



## STRUCTURE OF THE FRUIT PEEL OF *PYRUS COMMUNIS* L.

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The peel of fruits of *Pyrus communis* L. cv. 'Klapsa', harvested at commercial maturity in September 2011, was examined using bright-field and fluorescence microscopy as well as scanning electron and transmission microscopy.

The fruit peel was found to be composed of an epidermis covered by a cuticle and several layers of hypodermis. SEM observations showed that in the cuticle there were numerous microcracks of various widths, running in different directions, as well as numerous oval- or star-shaped lenticels with a diameter of approximately 130-230  $\mu\text{m}$ . The microcracks ran along the cell walls and the appearance of the widest ones resembled a zipped-up zip. Crystalline wax platelets with horizontal and, more rarely, vertical orientation in relation to the surface of the organ were visible on the surface of the cuticle. The largest number of vertical wax platelets was found inside the microcracks, whereas inside the lenticels mycelium hyphae and/or fungal spores were sometimes observed.

In the cross-section through the surface layer covering the fruit of *Pyrus*, the cells of the

single- and sometimes two-layered epidermis were found to have different shapes and sizes and to be covered with a cuticular epithelium characterized by a varying structure and a thickness of about 10  $\mu\text{m}$ . The cuticle covered not only the external tangential walls, but also penetrated through the anticlinal walls significantly increasing their thickness and reducing the inner diameter of the cells.

TEM observations showed that inside the epidermal cells, which exhibited varying degrees of vacuolation, there was parietal cytoplasm in which cell nuclei, plastids with starch grains, and numerous mitochondria could be observed. In the hypodermis, which was composed of 3 up to 5 layers of tangential collenchyma cells with thickened tangential walls, organelles were found similar to those described in the epidermis, whereas in the vacuoles there were visible fibrous deposits and plasma membranes fragments.