

Cactology

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2

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Cover illustration

Adult plant of *Melocactus intortus* subsp. *broadwayi* with its cephalium from Micoud, Saint Lucia, Lesser Antilles. Photo by J. Senior.

Back cover illustration

Crested plant of *Pilosocereus lanuginosus* subsp. *colombianus* *cult. hort.* Jardin Exotique of Monaco. Photo by A. Guiggi.

Nomenclatural novelties proposed in this issue

Melocactus caesius subsp. *lobelii* (Suringar) Guiggi *comb. nov.*
Melocactus macracanthos subsp. *stramineus* (Suringar) Guiggi *comb. et stat. nov.*
Melocactus mazelianus subsp. *andinus* Guiggi *comb. et stat. nov.*
Melocactus mazelianus subsp. *schatzlii* (Till et R. Gruber) Guiggi *comb. et stat. nov.*
Melocactus mazelianus subsp. *schatzlii* forma *guanensis* (Xhonneux et Fernandez-Alonso) Guiggi *comb. et stat. nov.*
Pilosocereus lanuginosus subsp. *colombianus* (Rose) Guiggi *comb. et stat. nov.*
Pilosocereus lanuginosus subsp. *moritzianus* (Otto ex Pfeiffer) Guiggi *comb. et stat. nov.*
Pilosocereus lanuginosus subsp. *tillianus* (Gruber et Schatzl) Guiggi *comb. et stat. nov.*
Praepilosocereus Guiggi *gen. nov.*
Praepilosocereus mortensenii (Croizat) Guiggi *comb. nov.*
Subpilocereus fricii (Backeberg) Guiggi *comb. nov.*
Subpilocereus fricii subsp. *horrispinus* (Backeberg) Guiggi *comb. et stat. nov.*

Corrigendum Cactology I

Pag. 23: The geographical distribution of *Consolea spinosissima* subsp. *millspaughii* (Britton) Guiggi also includes the Cayman Islands.

INDEX

Editorial.....	3
An alternative taxonomic approach for the <i>Melocactus curvispinus</i> group (<i>Cactoideae-Cereeae</i>) in Colombia & Venezuela.....	4
The revised taxonomy of <i>Pilosocereus lanuginosus</i> (Linnaeus) Byles <i>et</i> Rowley (<i>Cactoideae-Cereeae</i>) from north-western South America.....	10
Taxonomic novelties in two cereiform genera of Colombia & Venezuela (<i>Cactoideae-Cereeae</i>): <i>Praepilosocereus</i> Guiggi <i>gen. nov.</i> and new combinations in <i>Subpilocereus</i> Backeberg.....	17
A revision of the genus <i>Melocactus</i> Link <i>et</i> Otto (<i>Cactoideae-Cereeae</i>) in Cuba with an appendix of the accepted status of remaining Caribbean taxa.....	23

May 2010

EDITORIAL

The second bulletin of Cactology is here presented. This number principally focuses on some endemic cereiform cacti and melocacti of north-western South America. A revision of the genus Melocactus in Cuba and of the remaining Caribbean taxa is also included. A new genus and many new combinations are proposed and discussed.

Maggio 2010

EDITORIALE

Il secondo bollettino di Cactology viene qui presentato. Questo numero si focalizza principalmente su alcuni cactus cereiformi e melocacti, endemici del nord-ovest del Sud America. Inoltre, viene anche inclusa una revisione del genere Melocactus in Cuba e dei rimanenti taxa caraibici. Un nuovo genere e molte nuove combinazioni vengono qui di seguito proposti e discussi.

Mayo 2010

EDITORIAL

Se presenta el segundo boletín de Cactología. Este número aborda principalmente algunos cactus cereiformes y del género Melocactus, endémicos a la región nor-oeste de América del Sur. También incluye una revisión del género Melocactus en Cuba y de taxones remanentes caribeños. Finalmente un nuevo género y varias nuevas combinaciones se proponen y discuten.

Mai 2010

EDITORIAL

Le second bulletin de Cactology est ici présenté. Ce numéro traite principalement de quelques melocactées et cactées cereiformes endémique du nord-ouest de l'Amérique du Sud. Une révision du genre Melocactus à Cuba et des autres espèces caraïbes est aussi incluse. Un nouveau genre et de nombreuses nouvelles combinaisons sont proposés et discutés.

AN ALTERNATIVE TAXONOMIC APPROACH FOR THE *MELOCACTUS CURVISPINUS* GROUP (CACTOIDEAE-CEREEAE) IN COLOMBIA & VENEZUELA

Abstract – Recent published data about the genus *Melocactus* Link et Otto in Colombia provides evidence for the author to propose a new taxonomy for the species belonging to the *M. curvispinus* group in Colombia & Venezuela. One accepted species (*M. caesius*) and four new combinations (*M. caesius* ssp. *lobelii*; *M. mazelianus* ssp. *schatzlii*, *M. mazelianus* ssp. *schatzlii* fa. *guanensis* and *M. mazelianus* ssp. *andinus*) are published. Briefs notes and keys are also included for the proposed taxa.

Riassunto – Dati recenti pubblicati sul genere *Melocactus* Link et Otto in Colombia, hanno permesso all'autore di proporre una nuova tassonomia per le specie appartenenti al gruppo del *M. curvispinus* in Colombia e Venezuela. Una specie accettata (*M. caesius*) e quattro nuove combinazioni (*M. caesius* ssp. *lobelii*; *M. mazelianus* ssp. *schatzlii*, *M. mazelianus* ssp. *schatzlii* fa. *guanensis* and *M. mazelianus* ssp. *andinus*) sono state pubblicate. Alcune brevi note e chiavi sono anche incluse per i taxa proposti.

Resumen – Datos recientemente publicados sobre el género *Melocactus* Link et Otto en Colombia, han permitido al autor proponer una nueva taxonomía de las especies pertenecientes al grupo de *M. curvispinus* en Colombia y Venezuela. Es aceptada una especie (*M. caesius*) y cuatro nuevas combinaciones fueron publicadas (*M. caesius* ssp. *lobelii*; *M. mazelianus* ssp. *schatzlii*, *M. mazelianus* ssp. *schatzlii* fa. *guanensis* y *M. mazelianus* ssp. *andinus*). Se incluyen algunas notas breves y las claves para los taxones propuestos.

Résumé – Des données publiées récemment sur le genre *Melocactus* Link et Otto en Colombie fournissent à l'auteur l'évidence de proposer une nouvelle taxonomie pour les espèces appartenant au groupe de *M. curvispinus* en Colombie et Venezuela. Une espèce est acceptée (*M. caesius*) et quatre nouvelles combinaisons sont publiées (*M. caesius* ssp. *lobelii*; *M. mazelianus* ssp. *schatzlii*, *M. mazelianus* ssp. *schatzlii* fa. *guanensis* et *M. mazelianus* ssp. *andinus*). Des notes brèves et une clé des taxa proposé sont aussi inclus.

The history of the genus *Melocactus* Link et Otto in Colombia and Venezuela started very early with probably the earliest illustration of *Melocactus* (*M. lobelii*) from Margarita Island in L'Obel's publication, *Stirpium adversaria nova*, dated 1570-71. Very many years later, new taxa began to appear in Pfeiffer (1837), Lemaire (1838), Miquél (1840), Suringar (1889, 1896), with the most recent descriptions by Cárdenas (1967), Riha (1981), Till & Gruber (1982), Taylor (1991), Fernandez-Alonso & Xhonneux (2002a-b). Other general authors have also contributed in their publications such as Britton & Rose (1922), Backeberg (1960, 1977), Trujillo & Ponce (1988), Trujillo (1997), Anderson (2001), Delanoy *et al.* (2003), Hunt *et al.* (2006) or in reports of explorers like Otero (1968), Gruber (1982, 1983, 1984), Wanie (1982, 1996), Hofacker (1993). The taxonomy of these very interesting taxa growing in the Andean region or in the arid cost of the Caribbean sea was addressed by Taylor (1991: 61-77), who included in his *M. curvispinus* group *M. mazelianus*, *M. schatzlii*, *M. andinus*, *M. curvispinus* ssp. *curvispinus*, *M. curvispinus* ssp. *caesius* fa. *caesius*, *M. curvispinus* ssp. *caesius* fa. *lobelii*. In 2002, Fernandez-Alonso & Xhonneux (2002a-b) published a synopsis of the genus *Melocactus* in Colombia with 7 new descriptions (*M. andinus* ssp. *soatensis*, *M. curvispinus* ssp. *cucutensis*, *M. curvispinus* ssp. *saravianus*, *M. guanensis*, *M. hernandezii*, *M. pescaderensis*, *M. schatzlii* ssp. *chicamochae*) and 3 new combinations (*M. curvispinus* ssp. *lobelii*, *M. curvispinus* ssp. *loboguerreroi*, *M. curvispinus* ssp. *obtusipetalus*). Successively, Taylor (2003: 14-15) revised this new data, choosing to accept only *M. schatzlii* ssp. *chicamochae* but adding a new combination, *M. andinus* ssp. *hernandezii*. The author now starts from a different perspective and proposes the following alternative approach, where *M. caesius* is re-accepted as a valid species and *M. andinus*, *M. schatzlii* are considered as ecological subspecies of *M. mazelianus*.

Synopsis of the revised species & infraspecific taxa recognized

Melocactus caesius H.L. Wendland *ex* Miquél, *Monogr. Melocacti* 104 (1840). *Typus*: Venezuela [“Colombia”], Distrito Federal, La Guayra, *H.L. Wendland*, assumed not to have been preserved. *Neotypus*: Venezuela, Distrito Federal, between La Guaira and Caracas, 16.5 km from the former, 24 Jan. 1988, *N.P. Taylor* 694 (K) (Taylor, 1991: 75). Distribution: northern Colombia and Venezuela. Note: the author distinguished this taxon from the very close relative *M. curvispinus* by its different and disjunct ecological distribution in the Caribbean floristic lowland formations (Ruiz *et al.*, 2002: 331) and for its infra-specific morphological variability. In the past, other specialists have recognized *M. caesius* as a valid species (Britton & Rose, 1922: 233; Backeberg, 1960: 2592, 1977: 310).

M. caesius* subsp. *caesius. *Synonymi*: *Melocactus humilis* Suringar, in *Versl. Med. Kon. Akad. Wetensch.* III 6: 459 (1889). *Typus*: Venezuela, La Guayra, *C.W.R. Scholten*, preserved ?; *Cactus caesius* (H.L. Wendland) Britton *et* Rose, in *Bull. Dept. Agr. Trinidad* 19: 86 (1921); *Melocactus curvispinus* subsp. *caesius* (H.L. Wendland) N.P. Taylor, in *Bradleya* 9: 75, with illus. (1991). ***Synon. nov.***; *Melocactus amoenus sensu* Backeberg, *Die Cact.* IV: 2606 (1960), *non* (Hoffmannsegg) Pfeiffer. Habitat & distribution: 0-700 m, Caribbean coastal region (Taylor, 1991: 75), Venezuela (Carabobo, Distrito Federal). Note: subspecies type characterized by a thorn scrub habitat (Taylor, 1991: 76).

M. caesius* subsp. *lobelii (Suringar) Guiggi ***comb. nov.*** *Basionymus*: *Melocactus lobelii* Suringar, in *Verh. Med. Kon. Akad. Wetensch. Amst.* II 5: 7, t. 1.1 (1896). *Typus* (*Iconotypus*): Venezuela, Nueva Esparta, Margarita Island, illustration in L’Obel (1570-71: 376). *Synonymi*: *Melocactus griseus* H.L. Wendland *ex* Miquél, *Monogr. Melocacti* 105 (1840); *Melocactus caesius* [var.] *griseus* (H.L. Wendland) Forster, *Handb. Cact.* 263 (1846). *Typus*: Venezuela [“Colombia”], Distrito Federal, La Guayra, *H.L. Wendland*, assumed not to have preserved (Taylor, 1991: 75); *Cactus amoenus sensu* Britton *et* Rose, *Cact.* 3: 232 (1922), *non* Hoffmannsegg; *Melocactus curvispinus* subsp. *caesius* (H.L. Wendland) N.P. Taylor forma *lobelii* (Suringar) N.P. Taylor, in *Bradleya* 9: 76, with illus. (1991). ***Synon. nov.***; *Melocactus curvispinus* subsp. *lobelii* (Suringar) Fernandez-Alonso *et* Xhonneux, in *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26: 356 (2002b). ***Synon. nov.***; *Melocactus curvispinus* subsp. *saravianus* Fernandez-Alonso *et* Xhonneux, in *Rev. Acad. Colomb. Cien. Exact. Fís. Nat.* 26: 357, with illus. (2002b). *Typus*, Colombia, La Guajira, c. San Juan del Cesar, 8.2 km from Distracción, 18 Jan. 1963, *C. Saravia* 2073 (COL). ***Synon. nov.*** Habitat & distribution: 0-500 m, Caribbean low lands (Ruiz *et al.*, 2002: 331), Colombia (La Guajira, Magdalena), Venezuela incl. Caribbean Islands (Anzoategui, Aragua, Distrito Federal, Falcon, Nueva Esparta, Sucre, Zulia). Note: ecological subspecies characterized by more open habitats, dark or blue-green stem color, greater dimensions of the stem, areoles, spines and cephalium, greater number of ribs, central and radial spines (Taylor, 1991: 76-77).

Melocactus curvispinus Pfeiffer, *Enum. Diag. Cact.* 46 (1837). *Typus*: Mexico, not preserved or lost. *Neotypus*: Mexico, Veracruz, between El Morro and Laguna Verde, coastal lava, 5-10 m, 28 Jul. 1986, *N.P. Taylor* 365 (MEXU) (Taylor, 1991: 71). *Synonymi*: *Melocactus obtusipetalus* Lemaire, *Cact. Aliq. Nov.* 11 (1838); *Cactus obtusipetalus* (Lemaire) Britton *et* Rose, *Cact.* 3: 232 (1922); *Melocactus curvispinus* subsp. *obtusipetalus* (Lemaire) Xhonneux *et* Fernandez-Alonso, in *Int. Cact. Adventures* 56: 8, with illus. (2000a); *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26: 357, with illus. (2002b). *Typus*: Colombia, Cundinamarca, Santa Fé de Bogota, assumed not to have preserved. *Neotypus* (Fernandez-Alonso & Xhonneux, 2002a: 8): Colombia, Cundinamarca, Tocaima, via Tocaima-Pubenza, 350-400 m, 14 Apr. 1952, *H. Garcia-Barriga* 14178 (COL); *Melocactus crassicostatus* Lemaire, *Cact. Aliq. Nov.* 13 (1838). *Typus*: Colombia, Cundinamarca, Santa Fé de Bogota, assumed not to have preserved; *Melocactus obtusipetalus* var. *crassicostatus*

(Lemaire) Lemaire *ex* Miquél, *Monogr. Melocacti* 56 (1840); *Melocactus loboguerreroi* Cárdenas, in *Cact. Suc. Mex.* 12(3): 58, with illus. (1967); *Melocactus curvispinus* subsp. *loboguerreroi* (Cárdenas) Fernandez-Alonso *et* Xhonneux, in *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26: 356 (2002b). *Typus*: Colombia, Cauca, *M. Cárdenas* (?); *Melocactus curvispinus* subsp. *cucutensis* Xhonneux *et* Fernandez-Alonso, in *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26: 356. (2002b). *Typus*: Colombia, N of Santander, Cucuta, 400 m., 30 Ago. 1964, *S. Espinal* 1724 (COL). **Synon. nov.** Distribution: 200-1600 m, Inter-Andean dry valleys, Upland dry formations, (Ruiz *et al.*, 2002: 332-333), stony and argillaceous hills (Fernandez-Alonso *et* Xhonneux, 2002b: 356), open areas (Figueroa-C. & Galeano, 2007: 278), Colombia (Boyacá, Cundinamarca, Huila, Norte de Santander, Tolima, Valle), Venezuela (Lara, Tachira, Trujillo). Notes: the analyzed variability of *Melocactus curvispinus* in Colombia and Venezuela not justify the recognition of infra-specific taxa in agree with Taylor (2003: 14). The type of *Melocactus loboguerreroi* is not reported in the recent Cárdenas's type specimens register of *Cactaceae*, in the herbarium of Instituto Miguel Lillo (LIL) (Eggl & Leunberger, 2005: 188) as supposed in Taylor (1991: 71) and Fernandez-Alonso & Xhonneux (2002b: 356), at the moment is not known in which herbarium is deposited or if it has been originally preserved. *Melocactus curvispinus* is a variable species widely distributed also in Central America: Mexico [incl. *M. delessertianus* Lemaire, *M. salvador* Murillo, *M. oaxacensis* (Britton *et* Rose) Backeberg, *M. dawsonii* Bravo], Guatemala [incl. *M. maxonii* (Rose) Gurke, *M. guatemalensis* Gurke *et* Eichlam], Honduras [incl. *M. ruestii* K. Schumann], Nicaragua, Costa Rica, Panama and in the Carribean region: Netherlands Antilles in Aruba [incl. *M. koolwijkianus* Suringar, *M. laui* Antesberger], Cuba [incl. *M. guitartii* León, *M. holguinensis* Areces, *M. jakusii* Mészáros].

