

GENERA NOVA ET COMBINATIONES NOVAE IN CACTACEIS AUSTRAMERICANIS AD SUBFAMILIAM OPUNTIOIDEAE K. SCHUMANN SPECTANTIBUS II

Sphaeropuntia Guiggi *gen. nov.*

Diagnosis: Plants prostrate or ascending, slightly branching, forming loose groups, with determinate growth; joints glaucous, globose or rarely ovate, easily detached, normally not tubercled, with apical branching; areoles prominent, numerous, large and woolly, distributed over the entire surface of the joints; spines normally subulate, sometimes numerous, straight or curved; flower yellow, short, lateral, with the hypanthium covered with thin spines; fruit almost spherical, smooth, ± spiny, slightly umbilicate, without pulp when mature; seed sub-globose, smooth, with the funicular envelope slightly prominent ribbon-like, without lateral ridges. **Typus generis:** *Sphaeropuntia sphaerica* (C.F. Förster) Guiggi. **Etymologia:** from the Latin *sphaericus* globose, referring to the shape of the segments. **Distributio:** South America, western side of Andes, below 3400 m.

Sphaeropuntia sphaerica (C.F. Förster) Guiggi *comb. nov.*

Basionymus: *Opuntia sphaerica* C.F. Förster, in Hamb. Gartenz. 17: 167 (1861). **Typus:** Peruvia, Arequipa, *non servatus*. **Neotypus** (Iloff, 2000: 6): ico 113 in Britton *et* Rose 1919: 96. **Synonymi:** *Cumulopuntia sphaerica* (C.F. Förster) E.F. Anderson, in Cact. Succ. J. (US) 71(6): 324 (1999); *Cumulopuntia tubercularis* F.Ritter, Kakt. Südamerika 3: 888 (1980) ?; *Cumulopuntia unguispina* var. *major* F.Ritter, Kakt. Südamerika 4: 1251 (1981), **Syn. nov.**; *Cumulopuntia rauppiana* (K. Schumann) F.Ritter, Kakt. Südamerika 4: 1252 (1981); *Cumulopuntia multiareolata* (F.Ritter) F.Ritter, Kakt. Südamerika 4: 1252 (1981); *Cumulopuntia kuehnrhichiana* (Werdermann *et* Backeberg) F.Ritter, Kakt. Südamerika 4: 1253 (1981); *Cumulopuntia tumida* F.Ritter, Kakt. Südamerika 4: 1254 (1981); *Cumulopuntia crassicylindrica* (Rauh *et* Backeberg) F.Ritter *ex* Eggl, in Novon 15(2): 277 (2005). **Distributio:** Chile ?, Peruvia.

Sphaeropuntia sphaerica subsp. *leucophaea* (Philippi) Guiggi *comb. et stat. nov.* (imago 1).

Basionymus: *Opuntia leucophaea* Philippi, in Anales Mus. Nac. Santiago de Chile 27 (1891). **Typus:** Chile, Tarapacá, Usmagama, 1885, *leg. Rahmer s.n.* (SGO, *holo.*). **Synonymi:** *Cumulopuntia leucophaea* (Philippi) Hoxey, in Teph. Study Group 15(4): 57 (2009); *Cumulopuntia unguispina* (Backeberg) F.Ritter, Kakt. Südamerika 4: 1251 (1981). **Distributio:** Chile, Peruvia.

Sphaeropuntia zehnderi (Rauh *et* Backeberg) Guiggi *comb. nov.*

Basionymus: *Tephrocactus zehnderi* Rauh *et* Backeberg, Descr. Cact. Nov. 9 1956 (1957). **Typus:** Peruvia, Arequipa, 1956, *leg. W. Rauh* K 121 (ZSS, *holo.*). **Synonymi:** *Cumulopuntia zehnderi* (Rauh *et* Backeberg) F.Ritter, Kakt. Südamerika 4: 1249 (1981); *Cumulopuntia alboareolata* (F.Ritter) F.Ritter, Kakt. Südamerika 4: 1249 (1981). **Distributio:** Peruvia.

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Fig. 1: *Sphaeropuntia sphaerica* ssp. *leucophaea* in flower (Chile, Región II, Prov. Antofagasta, 7 km E of Taltal towards the Panamericana, river bank to the S of the road, 280-400 m, 26 Nov. 1991). Photo: Eggli & Leuenberger 1767.

