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Melocactus guanensis sp. nova, Treasures of the Richtersveld, El Hierro...



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**“To innovate, is to be the first to open ways
that others then try to follow.”**

Editorial

Dear Readers,

Next year, we will celebrate our 15 years of existence, so it is time to carry out a rapid assessment and report our actions to date. International Cactus-Adventures exists because the journal answers a real need of the amateur:

Our authors understand this as they become increasingly numerous and want to write in our review. We publish only 4 issues per annum, and we cannot publish all of these potential articles in the same year. So we thus simply added 4 more pages to International Cactus-Adventures, without increasing the price of the subscription. Thank you to our authors for writing in International Cactus-Adventures.

Moreover, since 1995, the journal increased by 8 pages, the number of photographs practically doubled, while the price of subscription dropped. All of this became possible thanks to the increase in subscribers for International Cactus-Adventures these last years who are faithful and generous people.

International Cactus-Adventures in the beginning was a French-speaking journal proposing a seed catalogue of home production with an unequalled number of species. We were the first to have a fax, a journal published in 2 distinct languages, the first to publish only new and original articles and first to publish a glossary and a page for the children in each issue. We were also the first to be connected to the Internet, to present a page on the web, and to use digital pictures.

In addition to all of these firsts, we were foremost to propose an Encyclopaedic File representing approximately 2400 species, the only French reference of this importance, and the first to create a CD-ROM. The master-word that moves us is 'imagination'. Our language is clear and our standpoint for the defense of the succulent plants and those who cultivate them is of public notoriety.

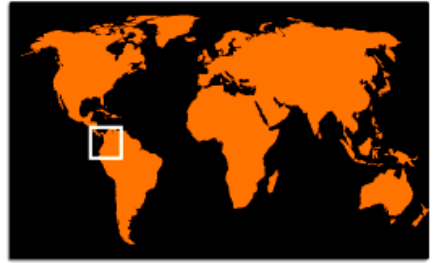
Many subscribers still wonder how many people deal with a journal of such importance.

International Cactus-Adventures is managed as a non-profit-making journal (who could earn money with a journal for amateurs ?) and there are no paid people involved in its making and management. All work is absolutely voluntary, because primarily it is a passion.

15 years of passion and adventures, to take you still further in 2003 !

Happy Birthday to all of you !

J.L., member IOS



Taxonomic News & Synopsis of the genus *Melocactus* Link & Otto in Colombia

José Luis Fernández-Alonso* & Guy Xhonneux** (Colombia)

ABSTRACT

A synopsis of the Colombian species of *Melocactus* that includes 11 taxa (7 species and 4 subspecies) and a key for the identification of species. In the present work, three new species and two subspecies are described (*M. andinus* subsp. *soatensis*, *M. guanensis*, *M. hernandezii*, *M. pescaderensis* and *M. schatzlii* subsp. *chicamochoensis*) and the new combination and neotypification of *M. curvispinus* subsp. *obtusipetalus* and *M. curvispinus* subsp. *caesius*.

Key words: Cactaceae, Colombia, Distribution, Keys, *Melocactus*, Neotropic, New species, Taxonomy.

• Introduction

The tropical genus *Melocactus* Link.& Otto, comprised until recently 31 recognized species (Taylor, 1991), a number that has been increased in the last decade with the proposal of several new species originating in its majority from the Antilles, Brazil and Venezuela (Antesberger, 1995, 2000). Nevertheless, very few of the *Melocactus* originating and collected from Colombia have been reviewed by specialists and mentioned in works and botanical journals, although in the Sixties, as it is reflected in the Colombian National Herbarium, the botanists Carlos Saravia and Jorge Hernandez-Camacho carried out an important number of collections of the genus *Melocactus*. These were undertaken throughout the different barren regions of Colombia and they suggest possible new taxonomic features, unfortunately, this material remained without study to the present time. In the same way, some of the registries of the Colombian *Melocactus* were based on cultivated, living plants or photographs, of which registries in the herbaria did not exist, and whose precise identification is at the present time in some cases is ambiguous or questionable. (Lemaire, 1838 ; Otero, 1968 ; Taylor, 1991 ; Lombardi, 1997).

With regard to Colombia, at least two main groups of species can be differentiated : the first group we recognise includes *M. curvispinus*, which presents a Caribbean-Atlantic affinity, and would include the species of wide distribution: *M. curvispinus* Pfeiffer (which in Colombia exhibits ample infraspecific variation) and a second species, *M. mazelianus*, relegated to the rocky outcrops of the Vichada department in the river basin of the Orinoco. The second group of species we recognise is the *M. andinus* group. This is the most diverse and presents a pattern of diversification and distribution typically Andean. It is widely diversified in the centre-northern part of the Eastern Mountain range of

Colombia and in the Mountainous area of Merida in Venezuela. Throughout the dry canyons of inter-Andean valleys of the Suarez and the Chicamocha, in the western slope of the Eastern Mountain range of Colombia (River basin of the Magdalena river), a noticeable morphological variation appears in this group of *Melocactus*, a type of distribution that mimics in certain ways the pattern of diversification of some groups of the *Salvia* species (Labiatae), especially in the Angulatae sections and Rubescentes (Wood, 1989 ; Fernández-Alonso, 1995).

