



Echeveria gudeliana, a new species of Crassulaceae of Central America

Mario Esteban Véliz Pérez (Guatemala) & Abisaí Josué García-Mendoza (Mexico)

Abstract: *Echeveria gudeliana* is described as a new species of tropical dry forests from Guatemala and Chiapas, Mexico. Morphological characteristics put it in the series Pruinosae, showing affinity with *E. peacockii*, but is different in the size of the rosette, the leaves, the flowers, the type of inflorescence, and the distribution.

Keywords: Crassulaceae, *Echeveria*, tropical dry forests, Guatemala, México, Central America.

Echeveria DC. (Crassulaceae) is an American genus with 139 species and 28 infraspecific taxa (Eggli, 2005). In Mexico, there are 117 species, making this country the richest in echeverias at world level, and also a centre of speciation (Walther, 1972). For Guatemala, nine native species are recognized, while, for Chiapas we know 11 (Pilbeam, 2008). Standley & Steyermark (1946) had only spoken about seven species for Guatemala, however, during the expeditions of collection made recently in semi-arid zones of Guatemala (Véliz & Méndez, 2006; Véliz, 2008), we collected a new species of *Echeveria*, which is described here:

***Echeveria gudeliana* Véliz & García-Mend., n. sp. (Fig. 1).**

Type: Guatemala. Huehuetenango: municipio Nentón, Road to Gracias a Dios, alt. 1074 m, 15° 53'02.6" N; 91° 44'16.6" O, 7 feb 2011, *M. Véliz* MV 22564 with *L. Velásquez*.

Holotype: BIGU; **Isotypes:** BIGU, CAS, F, MEXU, MO.



Echeveria gudeliana, habitat. (photo : M. Véliz).

Echeveriae peacockii similis sed foliis 15-20 cm longis 10-25 cm latis rosulisque 20-30 cm, inflorescentiis compositis 3-4 cincinnis, floribus rubris 2 cm longis differt.

Perennial, succulent herbaceous plant, 50-120 cm high including the inflorescence, caulescent. Stems up to 20 cm long and 2 cm in diameter, erected or ascending. Rosettes at the end of stems 20-30 cm in diameter. Leaves 15-20, ascending, oblanceolate, 15-20 cm long, 10-12.5 cm wide, sessile, pruinose, extremity blunt, apiculate, tri-nerved.

Inflorescence lateral, lax, paniculate, pruinose, with 3-4 cincinus, a peduncle with bracts similar to the leaves of the rosette but smaller; floral bracts 2-3 cm long, 1.2-1.5 cm wide, succulent, sub-peltate, sessile, extremity thin; pedicels up to 3 mm long, pruinose. Flowers secund; Sepals 5, uneven, 3 of (5-) 8-12 mm long, 4-5 mm wide, lanceolate and 2 of 14-22 mm long, 7-10 mm wide, fused at the base, fleshy, curved, of green colour, petals 5, 2 cm long, 6-7 mm wide, lanceolate - elongated, fleshy, careened, acuminate, reddish, pruinose, free, connate, stamens 10, 5 at the base of petals, hairless, filaments 9-10 mm long, anthers 2-2.5 mm long, ovary apocarpic, hairless, 8 mm long, stigma 5, 8 mm long, subulate, purple; nectar glands ca. 1.2 mm, light yellow. Fruits 10-11 mm long, ca. 3 mm wide, lanceolate - cordate with ventral dehiscence, reddish, hairless. Seeds 0.6-0.7 mm long, 0.2-0.3 mm wide, oblanceolate, yellowish with reddish reticulation, numerous.