NOMENCLATURAL ADJUSTMENTS IN THE GENUS *OPUNTIA* MILLER (*OPUNTIOIDEAE* - *OPUNTIEAE*) FROM NORTH AMERICA

Opuntia engelmannii Salm-Dyck **subsp. flavispina** (L.D. Benson) Guiggi *stat. nov.*
Basionymus: *Opuntia phaeacantha* var. *flavispina* L.D. Benson, in *Cact. Succ. J. (U.S.)* 46(2): 79 (1974). *Typus*: United States, Arizona, Alamo Canyon, Ajo Mts., 2300 ft., 27 Apr. 1939, A.A. Nichol [RSA-POM, *holo.*; ARIZ, *iso.*]. *Synonymus*: *Opuntia engelmannii* var. *flavispina* (L.D. Benson) B.D. Parfitt *et* Pinkava, in *Madroño* 35: 348 (1988). **Distributio**: Mexico (Sonora), United States (Arizona).

Opuntia gosseliniana F.A.C. Weber **subsp. santa-rita** (Griffiths *et* Hare) Guiggi *stat. nov.*
Basionymus: *Opuntia chlorotica* var. *santa-rita* Griffiths *et* Hare, in *New Mexico Agric. Exp. Sta. Bull.* 60: 64 (1906). *Typus*: United States, Arizona, Pima County, Celero (Santa Rita) Mts., 3 Oct. 1905, D. Griffiths 8157 [US, *holo.*]. *Synonymi*: *Opuntia gosseliniana* var. *santa-rita* (Griffiths *et* Hare) L.D. Benson, *Cacti Ariz.* ed. 2, 65 (1950); *Opuntia violacea* var. *santa-rita* (Griffiths *et* Hare) L.D. Benson, *Cacti Ariz.* ed. 3, 21 (1969). **Distributio**: Mexico (Sonora), United States (Arizona).

Opuntia lindheimeri Engelmann ‘**Aciculata**’. *Typus*: United States, Texas, near Laredo, 26 Jun. 1911, D. Griffiths 10300 [*holo.* not found]. *Lectotypus* (Benson, 1982: 930): D. Griffiths 10360 [US, *holo.*; RSA-POM, *iso.*]. *Synonymi*: *Opuntia aciculata* Griffiths, in *Proc. Biol. Soc. Wash.* 29: 10 (1916); *Opuntia engelmannii* var. *aciculata* (Griffiths) Weniger, *Cact. SW.* 178 (1970); *Opuntia lindheimeri* var. *aciculata* (Griffiths) Bravo, in *Cact. Succ. Méx.* 19(2): 47 (1974). **Distributio**: Mexico (Nuevo Leon), United States (Texas).

Opuntia lindheimeri Engelmann ‘**Gomei**’. *Typus*: United States: Texas, near Brownsville, 13 Mar. 1910, D. Griffiths 9913 [US, *holo.*, RSA-POM, *iso.*]. *Synonymi*: *Opuntia gomei* Griffiths, in *Rept. Mo. Bot. Gard.* 21: 167 (1910); *Opuntia cyanella* Griffiths, in *Rept. Mo. Bot. Gard.* 22: 30 (1912); *Opuntia lindheimeri* var. *lehmannii* L.D. Benson, in *Cact. Succ. J. (U.S.)* 41: 125 (1969). **Distributio**: United States (Texas).

Opuntia luteispina Guiggi **nom. nov.** *Synonymus*: *Opuntia azurea* Rose var. *discolor* Weedin, *Cacti Trans-Pecos* 139 (2004). *Typus*: United States, Texas, Presidio Co., Big Hill, c. 12.5 mi NW of Lajitas, 12 Aug. 1993, A.M. Powell *et* S.A. Powell 6004 [SRSC, *holo.*]. **Etymologia**: from the Latin *luteus* yellow and *spina* spine. **Distributio**: Mexico (Chihuahua), United States (Texas). Note: a new name is necessary to avoid the conflict with the homonym *Opuntia discolor* Britton & Rose.

