

NOMENCLATURAL NOTES ON LAELIINAE—I¹

CÁSSIO VAN DEN BERG^{2,3,4} AND MARK W. CHASE²

²Jodrell Laboratory, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3DS, UK

³Department of Botany, School of Plant Sciences, University of Reading, Whiteknights, P. O. Box 221, Reading, RG6 2AS, UK

ABSTRACT: New combinations are proposed to accommodate in *Sophronitis* the Brazilian species of *Laelia*, which is based on analysis of DNA sequence data. Notes on the nomenclature are also given for some problematic taxa.

A RECENT analysis of DNA sequence data from the internal transcribed spacer of nuclear ribosomal DNA (nrITS; van den Berg et al., 2000) placed the Brazilian and Mexican species of *Laelia* in markedly different positions. A more complete analysis based on three DNA regions (van den Berg, unpubl.) confirms this placement. As the type species of *Laelia* is the Mexican species *L. speciosa* (La Llave & Lex.) Schltr., the Brazilian species all need to be transferred into another genus. In addition, *Sophronitis* Lindl. falls in two clades embedded in different positions within the Brazilian species of *Laelia*. The type species, *S. cernua* Lindl., falls together with *L. harpophylla* Rchb.f. and *L. kautskyi* Pabst, whereas *S. coccinea* (Lindl.) Rchb.f. and related species are sister to *Laelia* sects. *Cattleyodes* and *Hadrolaelia*. Another name, *Hoffmannseggella* H.G.Jones, was proposed (Jones, 1968) for *Laelia* sect. *Parviflorae* with the type species *L. cinnabarina* Batem. ex Lindl. Any attempt to keep *Sophronitis* as a separate genus or to use *Hoffmannseggella* would result in this group of species being split into at least four genera. Because there is as much morphological divergence between *Sophronitis* and these subgroups of *Laelia* as among the groups of *Laelia* themselves, we have decided to transfer all of the Brazilian species into *Sophronitis*. The other option, which

would be even less popular, would be to transfer both *Sophronitis* and the Brazilian species of *Laelia* and *Cattleya* to *Brassavola*. This would have the beneficial effect of eliminating most hybrid names in the *Cattleya* alliance. However, it would also create a large genus with many heterogeneous groups, besides requiring a large number of nomenclatural changes. We therefore decided that enlarging the circumscription of *Sophronitis* is the best way of maintaining some nomenclatural stability. Here we present the new combinations, with comments if there are difficult or confusing nomenclatural rearrangements. The capital “V” in Van den Berg (as used below) is in accord with the way it occurs in the Authors of Plant Names database, Royal Botanic Gardens, Kew.

SOPHRONITIS Lindl. in Bot. Reg. 14 sub t. 1147 (1828).

HOFFMANNSEGGELLA H.G.Jones in Acta Bot. Acad. Sci. Hungaricae 14: 69 (1968).

Sophronitis alaoirii (Brieger & Bicalho) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia alaoirii* Brieger & Bicalho in Bradea 2: 108 (1976).

Sophronitis alvaroana (F.E.L.Miranda) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia alvaroana* F.E.L. Miranda in Bradea 8: 124 (1999).

Sophronitis angereri (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia angereri* Pabst in Orch. Dig. 39: 153 (1975).

¹ This work is part of a Ph.D. project funded by the American Orchid Society, the Royal Botanic Gardens, Kew, and the scholarship # 200792-96/2 from the National Research Council (Conselho Nacional de Pesquisas—CNPq), Brazil. We thank M. F. Fay and two anonymous reviewers for suggestions on the manuscript.

⁴ Author for correspondence (cassio@innocent.com).

Sophronitis bahiensis (Schltr.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia bahiensis* Schltr. in Feddes Rept. Sp. Regni Veg. 17: 272 (1921).

Sophronitis blumenscheinii (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia blumenscheinii* Pabst in Bradea 1: 487 (1975).

Sophronitis bradei (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia bradei* Pabst in Bradea 1: 332 (1973).

Sophronitis brevicaulis (H.G.Jones) Van den Berg & M.W.Chase **comb. nov.**

Basionym: *Hoffmannseggella brevicaulis* H.G.Jones in Rhodora 74: 284 (1972).

The combination *L. brevicaulis* (H.G.Jones) Withner was proposed by Withner (1990), but the earlier name *L. cowanii* Hort. ex Cogn. was mentioned in the protologue as a synonym, which led Zappi (1995) to consider it to be the correct name. However, *L. cowanii* is a synonym of *L. flava* (Rolfe, 1900; Miranda, 1993), which belongs to a completely different group from that of *L. brevicaulis* (which is similar to *L. harpophylla* and *L. kautskyi*). Therefore the citation was a mistake in Withner (1990). Jones' epithet should be used for this species.

Sophronitis briegeri (Blumensch. ex Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia briegeri* Blumensch. ex Pabst in Bradea 1: 367 (1973).

Sophronitis ×caetensis (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ×caetensis* Pabst in Bradea 2: 50 (1975).

