

NEW HYBRID GENERA IN THE GESNERIACEAE

Hans Wiehler*

Studies in hybridization of the Gesneriaceae in the last 15 years have demonstrated some of the plasticity of taxa in a presumably rather advanced dicotyledonous plant family of the tropics. On a smaller scale, this plasticity parallels that of the large family Orchidaceae among the monocotyledons. (In a different context, e.g. plant morphology, Hilliard & Burt (1971, p. 383) suggest the placing of one genus of the Gesneriaceae at the peak of angiosperm evolution because of this plasticity.)

The cytogenetic work which produced the new hybrid genera published below is one of the basic foundations used to form a modern classification of the neotropical subfamily Gesnerioideae. The genera in this group of over 1300 species have in the past presented problems of delimitation. An approach to classification which combines anatomy, cytology, and morphology results in the union of five tribes into a single tribe, the fusion and separation of some problematic genera, and the transfer of some sections from one genus to another. Most of the proposals have been published in separate articles, and the new classification for the Gesnerioideae will appear in one of the next issues of SELBYANA.

Based on the new classificatory information, the names of 18 new intergeneric hybrids are published here as a unit (rather than in a scattered fashion in different journals over a period of time) primarily to draw attention to the plasticity of some of the taxa in the Gesnerioideae. The only three previously and validly published intergeneric hybrid names in the Gesnerioideae (see Moore, 1973, p. 35) are listed below for a more complete review. Several interspecific hybrid names, which appeared in the literature of the last century, have been transferred to the new intergeneric hybrid names.

1. ×**Gloxinantha** R. E. Lee, *Baileya* 15(2):60. 1967. (*Gloxinia* L'Herit. × *Smithiantha* Kuntze)
Gloxinia perennis (L.) Fritsch¹ × *Smithiantha multiflora* (Martens & Galeotti) Fritsch
Hybrid produced by R. E. Lee, summer, 1966. H.p.s.: 0%².
Gloxinia perennis × *Smithiantha fulgida* (Ortgies) Siebert & Voss
Hybrid produced by the author, pollination 2 Nov. 1967; reciprocal cross did not take. H.p.s.: 2-8%.
2. ×**Koellikohleria** Wiehler, *Baileya* 16(1):29-34. 1968. (*Koellikeria* Regel × *Kohleria* Regel)
×*Koellikohleria rosea* Wiehler, *ibidem*, p. 30.
Koellikeria erinoides (DC.) Mansf. × *Kohleria spicata* (HBK) Oerst.
Pollinated 25 July 1967; reciprocal cross did not take.
H.p.s.: 0-11%.
3. ×**Achimenantha** H. E. Moore, *Baileya* 19(1):35-36. 1973. (*Achimenes* Pers. × *Smithiantha*)
×*Achimenantha naegelioides* (Van Houtte) H. E. Moore, *ibidem*, p. 36.

*The Marie Selby Botanical Gardens.

1. The female parent of the hybrid is cited first in this account.
2. H.p.s. = hybrid pollen stainability with Aniline Blue in Lactophenol.

Achimenes glabrata (Zucc.) Fritsch × *Smithiantha zebrina* (Paxt.) Kuntze

Hybrid produced by L. Van Houtte in Belgium around 1866. Ten additional hybrids between *Achimenes* and *Smithiantha* were produced at Cornell University in the early 1960s, cf. Cooke & Lee, 1966.

4. × **Achicodonia** Wiehler, gen. hybr. nov. (*Achimenes* × *Eucodonia* Hanst.)

× **Achicodonia eucondonioides** (Van Houtte) Wiehler, comb. nov.

Plectopoma Xeucodonioides Van Houtte, Fl. Serres Jard. Eur. 18:59, pl. 1858-1859. 1869-70. Also cited in Van Houtte's Catalogue no. 131:293.

Achimenes glabrata × *Eucodonia verticillata* (Martens & Gal.) Wiehler

Hybrid produced by L. Van Houtte in Belgium around 1868. Ten hybrids between species of *Achimenes* and *Eucodonia verticillata* and *E. andrieuxii* (DC.) Wiehler were produced at Cornell University in the early 1960s, cf. Cooke & Lee, 1966.