Opuntia macrocentra Engelmann **subsp. azurea** (Rose) Guiggi **comb. et stat. nov.**
Basionymus: *Opuntia azurea* Rose, in *Contr. U.S. Natl. Herb.* 12: 291 (1909). *Typus*: Mexico, NE Zacatecas, 1908, F. E. Lloyd 30 [US, *holo. spec. vis.*]. *Synonymus*: *Opuntia azurea* var. *parva* A.M. Powell *et* J.F. Weedin, *Cacti Trans-Pecos & Ad. Areas* 134 (2004). **Distributio**: Mexico (Aguascalientes, Chihuahua?, Coahuila, Durango, San Luis Potosí, Zacatecas), United States (Texas).

Opuntia phaeacantha Engelmann **subsp. mojavensis** (Engelmann *et* J.M. Bigelow) Guiggi **stat. nov.**
Basionymus: *Opuntia mojavensis* Engelmann *et* J.M. Bigelow, in *Proc. Amer. Acad. Arts* 3: 293 1856 (1857). *Typus*: United States, California, Mojave Creek (River), 15 Mar. 1854, J.M. Bigelow *s.n.* [MO, *holo. spec. vis.*]. *Synonymi*: *Opuntia phaeacantha* var. *mojavensis* Fosberg, in

Bull. S. Calif. Acad. Sci. 33: 103 (1934); *Opuntia superbospina* Griffiths, in Proc. Biol. Soc. Wash. 29: 13 (1916); *Opuntia phaeacantha* var. *superbospina* (Griffiths) L.D. Benson, in Cact. Succ. J. (U.S.) 46: 79 (1974). **Distributio:** United States (Arizona, California).

Opuntia polyacantha Haworth **subsp. erinacea** (Engelmann et J.M. Bigelow) Guiggi *stat. nov.* *Basionymus:* *Opuntia erinacea* Engelmann et J.M. Bigelow, in Proc. Amer. Acad. Arts 3: 301 1856 (1857). *Typus:* United States, California, W of the Colorado, near Mojave Creek (River), 4 Mar. 1854, J.M. Bigelow s.n. [MO, *holo. spec. vis.*]. *Synonymi:* *Opuntia polyacantha* var. *erinacea* (Engelmann et J.M. Bigelow) B.D. Parfitt, in Cact. Succ. J. (U.S.) 70: 188 (1998); *Opuntia ursina* F.A.C Weber in Bois, Dict. Hort. 2(28): 896 (1898); *Opuntia hystericina* var. *ursina* (F.A.C.Weber) Backeberg, Die Cact. 1: 610 (1958). **Distributio:** United States (Arizona, California, Nevada, Utah).

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TYPIFICATION AND NEW COMBINATIONS IN THE GENUS *TRICHOCEREUS* (A. BERGER) RICCOBONO

Trichocereus (A. Berger) Riccobono, in Boll. Reale Orto Bot. Palermo 8: 236 (1909). *Basionymus*: *Cereus* subgen. *Trichocereus* A. Berger, in Rep. (Annual) Missouri Bot. Gard. 16: 73 (1905). *Typus generis*: *Cereus macrogonus* Hort. Berol. ex Salm-Dyck, Cact. Hort. Dyck. 203 (1850) ≡ *Trichocereus macrogonus* (Hort. Berol. ex Salm-Dyck) Riccobono, in Boll. Reale Orto Bot. Palermo 8: 236 (1909). *Synonymi*: *Echinopsis* Zuccarini *pro parte*, in Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 2: 675 (1838); *Soehrensia* Backeberg, Blätt. Kakteenf. 6: 21 (1938); *Helianthocereus* Backeberg, in Cact. Succ. J. Gr. Brit. 11: 53 (1949); *Leucosteles* Backeberg, in Kakteen And. Sukk. 36 (1953).

Trichocereus atacamensis subsp. *pasacanus* (F.A.C.Weber ex Rümpler) Guiggi, Cactology 3: 8 'pasacana'. *Basionymus*: *Pilocereus pasacanus* F.A.C.Weber ex Rümpler, Handb. Cacteenk. 2 ed. 678 (1886). *Typus*: Argentina, valleys from Catamarca to Salta, *sine legit, locus et data* [*holo. non servatus*]. **Neotypus hic designatus**: Argentina, Catamarca, Gorge west of Andalgalá, 1450 m, 20 Dec. 1916, J. A. Shafer 17 sub *Trichocereus pasacanus* [US, *holo. spec. vis.* fig. 2; NY, *iso. spec. vis.*; corp., ar., sp., fl.]. *Synonymi*: *Echinopsis pasacana* (F.A.C.Weber) H. Friedrich et G.D. Rowley, in IOS Bull. 3(3): 96 (1974); *Trichocereus atacamensis* var. *pasacanus* (F.A.C.Weber ex Rümpler) F.Ritter, Kakt. Südamerika 2: 447 (1980); *Echinopsis atacamensis* subsp. *pasacana* (F.A.C.Weber ex Rümpler) G. Navarro, in Lazaroa 17: 54 (1996). **Living specimens examined**: Argentina, Tilcara, R. Kiesling [20072(4) *cult. hort.* Jardin Exotique Monaco]; Argentina, Catamarca, N Belen, R. Kiesling [24099(5) *cult. hort.* Jardin Exotique Monaco]. **Distributio**: Argentina.