With regard to the morphological variation: the form of the stem edges or ribs (more or less acute), the number and size of the spines, or even the absence of spines in the areoles as it happens in the species *M. guanensis*, or the different pattern and size of the seeds, from small seeds (of less than 1 mm) and strongly tuberculate like in *M. pescaderensis*, or the seeds of more than 1.5 mm long with cells barely noticed like in *M. curvispinus*. Also the highest altitude report known for the genus is *M. hernandezii*, which grows between 2000 and 2500 m.

Apparently, *M. guanensis*, *M. pescaderensis* and *M. schatzlii* form a group with seed size and pattern affinities and show a sequence of reduction in the spines of the areoles from *M. schatzlii* to *M. guanensis*. In the same way, the two species *M. andinus* and *M. hernandezii*, which present both medium seeds with a pattern barely noticed, also show a geographic distribution from the Mountainous area of Merida in Venezuela to the sources of the Candelaria, Suarez and Chicamocha rivers in the centre of the Eastern Mountain range of Colombia. In this complex of Andean species, in which some new taxa are defined, most of them present a geographical distribution restricted to small areas of the mentioned fluvial valleys and in some cases, they are already considered today as vulnerable species which present some degree of threat, so it is necessary to evaluate in depth with a view to their preservation.



Melocactus schatzlii, collection. (photo : J. L.).

Key for the Colombian species of Melocactus

1- Areoles of the ribs with 0-4 short spines (generally less than 10 mm long) ; seeds up to 1 mm long and 0,5-0,9 mm in diameter, noticeable testa and uniformly tuberculate-warty.

....2.

1' Areoles of the ribs with 5-20 spines, generally more than 10 mm long, seeds more than 1 mm long and (0,8) 0,9-1.3 mm in diameter, testa with protuberances (cells) more noticeable in distal margin..... 3.

2- Areoles noticeable, separated 1,5-3 cm, with 3-4 spines in each areole, spines 0,3-1,3 (1,5) cm slightly recurved, cephalium covered generally with intense dark red bristles, bristles appearing out of the cottony mass of 0,3-1 cm, fruit 2-2,5 x 0,7-1,3 cm, seeds 0,6-0,9 mm wide. *M. pescaderensis*

2'-Areoles hardly visible, separated about 3 cm, with 0-3 very short spines (1-3 mm), white cephalium, fruit c. 3 xs 1.5 cm, seeds less than 6 mm wide... *M. guanensis*.

3- White cephalium, with bristles included in the cottony mass or slightly exerted and little noticeable, acute ribs and flowers of 9 to 15.5 mm in diameter 4.

3'- Cephalium covered with reddish bristles, stems with rounded ribs or if acute with flowers of more than 16 mm in diameter5.

4- Lower, central spine 15-45 mm long, fruit up to 51 mm long and seed 1,4-1,55 mm long, cells of the testa more or less flat.... *M. mazelianus*.

4'-Lower, central spine up to 20 mm long, fruit up to 25 mm long and seed 1,0-1, 35 mm long, convex and very noticeable testa cells in distal half*M. schatzlii*.

5- Radial spines 16-42 mm long, flowers more than 30 mm long or 18 mm in diameter, perianth with 15-25 segments, seeds 1,2-1,6 mm long*M. curvispinus*...7.

5'- Radial spines 5-20 mm long, flowers less than 27 mm long x 15 mm in diameter, perianth with more than 25 segments, seeds 0,8-1,4 mm long...6.

6- 10-15 acute, ribs separated 2-7 cm to each other, areoles separated 1,5-2,5 cm, 8-10 spines per areole, flowers up to 2.3 xs 0.9 cm, ovate-rounded seeds, with little shiny surface*M. andinus*.

6'- 15-19 subacute ribs, separated c.s 1.5 cm to each other, areoles separated 1-1,5 cm, 15-20 spines per areole, flowers of 2.4 xs 0.9 cm, ovate-oblong seeds with very shiny testa*M. hernandezii*.

7- Opaque, globular green stems of c.11-12 cm high and c. 14 in diameter; areoles close c. 1.5 cm, red-pink flowers, ovate seeds 1,5-1,8 mm long.....*M. curvispinus subsp. obtusipetalus*.

7'- Depressed-globose or subpyriform-shaped stems, generally intense green or sometimes greenish-yellow, more than 15 cm in diameter ; areoles close to 1,5-2,5 cm, ovate-oblong or ovate-rounded flowers, red brick, seeds up to 1,3-1,4 mm long.....8.

8- Radial spines up to 28 mm long, noticeably recurved, ovate-rounded seeds 1,1-1,3 mm long*M. curvispinus subsp. curvispinus*.

8'- Radial spines up to 30 mm long, little or not recurved, ovate-rounded seeds 1,3-1,1 mm long.... *M. curvispinus subsp. caesius*.



Melocactus andinus ssp soatensis, habitat, Soatá-Boavita, km 5, Dpt. Boyacá. (photo : G. Xhonneux).