Key to the *Melocactus curvispinus* and *M. caesius* complexes

1. Ribs 10-16; radial spines normally recurved.....2.
Ribs 10-12; radial spines normally straight, 6-9, 16-26 mm long; central spines 0-2, 15-27 mm long; stem to 13 cm high; areoles to 6-7 mm long; cephalium to 6 cm high.....
.....**1. *M. caesius* subsp. *caesius***
2. Areoles 8-17 mm long, stem to 30 cm high; radial spines 8-13, to 27-42 mm long; central spines 1-5, to 28-52 mm long; cephalium to 20.5 cm high.....**2. *M. caesius* subsp. *lobelii***
Areoles 4.5-11 mm long; stem to 20 cm high; radial spines 7-11, to 14-33 mm long; central spines 1-3, to 18-35 mm long; cephalium to 15 cm high..... **3. *M. curvispinus***

Melocactus mazelianus Riha, in *Kakt. and. Sukk.* 32(9): 217, with illus. (1981). *Typus*: Venezuela, Bolívar, granite blocks above Río Orinoco, 50-70 m, *J. Riha et al.* 456 (PR). Note: Taylor (1991: 62-65) in his *Melocactus* monograph accepted *M. mazelianus*, *M. schatzlii* and *M. andinus* as separate species, distinguished by their different seed morphology, anthesis time, bristles extending from the cephalium, *etc.* Nevertheless, the descriptions included by the same author are conspecifics and from the additional data published in Fernandez-Alonso & Xhonneux (2002a-b), the characters previously cited as appearing to be variable in all three presumed species as pointed out by Taylor (2003: 14-15, *e.g.* the conspicuous exerted cephalium bristles in *M. schatzlii* ssp. *chicamochoae* vs. those hidden or scarcely exerted in *M. schatzlii* ssp. *schatzlii*, or the afternoon anthesis in *M. andinus* ssp. *hernandezii* vs. the morning anthesis in *M. andinus* ssp. *andinus*, *etc.*). Moreover, other morphological characters given by Taylor (1991: 62-65), such as the reduced spine length and robustness, fruit length of *M. schatzlii* and *M. andinus* compared with *M. mazelianus* could be related to the environmental effects of the higher altitude. Also, the greater number of spines of *M. andinus*, the “species” with the highest altitude range, is probably a response to achieve greater stem protection from the greater sunlight intensity. Divergent reproductive strategies have been recognized for *M. andinus* and *M. schatzlii* in Nassar *et al.* (2007: 29-38), but also in this case the different environment and the behaviour of pollinators could explain these differences without

exclude the belonging to the same species. From these considerations the author considers *M. schatzlii* and *M. andinus* as ecological subspecies of *Melocactus mazelianus*.

***M. mazelianus* subsp. *mazelianus*.** Habitat & distribution: 50-400 m, savanna and llanos, Río Orinoco drainage (Taylor, 1991: 62), Colombia (Vichada), Venezuela (Amazonas, Apure, Bolívar). Note: this taxon is an ecotype of the lower altitudinal range with longer and robust spines, longer fruits and seeds with flat testa-cells. Parra-O. (2006: 173) reported a collection (*Garcia et al.* 065, COL) in Puerto Carreño (Vichada).

M. mazelianus* subsp. *schatzlii (Till et R. Gruber) Guiggi **comb. et stat. nov.** *Basionymus:* *Melocactus schatzlii* Till et R. Gruber, in *Kakt. and. Sukk.* 33(4): 70, with illus. (1982). *Typus:* Venezuela, Mérida, 800-1000 m, 9 Jan. 1982, R. Gruber et S. Schatzl GS 40 (WU). *Synonymi:* *Melocactus pescaderensis* Xhonneux et Fernandez-Alonso, in *Int. Cact. Adventures* 56: 13, with illus. (2000a); *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26(100): 362, with illus. (2002b). *Typus:* Colombia, Santander, Mpio. de Piedecuesta, between Pescadero and Piedecuesta, 16 Jun. 1962, C. Saravia et al. 915, COL; *Melocactus schatzlii* subsp. *chicamochae* Fernandez-Alonso et Xhonneux, in *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26(100): 362, with illus. (2002a); *Int. Cact. Adventures* 56: 14, with illus. (2000b) “*chicamochaensis*”. *Typus:* Colombia, Santander, Mpio. de Málaga, 5 km from Capitanejo, 12 Jan. 1963, C. Saravia 2060 (COL). **Synon. nov.** Habitat & distribution: 500-1300 m, Andean region (Albesiano & Fernandez-Alonso, 2006: 32), Inter-Andean dry valleys (Ruiz et al., 2002: 333), rupicolous and/or ruderal (Albesiano & Fernandez-Alonso, 2006: 32), Colombia (Boyacá, Santander), Venezuela (Mérida). Notes: this taxon is the ecotype of intermediate altitudinal range, its seeds presents strongly marginal or uniformly convex testa-cells. In Fernandez-Alonso & Xhonneux (2002b: 362) is cited for *M. pescaderensis* a different type (Inspeccion de Pescadero, near the Río Chicamocha, 8 Sep. 1964, J. de Porta et N. de Porta 1 (COL) than the early publication G. Xhonneux com. pers. (Fernandez-Alonso & Xhonneux, 2002a: 13).

M. mazelianus* subsp. *schatzlii* forma *guanensis (Xhonneux et Fernandez-Alonso) Guiggi **comb. et stat. nov.** *Basionymus:* *Melocactus guanensis* Xhonneux et Fernandez-Alonso, in *Int. Cact. Adventures* 56: 10, with illus. (2000a); *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26(100): 359, with illus. (2002b). *Typus:* Colombia, Santander, Mpio. de Barichara, via Barichara-Guane o Galan, 5 km en laderas, 1700-1900 m, Ago.1983, G. Xhonneux et al. 2042 (COL). Habitat & distribution: (1100-)1700-1900 m, Andean region, rupicolous (Albesiano & Fernandez-Alonso, 2006: 32) on escarpment slopes (Fernandez-Alonso & Xhonneux, 2002a: 10), Colombia (Santander). Notes: this taxon is an extreme form of higher altitudinal range for the considered subspecies, characterized by the absence or very reduced spines and smaller seeds with very uniform convex testa-cell. In Fernandez-Alonso & Xhonneux (2002b: 359) is cited for *Melocactus guanensis* a different collecting date (3 Dic. 2001) than the early publication (Fernandez-Alonso & Xhonneux, 2002a: 10). In Albesiano & Fernandez-Alonso (2006: 32) is reported a lesser altitudinal range (1100-1300 m) for the locality of Los Santos (*J.L. Fernandez-Alonso et al.* 22108, COL).

M. mazelianus* subsp. *andinus Guiggi **comb. et stat. nov.** *Basionymus:* *Melocactus andinus* R. Gruber ex N.P. Taylor, in *Bradleya* 9: 63, with illus. (1991). *Typus:* Venezuela, Trujillo, Urdaneta, 4 km N of Mérida state border, Río Motatan valley, 1500 m, 13 Dic. 1987, N.P. Taylor 600A (MY). *Synonymi:* *Melocactus gruberi* nom. nud. hort.; *Melocactus andinus* subsp. *soatensis* Fernandez-Alonso et Xhonneux, in *Int. Cact. Adventures* 56: 5, with illus. (2002a); *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26(100): 355, with illus. (2002b). *Typus:* Colombia, Mpio. de Boyacá, above Soatá, road to Susacón, 2200 m, 6 Aug. 1958, R. Jaramillo et al. 902 (COL); *Melocactus hernandezii* Fernandez-Alonso et Xhonneux, in *Int. Cact. Adventures* 56: 11, with illus. (2002b); *Rev. Acad. Colomb. Cienc. Exact. Fís. Nat.* 26(100): 359, with illus. (2002b); *Melocactus andinus* subsp. *hernandezii* (Fernandez-Alonso et Xhonneux) N.P. Taylor, in *Cact. Syst. Init.* 16: 14 (2003). **Synon. nov.** *Typus:* Colombia, Boyacá, Villa de Leyva, Sáchica, road to Tunja, 7150 ft, 4

Jun. 1964, *C. Saravia et al.* 4255 (COL). Habitat & distribution: 900-2500 m, Upland dry formations (Ruiz *et al.*, 2002: 332), Colombia (Boyacá), Venezuela (Merída, Trujillo). Note: this taxon represent the ecotype of the higher altitudinal range, with greater stem and cephalium dimensions, greater number of ribs and spines, its seeds are characterized by flat or marginal convex testa-cells. Taylor (2003: 14) consider *M. andinus* ssp. *soatensis* as synonym of *M. schatzlii* ssp. *chicamochae*, nevertheless its high habitat altitude (2200 m) seem justified the decision of the author to include here this ephitet.

Key to the *Melocactus mazelianus* complexes

1. Fruit to 3 cm long, areoles to 7.5 mm long; spines to 20 mm long, rather inconspicuous.....2.
Fruit to 4.1 cm long, areoles 4-11 mm long; spines to 47 mm long, stout; radial spines 6-12; central spines 0-4; stem 9-30 x 7-24 cm; ribs 9-16; cephalium to 12 cm high.....
.....**1. *M. mazelianus* subsp. *mazelianus***
2. Spines 3-21.....3.
Spines 0-3, 1-3 mm long; areoles inconspicuous, c. 3 cm apart; stem 17-23 x 20-25 cm; ribs 11-13; cephalium c.10 cm in diameter, without bristles.....
.....**2. *M. mazelianus* subsp. *schatzlii* forma *guanensis***
3. Cephalium to 12 cm high; stem 8-34 x 10-25 cm; ribs 10-15; radial spines 3-10; central spines 0-4.....**3. *M. mazelianus* subsp. *schatzlii***
Cephalium to 19 cm high; stem 8-35 x 10.5-30 cm; ribs 10-19; radial spines 5-15; central spines 1-6.....**4. *M. mazelianus* subsp. *andinus***

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THE REVISED TAXONOMY OF *PILOSOCEREUS LANUGINOSUS* (LINNAEUS) BYLES *ET* ROWLEY (CACTOIDEAE-CEREEAE) FROM NORTH-WESTERN SOUTH-AMERICA

Abstract – Recent publications accept only *Pilosocereus lanuginosus* (Linnaeus) Byles *et* Rowley as a variable and widely distributed species in NW South America, synonymising the numerous names published from the same geographic area. After a critical analysis of cultivated material with locality data, herbarium specimens, original descriptions and illustrations from the literature, the author recognises and combines three new subspecies of *P. lanuginosus* (ssp. *colombianus*, ssp. *moritzianus* and ssp. *tillianus*) from Caribbean coastal dry zone and inter-Andean arid valleys. Illustrations and a key to the infraspecific taxa are also included.

Riassunto – In alcune pubblicazioni recenti, viene accettato solo *Pilosocereus lanuginosus* (Linnaeus) Byles *et* Rowley come specie variabile e ad ampia distribuzione nella parte Nord-Ovest del Sud America, sinonimizzando i numerosi nomi pubblicati per la stessa area geografica. Dopo una analisi critica su piante coltivate con dati di località, esemplari d'erbario, descrizioni originali e illustrazioni presenti in letteratura, l'autore individua e combina tre nuove sottospecie per *P. lanuginosus* (ssp. *colombianus*, ssp. *moritzianus* e la ssp. *tillianus*) dalle zone aride della costa Caraibica e dalle valli inter-andine. Vengono anche incluse delle illustrazioni e una chiave per i taxa infra-specifici studiati.

Resumen – En algunas publicaciones recientes, sólo se acepta a *Pilosocereus lanuginosus* (Linnaeus) Byles *et* Rowley como una especie variable y de amplia distribución en la parte noroeste de América del Sur, se toman como sinonimias numerosos nombres publicados para la misma área geográfica. Después de un análisis crítico sobre las plantas cultivadas con datos de localidad, ejemplares de herbario, descripción original e ilustraciones presentes en la literatura, el autor identifica y combina tres nuevas subespecies para *P. lanuginosus* (ssp. *colombianus*, ssp. *moritzianus* y ssp. *tillianus*) de las zonas áridas de la costa del Caribe y de los valles áridos inter-andinos. También se presentan ilustraciones y una clave para los taxones infra-específicos estudiados.

Résumé – Des publications récentes considèrent *Pilosocereus lanuginosus* (Linnaeus) Byles *et* Rowley comme une espèce très variable et très largement répandue dans le NW de l'Amérique du Sud, admettant comme synonymes de nombreux noms publiés dans la même aire géographique. Après une analyse critique de spécimens cultivés avec des informations de lieu de récolte, du matériel d'herbier et des descriptions et illustrations de la littérature, l'auteur reconnaît et combine trois nouvelles sous-espèces de *P. lanuginosus* originaires de la zone côtière sèche caraïbe et des vallées inter-andines arides (ssp. *colombianus*, ssp. *moritzianus* et ssp. *tillianus*). Des illustrations et une clé des taxa infra-spécifiques sont inclus dans ce travail.

A history of the genus *Pilosocereus* Byles *et* Rowley in NW South America, starting with the publication of *Cactus lanuginosus* Linnaeus in 1753. Subsequently, numerous names and descriptions have appeared in the literature. Regional checklists report the following for this genus: 2 species (*P. colombianus*, *P. moritzianus*) for Colombia (Croizat 1944: 346), 1 species (*P. tweedyanus*) for Ecuador (Madsen, 1989: 64), 3 species (*P. gironensis*, *P. tweedyanus*, *P. tuberculosus*) for Peru (Rauh, 1958: 509-511), and 4 species (*P. kanukuensis*, *P. lanuginosus*, *P. moritzianus*, *P. tillianus*) for Venezuela (Trujillo & Ponce, 1988: 5). In recent revisions (Zappi, 1994:145-147; Hunt *et al.*, 2006: 233-240), only *P. lanuginosus* is accepted and all the other names are considered as synonyms of that species. The only exception is *P. kanukuensis sensu* Trujillo, maybe a depauperate form of *P. oligolepis* (Vaupel) Byles *et* Rowley or an undescribed new taxon (Zappi, 1994: 70). Following a study of all the material available as living plants, herbarium vouchers, descriptions and illustrations, the author confirms that *P. lanuginosus* is a single species over the whole distribution area, but as a consequence of that wide distribution, infra-specific variation makes it necessary to recognise the 3 new subspecies presented here.

