

Agave vazquezgarciae (Agavaceae) another brand new species from Jalisco, Mexico

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INTRODUCTION

Systematic work coupled with field explorations on the Agaves of the Central part of Mexico, done by us during the last few years, has rendered interesting results. These results have been published by us in papers in this journal (*International Cactus Adventures*) and elsewhere.

A year ago, we described *Agave valenciana* Chazaro & A. Vazquez, a gigantic "century plant", endemic to two ravines near Mascota, in western Jalisco state, in western Mexico, named after Oscar M. Valencia, an outstanding Jaliscan botanist, devoted to dendrology and *Agave* study and the discovery of this taxon (Chazaro et al., 2005a and 2005b). Now a second new species of *Agave* (*A. vazquezgarciae*) with its whereabouts, it is presented here.

Like *Agave valenciana*, it was published in the botanical journal *Novon*, from the Missouri Botanical Garden, in the United States of America (Chazaro et al., 2006).

Since we visualized that many readers of this journal do not subscribe to that or other specialized magazines, we deemed it important to let them know of this novelty, especially for *Agave* fanciers in Europe and North America.

RESULTS.

On 12th November 1983 (23 years ago), one of us (J. A. Lomeli), as part of his duties as professor of Biology, at the Autonomous University of Guadalajara, Guadalajara, Jalisco, Mexico, with his students of the Botany class, teaching the topic of vegetation types, were doing field work at Sierra (mountain range) Manantlan, in southern Jalisco, when suddenly, he found some *Agave* plants. Jose made sterile samples for GUADA herbarium, plus he took a couple of plantlets with him back to Guadalajara, to be cultivated at the Jorge Victor T. Eller botanical garden, that belongs to the same Institution, and where Jose has been the director of this garden since 1985.

The plantlets of this century plant developed well vegetatively over several years, and finally 18 years later (in December 2001) they started blooming. By a mere coincidence, M. Chazaro and O. Valencia, on 11 January 2002 were visiting the garden and noticed this unfamiliar *Agave* in bloom, suspecting it could be an undescribed species, they enquired of Jose where he collected it. Looking at the garden records, it became known that



Agave vazquezgarciae, habitat, Jalisco, Mexico (Photo : M. Cházaro).

specimens were found near Rincon de Manantlan.

So, they (Chazaro and Valencia) immediately next weekend (19 January 2002) organized a field trip in quest of it, to observe the plants at their natural habitat and evaluate their taxonomic status.

They arrived at Rincon de Manantlan village (19 35' Lat. North- 104 12' Long. West), at 1500 m. in alt., and after several hours of walking south, uphill all the way to El Almeal (19 33' Lat. North- 104 15' Long. West) at 2500 m. in alt. they were without success; but then returning downhill, halfway back, Valencia, helped with binoculars, spotted on a cliff and a steep slope a population in bloom. Approaching the century plants, they were able to confirm their suspicion, that it was indeed a new species. Herbaria collection number 8167 of Chazaro was made.

Surprisingly enough, here we were in front of the second new species of *Agave* discovered in Jalisco *ex-situ*, good luck and a trained eye counted.

It must be mentioned that the Sierra Manantlan Biosphere Reserve and the Chamela Bay region, are the best botanical explored areas in western Mexico (J. A. Vazquez, personal communication), therefore the discovery of a new species there was most remarkable.

A month later, on 8th February 2002, M. Chazaro and J. A. Vazquez, went back to Rincon of Manantlan, in order to collect more herbaria material to become the holotype



Agave vazquezgarciae, infl., habitat, Jalisco, Mexico
(Photo : M. Cházaro).

(deposited at IBUG herbarium) and numerous isotypes to be distributed in the Mexican main herbaria (MEXU, ENCB, XAL, IEB, CHAPA) and some of the principal United States herbaria, such as MICH, WIS, NY, MO (types under number 8172 of Chazaro).

This time, instead of going south in the El Almeal direction, they headed more west (to La Toma) and found on rocky slopes, hundreds of more reachable plants in bloom, a spectacle to be seen.

Talking with the local people at Rincon de Manantlan, we learned that the common name of the agave is "lechuguilla", "mezcal" and "cola de zorro=fox tail" (due to the inflorescences shape). We were also told by the local folks that the flowers buds, the so-called "bayusas" are edible, after being boiled and then fried with eggs, a fact we knew of another species of *Agave* in Veracruz state

(*A. obscura*) and Puebla states (*A. angustiarum*) (Chazaro, personal observations).

Agave vazquezgarciae is a monocarpic plant, acaulescent (without stem), leaves in rosettes 1.7-1.8 meters diameter, up to 1.2 meter high, leaves pale-green to glaucous, with marginal teeth, terminal spine stout, 4-6 cm long, inflorescence 5-7 meters high, flowers geminate (in pairs), yellow-greenish, fruits are capsules also geminate, oblong-ovoid, 1.8-2.4 cm x 1-1.3 cm in diameter, numerous flat seeds, 3-4 x 2-3 mm, black when ripe, dispersed by wind.

DISTRIBUTION:

So far, only known in the northern part of Sierra Manantlan and adjacent Sierra of Cacoma, in southern Jalisco in western Mexico, it is abundant at rocky cliffs and steep rocky slopes with pine-oak forest, between 1500 and 2200 m. in alt.

At Sierra of Cacoma, we have seen it near Santa Monica and near Toledo, where it thrives with *Agave maximiliana* in many rocky outcrop spots.