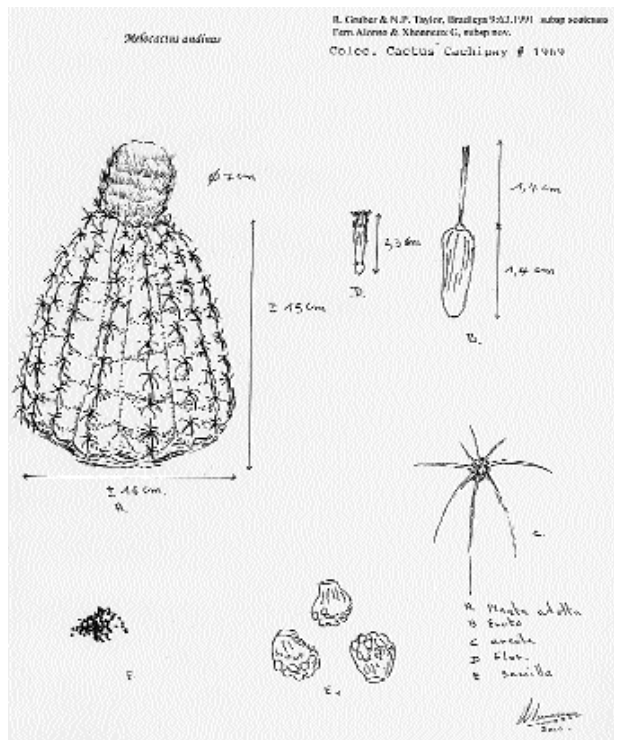
• ***Melocactus* species of Colombia :**

1. ***Melocactus andinus*** R. Gruber & N.P. Taylor, Bradleya 9:63. 1991 **subsp. soatensis** Fern. Alonso & Xhonneux G., **subsp. nov.**

Affinis subespeciesbus typicae, sed differt combinatio caracteribus : areolas 1-1,8 (2) cm distantibus spinis marginalibus et 1 centralis, cephalium albis vel rufescens, flores violaceis, breviores ad 1,4-1,6 x 0,8 cm, 3-4 mm exertus sd superficie cephalium, fructo rubro-vilaceus, nitidis, ad 1, 4-2 cm x 0,8 cm; semina nigra, lenier nitidula, margine distalis crenato-lobata.

Typus: COLOMBIA. BOYACA. N. Soatá, road to Susacón, 2200 m, 6/08/1958, R. Jaramillo & al. 902 (Holotypus COL-98670, 100795, 100796).

Vernacular name : In the region of Soata the name used is : "Mata de ajicito", that makes reference to the shape of the fruits.



Habitat y distribución : Department of Boyaca on cliffs and steep slopes of the Chicamocha river (municipalities of Susacon, Soata, Boavita and Macaravita, between 900 and 2100 m in alt.).

Observations : plants related to the typical *M. andinus* from the Merida and Trujillo states in Venezuela (TAYLOR, 1991), but they differ in the stems (pale green), close areoles with a smaller number of spines, 1-1,8 (2) cm, light carmine flower, of smaller size. In the region of Boavita, above 1100 m., also are assignable to this variety plants which are different, basically for their longer spines and slightly larger flowers and fruits. Cultivated material is known but herbarium samples have not been studied yet.

2. *Melocactus curvispinus* Pfeiffer, Enum. Cact. 46, 1837.

One of the species with a wider distribution in the genus, growing in Mexico, Central America, the Antilles and North of South America. As Taylor suggests (1991), the presence of relatively large vividly coloured fruits (up to 4-6 cm in length), perhaps consumed by some birds which explains the seed dispersion to such a long distance. In Colombia, it has a wide geographical distribution and a remarkable morphological variation, but is still little evaluated. We considered three geographical variants, which also present morphological differences. The first is located in the dry canyon of the Dagua, on the Pacific slope in Colombia, which we considered assignable to the typical subspecies, which would be related to the Pacific lane. The second set of populations is one located in the dry enclaves of the lower and upper Magdalena river (Cundinamarca, Tolima, Huila) and in our concept can be clearly separated from the typical plants of Central and South America. Finally, a complex of populations poorly known is the one



Melocactus curvispinus, collection. (photo : J. L.).



Melocactus curvispinus ssp. *obtusipetalus*, habitat, Vía Jerusalén-Guataquí, Km 2, Dpt. de Cundinamarca.
(photo : G. Xhonneux).

that appears in the Caribbean region, in the north of Colombia (Magdalena, Guajira, North of Santander), with features roughly assignable to the subspecies *caesius* and *amoenus* but with taxa which present appreciable differences in the regions of Santa Marta, the Guajira and the region of Ocaña, and may be considered as different varieties. Unlike Taylor (1991), we considered that the plants of the Candelaria, Boyaca, constitute a taxonomic and geographically isolated population of *M. curvispinus* and so this last is described in this work.

2^a. *Melocactus curvispinus* Pfeiffer *subsp. curvispinus*

Typus (Neotypus), México, Veracruz, Taylor 365 (MEXU, n.v.) = *M. loboguerreroi* Cardenas in Cact.Suc.Mex. 12:58, 1967.

