

## Morphological Characterization of Pollen from some Species of the Genus *Echeveria*. From Mexican Territory.

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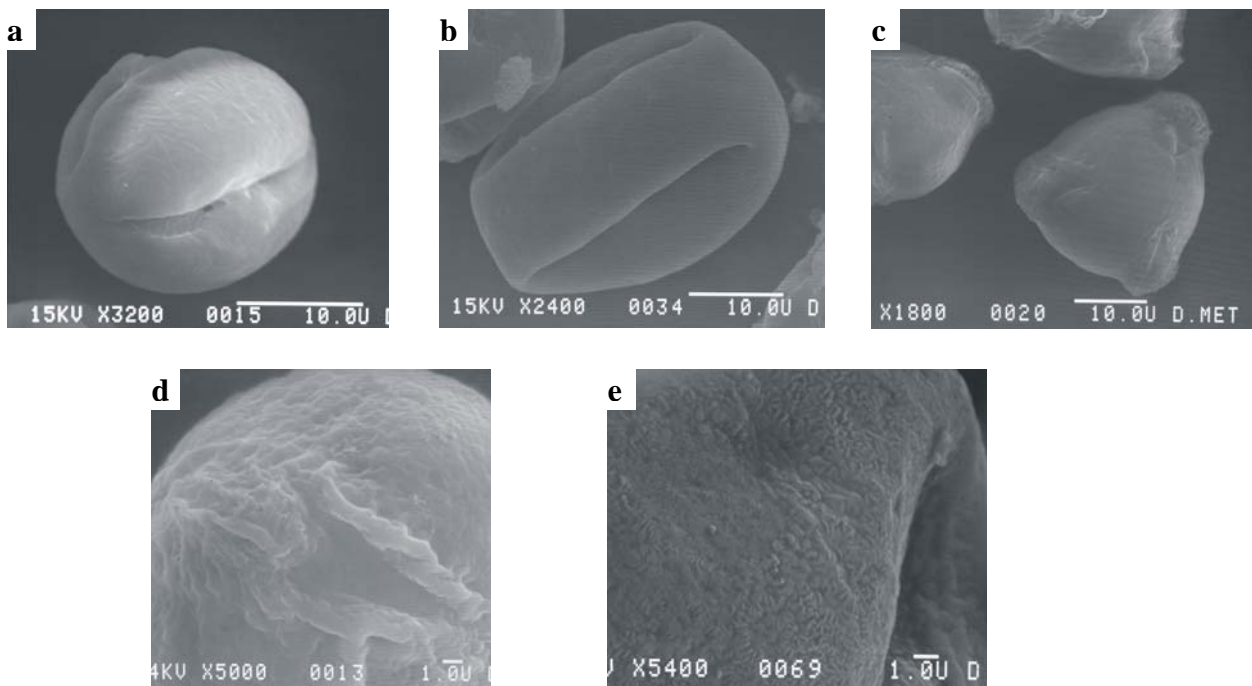
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*Echeveria* is a large genus of America Crassulaceae, extending from Texas to Argentina. And Mexico have the most endemism and diversity of this group of plants [1], eighty-five percent of its species are located in Mexico. Genus of *Echeveria* is considered by horticulturists and collectors as ornamental plants highly appreciated. Many of their species are extracted from their natural habitat in order to attend national and international demands [2]. Unfortunately many are at risk of extinction and most are poorly documented.

This work presents, to our knowledge, the first results from palynological characteristics of some species from *Echeveria* by SEM. The purpose of this study is to contribute, through its morphological analysis to the identification of its species. The pollen was obtained from ten species (*E. affinis*, *E. gracilis*, *E. heterosepala*, *E. hyalina*, *E. juliana*, *E. nebularium*, *E. rosaiiflores*, *E. setosa* var. *Ciliata*, *E. setosa* var. *setosa*, *E. simulans*) from the Botanical Garden collection in UNAM. Grains were mounted in holders and cover with graphite and gold, and analyzed by SEM. Studied pollen presents the following taxonomical characteristics [Table 1]: sizes between 19 µm and 30µm, subspheroidal shape [Figure 1a] except by *E. gracilis* and *E. nebularium* that have oblate [Figure 1b], three apertures most of tipe colpi [Figure 1a-b], except in *E. affinis*, *E. rosaiiflores* and *E. simulans*, where pore and colpus are combined [Figure 1c] in the aperture. Sculpture of their exine are essentially reticulate [Figure 1d], only two species present striate [Table 1, Figure 1e]. It is observed that pollen studied here is mainly subspheroidal and presents smaller sizes than grains (in previous study) [3] that presented prolate shape and sizes from 36 µm to 47 µm. These results suggests that most of the studied species of *Echeveria* present similar characteristics, but there is some exceptions that show different features, for example, grains with colporate or fenestrate condition.

**Table 1.** Analyzed pollen characteristics from some species of *Echeveria* sp.

SPECIE <i>Echeveria</i>	SIZE (µm)	SHAPE	APERTUR E	ORNAMENTATIO N
<i>E. affinis</i>	19.4	subspheroidal	tricolporate	striate
<i>E. gracilis</i>	23.7	oblate	tricolpate	reticulate
<i>E. heterosepala</i>	27.5	subspheroidal	tricolpate	reticulate
<i>E. hyalina</i>	29.9	subspheroidal	tricolpate	reticulate
<i>E. juliana</i>	26.8	subspheroidal	tricolpate	striate
<i>E. nebularum</i>	29.3	oblate	tricolpate	reticulate
<i>E. rosaflores</i>	30,8	subspheroidal	tricolporate	reticulate
<i>E. setosa</i> var. <i>ciliata</i>	20.4	subspheroidal	tricolpate	reticulate
<i>E. setosa</i> var. <i>setosa</i>	24.4	subspheroidal	tricolpate	reticulate fenestrate
<i>E. simulans</i>	26.1	subspheroidal	tricolporate	reticulate - fenestrate



**Figure 1a-e.** SEM representative images from *Echeveria* studied pollen. **a.** *E. affinis* shows spheroidal shape, **b.** *E. nebularum* presents oblate aspect, **c.** *E. simulans* in equatorial plane shows its colporate aperture, **d.** *E. simulans* exhibit reticulate and fenestrate appearance, **e.** *E. juliana* with striate ornamentation.

#### References:

- [1] Meyran, J., L. López, "Las Crassulaceas de México", Sociedad Mexicana de cactología, A.C., México, (2003), 286 p.
- [2] Reyes S. J. *et al.*, "Manual del perfil diagnostico del género *Echeveria* en México", SINAREFI, (2011), 131 p.