***Pilosocereus* Byles et Rowley (1957)**

Typus: *Pilocereus leucocephalus* Poselger (= *Pilosocereus leucocephalus* (Poselger) Byles et Rowley. *Synonymi*: *Pilocereus* Schumann (1894) *emend.* Backeberg (1951), *non* Lemaire (1839); *Cephalocereus sensu* Britton & Rose *pro parte* (1920); *Pilocereus* subg. *Eupilocereus* Backeberg (1942) *nom. inval.* (*cfr.* ICBN Art. 22.1, McNeill *et al.*, 2006); *Pilocereus* sect. *Globicarpi* Backeberg *ex* Croizat (1943) *nom. inval.* (*cfr.* ICBN Art. 22.1, McNeill *et al.*, 2006); *Pilocereus* subgen. *Globicarpi* (Backeberg *ex* Croizat) Croizat (1950) *nom. inval.* (*cfr.* ICBN Art. 22.1, McNeill *et al.*, 2006); *Pseudopilocereus* Buxbaum (1968); *Cephalocereus* subg. *Pilosocereus* Bravo (1974). Description: Shrubby or arborescent, erect plants. Stem green to glaucous blue, woody and mucilaginous, 0.4 to 10 m high or more, 2.5-12 cm in diameter, not segmented, branching basally or at the top, with or without a well-defined trunk; ribs 4-24, straight or rarely sinusoidal, often with transverse folds. Areoles normally hairy, bearing variable spines, opaque to translucent; reproductive areoles not or very hairy, modified into a lateral pseudocephalium in the flowering zone. Flowers 3-9 cm long, campanulate, white or rarely rose, actinomorphic, with a nocturnal, bat-pollination syndrome; flower buds with acute or obtuse angles; receptacle naked, smooth, without areoles and hairs but with few or reduced scales; floral tube stout. Fruits fleshy, naked, dehiscent in different ways, 2-5 cm long and 2-6.5 cm in diameter, subglobose, green to red; pulp red or white; residual perianth parts persistent and blackish. Accepted species: 41 (Hunt *et al.*, 2006). General distribution: Mexico, Guatemala, Honduras, Caribbean region (incl. Florida Keys, United States), Colombia, Venezuela, Suriname, Guyana, Ecuador, Peru, Paraguay, Brazil.

Infraspecific recognized taxa

Pilosocereus lanuginosus (Linnaeus) Byles et Rowley, in *Cact. Succ. J. Gr. Brit.* 19(3): 67 (1957). *Basionymus*: *Cactus lanuginosus* Linnaeus, *Sp. Pl.* 467 (1753). *Typus*: Netherlands Antilles, Curaçao, not preserved. *Lectotypus* (Zappi, 1994: 145): pl. opp., in P. Herm., *Parad. Bat.* 115 (1698).

General distribution: Netherlands Antilles, Venezuela, Colombia, Ecuador, Peru.

Note: *Pilosocereus lanuginosus* has a fruit pulp colour which is variable, but that has no taxonomic value. In habitat there are white or red morphs in the same population (Soriano & Ruiz, 2002: 249). Names have been created, based on the two different colours, as a red pulped fruit (Gruber & Schatzl, 1982: 164) or white (Soriano & Ruiz, 2002: 249) in *P. tillianus*, as red in *P. backebergii* (Backeberg, 1936: 10, *sine pag.* [4]) and white in *P. moritzianus* (Backeberg, 1977: 417).

P. lanuginosus* subsp. *lanuginosus. *Synonymi*: *Cereus lanuginosus* (Linnaeus) Miller, *Gard. Dict. ed.* 8 n. 3 (1768); *Cereus lanuginosus* [var.] *glaucescens* Pfeiffer, *Enum. Cact.*, 80 (1837). *Typus* unknown; *Pilocereus lanuginosus* (Linnaeus) Rümpler *ex* Förster, *Handb. Cact. ed.* 2, 672 (1885); *Cephalocereus lanuginosus* (Linnaeus) Britton et Rose, in *Contrib. U.S. Nat. Herb.* 12: 417 (1909); *Cereus crenulatus* Salm-Dyck, *Observ. Bot.* 3: 6 (1822). *Typus*: Curaçao, not preserved; *Pilocereus crenulatus* (Salm-Dyck) Rümpler *ex* Förster, *Handb. Cact. ed.* 2, 655 (1885).

Habitat & Distribution: Caribbean coastal low lands (Ruiz *et al.*, 2002: 330-331); Colombia?, Venezuela?, Netherlands Antilles (Curaçao, Aruba, Bonaire).

Material examined. Living specimen (*cult. hort.* Jardin Exotique of Monaco): 3390(6) Curaçao, *ex* Hanbury Garden, *sine legit* (fig. 1). Icons: Britton & Rose, 1920: 50 fig. 73; Backeberg, 1960: 2388 abb. 2273, 2447 abb. 2335; Hofacker, 1993: 221 fig. 4, 223; Anderson, 2001: 582; Preston-Mafham, 2007: 400; Illert, 2003:36 abb. 3, 2008: 87 abb. 4.

Note: this taxon is reported from Colombia in Ruiz *et al.* (2002: 330-331) and some images in Gruber (1984: 85-86) and Preston-Mafham (2007: 400) seems to confirm its presence also in Venezuela, field studies are necessary to understand the exact distribution in the coastal dry lands of Northern South America.

***P. lanuginosus* subsp. *colombianus* (Rose) Guiggi comb. et stat. nov.**

Basionymus: *Cephalocereus colombianus* Rose, in Contrib. U.S. Nat. Herb. 12: 416, with illus. (1909). *Typus*: Colombia, Western Cordillera, Cauca state, Venticas del Dagua, 600-900 m, 22 Feb. 1906, H. Pittier 06-120 (US, *holo.*; NY, photo *holo.*). *Synonymi*: *Cereus colombianus* (Rose) Vaupel, in Monatsschr. Kakt.-Kunde 23 : 23 (1913); *Pilocereus colombianus* (Rose) Backeberg, in Backeberg & Knuth, Kaktus-ABC 330 (1935); *Pilosocereus colombianus* (Rose) Byles et Rowley, in Cact. Succ. J. Gr. Brit. 19(3): 66 (1957); *Cephalocereus tweedyanus* Britton et Rose, Cact. 2: 54, with illus. (1920). *Typus*: Ecuador, prov. Del (El) Oro, near Santa Rosa, in thickets, 17-18 Oct. 1918, J.N. Rose et G. Rose 23494 (US, *holo.*; NY, *iso.*); *Cereus tweedyanus* (Britton et Rose) Werdermann in Backeberg, Neue Kakteen 71 (1931); *Pilocereus tweedyanus* (Britton et Rose) Backeberg, in Backeberg & Knuth, Kaktus-ABC 334 (1935); *Pilosocereus tweedyanus* (Britton et Rose) Byles et Rowley, in *loc. cit.* 19(3): 69 (1957); *Pilosocereus gironensis* Rauh et Backeberg ex Byles et Rowley, in *loc. cit.* 19(3): 69 (1957), Rauh & Backeberg in Backeberg, *Descr. Cact. Nov.* 1956: 34 (1957), *nom. inval.* (*cf.* ICBN Art. 43.1, McNeill et al., 2006), and Rauh & Backeberg in Rauh, Sitzungsber. Heidelb. Akad. Wiss. 1958, 1. Abh., 509, with illus. (1958). *Typus*: Ecuador, prov. Azuay, between Giron and Pasaje, 900 m, 1954, W. Rauh K-113 (?HEID, *holo.*); *Pilosocereus tuberculosus* Rauh et Backeberg ex Byles et Rowley, in Cact. Succ. J. Gr. Brit. 19(3): 69 (1957), Rauh & Backeberg in Backeberg, *Descr. Cact. Nov.* 1956: 34 (1957), *nom. inval.* (*cf.* ICBN Art. 43.1, McNeill et al., 2006), and Rauh & Backeberg in Rauh, Sitzungsber. Heidelb. Akad. Wiss. 1958, 1. Abh., 511 (1958). *Typus*: Peru, Valley of Rio Saña, 500 m, 1956, W. Rauh K 86a (ZSS, *holo.*).
Synon. nov.

Habitat & Distribution: inter-Andean arid valleys (Ruiz et al., 2002: 334), coastal plains, Pacific side of Andes (Barthlott, 1979: 215), 0-1000 m; NW Colombia (Caucas), S Ecuador (Manabí, Guayas, El Oro, Azuay), N Peru (Piura).

Material examined. Living specimens (*cult. hort.* Jardin Exotique of Monaco): 9719(2) Colombia, Dagua, M. Kroenlein s.n. (fig. 2); 13771(2) Peru, sine aliquo loco, M. Kroenlein s.n. sub *Pilosocereus tweedyanus* (fig. 4); 16693 Ecuador, Zapotal, Cerro de la Estancia, A. Vilardebo s.n. sub *Pilosocereus lanuginosus* (fig. 3); 9677(4)-24931 sine legit et loco. *Exsiccata*: H. Pittier 06-120 sub *Cephalocereus colombianus* (NY, photo of type specimen); [ribs, fl., two sheets], J.N. Rose et G. Rose 23494 sub *Cephalocereus tweedyanus* (NY, *iso.*); W. Rauh K-116 sub *Pilosocereus gironensis* (ZSS, *iso.*); W. Rauh K 86a sub *Pilosocereus tuberculosus* (ZSS, *holo.*). Icons: Britton & Rose, 1909, pl. LXII-LXIII; Britton & Rose, 1920: 54-56 fig. 78-83; Backeberg, 1930b: 33; Rauh, 1958: 510 abb. 224 I-IV; Backeberg, 1960: 2405 abb. 2281, 2453-2460 abb. 2341-2349; Cárdenas, 1967: 56 fig. 23-24; Barthlott, 1979: fig. 84; Madsen, 1989: 65 fig. 15.

Note: *Pilosocereus tuberculosus* is here included as synonym, following the original documentation and its type locality in N Peru (Backeberg, 1957: 34; Rauh, 1958: 510-511). It seems to be a juvenile plant of this taxon. Holotype or living species of *P. gironensis* are not deposited at ZSS. Some material could be at Heidelberg (U. Eggl pers. com.).

***P. lanuginosus* subsp. *moritzianus* (Otto ex Pfeiffer) Guiggi comb. et stat. nov.**

Basionymus: *Cereus moritzianus* Otto ex Pfeiffer, Enum. Cact. 84 (1837). *Typus*: Venezuela, La Guayra, 1836, Moritz s.n. (not preserved). *Synonymi*: *Pilocereus moritzianus* (Otto ex Pfeiffer) Lemaire, Illustr. Hort. 13: sub pl. 469 (1866); *Cephalocereus moritzianus* (Otto ex Pfeiffer) Britton et Rose, Cact. 2: 41 (1920); *Pilosocereus moritzianus* (Otto ex Pfeiffer) Byles et Rowley, in Cact. Succ. J. Gr. Brit. 19(3): 67 (1957); *Cereus backebergii* Weingart ex Backeberg, in Monatsschr. Kakt.-Kunde 2(8): 167, with illus. (1930), *Typus*: Venezuela, near Puerto Cabello, C. Backeberg s.n. (not preserved). *Lectotypus* (Zappi, 1994: 145): illus. in Backeberg, *loc. cit.* 167 (1930); *Pilocereus backebergii* (Weingart ex Backeberg) Backeberg, in Backeberg & Knuth, Kaktus-ABC 329 (1935); *Cephalocereus backebergii* (Weingart ex Backeberg) Borg, Cacti 146 (1937); *Pilosocereus backebergii* (Weingart ex Backeberg) Byles et Rowley, in *loc. cit.* 19(3): 66 (1957); *Cereus claroviridis* Backeberg, Neue Kakteen 69 (1931). *Typus*: Venezuela, near Caracas, ca. 1000 m, C. Backeberg s.n. (not preserved); *Pilocereus claroviridis* (Backeberg) Backeberg, in Backeberg &

Knuth, Kaktus-ABC 330 (1935); *Cephalocereus claroviridis* (Backeberg) Borg, Cacti 149 (1937); *Pilosocereus claroviridis* (Backeberg) Byles et Rowley, in *loc. cit.* 19(3): 66 (1957).

Habitat & Distribution: lowlands of the Caribbean coastal dry zone, rocky hillsides, cliffs and flats near the sea; Venezuela (La Guayra, Puerto Cabello, near Caracas, Patos Island), Trinidad (Bocas, Monos, Chacachacare Islands), Tobago, Colombia (Goajira, Puerto Colombia).

Material examined. Living specimens (*cult. hort.* Jardin Exotique of Monaco): 1136(2) Venezuela, La Guayra, 1954, *C. Backeberg s.n.* (fig. 5); 6109-6525(4) *sine legit et loco sub Pilosocereus backebergii* (fig. 6). Icons: Britton & Rose, 1920: 42 fig. 59-61; Backeberg, 1930a: 167; Backeberg, 1930b: 19, 22-23; Backeberg, 1936(10): *sine pag.* [4]; Backeberg, 1960: 2429-2433 abb. 2309-2315, 2434-2435 abb. 2316-2318; Zappi, 1994: 148; Hunt *et al.*, 2006: 145 fig. 145.5.

Note: the material from Puerto Colombia (Colombia) illustrated in Backeberg, (1960: 2434-2435) and described in Backeberg, (1977: 415) as *Pilosocereus klusacekii nom. nud.* appears to be conspecific and is referred here.

P. lanuginosus* subsp. *tillianus (Gruber et Schatzl) Guiggi *comb. et stat. nov.* *Basionymus:* *Pilosocereus tillianus* Gruber et Schatzl, in Kakt. and. Sukk. 33(8): 164, with illus. (1982). *Typus:* Venezuela, Mérida state, near Mérida, 830 m, 1 Feb. 1981, *R. Gruber et S. Schatzl* GS 78 (WU, *holo.*; WU, *para.* GS 13, photo).

Habitat & Distribution: inter-Andean arid enclaves (Soriano & Ruiz, 2002: 244-249), Venezuela (Mérida).

Material examined. Icons: Gruber & Schatzl, 1982: 162-164; Soriano & Ruiz, 2002: 247 fig. 12.4 g, h, i; Figueredo Urbina, 2006: 3; Hunt *et al.*, 2006: 146 fig. 146.1; Preston-Mafham, 2007: 403.

Notes: this subspecies is endemic to Lagunillas, a Venezuelan Andean enclave (Soriano & Ruiz, 2002: 258). Some authors reported for this taxon a lower production of flowers than the others Venezuelan species (Figueredo Urbina, 2006: 3).

Key to subspecies of *Pilosocereus lanuginosus*

1. Flowers yellowish-white, 3-6 cm long; ribs 7-13, c. 1 cm high; areoles 1-1.5 cm apart; spines initially yellowish or brownish, acicular, rigid to flexible; fruits pulp red or white; Northern South-America (Colombia, Venezuela, Netherlands Antilles).....2.
Flowers pinkish-white, 6-7.5 cm long; ribs 6-9, 2 cm high; areoles 1-2.5 cm apart; spines initially blackish, acicular to subulate, 10-25, 0.5-7 cm long; fruits pulp red; Western South-America (W Colombia, Ecuador, N Peru).....**1. subsp. colombianus**
2. Stem bluish-green.....3.
Stem dark green, spines 6-12, subulate, brownish.....**2. subsp. moritzianus**
3. Spines 8-12, differentiated into radials and centrals, rigid; flowers 5-6 cm long.....
.....**3. subsp. lanuginosus**
Spines 20-25, not differentiated into radials and centrals, flexible, flowers 3-3.5 cm long.....
.....**4. subsp. tillianus**

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Figure 1-6. **1:** *Pilosocereus lanuginosus* ssp. *lanuginosus* (Curaçao, ex Hanbury Garden). **2:** *P. lanuginosus* ssp. *colombianus* (Colombia, Dagua, M. Kroenlein s.n.). **3:** *P. lanuginosus* ssp. *colombianus* (Ecuador, Zapotal, Cerro de la Estancia, A. Vilardebo s.n.). **4:** *P. lanuginosus* ssp. *colombianus* (Peru, M. Kroenlein s.n.). **5:** *P. lanuginosus* ssp. *moritzianus* (Venezuela, La Guayra, 1954, C. Backeberg s.n.). **6:** *P. lanuginosus* ssp. *moritzianus* (= *P. backebergii*). Photo: A. Guiggi.