Revised material : COLOMBIA, VALLE. Mpio. De Dagua, Loboguerrero, 720 m, 9 sept 1962, C. Saravia 1391 & J. Hernández-C (COL 98799, 229297); ibídem, Cañón del Dagua, 17 ago 1964, C. Saravia 4735 & J. Hernández (COL-98725).

Habitat and distribution : Subspecies distributed from Mexico and Central America to the NW of South America (Colombia and Venezuela). Within the collected material in Colombia and pertaining to the *M. curvispinus* complex, we considered assignable to the typical subspecies coming from the Dagua Canyon, in the department of the Valley. Registry between 600-800 m in altitude is known. The subspecies *curvispinus* can be characterized by the presence of distant areoles 2-2,5 cm between them, relatively short radial spines (up to 28 mm long) and distinctly recurved towards the outside ; the seeds (at least in the Colombian populations) are relatively small (1, 1-1, 3 x 1-1,1 mm).

2b *Melocactus curvispinus* Pfeiffer *subsp obtusipetalus* (Lemaire) Xhonneux G & Fern Alonso **comb. nov.** = *M. obtusipetalus* Lemaire, Cact. Aliq. Nov 11 1838. Typus : Colombia, Cundinamarca, alive plants of wich it is assumed they have not been preserved (Taylor, 1991). Neotypus: COLOMBIA.CUNDINAMARCA. Tocaima, vía Tocaima-Pubenza, 350-400 m, 14 abr 1952, H. García-Barriga 14178 COL 88031, 88032). Designated here = *M. jaramillo* Saravia & Hernández, nom nud in schaedis = *Melocactus uribei* Saravia & Hernández, nom nud in schaedis.

Revised material : COLOMBIA. CUNDINAMARCA. San Francisco, Road San Francisco to Supatá, 1500-1580 m, 29 ene 1944, H García-Barriga 11062 (COL-22647); Tocaima, sandy hill, ene 1933, E Pérez-Arbelaez s/n (COL 8313, 8316); Fusagasugá, 1050 m, 10 ago 1962, C. Saravia & al 1116 (COL 98681); Fusaga-sugá, 20 dic 1962, C Saravia & al 2007 (COL 98676); ibídem, 9 abr 1963, C Saravia 2458 (COL- 98680); N. Girardot, La Salada, vía a Tocaima, 350 m, 20 jul 1964, C Saravia & al 4706 (COL-98807) HUILA Mpio de Villavieja, Quebrada Tatacoa, 24 sep 1979, U Juanias & al 2 (COL-196170); La Bodega, río Venado, 700-800 m, 9 dic 1944, E Little 9080 (COL-64601); Villavieja, Desierto de la Tatacoa, 600 m sep 1980, O Rangel 2975 (COL-234866); ibídem, O. Rangel, 2983 (COL-234866). TOLIMA Sandy soil between Girardot and El Espinal, 300-400 m, feb 1951, L. Uribe 2107 (COL-48271). Vernacular names : "Indian's head", "Black's head"(Huila, Tatacoa), "Cactus" (Cundinamarca, San Francisco).

Habitat and Geographical distribution : Species widely distributed in the dry valley of the Magdalena river (Cundinamarca, Tolima, Huila), although it is known that it was collected up to 1600 m in altitude, in the region of San Francisco, but is much more frequent between the 350-900 m, particularly in the driest enclaves of the Huila (Desert of Tatacoa) and the dry valleys of Cundinamarca-Tolima in the region of Tocaima-Jerusalen, Guataqui and in El Espinal, Tolima).

Observations : the subspecies *obtusipetalus* can be characterized by the following description : plants with stems generally green, globose, with non acute ribs, with close areoles, separated by only 1.5 cm ; long radial spines, slightly recurved and a large cephalium growing up to 10.5 cm in diameter and 15 cm long ; pinkish-red flowers c. 3.5 cm long and 0.5 cm in diameter. Large seeds, 1,5-1,8 x 1-1,3 mm, oval and smooth, the sides are slightly compressed, showing a margin something squashed. The plants collected at the Tatacoa, have very dense dark brown-reddish bristles in the cephalium of the adult plants ; in the young plants the spines of cephalium are greyish-yellow with a darker tip.

2c. *Melocactus curvispinus* Pfeiffer *subsp caesius* (Wendland) N.P. Taylor, Bradleya 9:75. 1991. = *Melocactus caesius* Wendland, in Miq., Monogr. Melocacti, 104. 1840 Typus (Neotypus) : Venezuela, Distrito Federal, Taylor 694 (K,n.v.)

