg & M.W.Chase, Lindleyana 15: 119. 2000. *Hadrolaelia xanthina* (Lindl.) Chiron & V.P.Castro, Richardiana 2: 20. 2002. *Chironiella xanthina* (Lindl.) Braem, Richardiana 6: 109. 2006. *Brasilaelia xanthina* (Lindl.) Campacci, Colet. Orquideas Brasil. 4(pré-anexo): 100. 2006.

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