Sophronitis ×carassana (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ×carassana* Pabst in Bradea 2: 22 (1975).

Sophronitis caulescens (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia caulescens* Lindl. in Bot. Reg. 27 sub t. 1. (1841).

Laelia crispilabia A.Rich. ex Warner, Sel. Orch. Pl. 2. t. 6 (1865).

Laelia mantiqueirae Pabst ex D.C.Zappi in Kew Bull. 50: 424 (1995).

Sophronitis cinnabarina (Batem. ex Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia cinnabarina* Batem. ex Lindl., Sert. Orch. t. 28 (1838, publ. 1839).

Sophronitis ×cipoensis (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ×cipoensis* Pabst in Bradea 2: 14 (1975).

Sophronitis crispa (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Cattleya crispa* Lindl. in Bot. Reg. 14 t. 1172 (1828).

Sophronitis crispata (Thunb.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Cymbidium crispatum* Thunb., Plantarum Brasiliensium 2: 18 (1818).

Laelia flava Lindl. in Bot. Reg. 25 misc. 88 (1839)

Laelia gardneri Pabst ex D.C.Zappi in Kew Bull. 50: 424 (1995)

Garay (1972) made the combination *L. crispata* (Thunb.) Garay and, in error, listed *L. rupestris* as a synonym. Miranda (1993) pointed out that the type of *Cymbidium crispatum* Thunb. belongs to the same taxon as *L. flava*. The name *L. gardneri* Pabst was proposed for the plants erroneously illustrated in *Flora Brasiliensis* (Cogniaux, 1898) as *L. longipes* Rchb.f., but Pabst did not mention the year of the description, which rendered it invalid. Zappi (1995) validated this name but failed to notice that the type assigned by Pabst was *Gardner 5198* (K!), the same as *L. flava*. This brings the name *L. gardneri* into synonymy with the latter.

Sophronitis dayana (Rchb.f.) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis duveenii (Fowlie) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia duveenii* Fowlie in Orch. Dig. 52: 180 (1988).

Sophronitis endsfeldzii (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia endsfeldzii* Pabst in Bradea 2: 51 (1975).

Sophronitis esalqueana (Blumensch. ex Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia esalqueana* Blumensch. ex Pabst in *Bradea* 1: 367 (1973).

Sophronitis fidelensis (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia fidelensis* Pabst in *Orquídea* 29: 11 (1967).

Sophronitis fournieri (Cogn.) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis ×gerhard-santosii (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ×gerhard-santosii* Pabst in *Bradea* 1: 472 (1974).

Sophronitis ghillanyi (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ghillanyi* Pabst in *Bradea* 1: 332 (1973).

Sophronitis gloedeniana (Hoehne) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia gloedeniana* Hoehne in *Bol. Agric. S. Paulo* 34: 624 (1933 publ. 1934).

Sophronitis gracilis (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia gracilis* Pabst in *Bradea* 2: 314 (1979).

Sophronitis grandis (Lindl. & Paxton) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia grandis* Lindl. & Paxton, *Flow. Gard.* 1: 60 (1850–51).

Sophronitis harpophylla (Rchb.f.) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis hispidula (Pabst & A.F.Mello) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia hispidula* Pabst & A.F.Mello in *Bradea* 2: 227 (1978).

Sophronitis itambana (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia itambana* Pabst in *Bradea* 1: 333 (1973).

Sophronitis jongheana (Rchb.f.) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis kautskyi (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia kautskyi* Pabst in *Orch. Rev.* 78: 321 (1970).

Laelia kautskyana Pabst in *Bradea* 1: 472 (1974).

Pabst (1974) published a new name *L. kautskyana* for *L. kautskyi* Pabst because he thought it was a homonym of *Laelia kaustsky* Dungs & Pabst, published in *Die Orchidee* 19: 190 (1968). However, as pointed out by Zappi (1995), the latter name is merely listed and lacks a description so it is therefore invalid. Consequently the proper basionym is *L. kautskyi* Pabst.

Sophronitis kettieana (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia kettieana* Pabst in *Bradea* 2: 1 (1976).

Sophronitis liliputana (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia liliputana* Pabst in *Bradea* 1: 334 (1973).

Sophronitis lobata (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Cattleya lobata* Lindl. in *Gard. Chron.* 403 (1848).

Sophronitis longipes (Rchb.f.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia longipes* Rchb.f., *Xenia Orch.* 2: 59 (1874).

Laelia lucasiana Rolfe, *Orch. Rev.* 1: 265 (1893).

Laelia ostermeyeri Hoehne in *Arch. Bot. São Paulo* 1: 19 (1938).

This is one of the most confused names because it has often been applied (e.g. Withner, 1990) to plants referable to *L. ghillanyi* (Miranda, 1998). Reichenbach's type agrees with *L. lucasiana*, and therefore the latter is a synonym, as admitted by Rolfe (1897) himself.

Sophronitis lundii (Rchb.f. & Warm.) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis macrobulbosa (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia macrobulbosa* Pabst in *Bradea* 1: 335 (1973).