Revised material : COLOMBIA. GUAJIRA. Cabo de la Vela, 0 m, 21 jun 1986, A.M. Calcagno 109 (COL-435039,435040,435041) ; Papayal, vía a Barrancas, 160 m, 7 abr 1968, A:M: Calcagno 94 (COL-435035,435036,435144) ; c San Juan del Cesar, 8,2 km de Distracción, 18 ene 1963, C Saravia 2073 (COL-98687, 98738, 98781) ; 10km de Riohacha, rumbo a Cuestecitas, C Saravia 2134 (COL-98785); ibídem, Uribia, 6,3 km de Manaure, 31 ene 1963, C.Saravia 2190 (COL-98784) ; El Cardonal, 3 km de Distracción, 19 ene 1963, suelos arenosos, salinos, C. Saravia 2172 (COL-98734) ; Musiche, entre Manaure y El Pájaro, 15 feb 1963, C Saravia 2234 (COL-98789) ; between Rio-Hacha and Maicao, Zona Maraňamana, 18 feb 1962, C Saravia 2244 (COL-98792) ; Cuisa, 1,6 km de Amenutau, 2 mar 1963, C Saravia 2449 (COL-98686); Nuevo Ambiente, 18 km de Jachina, 2 mar 1963, C Saravia 2450 (COL-98783). MAGDALENA. Santa Marta, punta de La Picua, 10 nov 1963, C Saravia 2977 (COL). NORTE DE SANTANDER. Cúcuta, El Rosario, feb 1941, Carajalino & Díaz 63 (COL-8315) ; Cúcuta, 400 m, 30 ago 1964, S Espinal 1724 (COL-98814) ; Cúcuta, sect Los Venados, vía a Pamplona,



Melocactus curvispinus ssp. obtusipetalus, collection. (photo : Gustavo Gomez).



Melocactus curvispinus ssp. caesius, collection. (photo : J. L.).

600 m, 18 nov 2000, L.R.Sánchez & Al 5220 (COL-455223) ; Ocaña, 21 km en la vía a Cúcuta, 14 ene 1963, C Saravia 2064 (COL-98790).

The subspecies *caesius* is characterized by the presence of separated areoles c. (1,5)-3,5 cm in between, long radial spines (of more than 25-30 mm long), barely recurved or not curved at all, oblong seeds, smaller than in the previous subspecies, of c. 1.3 x 1-1,1 mm.

Habitat and Geographical distribution : Subspecies widely distributed in the Caribbean coast, in the north of Colombia and Venezuela, generally below the 1000 m in alt.

Observations: With regard to the Colombian plants, as it was previously commented, some variability in size of the stems, number and color of the radial spines, size of the seeds, etc. is observed, which possibly represents still not established infraspecific categories.

Between the plants collected for herbarium and assignable to this subspecies, are at least 6 names (Nom. Nud.) in herbarium labels of such collect of C. Saravia and J. Herna'ndez (*M. santamartae* Saravia & Hernández; *M. delacallei* Saravia & Hernández, etc). This group of plants deserves a deeper study since some samples show significant differences.

Common name : Pichigüey.

In the region of Cucuta is found a different subspecies or variety from the typical subsp. *caesius*. It presents a spherical stem of 11-13 x 11-13 cm, pale, little curved, more or less long and rigid spines ; areoles separated 1,5-2 cm, with 9 spines in each areole, lateral spines are little curved, with a white cephalium, small reddish bristles, c. 1 cm ; pink-reddish flowers and red fruits. Grows between subxerophytic scrubs, on eroded clayish and rocky hills. (Sub. *M. tachirensis* Hern. & Saravia, nom nud.).



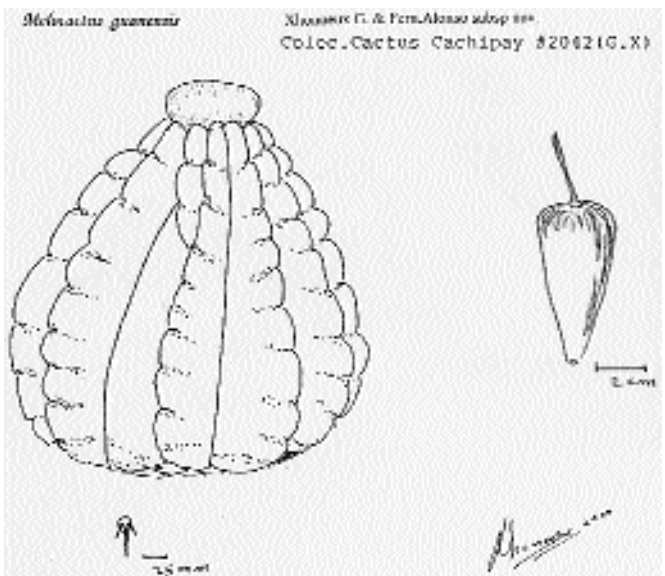
Melocactus guanensis, habitat, Barichara-Guane, km 2-5, Dpt. Santander del Sur. (photo : G. Xhonneux).

3. *Melocactus guanensis* Xhonneux G. & F. Alonso **spec. nov.**

Affinis M. pescaderensis a qua imprimis differt: planta conico-pyramidalis, 20-25 cm diametro et 17-23 cm alto, pallide viridis, 11-13 costata, costis profundas et manifeste distantibus inter se (3,5-5 cm); areolas insonspicuas c- 3 cm distantibus, areoles 0-3 spinas minutas, 1-3 mm longis, cephalium c. 10 cm diametitur; albo; flores violaceis fructo violáceo, nítido, piriformis ad 3 cm x 1,5 diametitur; semina nigra, minuta ad 0,3-0,5 mm diametitur.

