

## **Abstract**

The texture and taste of three different apple cultivars were analysed by sensory and instrumental analysis (penetrometry, double compression, spectroscopy) after prolonged storage. The main objective of the study was to investigate the possibility of predicting the sensory perception of apple texture by instrumentally measured parameters. This study showed that the parameters measured by penetrometry and compression were highly correlated with sensory textural attributes. In order to predict the sensory quality of apples, stepwise multilinear regression was performed on averaged penetrometry, compression and Visible-NIR data for six sensory attributes—crunchiness, chewiness, touch resistance, mealiness, juiciness and fondant. Penetrometry seems to be more suitable for the prediction of sensory parameters that measure the quality of the fruit after harvest (touch resistance, crunchiness and fondant) while compression is more interesting for the prediction of characteristics developed during storage (mealiness and juiciness). Some complex sensations in the mouth, such as juiciness or mealiness were predicted successfully by using a combination of spectroscopic data with physical parameters (measured by penetrometry and compression).