Sophronitis milleri (Blumensch. ex Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia milleri* Blumensch. ex Pabst in Bradea 1: 367 (1973).

Sophronitis mirandai Van den Berg & M.W.Chase, **nom. nov.**

Laelia rupestris Lindl. in Bot. Reg. 28 sub t. 62 (1842).

The name *L. crispata* has been misapplied to this species because *L. rupestris* was erroneously put into synonymy by Garay (1972). This was pointed out by Miranda (1993), and in *Laelia* the name *L. rupestris* must be resurrected for this species. Unfortunately, the epithet is already taken in *Sophronitis* for the species now known as *Constantia rupestris* Barb.Rodr. Therefore we publish here a new name honoring F.E.L. Miranda, who clarified this situation.

Sophronitis mixta (Hoehne) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia mixta* Hoehne in Arch. Bot. São Paulo 1: 20 (1938).

Sophronitis ×mucugense (F.E.L.Miranda) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia ×mucugense* F.E.L.Miranda in Bradea 6: 159 (1993).

Sophronitis munchowiana (F.E.L.Miranda) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia munchowiana* F.E.L.Miranda in Bradea 8: 126 (1999).

Sophronitis perrinii (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Cattleya perrinii* Lindl. in Bot. Reg. 24 t. 2 (1838).

Sophronitis pfisteri (Pabst & Senghas) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia pfisteri* Pabst & Senghas in Die Orchidee 26: 254 (1975).

Sophronitis praestans (Linden & Rchb.f.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia praestans* Linden & Rchb.f. in Allg. Gartenz. 25: 336 (1857).

Withner (1990) considered *L. praestans* a synonym of *Cattleya spectabilis* Paxton. Besides not having a proper description, it is clear from the illustration that the latter name is conspecific with

L. pumila (Hook.) Rchb.f., published much earlier in 1838, and we therefore transfer the former species to *Sophronitis* using Linden and Reichenbach's epithet.

Sophronitis pumila (Hook.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Cattleya pumila* Hook. in Bot. Mag. 65 t. 3656 (1838).

Cattleya spectabilis Paxton in Florist 3: 91 (1850), *nomen*.

Laelia spectabilis (Paxton) Withner in Cattleyas and Their Relatives 2: 127 (1990).

Sophronitis purpurata (Lindl. & Paxton) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia purpurata* Lindl. & Paxton, Flow. Gard. 3: 111 (1852).

Sophronitis reginae (Pabst) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia reginae* Pabst in Bradea 2: 24 (1975).

Sophronitis sanguiloba (Withner) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia sanguiloba* Withner in Cattleyas and Their Relatives 2: 122 (1990).

Sophronitis sincorana (Schltr.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia sincorana* Schltr. in Orchis 11: 72 (1917).

Sophronitis tenebrosa (Rolfe) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia grandis* Lindl. & Paxton var. *tenebrosa* Rolfe in Gard Chron., ser. 3, 10: 126 (1891).

Sophronitis tereticaulis (Hoehne) Van den Berg & M.W.Chase, **comb. nov.**

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

Sophronitis verboonenii (F.E.L.Miranda) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia verboonenii* F.E.L.Miranda in Bradea 6: 157 (1993).

Sophronitis virens (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia virens* Lindl. in Bot. Reg. 30 misc. 1. (1844).

Sophronitis xanthina (Lindl.) Van den Berg & M.W.Chase, **comb. nov.**

Basionym: *Laelia xanthina* Lindl. in Bot. Mag. 85 t. 5144 (1859).

LITERATURE CITED

- Cogniaux, A. 1898. Orchidaceae. *Martius' Flora Brasiliensis* 3(5): 1–663.
- Garay, L. A. 1972. Studies in American orchids VIII. *Bradea* 1: 301–308.
- Jones, H. G. 1968. Studies in Neotropical orchidology. *Acta Bot. Acad. Sci. Hungaricae* 14: 63–70.
- Miranda, F. E. L. 1993. Estudos em *Laelia* (Orchidaceae)—1. *Bradea* 6: 155–163.
- Pabst, G. F. J. 1974. Notícias orquidológicas—XIV. *Bradea* 1: 472.
- Rolfe, R. A. 1897. *Laelia longipes*. *Orch. Rev.* 5: 112.
- . 1900. *Laelia cowanii*. *Orch. Rev.* 8: 122–123.
- van den Berg, C., W. E. Higgins, R. L. Dressler, W. M. Whitten, M. A. Soto Arenas, A. Culham, and M. W. Chase. 2000. A phylogenetic analysis of Laeliinae (Orchidaceae) based on sequence data from internal transcribed spacers (ITS) of nuclear ribosomal DNA. *Lindleyana* 15:96–114.
- Withner, C. L. 1990. *The Cattleyas and Their Relatives. Volume 2: The Laelias*. Timber Press, Portland, Oregon.
- Zappi, D. C. 1995. Nomenclatural notes on some *Cattleya* and *Laelia* species (Orchidaceae). *Kew Bull.* 50: 423–425.