Trichocereus camarguensis Cárdenas, in Rev. Agric., Cochabamba 8: 17 (1953). *Typus*: Bolivia, Chuquisaca, Nor-Cinti, near Camargo, 2700 m, Mar. 1952, M. Cárdenas 5041 [LIL, *holo.*]. **Living specimen examined**: Bolivia, Chuquisaca, Nor-Centi, F. Ritter FR 75 [6901 *cult. hort.* Jardin Exotique Monaco, fig. 3]. **Distributio**: Bolivia.

Trichocereus camarguensis subsp. *caulescens* (F.Ritter) Guiggi *comb. et stat. nov.* *Basionymus*: *Trichocereus caulescens* F.Ritter, in Cactus (Paris) 21(87): 11 (1966). *Typus*: Bolivia, Tarija, 1973, F. Ritter 73 [U, *holo.*, SGO, *iso.*]. *Synonymi*: *Echinopsis caulescens* (F. Ritter) M. Lowry, in Cactaceae Syst. Init. 14: 13 (2002); *Soehrensia caulescens* (F.Ritter) Schlumpberger, in Cact. Syst. Init. 28: 30 (2012); *Trichocereus cajasensis* F. Ritter *nom. nud.* (Ritter, 1980: 566) **Living specimens examined**: Bolivia, Tarija, F. Ritter FR 73 [7223 *cult. hort.* Jardin Exotique Monaco, fig. 4-6]; Bolivia, Tarija, F. Ritter FR 869 sub *Trichocereus cajasensis* [5507 *cult. hort.* Jardin Exotique Monaco]. **Distributio**: Bolivia.

Trichocereus hahnianus (Backeberg) Guiggi *comb. nov.* *Basionymus*: *Mediocactus hahnianus* Backeberg, Descr. Cact. Nov. 10 1956 (1957). *Typus*: Paraguay, Río Apa region, 200 m, R. Blossfeld *s.n.*, *cult. hort.* Jard. Bot. Asunción, *non servatus*. *Neotypus* (Kimmach & Hutchinson 1987, in Cact. Succ. J. (U.S.) 59(2): 59: 1937, T. Rojas et J. West 8499 [HNT, K, MO, US]. *Synonymi*: *Harrisia hahniana* (Backeberg) Kimmach et Hutchinson, in *loc. cit.* 59(2): 59 (1987); *Echinopsis hahniana* (Backeberg) R.S.Wallace, in Cact. Cons. Init. 4: 12 (1997); *Soehrensia hahniana* (Backeberg) Schlumpberger, in Cact. Syst. Init. 28: 31(2012). **Distributio**: Paraguay.

Trichocereus serpentinus (M.Lowry et M. Mendoza) Guiggi *comb. nov.* *Basionymus*: *Echinopsis serpentina* M. Lowry et M. Mendoza, in Cactus World 29(2): 95 (2011). *Typus*: Bolivia, Depto. La Paz, Prov. Muñecas, Camata, below the village along a bridle path on the road from Charazani to Apolo, 11 Oct. 2008, M. Mendoza 3369 [USZ, *holo.*; K, LPB *iso.*]. **Living**

specimen examined: Peru, Sandia, Puno, 2270 m, *P. Hoxey* PH 718.01 [*cult. hort.* A. Guiggi].
Distributio: Bolivia, Peru.