Typus: COLOMBIA. SANTANDER. Mpio. De Barichara, vía Barichara-Guane o Galán, 5 km en laderas, 1700-1900 m altura. ago 1983, Xhonneux G & al. 2042 (Holotypus COL-478453, 478458, 478459) 3/3). The name of the species makes reference to the Guane town and the indigenous population which lives there.

Habitat and Geographical distribution : Species restricted to escarpment slopes of the Barichara-



Guane-Galan road, in the department of Santander. Apparently, it is today a very rare plant in habitat, and according to cultivation information, grows very slowly.

Observations : One is the most distinguished species within the *Melocactus* from Colombia, for its particular conical aspect, with waved edges and without spines. For these characteristics and the small sized seeds, we thought that it is related to *M. pescaderensis* which grows in the inner river basin of the Chicamocha in more humid areas. Both species would represent a line of diversification of the *M. schatzlii* complex, in the inter-Andean dry valleys East of Colombia.

4. *Melocactus hernandezii* F. Alonso & Xhonneux G. *spec. nov.*

Affinis Melocactus andinus R. Gruber & N.P.Taylor et *M. schatzlii* Till. & R. : Gruber, sed differt subsequentibus combinatio characteribus: planta cilindrico-piramidalis usque ad 13-17 (20) cm diametitur et 10-20 (35) cm alta, 15-18 costatas, costis angustas et distantibus c.1,5 cm, leniter undatas, areoles 1-1,5 cm distantibus, ad 10-15 spines marginalis et 1-4 spines centralis ; spinar gracilis, cephalium albo, ad spines erectas gracilis rufas, dense ispositis; 2,4 cm longis, violacea, fructo violáceo, semina nigra, subrotunda, ad 1,2-1,4 x 0,9.1 mm, leniter crenatoverrucosa ad margine distal.

Typus: COLOMBIA. BOYACA. Villa de Leyva, Sáchica, Road to Tunja, 7150, on rocky outcrops, 4 jun 1964; C Saravia & al. 4255 (Holotypus COL-98774, 98775, 98813, (3/3), Isotypus COL- 98776, 98777).

Etimología : Species named in memory of Jorge Hernandez Camacho as suggested by Jose Luis Fernandez and with the approval of Guy Xhonneux since this species is registered in collection since 1983 in Cachipay Cactus # 1787 under the name of *Melocactus candelariensis*. H.C. carried out important collecting of cacti in the 60's with C. Saravia.

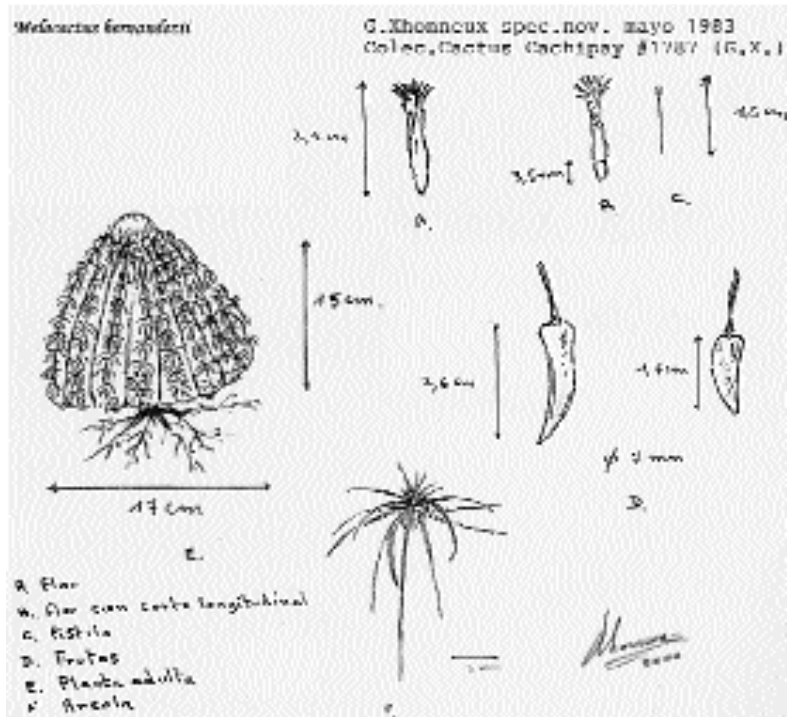
Paratypus: COLOMBIA. BOYACA. Ráquira, Villa de Leyva, near Quebrada Chimichagua, 2180 m,



Melocactus hernandezii, habitat, Corrales, Dpt. de Boyacá. (photo : G. Xhonneux).

15 feb 15 feb 1986,
 .AM. Calcagno & al. 69
 (COL-464372); ibidem,
 Ráquira, Vereda
 Carapacho 2180 m, 15
 feb 1986, A.M.
 Calcagno & al. 71
 (COL-459011,
 463700); ibidem, tallo
 cilíndrico, 15 feb 1986,
 A.M. Calcagno & al. 73
 (COL-459011).

Habitat and Geographical distribution : Species restricted to the dry enclaves of the region of the Candelaria, between about 1900 and 2500 m. in alt.. It is to be noted that this new species is the highest *Melocactus* species found up to now at this altitude.