5. × **Smithicodonia** Wiehler, gen. hybr. nov. (*Smithiantha* × *Eucodonia*)

× **Smithicodonia naegelioides** (Van Houtte) Wiehler, comb. nov.

× *Eucondonopsis naegelioides* Van Houtte, Fl. Serres Jard. Eur. 16:1, pl. 1608. 1865-67. Also cited in Van Houtte's Catalogue no. 190:44.

Eucodonia verticillata × *Smithiantha zebrina*

Hybrid produced by L. Van Houtte in Belgium around 1864. Two additional hybrids were produced at Cornell University in the early 1960s: *Smithiantha multiflora* × *Eucodonia verticillata* and *S. multiflora* × *E. andrieuxii*; cf. Cooke & Lee, 1966.

6. × **Moussoniantha** Wiehler, gen. hybr. nov. (*Moussonia* Regel × *Smithiantha*)

× **Moussoniantha cornellana** Wiehler, sp. hybr. nov.

Planta hybrida inter *Moussoniam hirsutissimam* (Morton) Wiehler et *Smithiantham multifloram* (Martens & Galeotti) Fritsch intermedia, ab ambobus fructibus abortivis differt, quoad formam florescentiae cum *M. hirsutissima* satis congruens. Corolla infundibularis, alba, tubo 3-3.5 cm longo, lobis subaequalibus, patentibus, 0.8 cm longis et latis; stigma stomatomorphum. Rhizomata squamata subterranea destituta.

TYPE: Produced at Cornell University: pollinated 27 July 1967, sown 2 Oct. 1967, first flowers 2 April 1968; H.p.s.: 0%; plants without scaly rhizomes, requiring no dormancy; both parents native to same area in Prov. Oaxaca, Mexico. 8 July 1968, *Wiehler* 6803. (HOLOTYPE: BH; ISOTYPES: US, SEL).

7. × **Smithheppiella** Wiehler, gen. hybr. nov. (*Smithiantha* × *Heppiella* Regel)

× **Smithheppiella naegelioides** (Lem.) Wiehler comb. nov.

Heppiella Xnaegelioides Lem., Ill. Hort. 4:pl. 129. 1857.

Smithiantha zebrina × *Heppiella viscida* (Lindl. & Paxt.) Fritsch (as *H. atrosanguinea* Regel in text). This hybrid combination has not been duplicated since Lemaire's time.

8. × **Glokoheria** Wiehler, gen. hybr. nov. (*Gloxinia* × *Kohleria* Regel)
Gloxinia sylvatica (HBK) Wiehler × *Kohleria spicata*
 Herbarium specimens: *Wiehler* 69139, 9 Dec. 1969 (BH, SEL).
 H.p.s.: 8%.
Gloxinia gymnostoma Griseb. × *Kohleria eriantha* (Benth.) Hanst.
 Herbarium specimens: *Wiehler* 7209, 21 April 1972 (SEL).
 H.p.s.: 2%.
Gloxinia sylvatica × *Kohleria lanata* Lem.
 Herbarium specimens: *Wiehler* 6807, 11 Dec. 1968 (BH), *H. Wiehler* 6907, 9 Aug. 1969 (BH). H.p.s.: 0%.
9. × **Glocodonia** Wiehler, gen. hybr. nov. (*Gloxinia* × *Euclidonia*)
Gloxinia lindeniana (Regel) Fritsch × *Euclidonia verticillata*
 Herbarium specimens: *Wiehler* 7059, 25 Oct. 1970 (BH, SEL).
 H.p.s.: 0%.
10. × **Heppigloxinia** Wiehler, gen. hybr. nov. (*Heppiella* × *Gloxinia*)
Heppiella viscida × *Gloxinia nematanthodes* (Kuntze) Wiehler
 Herbarium specimens: *Wiehler* 71339, 12 Oct. 1971 (SEL).
 H.p.s.: 0%.
11. × **Moussogloxinia** Wiehler, gen. hybr. nov. (*Moussonia* × *Gloxinia*)
Moussonia elegans Decne. × *Gloxinia gymnostoma*
 Herbarium specimens: *Wiehler* 6804, 15 Aug. 1968 (BH, SEL).
 H.p.s.: 0%.
Moussonia hirsutissima × *Gloxinia gymnostoma*
 Herbarium specimens: *Wiehler* 6805, 15 Aug. 1968 (BH, SEL).
 H.p.s.: 0%.
Moussonia hirsutissima × *Gloxinia nematanthodes*
12. × **Moussonophora** Wiehler, gen. hybr. nov. (*Moussonia* × *Solonophora* Benth.)
Moussonia hirsutissima × *Solonophora insignis* (Martens & Galeotti) Hanst.
 Pollinated 16 April 1967, flowered in 1969, but no herbarium specimen made. H.p.s.: 0%.
Moussonia hirsutissima × *Solonophora* sp. (G-911, *S. tuxtla* Denham ined.)
 Herbarium specimen: *Wiehler* 69144, 12 Dec. 1969 (BH).
 H.p.s.: 0%.
13. × **Moussokohleria** Wiehler, gen. hybr. nov. (*Moussonia* × *Kohleria*)
Moussonia elegans × *Kohleria digitaliflora* (Lind. & André) Fritsch
 Herbarium specimens: *Wiehler* 69143, 9 Dec. 1969 (BH); *Wiehler* 7328, 3 Dec. 1973 (SEL). H.p.s.: 0%.
14. × **Gloxinopyle** Wiehler, gen. hybr. nov. (*Gloxinia* × *Monopyle* Benth.)
Monopyle maxonii Morton × *Gloxinia perennis*
 Pollinated 8 Sept. 1971, flowered Nov. 1972, but no herbarium specimen made. H.p.s.: 0%.
15. × **Diaskohleria** Wiehler, gen. hybr. nov. (*Diastema* Benth. × *Kohleria*)
Diastema vexans H. E. Moore × *Kohleria spicata*