Trichocereus tacaquirensis (Vaupel) Cárdenas *ex* Backeberg, *Die Cact.* 2: 1107 (1959).
Basionymus: *Cereus tacaquirensis* Vaupel, in *Monatsschr. Kakteenk.* 26: 122 (1916). *Typus:*
Bolivia, N of Camargo, Tacaquire, 17 Feb. 1904, *Fiebrig* 2930 [B†, *holo.*]. *Synonymus:* *Echinopsis*
tacaquirensis (Vaupel) H.Friedrich *et* G.D.Rowley, in *IOS Bull.* 3(3): 98 (1974). **Living specimen**
examined: *C. Backeberg sine loco* [7780 *cult. hort.* Jardin Exotique Monaco]. **Distributio:** Bolivia.

Trichocereus tacaquirensis subsp. *taquimbalensis* (Cárdenas) Guiggi *comb. nov.*
Basionymus: *Trichocereus taquimbalensis* Cárdenas, in *Rev. Agric. Cochabamba* 8: 16 (1953).
Typus: Bolivia, Cochabamba, Tarata, near Taquimbala, 2800 m, Dec. 1947, *M. Cárdenas* 5029 [LIL,
holo.] *Synonymus:* *Echinopsis taquimbalensis* (Cárdenas) H.Friedrich *et* G.D.Rowley, in *IOS Bull.*
3(3): 98 (1974); *Echinopsis tacaquirensis* subsp. *taquimbalensis* (Cárdenas) G.Navarro, in *Lazaroa*
17: 55 (1996). **Living specimen examined:** Bolivia, dept. Cochabamba, Taquimbala, *M. Cardenas*
[8144 *cult. hort.* Jardin Exotique Monaco]. **Distributio:** Bolivia.

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- Schlumpberger, B. O., and S. S. Renner. 2012. Molecular phylogenetics of *Echinopsis* (*Cactaceae*): Polyphyly at all levels and convergent evolution of pollination modes and growth forms. *Amer. J. Bot.* 99(8): 1335–1349.
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Fig. 2: Neotype of *Trichocereus pasacanus*, sections of the stem, ribs and areoles with spines (*Trichocereus atacamensis* ssp. *pasacanus*), J. A. Shafer 17. © National Museum of Natural History, Smithsonian Institution. Photo: Ingrid P. Lin.



Fig. 3: *Trichocereus camarguensis* with a dry flower, FR 75 cult. hort. Jardin Exotique Monaco.
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Fig. 4: *Trichocereus caulescens* (*T. camarguensis* ssp. *caulescens*) with two flower buds, FR 869 cult. hort. Jardin Exotique Monaco.



Fig. 5: *Trichocereus caulescens* (*T. camarguensis* ssp. *caulescens*) in flower with the inner white and the outer purplish-green segments of the perianth, FR 869 *cult. hort.* Jardin Exotique Monaco.



Fig. 6: *Trichocereus caulescens* (*T. camarguensis* ssp. *caulescens*) with a dehiscent fruit exposing the white pulp and the black seeds, and a residual perianth parts of a flower, FR 869 cult. hort. Jardin Exotique Monaco.

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Nomenclatural novelties proposed in this supplement II

- Opuntia engelmannii* subsp. *flavispina* (L.D. Benson) Guiggi *stat. nov.*
Opuntia gosseliniana subsp. *santa-rita* (Griffiths et Hare) Guiggi *stat. nov.*
Opuntia lindheimeri ‘Aciculata’
Opuntia lindheimeri ‘Gomei’
Opuntia luteispina Guiggi *nom. nov.*
Opuntia macrocentra subsp. *azurea* (Rose) Guiggi *comb. et stat. nov.*
Opuntia phaeacantha subsp. *mojavensis* (Engelmann et J.M. Bigelow) Guiggi *stat. nov.*
Opuntia polyacantha subsp. *erinacea* (Engelmann et J.M. Bigelow) Guiggi *stat. nov.*
Sphaeropuntia Guiggi *gen. nov.*
Sphaeropuntia sphaerica (C.F. Förster) Guiggi *comb. nov.*
Sphaeropuntia sphaerica subsp. *leucophaea* (Philippi) Guiggi *comb. et stat. nov.*
Sphaeropuntia zehnderi (Rauh et Backeberg) Guiggi *comb. nov.*
Trichocereus camarguensis subsp. *caulescens* (F. Ritter) Guiggi *comb. et stat. nov.*
Trichocereus hahnianus (Backeberg) Guiggi *comb. nov.*
Trichocereus serpentinus (M. Lowry et M. Mendoza) Guiggi *comb. nov.*
Trichocereus tacaquirensis ssp. *taquimbalensis* (Cárdenas) Guiggi *comb. nov.*

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