



***Matucana fruticosa*: variety or species?**

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Introduction:

Matucana fruticosa was discovered by Friedrich Ritter in 1964 in the district of San Juan, department of Cajamarca – Peru and was described two years later. The present article tries to establish a comparison between this *Matucana* and *Matucana aurantiaca* (Vaupel) Ritter, because some have the intention to include the first one as a variety of the second *Matucana* here mentioned; for that reason I wish to communicate information which will give a more detailed view of the characteristics of both matucanas, so that we can have a better vision and so can draw conclusions which will consolidate or change our conceptions.

Discussion:

The present work is the fruit of more than four years study of *Matucana fruticosa* Ritter in habitat and eight years for *Matucana aurantiaca* (Vaupel) Ritter in its different habitats in the Provinces of San Marcos, Cajabamba and Cajamarca.

It is due to the fact that some specialists of the genus *Matucana* have the conception and the intention to describe the species of *Matucana fruticosa* as a subspecies or variety of *Matucana aurantiaca* due to the superficial comparison between the flowers of these matucanas. While other people, like myself, think that it is really necessary to consider this cactus as a true species which has been studied in two different habitats in the district of San Juan, Department of Cajamarca, Peru. Here, an analysis of the characteristics of this *Matucana* and *Matucana aurantiaca* is presented so that readers and growers of this genus may have sufficient tools to be able to form a much clearer image to make their own conclusions to whether it is either a variety or a separate species.

To begin, it is said that both plants grow in very similar habitats, that is, in very inclined, rocky soils, but the difference begins to be noted in the growth and appearance of both species because the body colour of *Matucana fruticosa* is yellowish green, while the colour of *Matucana aurantiaca* is brilliant dark green. The dimensions of these plants



Matucana fruticosa, habitat (RRP-832) (photo : N. Cieza Padilla).



Matucana aurantiaca, habitat (RRP-1296) (photo : N. Cieza Padilla).

vary strikingly: the first one is spherical at the beginning then grows in a cylindrical shape up to 60 cm long and 3 – 9.8 (12) cm wide, the stem grows erect, then decumbent unlike the second which has a spherical shape 25 (30) cm long and 10 – 16 cm wide; furthermore, these plants emit offsets with the difference that the first one makes them at the base of the plant near the root, while the second made them mostly in the upper third. The ribs of *Matucana fruticosa* are well defined in a number of 12-17, marked by transverse furrows, by comparison with *Matucana aurantiaca* which, in some cases, presents 16-26 well defined ribs, but in other cases tubercles which make difficult to define ribs.

Also, we can see the areoles, oval in both matucanas, but with the difference of their dimensions, the first one being (2.5-4) – 5 (5.5) mm long and 1.5-2 (3) mm wide and the second 9-12 mm long and 3.5-5 mm wide. From these areoles the spines are born which, in the first one, are tan yellow and are divided into 4-5 central spines 1.1-5.2 cm long and 21-27 radial spines 0.5-2.8 (3.3) cm long, in contrast with the spines of *Matucana aurantiaca* which are tan yellow to reddish brown, and can be observed in the same habitat and the central spines are 6-9 measuring 1.3-4.1 cm long; the radial spines are 18-25 and measure 0.5-2.7 cm long.

The flowers of *Matucana fruticosa* not are only apical but also develop along the plant body, while in *Matucana aurantiaca* they are only apical. Towards the dimensions of flowers we observe that there is a resemblance and that both are characterized to present a very wide floral tube in contrast to the other species of this genus, as well as the nectar chamber. In the floral tube of *Matucana fruticosa* we observe the presence of black hairs, unlike the second *Matucana* which, in numerous cases, does not present hairs otherwise they are white.

Here it is necessary to add that a very visible characteristic exists, the one which would determine an estrangement between both because *Matucana fruticosa* presents a developed pistil which exceeds the stamens, between 1.7-1.9 cm, unlike the pistil of *Matucana aurantiaca* which exceeds the stamens of only 0.2-0.5 cm. The flowers of the first are orange, while the flowers of *Matucana aurantiaca* may be red, yellow, melon-colour, fuchsia and those more close to the habitat of the first one (about 10 km) are red.

There is no notable difference in the fruits, both are yellowish green with reddish green with an oval or globular shape. Seeds are brown to black, with the difference that in the seeds of *Matucana fruticosa*, the hilum is much larger than in the seeds of *Matucana aurantiaca* where it is not easily defined.

The flowering period for *Matucana fruticosa* is during January up to April and *Matucana aurantiaca* has a much more ample flowering period which goes from September till April (in various habitats).

Studied material:

Matucana fruticosa:

Province of Cajamarca, District San Juan, Caserío Yumahual: road from Herradura to Escuela de Yumahual at 3047 m. alt. 23 Nov. 2003 (RRP-555 / 07 ' 10.3 ' '78 ' 20.5 "), at 2581 m. alt. 15 Ene. 2006 (RRP-839 / 07 ' 40.5 ' '79 ' 00.6 "). Caserío Huacraruco: both sides of the road at Cooperativa de Huacraruco, at 2371 m. alt. 11 Mar. 2007 (RRP-1105 / 07 ' 36.0 ' '78 ' 55.5 "), at 2426 m. alt 11 Mar. 2007 (RRP-1114 / 07 ' 09.2 ' '78 ' 25.7").