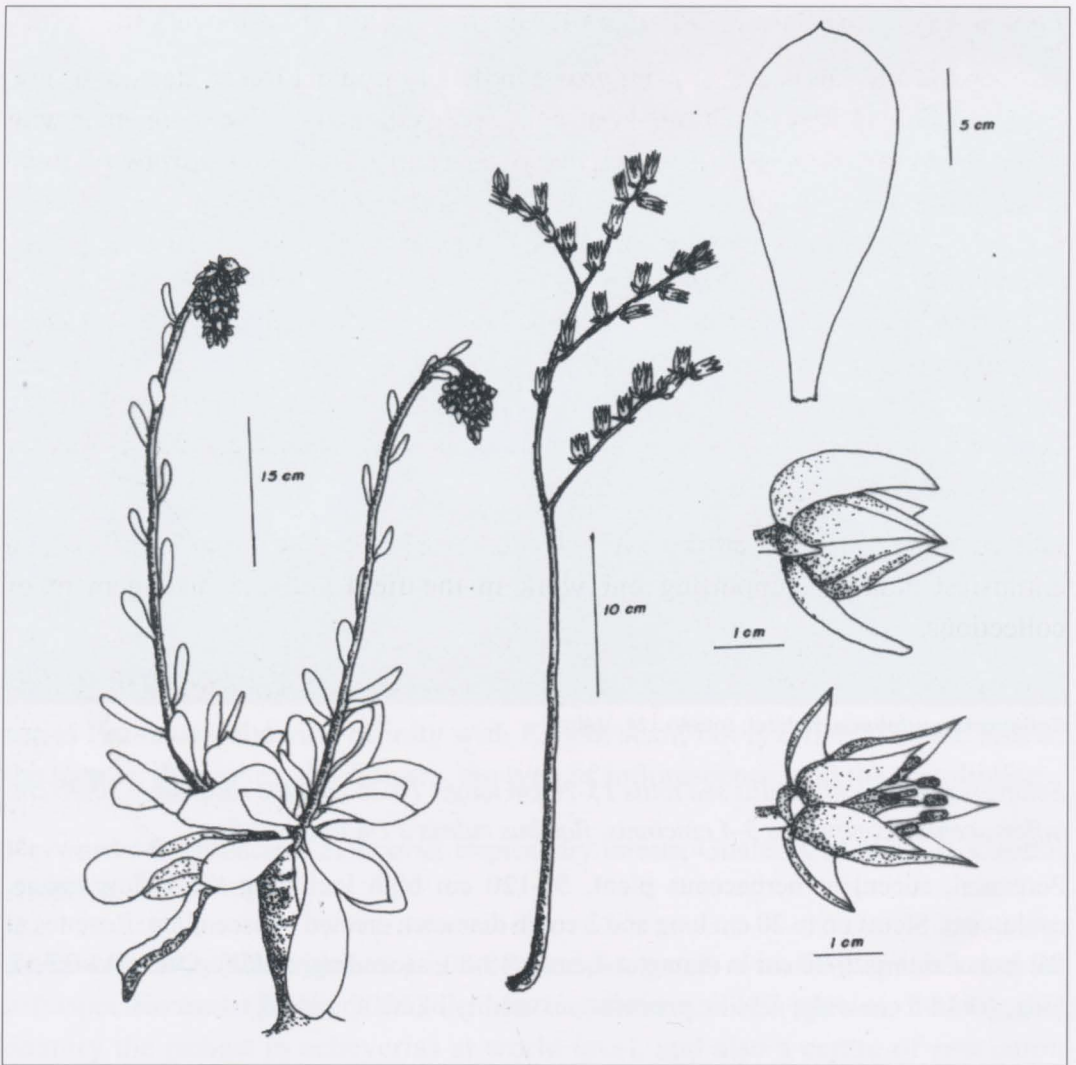


Figure 1 *Echeveria gudeliana* Véliz & García-Mendoza A. Habit. B. Leaf. C. Flower bud. D. Flower. E. Inflorescence (A-E from Holotype, Véliz 22564, BIGU). Illustration by par Mario Véliz.



Echeveria gudeliana, flowers & fruits. (photos : M. Véliz).

Phenology: flowers from December till March and fruits from January till April.

Habitat and Distribution : the plant grows in the dry tropical forest (deciduous low forest) at 700-1100 m in altitude, on rocks and calcareous hillocks together with *Acanthocereus chiapensis* Bravo, *Agave pachycentra* Trel., *Beaucarnea pliabilis* Rose, *Bursera bipinnata* (Sesse & Moc.) Engler, *B. diversifolia* Rose, *B. simaruba* (L.) Sarg., *Comocladia guatemalensis* Donn. Sm., *Cyrtopodium paniculatum* (Ruiz & Pavon) Garay, *Hechtia glomerata* Zucc., *Mammillaria albilanata* Backeberg, *Nopalea dejecta* Salm. Dyck, *Peperomia heterodoxa* Standl. & Steyererm., *Philodendron* sp. et *Selenicereus grandiflorus* (L.) Britton & Rose (Véliz & Méndez, 2006). It is found in the municipalities of La Libertad, Santa Ana Huista and La Democracia in the departments of Huehuetenango, Guatemala, as well as in the municipality of Teopisca, in Chiapas, Mexico. (See map).

Etymology: the specific attribute is dedicated to Gudelia Pérez Muñoz (1947-), an enthusiast amateur supporting our work in the field and the management of collections.

Paratypes : GUATEMALA. Huehuetenango: Mpio. La Democracia, 15 mar 2001, *M. Véliz et al.* 11187 (BIGU); 28 dec 2004, *M. Véliz y J. A. Véliz* 15582 (BIGU). Mpio. La Libertad, Paso del Boquerón along the Río Trapichitos, 21 aug 1942, *J. Steyermark* 51204 (F, MEXU). Mpio. Nentón, 21-22 sep 2006, *P. Velásquez y M. Véliz* 339 (BIGU); same locality, *M. Véliz et al.* 17426, 17449, 17781, 17826 (BIGU); same locality, 23-24 mar 2007, *M. Véliz y L. Velásquez* 18417, 18459, 18465 (BIGU). Mpio. Ciudad Vieja, Sacatepéquez, 18 dec 2007, *M. Véliz* 19493 (BIGU). MEXICO. Chiapas: along the Road 190 to Las Rosas, south of Teopisca, 27 jan 1979, *T. Croat* 46501 (BIGU, CAS, F, MEXU, MO, NY).

