



## ***Matucana klopfensteinii*, a new species from San Marcos, Cajamarca, Peru**

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**Warning.** There was an error in the journal *Quepo* No. 29 for placing a part of the description of another species, below the description of *Matucana*. For this reason, this article is corrected and published for rectification.

**Summary.** A new species of *Matucana* from the Crisnejas Valley, in the South of Cajamarca, Perú, is described. Plants are frequently columnar with 15- 19 ribs, making small tubercles in some specimens. Areoles are large with abundant trichomes, resembling a small mattress on the apex of the plant, impairing the observation of its ribs. It is in the middle of this tuft that flowers are born from the areoles. The main stems occasionally produce a single branch born laterally from the distal third.

According to the floral structure, this species is close to *M. tuberculata*, but it makes taller and thicker plants, mostly with single stems rather than frequently clumping at the base as with that species. Its areoles, spines, flowers, and fruits are also larger. Its seeds bear two holes in the funicular tissue, so it belongs to the Intertexta group (sensu Bregman). It is named after Olivier Klopfenstein, the researcher who made the first photo of it.

**Keywords:** Cactaceae, *Matucana*



*Matucana klopfensteinii*, habitat, Cajamarca, Peru

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Since 1998, we traveled the province of San Marcos, Cajamarca studying different families of plants (Orchidaceae, Passifloraceae, Piperaceae gen. *Peperomia*, Calceolariaceae and mainly Cactaceae). The altitudinal range of the study area varies from 900 m, along the Marañón river up to 4000 m in the district of José Sabogal; these elevation changes affect the composition of the flora encountered and the biodiversity of different ecological niches; in addition, we met beautiful landscapes ranging from grasslands, small natural woodlands that still exist, even arid zones, places where flourished human groups of the Chachapoyas culture.

For that reason, in 2004, a tour was conducted to Pay-Pay Caserío to find this plant and to carry out a more detailed study because in this town there are many specimens of this magnificent *Matucana*, on both sides of Río Crisnejas, which emerge on the dusty soil of this hot valley. When we found plants in reproductive stage, it was possible to complete the data, which, after being compared with the descriptions of the rest of the known species, and the very distinctive characteristics these plants present, and we estimated that they offered sufficient certainty to describe them as a new species.

## 1. DESCRIPTION :

### *Matucana klopfensteinii* Cieza & Pino species nova

Planta succulenta globosa saepe elongata fuscoviridis caule simplici vix caespitoso 12-64 alto 8-13 cm crasso vertice late subconico, interdum ramo unico e tertio distale nato 7-11 cm longo. Costae 15-19 nitidae, vel tubercula 0.8 cm longa, 0.5-0.7 cm lata, 0.4-0.6 cm alta formantes. Areolae in summis tuberculis 0.55 - 0.65 cm longae, 0.35- 0.4 cm latae, ellipticae, 0.7-1 cm inter se remotae, prope basin fuscogriseae, versus verticem orbiculares cinerascens confertis pulvinum densum formantes. Spinae rectae juventute cinereae finibus brunneae, in maturitate aequaliter griseae, marginales 9-15, 1-4.5 cm longae; centrales 1-4, 1-5.5 cm longae.

Flores zygomorphae apicales 6.8-9 cm longi, 4.8-6.5 cm. diam. Petala coccinea oblonga 3-3.7 cm longa 0.7-1 cm lata apice acuto. Tubus floralis 0.6-0.7 diam., squamis lanceolatis roseis acutis 0.4-0.7 cm longis, 0.1-0.15 cm latis et pilis albis 5-8 mm longis instructus. Ovarium album 0.3 cm longum 0.3-0.35 cm diam.; camera nectarifera 0.65-0.7 cm longa 0.35-0.4 diam. clausa per diaphragma, glandulis nectareis conspicuis instructa. Stylus simplex albus rubescens 4.2-6.7 cm longus; stigmati simplici flavovirenti 0.2 cm longo. Filamenta 4-7 cm longa, alba ad basin fini rubescenti, antherae coccineae vel flavescens.

Fructus ovoideus fuscoviridis 1.5-2 cm longus 1-1.3 cm diam. Semina subatra vel brunnea, 1.8-2 mm longa 1.1-1.2 mm lata, 0.8-0.9 mm crassa; foraminis binis in hilo praedita.