- Herbarium specimens: *Wiehler* 6910, 8 April 1969 (BH); *Wiehler* 75258, 20 July 1975 (SEL). H.p.s.: 5-8%.
16. X *Colbergaria* *Wiehler*, gen. hybr. nov. (*Columnea* L. X *Dalbergaria* Tussac)
- Columnea erythrophaea* Decne. X *Dalbergaria perpulchra* (Morton) *Wiehler*
Herbarium specimens: *Wiehler* 7421, 28 Jan. 1974 (SEL). H.p.s.: 0%.
- Columnea querceti* Oerst. X *Dalbergaria perpulchra*
Herbarium specimen: *Wiehler* 75259, 4 Nov. 1975 (SEL). H.p.s.: 0%.
- Columnea crassifolia* Brongn. X *Dalbergaria perpulchra*
Herbarium specimens: *Wiehler* 7329, 7 Oct. 1973 (SEL). H.p.s.: 0%.
17. X *Coltrichantha* *Wiehler*, gen. hybr. nov. (*Columnea* X *Trichantha* Hook.)
- Columnea crassifolia* X *Trichantha dissimilis* (Morton) *Wiehler*
Herbarium specimens: *Wiehler* 7422, 21 Jan. 1974 (SEL). H.p.s.: 0%.
- Trichantha purpureovittata* *Wiehler* X *Columnea flaccida* Seem.
Herbarium specimens: *Wiehler* 7324, 14 Apr. 1973 (SEL). H.p.s.: 0%.
- Columnea wilsonii* *Wiehler* X *Trichantha brenneri* *Wiehler*
Herbarium specimens: *Wiehler* 75260, 15 June 1975 (SEL). H.p.s.: 0%.
- Columnea wilsonii* X *Trichantha tenensis* *Wiehler*
Herbarium specimens: *Wiehler* 75261, 15 June 1975 (SEL). H.p.s.: 0%.
- Trichantha illepidata* (H. E. Moore) Morton X *Columnea hirta* Kl. & Hanst. var. *mortonii* Morley
Produced by L. C. Sherk, Plant Research Institute, Ottawa, Canada, around 1967. Herbarium specimens: *Wiehler* 7019, 8 March 1970 (BH); *Wiehler* 72351a, 14 Nov. 1972 (SEL). H.p.s.: 0%.
- X *Coltrichantha* 'Canary': *Columnea verecunda* Morton X *Trichantha moorei* (Morton) Morton
Produced by Sherk & Lee (1967) around 1969 at Cornell University. Herbarium specimens: at BH, and *Wiehler* 7423, 4 Feb. 1974 (SEL). H.p.s.: 0%.
- Lee & Sherk (1963) and Sherk & Lee (1967) cite 21 other combinations of X *Coltrichantha*, all of them with 0% hybrid pollen stainability. The intergeneric sterility between *Columnea* and *Trichantha* stands in sharp contrast to the high percentage of fertility of their interspecific hybrids within *Columnea* and within *Trichantha* [for instance: *Columnea querceti* X *C. nicaraguensis* Oerst. = 99% h.p.s.; *Trichantha minor* Hook. (*T. teuscheri* Morton) X *T. illepidata* = 42% h.p.s.; *T. anisophylla* (DC.) *Wiehler* | *Columnea warscewicziana* (Oerst.) Hanst.] X *T. sanguinolenta* (Oerst.) *Wiehler* = 36% h.p.s.; *T. brenneri* X *T. tenensis* = 91% h.p.s.; the latter reported in Selbyana 1:43].