TAXONOMIC NOVELTIES IN TWO CEREIFORM GENERA OF COLOMBIA & VENEZUELA (*CACTOIDEAE-CEREEAE*): *PRAEPILOSOCEREUS* GUIGGI GEN. NOV. AND NEW COMBINATIONS IN *SUBPILOCEREUS* BACKEBERG

Abstract – A new Venezuelan genus *Praepilosocereus* Guiggi is recognized for the aberrant *Cereus mortensenii* (Croizat) Hunt et N.P. Taylor. Its reproductive characters are different from the genera *Cereus* Miller s.s., *Pilosocereus* Byles et Rowley and *Subpilocereus* Backeberg, where this taxon was previously included. In the author's view, *Praepilosocereus* represents a primitive evolutionary step towards *Pilosocereus*. Furthermore, the genus *Subpilocereus* is accepted here and separated from *Cereus* by its peculiar flower, fruit and seed morphology, and its geographical distribution. Consequently, *Cereus fricii* Backeberg is combined in *Subpilocereus*, and *S. horrispinus* (Backeberg) Backeberg is proposed as a subspecies of the former species. Moreover, these two taxa have been also neotypified.

Riassunto – Un nuovo genere venezuelano *Praepilosocereus* Guiggi è stato individuato per l'aberrante *Cereus mortensenii* (Croizat) Hunt et N.P. Taylor. I suoi caratteri riproduttivi sono differenti dai generi *Cereus* Mill. s.s., *Pilosocereus* Byles et Rowley e *Subpilocereus* Backeberg, dove questo taxon è stato precedentemente incluso. Dal punto di vista dell'autore, *Praepilosocereus* rappresenta un primitivo passo evolutivo verso *Pilosocereus*. Inoltre, il genere *Subpilocereus* è qui accettato e separato da *Cereus* per la sua peculiare morfologia del fiore, frutto, seme, e distribuzione geografica. Conseguentemente, il nome valido *Cereus fricii* Backeberg è combinato in *Subpilocereus* e *S. horrispinus* (Backeberg) Backeberg è proposto come sottospecie della precedente specie, questi due taxa sono stati anche neotipificati.

Resumen – Un nuevo género venezolano *Praepilosocereus* Guiggi ha sido identificado por lo aberrante *Cereus mortensenii* (Croizat) Hunt et N.P. Taylor. Sus caracteres reproductivos son diferentes del género *Cereus* Mill. s.s., *Pilosocereus* Byles et Rowley y *Subpilocereus* Backeberg, donde este taxón se había incluido previamente. Desde el punto de vista del autor, *Praepilosocereus* representa un paso en la evolución hacia *Pilosocereus*. El género *Subpilocereus* es separado de *Cereus* por su peculiar morfología en flor, fruto, semilla, y la distribución geográfica que presenta. En consecuencia, el nombre válido *Cereus fricii* Backeberg y combinado en *Subpilocereus* e *S. horrispinus* (Backeberg) Backeberg se propone como una subespecie de la especie anterior. Además, estos dos taxones han estado también neotipificados.

Résumé – Un nouveau genre vénézuélien *Praepilosocereus* Guiggi est proposé pour l'aberrant *Cereus mortensenii* (Croizat) Hunt et N.P. Taylor. Ses caractères reproductifs sont différents de ceux des genres *Cereus* Miller s.s., *Pilosocereus* Byles et Rowley et *Subpilocereus* Backeberg dans lesquels ce taxon a été auparavant inclus. Pour l'auteur *Praepilosocereus* représente une étape évolutive primitive vers *Pilosocereus*. D'autre part, le genre *Subpilocereus* est ici accepté et séparé de *Cereus* par ses fleurs particulières, la morphologie de ses fruits et de ses graines et par sa distribution géographique. En conséquence, *Cereus fricii* Backeberg est inclus dans *Subpilocereus*, et *S. horrispinus* (Backeberg) Backeberg est proposé comme une sous-espèce de la première. En outre, ces deux taxa ont également été néotypifique.

The northern part of South America is the home of some columnar cereiform cacti, whose taxonomy is complex and uncertain. In particular, *Pilocereus mortensenii* ('*mortenseni*') Croizat (1950) from Venezuela has been included in different genera: *Pilosocereus* Byles et Rowley (Backeberg, 1960), *Subpilocereus* Backeberg (Trujillo & Ponce, 1988b) and *Cereus* Miller (Hunt & Taylor, 1991).

Also, Backeberg (1930) described *Cereus fricii* (= *Cereus russelianus* nom. inval.) and *C. horrispinus* from his expedition to Colombia and Venezuela. In 1935, the same author included these taxa in *Pilocereus* Lemaire, and subsequently, in 1951, combined only *C. horrispinus* in his new genus *Subpilocereus*, a genus based on the areoles being almost hairless. Many years later, Taylor

(Hunt & Taylor, 1992: 18-20) re-transferred them to *Cereus* subgen. *Oblongicarpus* (Backeberg ex Croizat) Hunt et N.P. Taylor.

While Backeberg and Taylor accepted them as separate entities, Croizat (1943: 258) was inclined to consider *Cereus horrispinus* as only a form of the former species.

Comparing the vegetative and reproductive characters of the genera *Cereus*, *Pilosocereus* and *Subpilocereus*, and the species *Cereus fricii*, *C. horrispinus*, and *Pilosocereus mortensenii*, the author re-evaluates the systematics, phylogeny, and the generic and infra-specific circumscriptions, as follows.

Presumed line of evolution

1 *Cereus* Miller *sensu stricto* → 2 *Subpilocereus* Backeberg → 3 *Praepilosocereus* Guiggi → 4 *Pilosocereus* Byles et Rowley

[1 stem with or without mucilage; juvenile areoles with short hairs; flower long funnellform, tube elongated, continuous, hawkmoth pollinated; fruit globular, style persistent, perianth remains deciduous, exocarp smooth; seeds with flat or convex testa-cells] → [2 stem without mucilage; juvenile areoles with longer hairs; flower shorter, tubular-funnelform, tube with double constrictions, bat pollinated; fruit elongated, style and perianth remains deciduous, exocarp smooth; seeds with slightly convex testa-cells] → [3 stem without mucilage; juvenile areoles with long hairs, reproductive areoles producing a pseudocephalium composed of long hairs; flower short tubular-campanulate, tube with double constrictions, bat pollinated; fruit depressed globose, style and perianth remains persistent, exocarp wrinkled; seeds with flat testa-cells] → [4 stem with mucilage; vegetative areoles generally with persistent long hairs, reproductive areoles producing a pseudocephalium; flower short tubular-campanulate, tube without constrictions, bat pollinated; fruit depressed-globose, style and perianth remains persistent, exocarp wrinkled; seeds with flat testa-cells].

Revised taxonomy & nomenclature

Praepilosocereus Guiggi *gen. nov.*

Latin diagnosis: *Praepilosocereus* differt a *Subpilocereus* ob pseudocephalium valde cretum, fructum depressum globosum cum florum reliquiis persistentibus et ob semina cum capitulis cellulis complanatis; differt a *Pilosocereus* ob corollae tubi cum coartationes et ob non mucilaginum caulem.

Description: a new monotypic genus of the tribe *Cereeae* with morphological characters ancestral to *Pilosocereus* Byles et G.D. Rowley. Tree or shrubby plant, often with a trunk. Stem cylindrical, bluish green to olive green, semi-erect, normally simple or rarely few branched, with discontinuous constricted segments; tissues not or scarcely mucilaginous; ribs acute, slightly sinuous; areoles large, rounded, slightly sunk, dark grey felted and when present, trichomes white to dark brown, successively glabrous; spines variable in dimension and number, acicular, pungent, reddish-brown dark or dirty yellow to greyish in age; ¹pseudocephalium lateral, covering initially 2-3 ribs, 30-40 × 5-10 cm, composed of white long lax wool, blackish in age, to 10 cm long. Flower bell-shaped, actinomorphic, chiropterogamous (bat pollination syndrome), generally exerted from the pseudocephalium, short, to 6 cm long; receptacle tubular; tube with a double constriction and short, acute scales at the apex, reddish; outer perianth segments spatulate, apiculate, whitish-pink; the inner ones whitish; stamens and style included; stamens in 5 series; style with stigma 5 lobed; ovary roundish; nectar chamber barrel shaped closed by the lower stamens. Fruit berry-like, fleshy, naked, dehiscent, depressed-globose, bluish; flower remains recurved, blackish as in *Pilosocereus* subgen. *Pilosocereus*. Seeds pyriform, black, 2.5 × 1.5 mm; testa cells flat with interstitial pits.

Typus generis: *Praepilosocereus mortensenii* (Croizat) Guiggi.

¹ the author has used the term pseudocephalium following the concept of Gibson & Nobel (1986: 272).

Synonymi: *Cereus* subgen. *Oblongicarpi pro parte* (Backeberg ex Croizat) Hunt et N.P. Taylor (1992).

Distribution: Venezuela.

Etymology: derived from the generic name *Pilosocereus* with the Greek suffix *Prae* = before.

Praepilosocereus mortensenii (Croizat) Guiggi *comb. nov.*

Basionymus: *Pilocereus mortensenii* ('*mortenseni*') Croizat, in *Noved. Cient. Contr. Ocas. Mus. Hist. Nat. La Salle*, ser. Bot. 1: 3 (1950). *Typus:* Venezuela, Lara state, plains between Barquisimeto and Duaca, very common before Paso de Tacarigua, Jun. 1949, L. Croizat s.n. (CAR 841, *holo.* not found, Fedon & Colonnello, 2006: 26; F, *iso.*). *Synonymi:* *Pilosocereus mortensenii* (Croizat) Backeberg, *Die Cactaceae* 4: 2450 (1960); *Subpilocereus mortensenii* (Croizat) Trujillo et Ponce, in *Ernstia* 47: 28 (1988b); *Cereus mortensenii* (Croizat) Hunt et N.P. Taylor, in *Bradleya* 9: 85 (1991). **Synon. nov.;** *Pilosocereus gruberi* Schatzl et Till, in *Kakt. and. Sukk.* 33(1): 9 (1982). *Typus:* Venezuela, Lara state, near Quibor, 1100 m, Feb. 1981, R. Gruber et S. Schatzl s.n. (WU, *holo.*).

Exsiccata: VENEZUELA. Lara, 650 m, 2 Apr. 1985, B. Trujillo et M. Ponce s.n. sub *Subpilocereus mortensenii* (MO); Trujillo, Lara, 21 km from Quibor on road to Sanare, 1000 m, 11 Dic. 1987 [Box: sterile material; Spirit: flower], N.P. Taylor 589 sub *Cereus mortensenii* (K).

Distribution: Venezuela (Lara state).

Icons: Backeberg, 1960: 2447 abb. 2336; Schatzl & Till, 1982: 8-9; Gruber, 1984: 108-110; Hunt & Taylor, 1992: 21 fig. D, 22 pl. 1 below; Anderson, 2001: 148; Hunt et al., 2006: 136 fig. 136.3.

Subpilocereus Backeberg, *Blätter für Kakteenforschung* 6: *sine pag.* [16] (1938).

Typus: *Cereus russelianus* Hort. *Berol. ex Salm-Dyck, Cact. Hort. Dyck* 201. 1849 (1850) *nom. illeg.* (*cf.* ICBN Art. 53.1, McNeill et al., 2006), *non* Gardner ex Lemaire (1840). (= *Subpilocereus fricii*). *Synonymi:* *Pilocereus* sect. *Oblongicarpi* Backeberg ex Croizat, in *Caldasia* 2(8): 255 (1943); *Pilocereus* subgen. *Oblongicarpi* (Backeberg ex Croizat) Croizat, in *Noved. Cient. Contr. Ocas. Mus. Hist. Nat. La Salle, Caracas*, ser. bot. no. 1: 4 (1950); *Cereus* subgen. *Oblongicarpi pro parte* (Backeberg ex Croizat) Hunt et N.P. Taylor, in *Bradleya* 10:18 (1992). *Notes:* *Subpilocereus* is here accepted and separated from *Cereus* Miller principally by its different flower, fruit and seed morphology and its biogeography. It is characterised by few branched shrubs with an erect or arching-pendent habit; juvenile long hairs areoles; flowers glabrous, bell-shaped, with a slender, funnellform tube, swollen around the nectary chamber and without an adhering style, with variable scales, stigma-lobes short, inconspicuous, nocturnal, bat-pollinated; fruits longitudinally dehiscent, naked, ellipsoid to oval, with a thick pericarp, style deciduous; a distribution in the Caribbean dry zone of Colombia, Venezuela, Netherlands Antilles and Grenada (Backeberg, 1938, 6: *sine pag.* [11, 16], 1951: 123, 1977: 466-467; Ruiz et al., 2002: 331-332; Soriano & Ruiz, 2002: 242, 248-249; Trujillo, 1997: 733, 748) and seeds with marginal testa cells lobed, strongly convex, *cf.* Barthlott & Hunt, 2000: 100-101). Two species are recognized for this genus, *Subpilocereus repandus* (Linnaeus) Backeberg characterized by its spines, which are variable in length and morphology, and *S. fricii* (Backeberg) Guiggi with two subspecies as follows:

Subpilocereus fricii (Backeberg) Guiggi *comb. nov.*

Basionymus: *Cereus fricii* Backeberg, in *Monatsschr. Kakt.-Kunde* 2(8): 164, with illus. (1930). *Typus:* Venezuela, Puerto Cabello, C. Backeberg s.n. (not preserved). *Neotypus* designated here: Venezuela, Zig Zag, on the mountains between La Guayra and Caracas, 25 Oct. 1916 [Spirit: flower, fruits], J. N. Rose 21828 sub *Cephalocereus russelianus* Rose (NY *spec. vis.*).

S. fricii* subsp. *fricii

Synonymi: *Pilocereus fricii* (Backeberg) Backeberg in Backeberg & Knuth, Kaktus-ABC 326. 1935 (1936); *Cephalocereus fricii* (Backeberg) Borg, Cacti 149 (1937); *Cereus russelianus* Hort. Berol. ex Salm-Dyck, Cact. Hort. Dyck 201. 1849 (1850) *nom. illeg.*, non Gardner ex Lemaire (1840). *Typus:* Venezuela, La Guayra, C.F. Otto s.n. (not preserved); *Pilocereus russelianus* (Hort. Berol. ex Salm-Dyck) Rümpler in Förster, Handb. Cact. 2 ed. 682 (1885); *Cephalocereus russelianus* (Hort. Berol. ex Salm-Dyck) Rose, in Stand. Cycl. Hort. Bailey 2. 715 (1914), in Britton & Rose (1920: 34) *pro parte* excl. fig. 39 and the cited material of Colombian origin; *Subpilocereus russelianus* (Hort. Berol. ex Salm-Dyck) Backeberg, in Beitr. Sukkulenteuk. u. pflge 59 (1941) and in *Cactaceae*, Jahrb. Deutsch. Kakt.-Ges. 51. 1941 (1942).