Observations : Plants up to 38 cm high and 20 cm in diameter, cylindrical, yellowish to fresh green ; ribs narrow, very close together (c.1,5 cm), areoles very densely arranged, 0,8-1,3 (1,5) cm between each other, with 15-20 thin, short, black-reddish spines per areole, up to 1.5 (2) cm long. Cephalium small or more usually elongated, up to 19 cm long and 7-9 cm wide, densely covered with reddish-brown spines, which top the white cottony mass, of c. 0,6-1 cm ; fruits have a bright fuschia colour. This is a characteristic species as the numerous ribs and areoles are very close to each other, and the numerous and thin spines. In the literature this locality has been confused with Fusagasuga-Tocaima. (Taylor, 1991). This species in danger of extinction as a result of the very small areas of distribution and alteration undergone for agricultural purposes. In the region of Corrales (Boyaca), there is a variety which shows some differences in the colour and the size of the cephalium as well as the spines.

5. Melocactus mazelianus Riha in Kakt. And Sukk. 32:214-217, 1981. 2

Typus: Venezuela, Bolivar (Holotypus PR-456, n.v.)

Revised material : COLOMBIA. VICHADA. Mpio de Puerto Carreño, Jardín Botánico Cerro El Bitá on rocks, 150 m, ene 1997, H. García, & al.065 (COL-393187, 470095).

Habitat and Geographical distribution : Species restricted to the drainage of the Orinoco river in the east of Colombia and West of Venezuela.

Observations : Plants up to 10-20 cm high, globular-depressed or cylindrical, with 12-14 (16) ribs, areoles separated c.15 (20) mm, with 10-13 spines (7-12 marginal and 0-3 radial), arcuated (not the central ones), black or reddish-black, measuring more than 35 mm long. Cephalium up to 10 cm in diameter, whitish ; flowers reddish of c. 10 mm in diameter. Although the species *M. neryi* K. Schum is also found in the rocky outcrops of the river basin of the Orinoco, close to the limit with Colombia (Port Ayacucho, Venezuela), it has not still been detected in Colombia. *M. neryi* has shorter spines (the longest rarely exceeding 25 mm long), pink flowers, smaller seeds (1, 1-3 mm long) and it does not have any close relation with *M. mazelianus*.

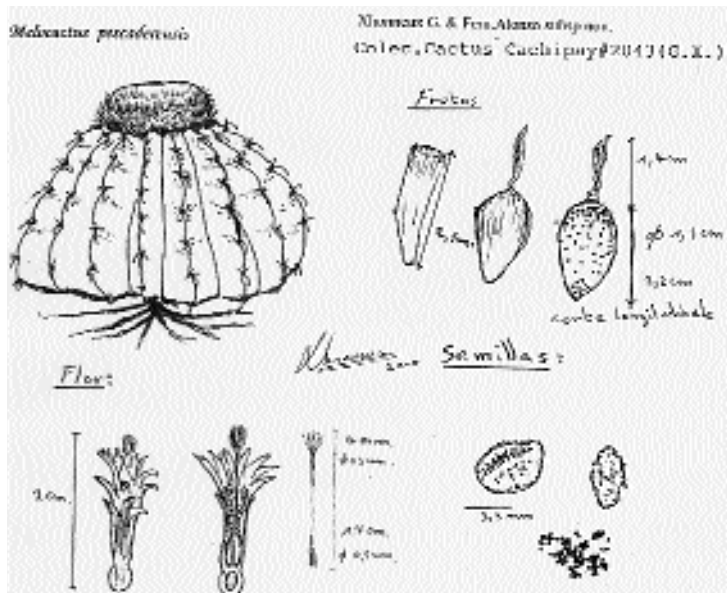


Melocactus pescaderensis, collection. (photo : G. Xhonneux).

6. *Melocactus pescaderensis*
Xhonneux G. & F. Alonso
spec. nov.

Affinis Melocactus schatzlii
Till & G: Gruber, sed differt
subsequentibus combinatio
characteribus : Planta
compresso-pyramidalis,
atroviridis, cm diametro et 8-
18 cm alta, 12-14 costata,
costis manifeste acutas et
undatas, areoles ad 3-4
spines, albo-griseas;
cephalium dese cubierto setis
atro rubescens; flor et fructo
violaceus (morado);
seminas, nigras, nítidas,
parvas ad 0,6-0,9 x 0,9-1 mm
oval-rotundas, maníferte et
uniformiter tuberculato-
verrucosas, tuberculis rotundo-obtusis.

Typus: COLOMBIA. SANTANDER. Between Pescadero and Piedecuesta, 16 jun 1962, C Saravia & al. 915 (Holotypus COL-98685).



Etymology : The name of the species makes reference to the town of Pescadero in Santander.

Like *M. schatzlii*, this species has seeds which are noticeably tuberculate-verrucose, but the main character is the generally pyramidal-depressed stem, intense green, up to 18 cm high and 12-14 cm in diameter, with 12-14 ribs very acute and more or less waved, with areoles separated 1,5-3 cm and only 1-3 (4) short spines, greyish white, cephalium densely covered with red bristles, flowers and fruits purple ; relatively small seeds glossy black, 0,6-0,9 x 0,9-1 mm rounded to ovate, marked and uniformly tuberculate-verrucose.

