

### Abstract:

The degradation of the cell membrane is a sensitive signal of the fruit senescence. The consequence of this process is reflected in loosing balance of the cell metabolism and later on reflected in degradation of the fruit. The mechanism of the potassium ion leakage can be separated into partial processes. The passive and active transport processes take part simultaneously in the ion leakage. We presume that the effects of the different degradation processes are reflected in the shape of ion leakage curve, i.e. the mathematical model of the process is the consequence of the changes in the membrane permeability of the vacuole and the cell. The organically grown fruit had a significantly higher initial rate independently of the storage behaviour. The permeability value refers significantly to the changes of cell surface integrity during storage. The deteriorated membrane caused the decrease in the correlation of the fitted exponential function. The model experiments of chilling, heating and osmotic degradation caused significant effects in the initial rate, the permeability and the apparent diffusion coefficient of the ion leakage process.