Exsiccata: VENEZUELA. *sine legit, data et aliquo loco* [Spirit: flowers, stems], *sub Cereus russelianus* Otto (K).

Distribution: Colombia (La Guajira), Venezuela (La Guayra, Puerto Cabello).

Icons: Backeberg, 1930: 166; Britton & Rose 1920: 33 fig 36-37, 34 fig. 38; Backeberg, 1960: 2376 abb. 2260, 2377 abb. 2261, 2378 abb. 2262, 2379 abb. 2263 links; Hunt & Taylor, 1992: 19, 21 fig. E; Hunt *et al.*, 2006: 135 fig. 135.5.

Notes: subspecies characterized by a mostly green stem colour and transversely furrowed ribs. Literature cited in Ruiz *et al.* (2002: 332) seems to confirm the presence of the subspecies *fricii* also in Colombia (Tayrona National Park). The epithet *Pilosocereus fricii* Backeberg *nom. nud.* appeared for the first time in a horticultural periodical, Moell. Deutsch. Gaertn-Zeit. 45: 81 fig. 82, March 1930, where it appears only as an illustration, the formal description and illustration as *Cereus* was in Monatsschr. Kakt.-Kunde on August 1930 (Croizat, 1943: 253).

S. fricii* subsp. *horrispinus (Backeberg) Guiggi *comb. et stat. nov.* *Basionymus:* *Cereus horrispinus* Backeberg, in Monatsschr. Kakt.-Kunde 2(8): 164, with illus. (1930). *Typus:* Colombia, near Puerto Colombia, in thicket, C. Backeberg s.n. (not preserved). *Neotypus* here designated: Venezuela, Zulia, 10 km along turnoff to Altagracia from the Maracaibo-Coro road, 0 m, 16 Dic.1987 [Box: steril material, fruit], N.P. Taylor 611 *sub Cereus horrispinus* Backeberg (K *spec. vis.*). *Synonymi:* *Pilocereus horrispinus* (Backeberg) Backeberg in Backeberg & Knuth, Kaktus-ABC 327. 1935 (1936); *Subpilocereus horrispinus* (Backeberg) Backeberg, in Cact. Succ. J. (US) 23(4): 123 (1951); *Subpilocereus ottonis* Backeberg, in Jahrb. Deutsch. Kakt.-Ges. 1943/1944: 88 (1944). *Typus:* the same of *Cereus horrispinus* Backeberg (Hunt & Taylor, 1992: 20); *Pilocereus wagnaarii* 'wagnaarii' Croizat, in Noved. Cient. Contr. Ocas. Mus. Hist. Nat. La Salle, Caracas, ser. bot. no. 1: 2 (1950). *Typus:* Venezuela, Falcon state, near of Vela de Coro, Sep. 1947, L. Croizat s.n. (CAR, *holo. spec. vis.* in Fedon & Colonnello, 2006: 12-13; F, *iso.*); *Subpilocereus wagnaarii* (Croizat) Backeberg, in Cact. Succ. J. (US) 23(4): 123 (1951); *Cephalocereus russelianus* (Hort. Berol. ex Salm-Dyck) Rose, in Stand. Cycl. Hort. Bailey 2. 715 (1914), in Britton & Rose (1920: 34) *pro parte* incl. fig. 39 and the cited material of Colombian origin; *Pilocereus russelianus sensu* Backeberg, in Backeberg & Knuth, Kaktus-ABC 327. 1935 (1936).

Exsiccata: VENEZUELA. Zulia, Distr. Miranda, 5 km from the road Altagracia-Quisiro, 15 Sept. 1977 [Sheet: flowers, fruit], Bunting 5499 *sub Cereus horrispinus* Backeberg (K); Zulia, Distr. Miranda, 30 km E of junction of Maracaibo-Coro and Altagracia roads, 200 m, 16 Dic.1987 [Box: fruit], N.P. Taylor 615 *sub Cereus horrispinus* Backeberg (K); Falcon, c. 32 km N of Churuguara, valley bottom, 350-400 m, 18 Dic.1987 [Box: flowers, fruit] N.P. Taylor 634 *sub Cereus horrispinus* Backeberg (K).

Distribution: Venezuela (Falcon, Zulia), Colombia (Puerto Colombia, Santa Marta).

Icons: Britton & Rose 1920: 34 fig. 39; Backeberg, 1930: 165; Backeberg, 1960: 2376 abb. 2259, 2381 abb. 2267; Hunt & Taylor, 1992: 21 B, 22 pl. 1 top right, 23 pl. 2; Hunt *et al.*, 2006: 136 fig. 136.1-2.

Notes: subspecies characterised by a more bluish stem colour, woollier areoles, and longer central spines. Taylor's neotype cited in Hunt *et al.* (2006: 40), apparently is an error, because it referred to an illustration of *Cereus hankeanus* Weber (Schumann & Gürke, 1909, 2: taf. 114). In

Ruiz *et al.* (2002: 332-334) cites *Subpilocereus cfr. horrispinus* distributed in a Colombian Inter-Andean arid valley (Cañon of Río Chicamocha), very far from its known geographical range in Guajira peninsula. The epithet *Pilosocereus horrispinus* Backeberg appears as a *nom. nud.* for the first time in a horticultural periodical, Moell. Deutsch. Gaertn-Zeit. 45: 82, March 1930, before the formal description and illustration as a *Cereus*, in Monatsschr. Kakt.-Kunde on August 1930 (Croizat, 1943: 253).

Key to subspecies of *Subpilocereus fricii*

1. Stem dark green; areoles 1-2 cm apart, slightly felted; central spines 3, 1-1.5 cm long; ribs 4-6, strongly transversely notched.....**1. subsp. fricii**
- Stem bluish green; areoles 2.5-4 cm apart, strongly felted; central spines 1-3, 1-10 cm long; ribs 4-8, slightly notched.....**2. subsp. horrispinus**

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A REVISION OF THE GENUS *MELOCACTUS* LINK ET OTTO (*CACTOIDEAE-CEREEAE*) IN CUBA WITH AN APPENDIX OF THE ACCEPTED STATUS OF REMAINING CARIBBEAN TAXA

Abstract – A taxonomic revision of the genus *Melocactus* Link et Otto in Cuba is presented here, with a dichotomous key of the studied taxa. The author recognises the 3 formerly accepted species (*M. curvispinus*, *M. harlowii* and *M. matanzanus*), 2 infra-specific taxa (*M. harlowii* ssp. *perezassoi* and *M. matanzanus* ssp. *actinacanthus*). A check-list of remaining Caribbean taxa, with a new combination for *M. stramineus* from Aruba is also included.

Riassunto – Una revisione tassonomica del genere *Melocactus* Link et Otto a Cuba, viene qui presentata, con una chiave dicotomica dei taxa studiati. L'autore individua per le 3 specie precedentemente accettate (*M. curvispinus*, *M. harlowii* e *M. matanzanus*), 2 taxa infra-specifici (*M. harlowii* ssp. *perezassoi* e *M. matanzanus* ssp. *actinacanthus*). Un inventario è anche incluso per i rimanenti taxa Caraibici, con una nuova combinazione per *M. stramineus*, originario di Aruba.

Resumen – Una revisión taxonómica del género *Melocactus* Link et Otto en Cuba, se publica aquí con una clave dicotómica para los taxones estudiados. El autor identifica para las 3 especies previamente aceptadas (*M. curvispinus*, *M. harlowii* y *M. matanzanus*), 2 taxones infra-específicos (*M. harlowii* ssp. *perezassoi* y *M. matanzanus* ssp. *actinacanthus*). El inventario también incluye los taxones restantes del Caribe, con una nueva combinación para *M. stramineus*, nativo de Aruba.

Résumé – Une révision taxinomique du genre *Melocactus* Link et Otto à Cuba est ici présentée, avec une clé dichotomique des taxa étudiés. L'auteur reconnaît les trois espèces auparavant acceptées (*M. curvispinus*, *M. harlowii* et *M. matanzanus*), deux taxa infra-spécifiques (*M. harlowii* ssp. *perezassoi* et *M. matanzanus* ssp. *actinacanthus*). Une liste des autres espèces caraïbes est aussi incluse avec une nouvelle combinaison pour *M. stramineus* d'Aruba.

The oldest *Melocactus* taxon described from Cuba, other than *M. communis* DC. [var.] *havannensis* Hort. Berol. ex Pfeiffer (Pfeiffer, 1837: 43), an unidentified plant, presumably cultivated in a Botanical Garden of Havana and subsequently imported into Europe (León, 1934: 202), was published by Britton & Rose (1912: 16) as *Cactus harlowii* (= *Melocactus harlowii*) from Oriente, near the U.S. Naval Station of Guantánamo.

The first synopsis of the Cuban *Melocactus* species was by León (1934: 201-208), who described 3 new species (*Melocactus acunae* ('*acunai*'), *M. guitartii* and *M. matanzanus*). During a Hungarian geological expedition, Mészáros (1977a: 127-147, 1978a: 301-305) studied the genus in Cuba, publishing 8 new taxa (*M. acunae* ssp. *acunae* var. *flavispinus*, *M. acunae* ssp. *lagunaensis*, *M. borhidii*, *M. evae*, *M. harlowii* fa. *candidus* Mészáros nom. nud., *M. jakusii*, *M. nagy* and *M. radoczii*). Later, another Cuban botanist, Areces, described 3 new species (1976a: 3-11, 1976b: 3-12, 1993: 421-427) (*M. actinacanthus*, *M. holguinensis* and *M. perezassoi*).

In total, 14 names have been published, but recent treatments (Taylor, 1991:77-79; Hunt *et al.*, 2006: 183-190) accepted only 3 species (*M. curvispinus*, *M. harlowii* and *M. matanzanus*).

In 2006, the author (Guiggi, 2006: 337-339) started the revision of the genus recognizing 2 new subspecies (*M. harlowii* ssp. *perezassoi* and *M. matanzanus* ssp. *actinacanthus*). A complete analysis of descriptions, illustrations, living and herbarium specimens, and seed SEM images, have enabled the elaboration of following taxonomic study. A summary of results are presented in Tab. 1-2.

Synopsis of the species

Melocactus curvispinus Pfeiffer, *Enum. Diag. Cact.* 46 (1837). *Typus*: Mexico, not preserved or lost. *Neotypus*: Mexico, Veracruz: *N.P. Taylor* 365 (MEXU). *Synonymi*: *Melocactus guitartii* León, in *Mem. Soc. Cub. Hist. Nat.* “Felipe Poey” 8(4): 207, with illus. (1934) (“*guitarti*”). *Typus*: Cuba, prov. Santa Clara / Camagüey (prov. Sancti-Spiritus / Ciego de Avila, Rigerszki *et al.*, 2007: 45), Boca Chica: May 1934, *R. Guitart* 16106 (HAC?, *holo.*; US, *iso.*); *Melocactus holguinensis* Areces, in *Ciencias ser. 10 Bot.* (10): 3, with illus. (1976). *Typus*: Cuba, prov. Oriente (prov. Holguín, Rigerszki *et al.*, 2007: 57), Holguín: 200 m u. s. l., Feb. 1976 [fl., fr. mat. ferens], *A.E. Areces-Mallea* (HAJB, *holo.*); *Melocactus jakusii* Mészáros, in *Acta Bot. Acad. Sci. Hung.* 22(1-2): 134, with illus. (1976 publ. 1977). *Typus*: prov. Oriente (prov. Holguín, Rigerszki *et al.*, 2007: 58), E of Holguín: Mar. 1975, *Z. Mészáros et P. Jakus* (SV transferred to HAC, *holo.*).

Additional herbarium specimens: prov. Matanzas: 16 Aug. 1927, *H. León et A. Rodríguez* 13083 as *M. guitartii* (US).

Collection examined: Holguín, Cabora, *J. Lodè* JL 2000/02 sub *M. holguinensis* [27019 *cult. hort.* Jardin Exotique of Monaco, fig. 13].

Etymology: referred to the recurved spines.

Icons: León, 1934: *Lam.* 10, fig. 4; Backeberg, 1960: 2558 *abb.* 2445(4); Ríha, 1971a: 37, 1971b: 128 *bil.* 2, 1973: 283 *fig.* 3; Areces-Mallea, 1976b: 9 *fig.* 1-2, 10 *fig.* 3-4, 11 *fig.* 5; Mészáros, 1977a: 141 *fig.* 4-5, 142 *fig.* 6, 1978a: 302 *fig.* 1, 303 *fig.* 2, 1978b: 60; Toledo Martínez, 1995a: 33-34, 1995b: 169-170; 1996: 32; Lodé, 2000: 11; Delanoy *et al.*, 2003: 19, 21; Subik & Kunte, 2003: 257; Ujréti, 2003: 57 *fig.* 45-46, 60 *fig.* 52; Rigerszki *et al.*, 2007: 44-57, 64-65, 149; Ríha, 2008a: 81-83.

Notes: distinguishing characters of the Cuban taxa belonging to the morphological variability of *Melocactus curvispinus* (*cf.* Bravo-Hollis & Sanchez-Mejorada, 1991: 88-90; Taylor, 1991: 71-77), for this reason are insufficient for the author to recognise any infra-specific taxa. Nevertheless, Hunt *et al.* (2006: 185) included *M. guitartii* León and *M. holguinensis* Areces, taxa with central spines to 3.5 cm long, in *M. curvispinus* subsp. *koolwijkianus* (Suringar) Thomson (see discussion in the Appendix). Also Cuban plants have seeds with flattened and elongated testa-cells (fig. 7) (*cf.* Taylor, 1991: 14).

Melocactus harlowii (Britton *et* Rose) Vaupel, in *Monatsschr. Kakteenk.* 22: 66 (1912).

Basionymus: *Cactus harlowii* Britton *et* Rose, in *Torreya* 12: 16 (1912). *Typus*: Cuba, prov. Oriente (prov. Guantánamo, Rigerszki *et al.*, 2007: 66), coastal cliffs, U.S. Naval Station, Guantánamo: 17-30 Mar. 1909, *N.L. Britton* 1965 (US, *holo. spec. vis.*).

Note: Taylor (1991: 78) and Hunt *et al.* (2006: 186) discussed the close affinity between a form of this species (*Melocactus acunae* León) and *M. lemairei* (Monville *ex* Lemaire) Miquél *ex* Lemaire from Hispaniola (*cf.* Taylor, 1991: 78; illus. in Rigerszki *et al.*, 2007: 92). Maybe *M. lemairei* is the ancestor of *M. harlowii*, but actually the disjunct distribution and morphological variability point to it being a valid species.