Taxonomical comments

Because it shows short stems, small to average and pruinose to glaucous leaves, *Echeveria gudeliana* falls in the series *Pruinosae* (Walter, 1972, Meyrán & López, 2003; Egli, 2003). Comparing with species described in this series, *Echeveria peacockii* Croucher, is the closest species, for the following characteristics: the type of inflorescence with flowers sessile or shortly petiolate, uneven and narrow sepals, but it also differs from it, because *Echeveria gudeliana* has leaves 15 up to 20 cm long, 10-12.5 cm wide and rosettes are 20-30 cm in diam. (*E. peacockii* has leaves 5-6 cm long, 2-3.5 cm wide and rosettes 5-10 cm in diam.); The inflorescence is made up of 3-4 cincinni (in *E. peacockii*, the inflorescence has 1 cincinnus); flowers are pruinose, 2 cm long and are red (in *E. peacockii*, the flowers are 1.1 cm long and pink, glaucous).

**Comparison of morphological characters
between *Echeveria gudeliana*, *E. peacockii* et *E. shaviana***

	<i>E. gudeliana</i>	<i>E. peacockii</i>	<i>E. shaviana</i>
Length of the leaf	15-20 cm	5-6 cm	3-5 cm
Width of the leaf	10-12.5 cm	2-3.5 cm	1.5-2.5 cm
Rosette	20-30 cm	5-10 cm	8-10 cm
Inflorescence	3-4 cincinni	1 cincinnus	1-2 cincinni
Length of flowers	20 mm	11 mm	10-13 mm
Colour	red, pruinose	pink, glaucous	pink, glaucous



Fig. 2 Distribution map of *Echeveria gudeliana* Véliz & García-Mendoza.

As regards the geographic distribution of the previous species, according to the registers of distribution Walter (1972), Meyran & López (2003) et Eggli (2005), none of the species share the habitat of *gudeliana* E. (Figure 2).

Text & photos: Mario Esteban Véliz Pérez
Herbario BIGU, Escuela de Biología
Facultad de Ciencias Químicas y Farmacia
Universidad de San Carlos de Guatemala
e-mail: marioveliz@yahoo.com
and: Abisai Josué García-Mendoza
Universidad Nacional Autónoma de
México, Jardín Botánico,

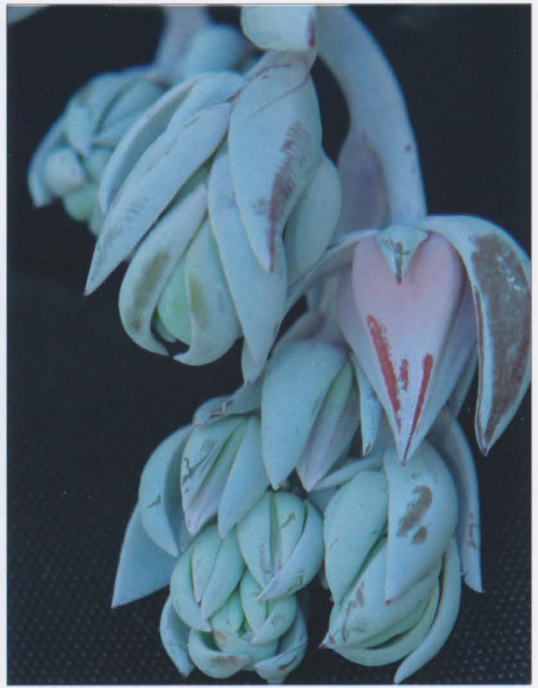
Instituto de Biología, Apdo. postal 04511 Del. Coyoacán 04510 México D.F. México

Aknowledgements

To Cyril Nelson (TEPF) for his comments and assistance with the Latin diagnosis. To Emmanuel Pérez-Cálix who revised and improved the manuscript. To Renato Morales, Claudio Méndez, Vanessa Davila, Pilar Velásquez, José María Véliz and Luis Velásquez (USAC) for their support in the expeditions of collection in the semiarid zones of Guatemala.

BIBLIOGRAPHICAL REFERENCES:

- Eggl, U. 2005. "Illustrated handbook of Succulent Plant: Crassulaceae" Springer, Berlin. p. 103-128.
Meyrán, G.J. y L. López C. 2003. "Las Crasuláceas de México" Sociedad Mexicana de Cactología, México, D.F. 290 p.
Pilbeam, J. 2008. "The genus Echeveria" British Cactus & Succulent Society, Norwich, UK. 333 p.
Standley, P. C. y J. A. Steyermark. 1946. "Flora of Guatemala" Fieldiana Botany 24(4): 410-416.
Véliz-Pérez, M. E. y C. A. Méndez-Hernández. 2006. "Diversidad florística y endemismos de las zonas semiáridas de Guatemala" Informe Final, proyecto FODECYT 27-2006, CONCYT, Vicepresidencia de la República de Guatemala.
Véliz-Pérez, M. E. 2008. "Las Cactáceas de Guatemala" FONACON/ONCA/USAC, Guatemala. 129 p.
Walther, E. 1972. "Echeveria" California Academy of Sciences. San Francisco California. 426 p.



Habitat & detail of the *E. gudeliana* pruinose inflorescence. (photos Mario véliz).



E. gudeliana in habitat, rosette. (photo Mario véliz).