Matucana aurantiaca:

Department of Cajamarca, Province of San Marcos, District Pedro Gálvez, Caserío Saparcón: way to Colpón at 2106 m. m. alt. 23 Oct. On 2002 (RRP-328 / 07 ' 08.5 ' '78 ' 59.8 "), Caserío of Limapampa: right of the road to Paucamarca at 2524 m. alt. 12 Sept. 2003 (RRP-486 / 07 ' 63.7 ' '78 ' 73.1 "), Caserío of Huayobamba: both sides of the road to Cajamarca on 27/09/2003 2582 m. alt. 27 Sept. 2003 (RRP-495 / 07 ' 30.4 ' '78 ' 18.4 "). District José Sabogal, Centro Poblado Lic Lic, Cerro Chimboyoc 3516m alt. 04 Sept 2003 (RRP-469 / 07 ' 33.8 ' '78 ' 23.3 "). Province of Cajamarca, Caserío of Samana Cruz: on the road to Hualgayoc at 2730 m. alt. 09 Mayo 2004 (RRP-692 / 07 ' 56.9 ' '78 ' 36.5 "), Caserío of Purhuay at 2802 m. alt. 12 Ene. On 2006 (RRP-816 / 07 ' 17.9 ' '78 ' 20.8 "), Caserío of Llushcapampa a 2914 m. alt. 12 Ene. 2006 (RRP-826 / 07 ' 50.5 ' '78 ' 36.2 "), Cumbre Mayo at 3421 m. alt. 22 Ene. 2006 (RRP-850 / 07 ' 04.0' '78 ' 00.8 "), Caserío of Adacucho at 2895 m. alt. 18 Feb. 2006 (RRP-917 / 07 ' 13.3 ' '78 ' 57.1 "). Province of San Pablo: left of the road to Santa Rosa of Unanca, in front of the water well.

Departamento of the Libertad, Province of Huamachuco: East of the Laguna de Sausococha at 3278 m. alt. 23 Ene. 2004 (RRP-593^a / 07 ' 24.3 ' '77 ' 09.3 "), Province of Pataz, Yanasara: left of the road to Aricapampa at 2304 m. alt. 28 Ene. 2007 (RRP-1039 / 07 ' 48.6 ' '77 ' 00.7 ").

Conclusions:

After this detail, each can make his or her own conclusions and you will thus find here the personal conclusions of the author which are the following ones:

- As regards the habit of the plant, the differences are considerable when they are observed in habitat because one (*M. a.*) has a spherical shape and the other one (*M. f.*) has cylindrical stems erect to decumbent.
- The offsets of both plants are different, because those of *Matucana fruticosa* are born from the base and those of *Matucana aurantiaca* are generally near the top.
- In the seeds of *Matucana fruticosa* the hilum is more developed than in *Matucana aurantiaca*.
- The flowers of *Matucana fruticosa* grow along the plant, while the flowers of *Matucana aurantiaca* appear at the top of the plant.



Matucana aurantiaca (Chimboyoc)
 (photo : N. Cieza Padilla).



Matucana fruticosa (RRP-1110)
 (photo : N. Cieza Padilla).



Matucana aurantiaca, flower.
 (photo : N. Cieza Padilla).



Matucana fruticosa, flower.
 (photo : N. Cieza Padilla).

To make more evident the existing differences between these species, here is the following table:

Characteristics	<i>Matucana aurantiaca</i>			<i>Matucana fruticosa</i>		
	Size	Length	Width	Length	Width	
	25 (-30) cm	10-16 cm	60 cm	3-9.8 (-12) cm		
Number of ribs	16-26			12-17		
Areoles	Length	Width	Length	Width		
	9-12 mm	3.5-5 mm	(2.5)-4-5(-5.5) mm	1.5-2 (3) mm		
Central spines	Number	Length	Number	Length		
	6-9	1.3-4.1 cm	4-5	1.1-5.2 cm		
Radial spines	Number	Length	Number	Length		
	18.25	0.5-2.7 cm	21-27	0.5-2.8 (3.3) cm		
Colour of spines	tan yellow and reddish brown			tan yellow		
Flowers	Length	Perianth	Length	Perianth		
	8.3-9.5 cm	4.8-6.3 cm	7.3-8.6 cm	3.4-5.4 cm		
Length exceeding the pistil from stamens	0.2-0.5 cm			1.7-1.9 cm		
Ovary	Length	Width	Length	Width		
	2-2.5 mm	3-4 mm	2-3 mm	4-5.5 mm		
Nectar chamber	Length	Width	Length	Width		
	3.5-5 mm	4-6 mm	2.5-3.5 mm	6-7.5 mm		
Seeds	Length	Width	Thickness	Length	Width	Thickness
	1.3-1.7 mm	1.2-1.3 mm	0.8-1 mm	1.8-2 mm	1.5-2 mm	1 mm

Knowing that the structure of the flower is a determining factor for the classification of plants and not only for this genus and for that reason, I arrived to the conclusion that it is really a different species thanks to the fact that the pistil gives us the essential characteristic to differentiate it from *Matucana aurantiaca*, the length of this one is indeed a good indicator to recognize the plants of *Matucana fruticosa*.

Text : Prof. N. Cieza Padilla & Prof. Maritza Briones Rojas, Photos : N. Cieza Padilla

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