Succulent plant, globose to cylindrical with an opaque green colour 12-64 cm long and 8-13 cm diam. in greatest dimension. It sometimes branches from the top third when it reaches over 45 cm high. **Ribs** 15-19, well defined in certain specimens, and in others forming small tubercles 0.8 cm long and 6 cm wide. **Areoles** 0.55-0.65 cm in length and 0.35-0.4 cm wide, elliptical, dark grey at the base, becoming circular and clearer toward the end, forming a dense pad that prevents from seeing the growth zone, where flowers are born. spines straight, light grey, becoming brown towards the end when they are young then becoming uniformly greyish; radial spines 9-15, 1-4.5 cm; central spines 1-4, 1-5.5 cm.

**Flowers** apical, zygomorphic, buds emerging from a small whirlwind of white trichomes; at anthesis the perianth segments are scarlet, 6.8-9 cm. length 4.8-6.5 cm. in diameter. Floral tube 0.6-0.7 cm diam., covered with abundant white trichomes 5-8 mm long. Ovary 0.3 cm long and 0.3-0.35 cm wide; nectar chamber 0.65-0.7 cm long and 0.35-0.4 cm wide, closed by a diaphragm, with notable nectar glands. Style white to reddish; yellow stigma, 0.2 cm long. White filaments at the base, anthers scarlet or yellow.

**Fruit** ovoid, dark green, 1.5-2 cm long and 1-1.3 cm in diameter.



*Matucana klopfensteinii*, habitat, Cajamarca, Peru

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*Matucana klopfensteinii*, flower in habitat, Cajamarca, Peru

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Black seeds, 1.8-2 mm, 1.1-1.2 mm wide, 0.8-0.9 mm thick; they have two holes in the funicular tissue.

Flowers from August to September and sporadically between January and February. Fructifies from August to October and from January to March.

**Holotype:** Dept. Cajamarca. Prov. San Marcos. Dist. José Sabogal. Caserío Pay Pay, on rocky slope at 45 degrees southeast exposure, growing together with *Armatocereus rauhii* subsp. *balsasensis* (Ritter) Ostolaza, *Browningia pilleifera* (Ritter) Hutchis., *Espostoa mirabilis* Ritter, *Peperomia dolabriformis* Kunth, *Peperomia selenophylla* Pino & Cieza, *Peperomia wolfgang-krahnii* Rauh, *Deuterocohnia longipetala*, *Pereskia horrida* (Kunth) DC, *Trixanthocereus* sp., *Jatropha* sp, *Puya* sp. 1209 m, 07°21'05.8" S, 77°54'38.2" W, 06<sup>th</sup> of August 2008, RRP - 1279, USM 227693.

## 2. DISTRIBUTION:

Grows in steep, rocky hillsides and sandy soils between 1150 - 2662 meters above sea level in the provinces of San Marcos and Cajabamba, Department of Cajamarca, Peru, with a temperature between 20°-35° C.

## Specimens studied :

**Perú. Dept. Cajamarca. Prov. San Marcos. Dist. José Sabogal.** Caserío Huachaque, in surrounding rock walls. Caserío Matibamba, around the village, 1406 m, 07°20'37.1"/77°53'52.8", 07 Aug. 2008, *RRP 1287*. Caserío Pay Pay (Type). Caserío La Lima on stony slopes very exposed to sunlight, 1333m, 07°22'15.4"/77°58'12.8", 29 Jul. 2004, *RRP 696*. Caserío El Tingo on the slopes of Crisnejas and Maranon Rivers to 1150m, 7°20'59.0"/77°50'17.5", 03 febrero 2010 **Dist. José Manuel Quiroz.** "El Naranjo", on Stony hillside exposed to sunlight, 1655m, 07°24'45.5'/78°00'42.6", 22 May 2003, *RRP 433*. **Prov. Cajabamba. Dist. Sitacocha.** Caserío de La Primavera, on rocky hillside west exposure, small plants, 2028 m, 07°27'27.6"/77°59'08.9", 28 Jul. 2005, *RRP 806*. Caserío Santa Rosa on the right bank of the River Crisnejas, 1410m, 7°21'47.8"/77°52'21.1", 03 Feb. 2010. Caserío Tingo Grande (large plants and many of which have a side branch), 1150m, 7°21'17.7"/77°50'43.2", 03 Feb. 2010, *RRP-1530*.