M. harlowii* subsp. *harlowii

Synonymi: *Melocactus acunae* León, in *Mem. Soc. Cub. Hist. Nat.* “Felipe Poey” 8(4): 205, with illus. (1934) (“*acunai*”). *Typus*: prov. Oriente (prov. Guantánamo, Rigerszki *et al.*, 2007: 76), Punta Maisi: *H. León* illus. *Lam.* 10, fig. 2 (HAC ?); *Melocactus borhidii* Mészáros, in *Acta Bot. Acad. Sci. Hung.* 22(1-2): 135, with illus. (1976 publ. 1977). *Typus*: prov. Oriente (prov. Guantánamo, Rigerszki *et al.*, 2007: 96), Tortuguilla: 10-20 m u.s.l., Jan. 1975, *Z. Mészáros et E. Nagy* (HAC); *Melocactus evae* Mészáros, *loc. cit.* 136, with illus. (1977). *Typus*: prov. Oriente (prov. Santiago de Cuba, Rigerszki *et al.*, 2007: 104), SW of Caimanera: Apr. 1975, *E. Nagy* (HAC); *Melocactus radoczii* Mészáros, *loc. cit.* 137, with illus. (1977). *Typus*: prov. Oriente (prov. Guantánamo, Rigerszki *et al.*, 2007: 126), Guajimero: May 1975, *Z. Mészáros et G. Radocz* (HAC);

Melocactus nagyii Mészáros, *loc. cit.* 137, with illus. (1977) ("nagyii"). *Typus*: prov. Oriente (prov. Santiago de Cuba, Rigerszki *et al.*, 2007: 107), between La Mota and El Macio: 10-20 m u.s.l., Jan. 1975, Z. Mészáros *et E. Nagy* (HAC); *Melocactus acunae* subsp. *lagunaensis* Mészáros, *loc. cit.* 138, with illus. (1977) ("acunai"). *Typus*: prov. Oriente (prov. Guantánamo, Rigerszki *et al.*, 2007: 89), NW side of the Laguna de Jojo: Mar. 1975, Z. Mészáros *et P. Jakus* (HAC); *Melocactus acunae* subsp. *acunae* var. *flavispinus* Mészáros, *loc. cit.* 138, (1977) ("acunai"). *Typus*: around the mouth of Rio Tacre: Z. Mészáros ? (HAC); *Melocactus harlowii* forma *candidus* Mészáros *nom. nud.*, *loc. cit.* 139, with illus. (1977).

Additional herbarium specimens: prov. Oriente: Jul. 1924, *H. León* 12410 *sub M. harlowii* (US) ; prov. Oriente: Jun. 1934, *H. León* 16110 *sub M. harlowii* (US); prov. Oriente: Oct. 1934, *H. León* 16233 *sub M. acunai* (US); prov. Oriente, Imias: *H. León* 16060 (HAC?); prov. Oriente: Jul. 1934, *L. Prada Lores* 16155 *sub M. acunai* (US); prov. Oriente: 21 Jun. 1934, *J. Perez* 16110 *sub M. harlowii* (US); prov. Oriente: 1909, *N.L. Britton* 1965 *sub M. harlowii* (US); prov. Oriente, Surgidero de Macambo: 4-5 m. a.s.l., Jan. 1975, Z. Mészáros *et E. Nagy* (HAC); prov. Santiago de Cuba, Uvero: [se. fl. spir. coll.] *A.E. Areces-Mallea* 3002 (MNHN); prov. Santiago de Cuba, Cuevas del Turquino: [fl., fr. spir. coll.] *A.E. Areces-Mallea* 3013 (MNHN).

Collections examined: E Santiago de Cuba, Sigua, *M. Kroenlein s.n. sub M. harlowii* [19869 *cult. hort.* Jardin Exotique of Monaco, fig. 14]; Santiago de Cuba, Surgidero de Sigua, *G. Delanoy* GD 02 *sub M. harlowii* [*cult. hort.* Jardin Exotique of Monaco]; 5 km E Cajobabo, *A. Vilardebo sub M. acunai* [27005 *cult. hort.* Jardin Exotique of Monaco]; Guantánamo, 5 km E Cajobabo, *A. Vilardebo sub M. acunai* [Mel 259 *cult. hort.* G. Delanoy, fig. 15]; Guantánamo, Punta Maisi, *sub M. acunai* [*cult. hort.* G. Delanoy]; Guantánamo, Tortuguilla, *A. Vilardebo sub M. borhidii* [25447 *cult. hort.* Jardin Exotique of Monaco]; Guantánamo, Tortuguilla, Rio Yatentas, *Ardissen* 005 *sub M. borhidii* [*cult. hort.* G. Delanoy, fig. 16]; Santiago-Boconao, Sigua, *A. Vilardebo sub M. evae* [25337 *cult. hort.* Jardin Exotique of Monaco fig. 17]; W Santiago, between El Macio and El Mota, *A. Vilardebo sub M. nagyii* [*cult. hort.* Jardin Exotique of Monaco]; 12 km E El Pilon, vertical cliffs of Punta Farallones, *A. Vilardebo sub M. nagyii* [25333 *cult. hort.* Jardin Exotique of Monaco]; Oriente, Ocuja, *sub M. ocujalius nom. nud.* [Mel 056 *cult. hort.* G. Delanoy, fig. 18].

Etymology: in honour of Captain C. H. Harlow, Commandant of the Guantánamo Naval Station at the time Dr. Britton studied the flora of reservation in 1909.

Icons: Canizares (Britton & Rose, 1922: 232; León, 1934: 206); Britton & Rose, 1922: Pl. XXIV, fig. 2-3; León, 1934: Lam. 10, fig. 1-2; Alain, 1952: 135 fig. 3; León & Alain, 1953: 381 fig. 173; Backeberg, 1960: 2558 abb. 2445(1-2), 2559 abb. 2446a-b; Ríha, 1971a: 36-38, 1971b: 129 bil. 3-4, 130 bil. 5-6, 1973: 281 fig. 1, 282 fig. 2, 284 fig. 4; Mészáros, 1977a: 142-146 fig. 7-15, 1977-78b: 22, 38, 61-62; Gloser, 1990: 160-161; Areces-Mallea, 1993: 425 fig. 2; Heek & Heek, 1993: 175 fig. 1-4, 176-177; Lodé, 2000: 7, 10-11; Delanoy, 2002a: 29-33, 2002b: front cover, 172-173, 175-182, 2002c: 96 fig. 1, 100-101 fig. 4-5, 103 fig. 6 [7], 2003: 117 abb. 1, 118 abb. 2-3, 119 abb. 4; Delanoy *et al.*, 2003: 12-13, 15, 18-20, 32-33, 35; Subik & Kunte, 2003: 256, 258; Ujréti, 2003: 41 fig. 3-4, 42 fig. 5, 7, 43: fig. 8, 45: fig. 14-15, 53 fig. 35, 54 fig. 37, 58 fig. 48-49, 59 fig. 50, 65 fig. 68, 66 fig. 70, 69 fig. 76-77, retro cover; Pfendbach, 2003: 85, 87-88, 2005: 75 fig. 1, 78 fig. 5, 79 fig. 6, 80 fig. 7-8; Hunt *et al.*, 2006: 170 fig. 170.2; Rigerszki *et al.*, 2007: front cover, 7, 10-12, 66-67, 69-71, 73-75, 77-94, 96-112, 114-117, 125-126, 134, 136-141, 159-162; Ríha, 2008b: 136-138; Thomson, 2009: 25.

Notes: analysis of morphological and geographical data has showed that all names published from Oriente are forms conspecific with this subspecies. The origin of this polymorphism is clearly related to an adaptation to different ecological environments (*e.g.* growth substrates, light conditions, *etc.*). Its seeds have slightly convex and elongated or strongly convex and tuberculated testa-cells (figs. 8-11).

M. harlowii* subsp. *perezassoi (Areces) Guiggi, in *Atti Soc. it. Sci. nat.* 147(II): 337 (2006). *Basionymus*: *Melocactus perezassoi* Areces, in *Phytologia* 74(6): 421, with illus. (1993). *Typus*: Cuba, prov. Villa Clara, northern ranges of Guamuha (Escambray), vicinity of Jibacoa, on an

exposed cliff facing the river dam: 22°01'28"N 80°00'00"W, 15 Apr. 1991, W. Figueredo, E. Sardinias et J. A. Sanchez 2366 (MNHN, *holo.*; HAC, *iso.*).

Collection examined: *sub M. glosseri nom. nud.* [Mel 175 *cult. hort.* G. Delanoy *ex hort.* Hättisch, fig. 19].

Etymology: dedicated to A. Pérez Asso, the first Cuban naturalist to collect the taxon in the early 1980's.

Icons: Areces-Mallea, 1993: 422 fig. 1; Delanoy *et al.*, 2003: 33 ; Hunt *et al.*, 2006: 170 fig. 170.3; Rigerszki *et al.*, 2007: 118-122, 162.

Notes: subspecies (Guiggi, 2006: 337) characterized by its very far, disjunct distribution (> 400 km) in prov. Villa Clara, more separated areoles, greater number and thinner spines, and longer fruits. Its seeds are characterized by slightly convex and very elongated testa-cells (fig. 12). As reported by Areces (1993: 426) this taxon probably is a relict from the original coastal cliffs before the sea regression.

Melocactus matanzanus León, in Mem. Soc. Cub. Hist. Nat. "Felipe Poey" 8(4): 206, with illus. (1934). *Typus:* Cuba, prov. Matanzas, N of Corral Nuevo, Canasi, Cuabal de las Tres Ceibas: Aug. 1927, *H. León* 13083 (HAC ?, *holo.*; US, *iso.*).

Note: I agree with Rigerszki *et al.* (2007: 43) that probable fragmentation and reduction of the original wider distribution of this species has resulted in isolation and differentiation, producing the following recognized subspecies.

M. matanzanus* subsp. *matanzanus

Synonymus: *Cactus matanzanus* (León) Borg, Cacti (ed. 2) 340 (1951).

Additional herbarium specimens: prov. Matanzas: Aug. 1927, *H. León* 13083 (US); prov. Matanzas: Oct. 1927, *H. León* 13154 (US); prov. Matanzas: Nov. 1928, *H. León* 13734 (US); prov. Matanzas, N of Corral Nuevo, Cuabal de las Tres Ceibas: *H. León* 13154-13734 (HAC ?).

Collections examined: Matanzas, Cueba de las Tres Ceibas [26053 *cult. hort.* Jardin Exotique of Monaco *ex hort.* G. Delanoy]; Matanzas, Cueba de las Tres Ceibas [*cult. hort.* G. Delanoy, fig. 20].

Etymology: derived from Matanzas, the province of the type locality.

Icons: Roig (León, 1934 : 207); León, 1934: Lam. 10, fig. 3; Backeberg, 1960: 2558 abb. 2445(3), 2616 abb. 2495a-b; Ríha, 1971b: 128 bil. 1, 1973: 285 fig. 5; Mészáros, 1977a: 140 fig. 2-3; Gutierrez, 1984: fig. 2, 14; Preston-Mafham & Preston-Mafham, 1991: 139; Innes & Glass, 1992: 190; Anderson, 2001: 463; Delanoy *et al.*, 2003: 32; Ujréti, 2003: 61 fig. 57, 64 fig. 63-64; Hunt *et al.*, 2006: 172 fig. 172.4; Rigerszki *et al.*, 2007: 37-39, 161, 174; Ríha, 2008b: 137; Thomson, 2009: 54-55, 58-59, 62.

M. matanzanus* subsp. *actinacanthus (Areces) Guiggi, in Atti Soc. it. Sci. nat. 147(II): 337 (2006). *Basionymus:* *Melocactus actinacanthus* Areces, in Ciecias ser. 10 Bot. (9): 4, with illus. (1976). *Typus:* Cuba, prov. La Villas, ad Rio Agabama ad "Acueducto" versus in *saccis sterilibus solo serpentino*: Mar. 1974 [fl., fr. mat. ferens], *A.E. Areces-Mallea* (HAJB, *holo.*).

Collection examined: Las Villas, Sta. Clara, Rio Agabama [Mel 235 *cult. hort.* G. Delanoy *ex hort.* Hättisch, fig. 21]

Etymology: refers to the star arrangement of the spines.

Icons: Areces-Mallea, 1976a: 8 fig. 1-2, 9 fig. 3-4, 10 fig. 5-6; Delanoy *et al.*, 2003: 12; Ujréti, 2003: 41 fig. 1, fig. 2?; Gonzalez-Torres *et al.*, 2005: 83 fig. 1-2, 84 fig. 3-4-5; Rigerszki *et al.*, 2007: 40-42, 162; Taylor, 2007: 22 fig. 2.

Notes: a subspecies (Guiggi, 2006: 337) distinguished by its disjunct distribution (\pm 200 km) in prov. Las Villas, greater stem dimension, higher ribs, more separated areoles, lesser number of spines and the absence of any centrals.

Key to the revised Cuban taxa

1. Flower less than 1.8 cm long, not exerted from the cephalium; ribs 8-9; central spines 0-12
 Flower more than 1.8 cm long, exerted from the cephalium; ribs 10-13; central spines 1-5.....3
2. Stem 7-9 cm high, 8-9 cm in diameter; ribs 1.5 cm high; areoles 0.6-1.3 cm apart; spines 7-9, 1-1.8 cm long, central spine 1; prov. Matanzas.....**1a. *M. matanzanus* subsp. *matanzanus***
 Stem 9-13.5 cm high, 10.5-14.5 cm in diameter; ribs 1-2.5 cm high; areoles 1-2.2 cm apart; spines 5-6, 0.8-2.4 cm long, central spine 0; prov. Las Villas.....**1b. *M. matanzanus* subsp. *actinacanthus***
3. Fruit red; stem simple, not branched; spines 8-12, recurved; prov. Santa Clara / Camagüey and prov. Oriente.....**2. *M. curvispinus***
 Fruit deep or pale pink to white; stem generally branched in older plants; spines 10-24, upcurved.....4
4. Areoles normally 0.7-0.9 cm apart; spines 10-20, 1-3 mm in diameter; fruit 1.2-2.2 cm long; prov. Santiago de Cuba and Oriente.....**3c. *M. harlowii* subsp. *harlowii***
 Areoles 0.9-1.5 cm apart; spines 17-24, 0.4-0.9 mm in diameter; fruit 2.3-2.8 cm long; prov. Villa Clara.....**3d. *M. harlowii* subsp. *perezassoi***

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Table 1. Cuban taxa accepted by the author

Melocactus curvispinus Pfeiffer

M. guitartii León

M. holguinensis Areces

M. jakusii Mészáros

Melocactus harlowii (Britton *et* Rose) Vaupel

M. harlowii* subsp. *harlowii

M. harlowii forma *candidus* Mészáros *nom. nud.*

M. acunae León

M. acunae subsp. *acunae* var. *flavispinus* Mészáros

M. acunae subsp. *lagunaensis* Mészáros

M. borhidii Mészáros

M. evae Mészáros

M. nagyii Mészáros

M. radoczii Mészáros

M. harlowii* subsp. *perezassoi (Areces) Guiggi

M. glosseri *nom. nud. hort.*

Melocactus matanzanus León

M. matanzanus* subsp. *matanzanus

M. matanzanus* subsp. *actinacanthus (Areces) Guiggi

Table 2. Comparative features of the Cuban *Melocactus* taxa

	<i>M. curvispinus</i>	<i>M. harlowii</i> <i>ssp. harlowii</i>	<i>M. harlowii</i> <i>ssp. perezassoi</i>	<i>M. matanzanus</i> <i>ssp. matanzanus</i>	<i>M. matanzanus</i> <i>ssp. actinacanthus</i>
Stem	10-14 x 9-16 cm, simple, depressed-globose to subconical	8-30 x 6-16 cm, branching, globose to elongated	11-16.5 x 10.5-15 cm, branching, subglobose to ovoid	7-9 x 8-9 cm, simple, depressed-globose	9-13.5 x 10.5-14.5 cm, simple, depressed-globose
Ribs	11-13, 0.5-2.1 cm high	10-13	12-13, 0.9-3 cm high	8-9, 1.5 cm high	8-9, 1-2.5 cm high
Areoles	1-2.5 cm apart	0.7-0.9 or more cm apart	0.9-1.5 cm apart	0.6-1.3 cm apart	1-2.2 cm apart
Spines	8-12, 0.2-3.5 x 0.03-0.3 cm, normally stout, slightly recurved	10-20, 1-5 x 0.1-0.3 cm, flexible to stout, normally upcurved	17-24, 0.5-3 x 0.04-0.09 cm, rather slender, slightly upcurved	7-9, recurved, 1-1.8 cm long	5-6, recurved, 0.8-2.4 x 0.1-0.2 cm
Central spines	1-2	1-4	3-5	1	0
Cephalium	1.5-8 x 4-8 cm	2-15 x 3-9 cm	4-14 x 6.8-8.3 cm	2-4 x 5-6 cm	3 x 5.5-6.5 cm
Flower	1.8-4 x 1-1.8 cm, pinkish to deep purplish, exerted from the cephalium	2-3.1 x 0.7-2.5 cm, pale pink to purple, exerted from the cephalium	2.8-3.4 x 1.2-1.5 cm, pale pink, exerted from the cephalium	1.5-1.7 cm long, pinkish, not exerted from the cephalium	1.3-1.5 x 0.4-0.5 cm, pinkish, not exerted from the cephalium
Fruit	1.6-4 x 0.7-1.4 cm, red	1.2-2.2 x 0.5-1.1 cm, deep-pink, whitish in the lower part, or entirely white	2.3-2.8 x 0.6-0.8 cm, pale pink to white in the lower part	1.5 x 0.7 cm, pale pink to white	1-1.5 x 0.4-0.7 cm, pale pink to white in the lower part
Seed	1.5 x 1.3 mm, black, shiny, verrucose and rough	dark-brown, shiny, slightly or heavily muricate	1.3-1.4 x 1.1-1.3 mm, black, smooth, testa-cells scarcely convex or somewhat elongated	1.3 x 1 mm in diameter, black, shiny	c. 1 mm in diameter, black, shiny, verrucose and rough
Habitat & distribution	hills and escarpments, on volcanic and serpentine rocks; prov. Holguín and prov. Sancti-Spiritus / Ciego de Avila	coastal cliffs, on limestone terraces, gravel conglomeration, volcanic or serpentine rocks; prov. Guantánamo and Santiago de Cuba	inland rocky cliffs, on soil deposits; prov. Villa Clara	arid grounds, low hills, on serpentine substrate; prov. Matanzas	dry hills and slopes, on serpentine substrate; prov. Las Villas