Paratypus: COLOMBIA. SANTANDER. Piedecuesta, Pescadero, Vereda Las Pavas, 580 m, 3 nov 1995, A Cadena 2932 (COL-460559); Piedecuesta, inspecc. De Pescadero, Camino real a Umpalá, quaternary terraces next to río Manco, 500-700 m, 1 arb 2001, J:L: Fernández-Alonso 19539, F González & A Galindo, (COL-468534, 468535); ibidem, near the Chicamocha river, 8 sep 1964, J de Porta & N de Porta 1 (COL-98812); Living collection: Cactus Cachipay # 2043.

Habitat & distribution : Species restricted to the rocky slopes and quaternary terraces in the area of the Chicamocha river and its tributary valleys (Manco river, Canyons Chinavega and Perchiquez) in the Cepita and Piedecuesta area, between 550 m and 1200 m in altitude.

Observations : There is a herbarium name : *M. deportarum* Saravia & J Hernández, nom. Nud., that corresponds to this species. In literature it is mentioned under the name *M. schatzlii* Till & R: Gruber, a collection apparently originating in the region of the Chicamocha " Santander: 40 km S. of Bucaramanga on road to Bogota, 800 m in altitude, on cliffs, Turner... ". (Taylor, 1991). We thought this is confusing as the plants of the region of Pescadero do not adjust to the description of *M. schatzlii*.

7. *Melocactus schatzlii* Till & R. Gruber in Kakt and Sukk, 33:68-70, 1982. **subsp. chicamochaensis**



Xhonneux G & Fern.Alonso **subsp. nov.**

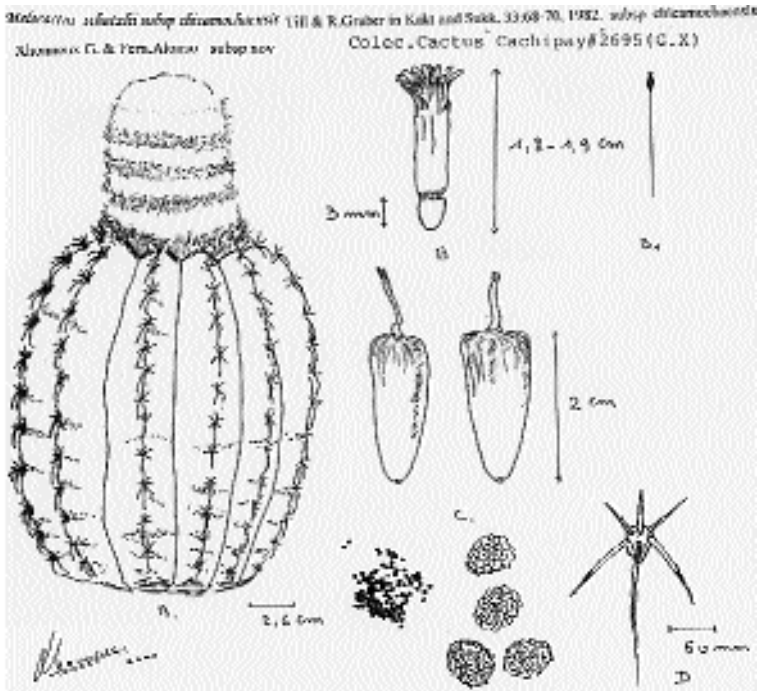
A subspeciesbus typicae differt, planta atroviridis vel griseo-viridis, caules usque ad 22-25 cm diametro et 25-34 cm altus, 11-14 costatas, costis angustas 2-2,5 cm distantibus, areoles proximas c. 1,5 cm distantibus, ad 5-7 spinas marginalis brevis et rigidis, una spina centralis vel aubsentibus, cephalium 8-10 cm diametitur, supra albus, et a basi rufonigrescens, stas puci exsertis; flores pallidoviolaceis, fructo violáceo nitidus, 2-2,5 cm longis et 0,8-1,1 cm latus, seminas nigras, pauci nítidas, rotundatas, manifeste tuberculato-verrucosas ad 1,2-1,4 x 1,1-1,2 mm.

Typus: COLOMBIA. SANTANDER. Mpio de Málaga, a 5 km de Capitanejo, 12 ene 1963, C Saravia 2060 (Holotypus COL 98800).

Observations : remarkable subspecies for the areoles with little number of spines and for the noticeably tuberculate and dull black seeds.

Melocactus schatzlii ssp. *chicamochaensis*, habitat, Tipacoque-Capitanejo, Km 3, Dpt. de Boyacá (photo : G Xhonneux).

Text : J. L. Fernandez-Alonso & G. Xhonneux, Drawings : G X., Photos : G Xhonneux, G Gomez, J. L.



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publish this data kept unknown for so many years and which is now available to anyone.

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** Cactus Cachipay. A.A:#7703 Santa Fe de Bogotá, D.C. Colombia.

Last minute : new taxonomical changes have been made since the publication of this article and will be published by the University of Bogota. The new species are *M. curvispinus* ssp. *cucutensis* sp. nov., *M. curvispinus* ssp. *saravianus* sp. nov., as well as 2 new combinations.

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