

Microstructural Characteristics of Ordered and Disordered Leaves in *Citrus junos* SIEB

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We compared microstructural features of the cell of the ordered and disordered leaves in *Citrus junos* SIEB by electron microscopy.

In the cell of the ordered leaves, many chloroplasts and large vacuoles were particularly observed. Also a lot of vessel, companion cell and big nucleus were presented in vascular bundle regions. The mitochondria and the other organelles were interspersed among the chloroplasts in a thin, peripheral layer of cytoplasm. The chloroplast possessed typical grana and intergranal lamellae, numerous starch grains and a few small osmophillic globules. Besides, microbodies were closely associated with the mitochondria and the chloroplast. During the process of the formation of the secondary cell wall from primary cell wall was observed the vessel elements, the tonoplast wall and the secondary cell wall. It was observed that the oil sac with the unique perfume distributed the adjacent cell wall.

In the cell of disordered leaves, the all of the organelles were thrust toward the cell wall due to the fusion of vacuoles in the cells. It was observed that a lot of the very small particles spreaded in the cytoplasm. The loss of unique perfume of the leaves was resulted in the destruction of the oil sac. Also, there was not observed grana, lamellae, starch and osmophillic globules in the chloroplast. It was not the small distributed organelles was not observed but the elongation of the cell wall was proceed no longer. Therefore the plasma membrane diverged from the cell wall. All of organelles in the cell had poor function and deformation. A massive vacuole was fulfilled in single cell and the

vacuole contains a lot of large and small particles. The organelles were presented on the side of the cell wall according to the enlargement of vacuole and they were observed to be breakdown.