## RESULTS:

According to the data found, we should note the following details:

Seeds studied in this *Matucana* have two ports (a cuticle and funiculus) that are visible in the funicular tissue, so that the present species would be within the intertexta Group; whereas the seeds of *Matucana tuberculata* (Donald) Bregman, Meerst., Melis & A.B.Pullen are characterized for presenting a hole in the funicular tissue, which is why it belongs to Paucicostata Group, according to the classification

**Table 1. Distribution of *M. klopfensteinii* in Department of Cajamarca**

SAN MARCOS	
District	Village or locality
• José Sabogal	• El Tingo
	• Huachaque.
	• Matibamba.
	• Pay – Pay.
	• La Lima.
• José Manuel Quiroz	• El Naranjo.

  

CAJABAMBA	
District	Village or locality
• Sitacocha	• La Primavera.
	• Santa Rosa.
	• Tingo Grande.

**Table 2. Comparison between *M. tuberculata* and *M. klopfensteinii***

	<i>M. tuberculata</i>	<i>M. klopfensteinii</i>
<b>Plant data</b>		
Height	10 cm.	12–64 cm.
Diameter	4-7 cm.	8–13 cm
Branching	no branching	Rarely branching
Habit	mostly in groups	mostly solitary
Areola (length)	2-3 cm.	0.55–0.65 cm.
Areola (width)	2-3 cm.	0.35–0.40 cm
Radial spines (number)	8-12	9-15
Radial spines (length)	0.5-1 cm.	1–4.5 cm.
Central spines (number)	1-4	1-4
Central spines (length)	1-2 cm.	1-5.5 cm.
<b>Flower</b>		
Perianth (length)	5-5.5 cm.	6.8–9 cm
Perianth (diameter)	3.5-4 cm.	4.8–6.5 cm
Floral tube (diameter)	0.4-0.5 cm.	0.6–0.7 cm.
Nectar chamber (length)	0.4 cm.	0.65–0.7 cm.
Nectar chamber (width)	0.3 cm.	0.35–0.4 cm.
Ovary (length)		0.3 cm.
Ovary (width)		0.3-0.35 cm.
<b>Fruit</b>		
Length	0.6 cm.	1.5–2 cm
Diameter	0.6 cm.	1–1.3 cm.



*Matucana klopfensteinii*, flower & seeds

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of Dr. Rob Bregman.

The most remarkable of this species are the branches that some plants have in the upper part of the body and more by the height they are achieving.

The areoles are large and with many trichomes forming a small pillow at the apex of the plant that prevents to appreciate the rib growth and the place where the flowers are born.

Because of the structural characteristics of the flower, it may be seen a possible relationship with *Matucana tuberculata*, which is presented in a comparative table with the so-called species.

The new species is unique in the genus for its constant tendency to form columnar



*Matucana klopfensteinii*, habitat, Cajamarca, Peru

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*Matucana klopfensteinii*, young flowering plant in habitat, Cajamarca, Peru

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plants in more than 50% of the population, and managing to reach a considerable height, much greater than *M. tuberculata* and with the formation of a branch in upper third of highest plants.

### ETYMOLOGY:

The name of this plant, *Matucana klopfensteinii*, was chosen in recognition to **Olivier Klopfenstein**, Swiss forester who came to Peru to see the land of his wife and where he stayed for six years. He was the first person to photograph this plant



*Matucana klopfensteinii*, habitat, Cajamarca, Peru

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### BIBLIOGRAPHICAL REFERENCES:

1. Bregman R. 1996 .The Genus Matucana. A.A. Balkema, Rotterdam.
2. Bregman R, Meerstadt A, Melis P, Pullen AB. 1987. *Matucana tuberculata* (Donald) Bregman, Meerst., Melis & A.B.Pullen. Succulenta 66(9): 175.
3. Ritter F. 1981. Kakteen in Sudamerika. Band 4. Peru. Friedrich Ritter Selbstverlag.
4. Nelson Cieza. Quepo 22-2008. Dos Matucanas de Cajamarca.
5. Nelson Cieza. 2009. Cactus-Adventures International N° 84. Matucana fruticosa... especie o variedad?
6. Nelson Cieza & Guillermo Pino. 2014. Matucana klopfensteinii, una nueva especie de San Marcos, Cajamarca, Perú. Quepo 29: 5-14.