

Tema II.1: Microscopía y Biología Celular
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Presentación oral

ULTRASTRUCTURE OF FOLIAR EPIDERMIS OF SOME ARID ZONE PLANTS: STUDY BY SEM

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The plants growing under unfavorable conditions of arid zones can respond them on different levels of plant defense. The epicuticle structure of leaves is one of the most important components of plant protection assisting plants to survive under severe conditions of arid climate with its high solar radiation, high temperature, low humidity, drought and soil salinity. The outer surface of leaf epidermis of higher plants are perforated by stomata and covered with epicuticle wax layer(s), the primary waterproof barrier that also provides protection against environment stresses and represents optical filter against intense solar radiation. The main goal of this study is to analyze by scanning electron microscope (SEM) leaf surfaces of arid zone plants for more complete understanding the functional and development stages in ontogenesis of leaf surface, and to elucidate some defense mechanisms on this level.

Leaf samples of plants from different families were analyzed, including: Caricaceae (*Carica papaya*), Agavaceae (*Agave* spp., *Yucca valida*), Solanaceae (*Capsicum* spp.), Palmae (*Cocos nucifera*), Vitaceae (*Vitis* sp.), Myrtaceae (*Eucaliptus deglupta*), Buxaceae (jojoba-*Simonsia californica*), Paulowniaceae (*Paulownia elongata*), and some others. Samples were taken from plants growing under natural conditions in the experimental field El Comitán (CIBNOR) and processed for SEM study: fixed in 2.5% glutaraldehyde in cacodylate buffer, dehydrated in a series of increasing concentration of ethanol, and then dried in a critical point drier. Finally, the samples were coated by gold and analyzed by SEM (S-3000N Hitachi). Fulfilled analysis of subepidermal structures (stomata, trichomes and waxes), as well as detection of a large amount of salt crystals, deposited on the leaf surface and inside stomata, allowed to assume new functions of stomata: their participation in wax and salt secretion.