Agave vazquezgarciae Chazaro, Lomeli & O. Valencia, belongs to the Littaeae subgenus, Amolae group of Gentry (1982), and the closest relative is *Agave pedunculifera* Trel. that occurs ca. 100 km north (at Sierra of Tapalpa), followed by *Agave attenuata*



Agave vazquezgarciae, habitat, Jalisco, Mexico (Photo : M. Cházaro).



Agave vazquezgarciae, habitat, Jalisco, Mexico (Photo : M. Cházaro).

Salm-Dyck (at Cerro Grande), the three species occur in Jalisco but their ranges never overlap.

Agave vazquezgarciae is distinguished by its prominent spine and by firm, dark, never glaucous marginal teeth, in both juvenile and mature individuals. *Agave pedunculifera* has usually an inconspicuous, curled terminal spine and the marginal teeth are usually glaucous, in both juvenile and mature specimens. Very rarely, some leaves may have dark but brittle teeth.

By its impressive inflorescences, both in size (5-7 meters tall) and colour of the flowers, this species, we consider has some ornamental potential and will surely be welcomed by *Agave* fanciers.

It does not produce offsets nor bulbils, therefore reproduction is exclusively by seeds.

In spite of the fact that it is endemic to southern Jalisco, at the Southern Sierra Madre physiographic province, *A. vazquezgarciae* it is not at risk of survival at the present time, since there are several sparse populations with hundreds of specimens at each one, that altogether gives several thousand specimens.

The species named is after Dr. Jose A. Vazquez-Garcia, an outstanding and enthusiastic Mexican botanist from the University of Guadalajara, a former graduate student (Master of Science. and Philosophy Doctor) at the Botany Department, University of Wisconsin-



Agave vazquezgarciae, flowering at the University of Guadalajara Botanical Garden, Jalisco, Mexico.
(Photo : M. Cházaro)

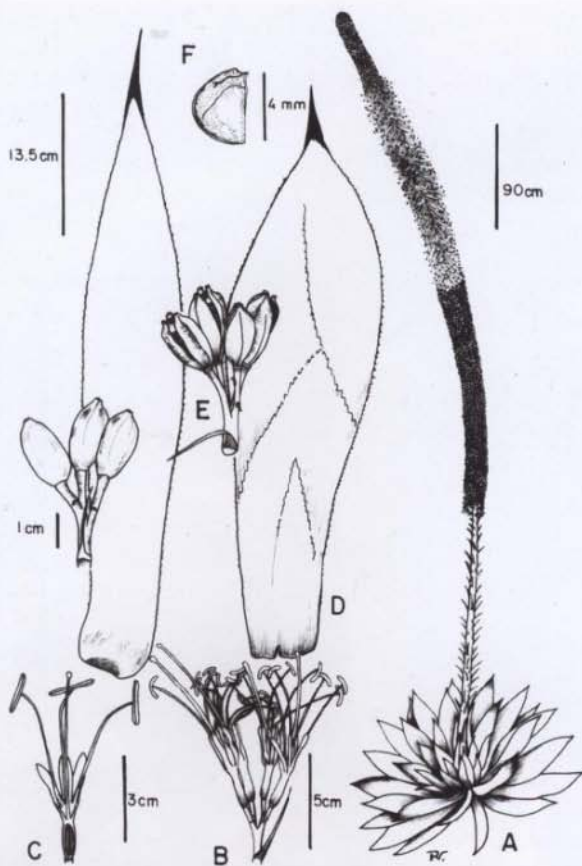


Figure 1. *Agave vazquezgarciae* Chazaro & J. A. Lomeli. -A. Flowering plant (drawing from a photograph). -B. Peduncle with four flowers. -C. Flower, longitudinal section. -D. Left, inner narrow leaf; right, basal wide leaf. -E. Peduncles with three immature (left) and four mature (right) capsules. -F. Seed, lateral view. All from J. A. Lomeli-Sencion & M. Rodriguez s.n., 12th Nov. 1983 (GUADA), except for A and D (left) from the holotype Chazaro & A. Vazquez-Garcia 8172 (IBUG).



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Madison, USA, under Hugh H. Iltis, and Ph. D. Thesis director of the first author (M. Chazaro, whom also was graduate student at the University of Wisconsin under Hugh H. Iltis); a scholar in the families Malvaceae, Magnoliaceae, Agavaceae, Aceraceae and the cloud forest ecology.

Vazquez devoted 12 years (1984-1996) of his life to explore thoroughly and collect plants from the Sierra Manantlan, and was founder of the herbarium ZEA. Furthermore he is the senior author of Flora of Manantlan book (Vazquez et al., 1995).

After 27 years devotion to the field of botany in western Mexico, this is the first species of plant honouring him, a fair recognition to his long and productive career.

With the additions of *Agave valenciana* and *A. vazquezgarciae*, there are now 23 species of this genus growing wild in Jalisco state, in second place at national level (Chazaro et al., 2004), only after Oaxaca state that has 30 species of *Agave* reported (Garcia-Mendoza, 2004).

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ACKNOWLEDGEMENTS

M. J. Chazaro thanks very much Dr. Juan M. Duran-Juarez, chancellor of the Social and Humanities Sciences campus, University of Guadalajara, Guadalajara, Jalisco, Mexico, for continuous academic and economic support to his *Agave* research in western Mexico.

Thanks also to Jose A. Vazquez-Garcia, Jose A. Machuca-Nuñez, Ignacio Contreras-Villaseñor, David Jimeno-Sevilla, Gerardo Hernandez-Vera, Juan L. Alvarez-Salazar, Manuel Rodriguez-Dominguez, Gabriela Lopez-Damian for their help and companionship during the field trips.

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