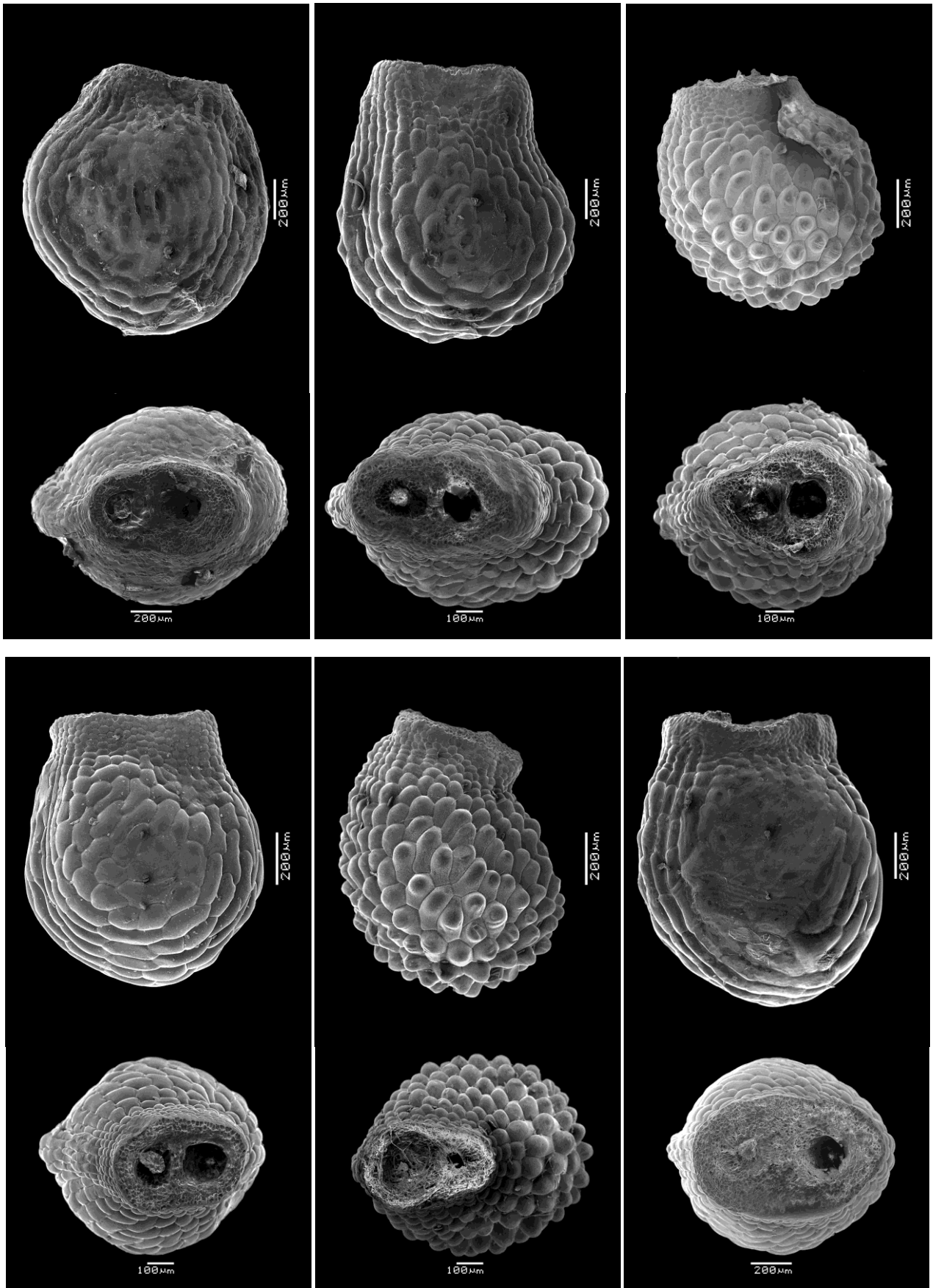


Figure 7-12. **7:** *M. guitartii* RBK 08-1 (= *M. curvispinus*). **8:** *Melocactus harlowii* ssp. *harlowii* RBK 16-1. **9:** *M. acunae* RBK 18-1 (= *M. harlowii* ssp. *harlowii*). **10:** *M. borhidii* RBK 15-1 (= *M. harlowii* ssp. *harlowii*). **11:** *M. nagy* RBK 22-1 (= *M. harlowii* ssp. *harlowii*). **12:** *M. harlowii* ssp. *perezassoi* (cult. hort. G. Delanoy). Photo: M. Zilioli.



Figure 13-21. **13:** *Melocactus holguinensis* (= *M. curvispinus*), 27019 cult. hort. Jard. Ex. Monaco. **14:** *M. harlowii* ssp. *harlowii*, 19869 cult. hort. Jard. Ex. Monaco. **15:** *M. acunai* (= *M. harlowii* ssp. *harlowii*), Mel 259 cult. hort. G. Delanoy. **16:** *M. borhidii* (= *M. harlowii* ssp. *harlowii*), cult. hort. G. Delanoy. **17:** *M. evae* (= *M. harlowii* ssp. *harlowii*), 25337 cult. hort. Jard. Ex. Monaco. **18:** *M. ocujalius* n.n. (= *M. nagyi* = *M. harlowii* ssp. *harlowii*), Mel 056 cult. hort. G. Delanoy. **19:** *M. glosseri* n.n. (= *M. harlowii* ssp. *perezassoi*), Mel 175 cult. hort. G. Delanoy. **20:** *M. matanzanus* ssp. *matanzanus*, cult. hort. G. Delanoy. **21:** *M. actinacanthus* (= *M. matanzanus* ssp. *actinacanthus*), Mel 235 cult. hort. G. Delanoy. Photo: A. Guiggi.

Appendix

Catalogus Melocactorum Caraibensium

Literature consulted: Acevedo-Rodriguez, P. 1996. *Flora of St. John, U.S. Virgin Islands*. Mem. New York Bot. Gard. 78: 149. - Adams, C.D. 1972. Flowering Plants of Jamaica. Mona, Jamaica: 275. - Antensberg, H. 1995. Highlights of the trip on which we discovered *Melocactus citrispina* AHB 37. *Brit. Cact. & Succ. J.* 13(2): 68-72. - Britton, N. L., and J. N. Rose. 1922. *The Cactaceae*. Vol. III. Carnegie Institute: Washington. - Cheesman, E. E. 1928. *Cactaceae*. In: R.O. Williams, *Flora of Trinidad & Tobago*. Part. 1. Gov. Print. Off., Port of Spain, Trinidad: 460-461. - Correll, D. S., and H. B. Correll. 1982. *Flora of the Bahama Archipelago*, reprint 1996. A.R.G. Gantner Verlag, Vaduz: 1010-1012. - Delanoy, G., B. Antesberger, and A. Vilardebo. 2003. Le genre *Melocactus* Link & Otto dans la région caraïbe. *Succulentes Numéro Spécial*. - Eraville, M.J, J.M. Eraville, and G. Delanoy. 2009. *Melocactus intortus* in St Barthélemy, presence of a form with yellowish-white cephalium. *Cactus & Co.* 13(3): 58-73. - Guiggi, A. 2006. New combinations in *Melocactus* (L.) Link & Otto (*Cactaceae*). *Atti Soc. it. Sci. nat.* 147(II): 337-339; 2007a. *Melocactus intortus* (Miller) Urban (*Cactoideae*) and its subspecies from the Caribbean. Taxonomy, distribution and iconography. *Cactology*. A. Guiggi selfpub., 1: 9-16; 2007b. A new status for *Melocactus praerupticola* Areces from the Dominican Republic (*Cactoideae*). *Cactology*. A. Guiggi selfpub. 1: 17-22; 2010. An alternative taxonomical approach for the *Melocactus curvispinus* group (*Cactaceae*) in Colombia & Venezuela. *Cactology*. A. Guiggi selfpub. 2: 4-10. - Howard, R. A. 1989. *Flora of the Lesser Antilles*. Vol. 5, Part. 2. Harvard University Jamaica Plain, Massachusetts: 407-410. - Hunt, D., N. Taylor, and G. Charles (eds.). 2006. *New Cactus Lexicon*. David Hunt Books, The Manse, Chapel Lane, Milborne Port, DT9 5DL, England. - Liogier, H.A. 1994. *Descriptive Flora of Puerto Rico and Adjacent Islands*. Univ. de Puerto Rico. 3: 317-319. - Moscoso, R., M. 1941. Las Cactaceas de la Flora de Santo Domingo. *An. Univ. San. Dom.* Enero-Junio. Univ. de Santo Domingo, Republica Dominicana: 86. - Taylor, N. P. 1991. The genus *Melocactus* (*Cactaceae*) in Central and South America. *Bradleya*. 9: 1-80. - Thomson, G. 2001. The melocacti of Aruba revisited. *Brit. Cact. Succ. J.* 19: 144-150; 2002. A re-evaluation of the taxonomic status of the genus *Melocactus* in Aruba, Netherlands Antilles. *Bradleya*. 20: 29-44; 2005a. Typification of *Cactus macracanthos* Salm-Dyck, in *Cact. Syst. Init.* 19: 9; 2005b. A revision of the genus *Melocactus* in Curaçao and Bonaire, Netherlands Antilles with an illustrations of the neotype of *M. macracanthos*. *Bradleya*. 23: 79-96; 2005c. Curaçao: *Melocactus et alia*. *Cactus & Co.* 9(4): 198-215. - Urban, J. 1920-21. *Flora Domingensis. Symbolae Antillanae*. 8: 464-465. Reprint A. Ascher & Co. 1964, Amsterdam. - Werdermann, E. 1931. Die von E.L. Ekman in Westindien, besonders auf Cuba und Hispaniola gesammelten *Cactaceae*. *Feddes Repert.* 29: 241-242.

Melocactus caesius* subsp. *lobelii (Suringar) Guiggi, *Cactology* 2: 5 (2010). *Basionymus*: *Melocactus lobelii* Suringar, in Verh. Med. Kon. Akad. Wetensch. Amst. II, 5: 7, t. 1.1 (1896). *Typus* (*Iconotypus*): Venezuela, Nueva Esparta, Margarita Island, illustration in L'Obel, *Stirpium adversaria nova*, 376 (1570-71). *Synonymi*: *Melocactus curvispinus* subsp. *caesius* (Wendland) N.P. Taylor forma *lobelii* (Suringar) N.P. Taylor, in *Bradleya* 9: 76, with illus. (1991); *Melocactus curvispinus* subsp. *lobelii* (Suringar) Fernandez-Alonso et Xhonneux, in Rev. Acad. Colomb. Cien. Exat. Fis. Nat. 26: 356. (2002a). Collections examined: Isla Margarita, Punta El Horizonte, *H. et B. Antesberger* AHB 87 [Mel 212 *cult. hort.* G. Delanoy]; Isla Margarita, Punta El Horizonte, *H. et B. Antesberger* AHB 87 [*cult. hort.* Jardin Exotique of Monaco]; Isla Margarita, El Saco, *H. et B. Antesberger* AHB 105 [Mel 275 *cult. hort.* G. Delanoy]. Note: ecological subspecies characterized by open habitats, darker or bluish stem colour, greater dimensions of all its morphological parts (e.g. stem, areoles, spines, cephalium) and a greater number of ribs and spines. Its seeds present flat testae (Taylor, 1991: 14) like those of *M. curvispinus* (fig. 7). Distribution: Eastern Venezuelan Islands (Coche, Margarita, Las Caracas, Patos).

Melocactus caroli-linnaei N.P. Taylor, in *Bradleya* 9: 78 (1991). *Synonymi*: *Cactus melocactus* Linnaeus, *Sp. pl.* 466 (1753). *Typus*: Jamaica, not preserved. *Neotypus*: Jamaica, W side of the Yallahs River below coastal highway crossing: 0 u.s.l., 13 Apr. 1978, G.R. Proctor 37757 (K), (Taylor, in *loc. cit.*); *Melocactus melocactus* (Linnaeus) H. Karsten, *Deut. Fl.* 888 (1882), *nom. illeg.*; *Melocactus communis sensu* Adams, *Fl. Pl. Jamaica*, 275 (1972) *non* (Aiton) Link et Otto (1827); *Melocactus coronatus sensu* (Lamarck) Backeberg, *Cact.* 4: 2569 (1960) *non* *Cactus coronatus* Lamarck. (1783). Collection examined: [Mel 176 *cult. hort.* G. Delanoy]. Note: the author

has seen some original descriptions from Jamaica (Britton & Rose, 1922: 225; Adams, 1972: 275), seed morphology with flat testa-cells (fig. 22) and numerous John Senior's illustrations (e.g. fig. 27) from Treasure beach in the arid southern part of Jamaica, suggest agreement with Hunt *et al.* (2006: 185) that *M. caroli-linnaei* is close but distinct from *M. curvispinus*, characterized by a different habit of growth (barrel-shaped), greater stem dimension (to 40 x 30), spine length (to 5 cm) and cephalium bristles much stouter and longer. Distribution: Jamaica.

Melocactus curvispinus. *Synonymi*: *Melocactus koolwijkianus* Suringar, in Versl. Med. Akad. Wetensch. III, 2: 184 (1866). *Typus*: Netherlands Antilles, Aruba, Oranjestad: 1884-1885, W.F.R. Suringar 27 (L). **Synon. nov.**; *Melocactus curvispinus* subsp. *koolwijkianus* (Suringar) Thomson, in Bradleya 20: 38, with illus. (2002). **Synon. nov.**; *Melocactus laui* Antesberger, in Cact. Succ. J. (US) 63: 241, with illus. (1991). *Typus*: Netherlands Antilles, Aruba, California Lighthouse: Jul. 1989, H. et B. Antesberger AHB 40 (SZU). Collection examined: Aruba, "California lighthouse", H. et B. Antesberger AHB 40a sub *M. laui* [Mel 043 cult. hort. G. Delanoy]. Note: morphological distinguishing characters reported in Thomson (2002) and Hunt *et al.* (2006: 185) such as the slightly lesser radial spines maximum length (< 2.5 cm vs. < 2.8 cm) don't appear sufficient to consider *M. koolwijkianus* as a distinct subspecies of *M. curvispinus*. Distribution: Netherlands Antilles (Aruba).