18. × **Coltadenia** Wiehler, gen. hybr. nov. [*Columnnea* × *Pentadenia* (Planch.) Hanst.]
Columnnea verecunda × *Pentadenia* sp. (*P. zapotalana* Wiehler ined.)
 Herbarium specimens: *Wiehler* 7310, 16 Feb. 1973 (SEL).
 H.p.s.: 0%.
- Columnnea verecunda* × *Pentadenia* sp. (*P. angustata* Wiehler ined.),
 reported by Sherk & Lee (1967 as "sp. G-361"). H.p.s.: 0%.
19. × **Daltrichantha** Wiehler, gen. hybr. nov. (*Dalbergaria* × *Trichantha*)
 × *Daltrichantha* 'Campus Favorite': *Dalbergaria sanguinea* (Pers.)
 Steud. (= *Columnnea affinis* Morton) × *Trichantha sanguinolenta*.
 This cross was made twice: in 1960 at Cornell University by Lee
 & Sherk (1963, p. 176, with cultivar epithet 'Campus Favorite,'
 cf. Sherk & Lee, 1967), and by myself at the same institution in
 1967. Herbarium specimens at BH, and *Wiehler* 75262, 8 July
 1975 (SEL). H.p.s.: 6-9%.
20. × **Daltadenia** Wiehler, gen. hybr. nov. (*Dalbergaria* × *Pentadenia*)
Dalbergaria perpulchra × *Pentadenia sericea* (Mansf.) Wiehler
 Herbarium specimens: *Wiehler* 75263, 10 July 1975 (SEL).
 H.p.s.: 0%.
21. × **Trichadenia** Wiehler, gen. hybr. nov. (*Trichantha* × *Pentadenia*)
Pentadenia sericea × *Trichantha brenneri*
 Herbarium specimens: *Wiehler* 75264, 10 July 1975 (SEL).
 H.p.s.: 0%.

ACKNOWLEDGEMENTS

Many of these intergeneric hybrids were produced at the conservatory of the L. H. Bailey Hortorium, Cornell University, or at the greenhouses of the Department of Biology, University of Miami, Florida. I want to express my appreciation for the use of these facilities and also thank the collectors who brought some of the parental species into cultivation.

LITERATURE CITED

- Cooke, J. F., Jr. & R. E. Lee 1966. Hybridization within and between *Achimenes* P. Br. and *Smithiantha* Kuntze (Gesneriaceae). *Baileya* 14(3):92-101.
- Hilliard, O. M. & B. L. Burt 1971. *Streptocarpus*, an African plant study. 410 p. University of Natal Press, Pietermaritzburg, South Africa.
- Lee, R. E. & L. C. Sherk 1963. Thirteen new *Columnnea* hybrids from Cornell University. *Gloxinian* 13(4):114-120; 13(5):172-176.
- Moore, H. E., Jr. 1973. Comments on cultivated Gesneriaceae. *Baileya* 19(1):35-41.
- Sherk, L. C. & R. E. Lee 1967. Interspecific hybridization in the genus *Columnnea* (Gesneriaceae). *Baileya* 15(3):89-96.