Melocactus intortus (Miller) Urban, in Fedde Rep. Sp. Nov. 16: 35 (1919). *Basionymus*: *Cactus intortus* Miller, Gard. Dict. ed. 8, no. 2 (1768). *Typus*: Antigua not preserved. *Neotypus*: Antigua, Shirley Heights: 26 Lug. 1977, R.A. Howard 18492 (K) as *Melocactus intortus* (Miller) Urban (Taylor, 1991: 78).

M. intortus* subsp. *intortus. (fig. 28). *Synonymi*: *Cactus antonii* Britton, in J. Cact. Succ. Soc. Amer. 4: 355, with illus. (1933). *Typus*: Puerto Rico, Desecheo Island: 18 Feb. 1914, N.L. Britton, J.F. Cowell et S. Brown 1645 (NY, *holo.* not found, a *neotypus* is requested, Guiggi, 2007: 11); *Melocactus antonii* (Britton) F. Knuth, Kaktus-ABC, 342 (1935); *Melocactus intortus* var. *antonii* (Britton) Backeberg, Die Cact. 4: 2575 (1960). Collections examined: Puerto Rico, Culebra Island [26074 cult. hort. Jardin Exotique of Monaco]; Guadeloupe, Les Saintes, *M. Kroenlein* [18726 cult. hort. Jardin Exotique of Monaco]; Guadeloupe, La Désirade [26022 cult. hort. Jardin Exotique of Monaco ex hort. G. Delanoy]; Guadeloupe, La Désirade [Mel 178 cult. hort. G. Delanoy ex hort. Moullec]. Note: a curious form of this taxon with spines and cephalium bristles whitish has been reported from the Caribbean Island of St Barthélemy in Lesser Antilles (Eraville *et al.*, 2009: 71). Distribution: Bahamas, Puerto Rico, Virgins Islands, and Lesser Antilles.

M. intortus* subsp. *broadwayi (Britton et Rose) Guiggi, in in Atti Soc. it. Sci. nat., 147(II): 338 (2006). (fig. 29). *Basionymus*: *Cactus broadwayi* Britton et Rose, Cact. 3: 229, with illus. (1922). *Typus*: Tobago: 1921, W.G. Freeman (US *holo.*; K, *iso*). *Synonymus*: *Melocactus broadwayi* (Britton et Rose) A. Berger, Entwicklungsl. Kakt. 103 (1926). Collection examined: Tobago, H. et B. Antesberger AHB 64 [26214 cult. hort. Jardin Exotique of Monaco]. Note: geographical subspecies characterized by smaller stem (10-20 cm high), shorter cephalium (2-8 cm high), lower ribs (1-1.5 cm high), radial spines curved inward, and distributed only in southern Lesser Antilles. Distribution: St. Lucia, St. Vincent, The Grenadines, Grenada, Tobago.

M. intortus* subsp. *domingensis Areces, in Cact. & Succ. J. (US) 69 (5): 246, with illus. (1997). (fig. 30). *Typus*: Dominican Republic, prov. Pedernales: 1 Jun. 1991 [fl., fr.], A. E. Areces 6380 (JBSD, *holo.*; NY, MNHN, *iso.*). *Synonymi*: *Melocactus pedernalensis* M. Mejia et R. Garcia, in Moscosoa 9: 12-17, with illus. (1997), also published in Succulentas 21(3): 15, with illus. (1998). *Typus*: Dominican Republic, prov. Pedernales: 29 Jul. 1995 [fl., fr.], R. Garcia, M. Mejia et S.

Rodriguez 5789, (JBSD, *holo.*; NY, MAPR, US, *iso.*). Collections examined: Pedernales, A. Vilardebo [24530 *cult. hort.* Jardin Exotique of Monaco]. Note: geographical subspecies characterized by elevated number of spines (14-21), with 3-6 central spines recurved downwards, 3.5-7 cm long and distributed only in Dominican Republic. Its seeds with flat testa-cells (fig. 24) doesn't show any significant difference from those of the subspecies *intortus* (fig. 23). Distribution: Hispaniola (Dominican Republic).

Melocactus lemairei (Monville *ex* Lemaire) Miquél *ex* Lemaire, *Hort. Univ.* 1 : 286, with illus. (1840). *Basionymus*: *Echinocactus lemairei* Monville *ex* Lemaire, *Cact. Aliq. Nov.* 17 (1838) ('*lemarii*'). *Typus*: Hispaniola, Santo Domingo, *cult. hort.* M. Monville, not preserved but illustrated by Lemaire. *Neotypus* (*Iconotypus*): Lemaire illustration's t. 35, loc. cit (1840), (Taylor, 1991:78).

M. lemairei* subsp. *lemairei. *Synonymus*: *Melocactus hispaniolicus* Vaupel, *Monatss. f. Kakteenk.* 29: 121 (1919). *Typus*: Haiti, near Gonaives, assumed not to have been preserved. Collections examined: Dominican Republic, prov. Independencia, route Duvergè-Jimani, P. Corman PCO 4023-01z [Mel 251 *cult. hort.* G. Delanoy]. Distribution: Hispaniola (Dominican Republic, Haiti).

M. lemairei* subsp. *praerupticola (Areces) Guiggi, in *Atti Soc. it. Sci. nat.*, 147(II): 337-338 (2006). *Basionymus*: *Melocactus praerupticola* Areces in *Cact. Succ. J. (US)* 72 (1): 27, with illus. (2000). *Typus*: Dominican Republic, prov. La Vega: 13 May 1991 [fl., fr.], A. E. Areces-Mallea 5801 (JBSD, *holo.*; NY, *iso.*). Collections examined: prov. La Vega, near Constanza, 6,2 kms W of Villa Elisa, Heimen GH 409 [Mel 219 *cult. hort.* G. Delanoy]; prov. La Vega, P. Corman PCO 4051-01z [Mel 344, 349 *cult. hort.* G. Delanoy]. Note: an ecological subspecies characterized by its different habitat (steep rocky cliffs in higher altitudes and humid conditions), depressed-globose habit, smaller size of its morphological parts (*e.g.* stem, cephalium, areoles, spines) and flowers not so exserted from the cephalium. Its seeds are less tuberculate (fig. 26) than those of subspecies *lemairei* (fig. 25) but clearly conspecific. Distribution: Hispaniola (Dominican Republic).

Melocactus macracanthos (Salm-Dyck) Link *et* Otto, in *Verh. Ver. Beford. Gartenb.* 3: 418 (1827) ('*macrocanthus*'). *Basionymus*: *Cactus macracanthos* Salm-Dyck, *Observ. Bot.* 1: 3 (1820) ('*macrocanthus*'). *Typus*: Curaçao, *cult. hort.* Dyck., not preserved. *Neotypus* (*Iconotypus*): Link *et* Otto, in *loc. cit.* t. XII (Thomson, 2005a: 9).

M. macracanthos* subsp. *macracanthos (fig. 31). *Synonymi*: *Melocactus citrispinus* Antesberger, in *Kakt. Orch.-Rundschau* 15: 1-6, with illus. (1990). *Typus*: Netherlands Antilles, small islands nearby Curaçao: Jul. 1989, *H. et B. Antesberger* AHB 37 (SZU); *Melocactus inclinatus* Antesberger, in *Bradleya* 13: 14, with illus. (1995). *Typus*: Netherlands Antilles, Curaçao, Noordpunt "Noord Punt": Jul. 1989, *H. et B. Antesberger* AHB 35 (SZU). Collection examined: Curaçao, Noord Punt, *H. et B. Antesberger* AHB 32/41 *sub M. inclinatus* [Mel 040 *cult. hort.* G. Delanoy]. Note: in the original publication of *Melocactus citrispinus* Antesberger *loc. cit.* (1990) three collection numbers (AHB 37, 38, 42) were cited, subsequently Antesberger (1995: 72), reported AHB 37 only as the type collection. Distribution: Netherlands Antilles (Curaçao, Bonaire, Aruba, and nearby small islands).

M. macracanthos* subsp. *stramineus (Suringar) Guiggi *comb. et stat. nov.* (fig. 32). *Basionymus*: *Melocactus stramineus* Suringar, in *Versl. Med. Akad. Wetensch.* III, 2: 185 (1866). *Typus*: Aruba, Seroe Culebra 'Seroe Colebra': 1884-1885, *W.F.R. Suringar* 31 (L). *Synonymi*: *Melocactus barbarae* Antesberger, in *Kakt. Orch.-Rundschau* 13(2): 15, with illus. (1988) ('*barbarensis*'). *Typus*: Netherlands Antilles, Aruba, Bushiribana-Salina Cerka: *H. et B.*

Antesberger AHB 13 (SZU). Collection examined: Aruba, Bushiribana-Salina Cerka, *H. et B. Antesberger* AHB 7/13 sub *M. barbarae* [Mel 007 cult. hort. G. Delanoy]. Note: this subspecies is distinguishable by proportionally more cephalium diameter than stem, more exerted cephalium bristles, lesser number of radials spines (5-12), more flowers diameter (1-1,4 cm), anticipate time of anthesis (2-4 pm) and more fruit length (3.0-3.4 cm); the distinctive reproductive and phenological characters (*e.g.* cephalium, flower and anthesis) are probably of ecological origin, maybe linked to the behavior of a different pollinator, it's interesting pointed out as the subspecies *stramineus* in N Aruba tend to replace the subspecies *macracanthos* (Thomson, 2005b: 95). Distribution: Netherlands Antilles (Aruba).

Melocactus ×*bozsingianus* *Antesberger*, in *Kakt. Orch.-Rundschau* 14(2/3): 18, with illus. (1989). *Typus*: Netherlands Antilles, Aruba, Guadirikiri-Cura Cabai: *H. et B. Antesberger* AHB 3 (SZU). Collection examined: Aruba, Guadarikiri-Cura Cabai, *H. et B. Antesberger* AHB 3/4 sub *M. bozsingianus* [Mel 008 cult. hort. G. Delanoy]. Note: this taxon according to G. Thomson in *Bradleya* 20: 29-44, with illus. (2002), is a natural hybrid between *M. stramineus* (= *M. macracanthos* subsp. *stramineus*) × *M. curvispinus* subsp. *koolwijkianus* (= *M. curvispinus*). Distribution: Netherlands Antilles (Aruba).

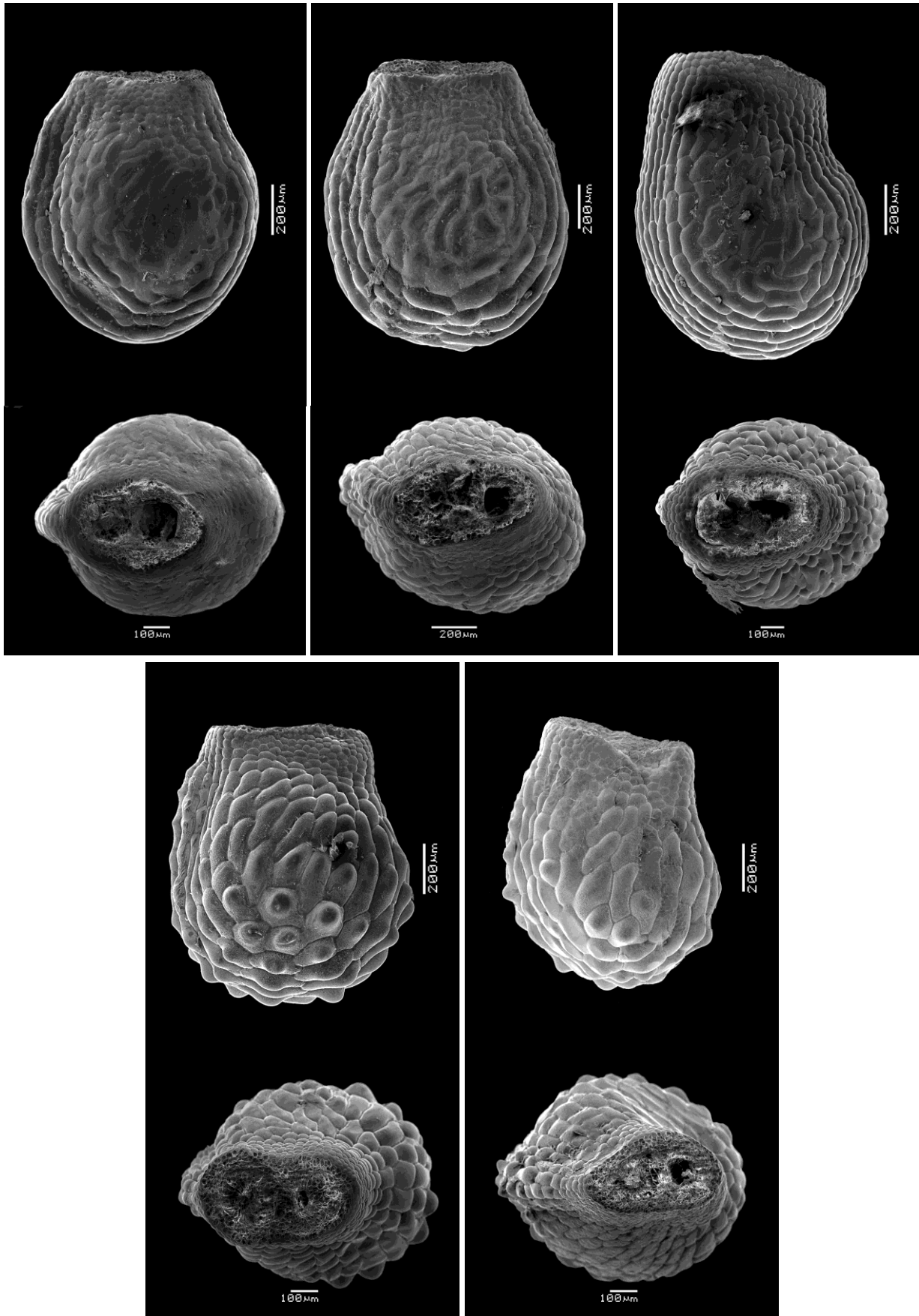


Figure 22-26. 22: *Melocactus caroli-linnaei* (J. Senior, Jamaica, Treasure beach). 23: *M. intortus* ssp. *intortus* (St. Martin). 24: *M. intortus* ssp. *domingensis* (J. Senior, Dominican Rep., Pedernales). 25: *M. lemairei* ssp. *lemairei* (locality ?). 26: *M. lemairei* ssp. *praerupticola* (cult. hort. G. Delanoy). Photo: M. Zilioli.



Figure 27-32. 27: *Melocactus caroli-linnaei* (Jamaica, Treasure beach). 28: *M. intortus* ssp. *intortus* (Puerto Rico, Guánica dry forest, on the SW side of the Island). 29: *M. intortus* ssp. *broadwayi* (Grenada, on the SE side of the Island). 30: *M. intortus* ssp. *domingensis* (Dominican Republic, Pedernales). 31: *M. macracanthos* ssp. *macracanthos* (Bonaire, on the coast in the NW part of the Island). 32: *M. macracanthos* ssp. *stramineus* (Aruba, on the W coast, N of the airport). Photo: J. Senior.

