

Viskelis P., Radzevicius A., Viskelis J., Urbonaviciene D., Bobinas C.

Institute of Horticulture, Lithuanian Research Centre for Agriculture and Forestry

e-mail.: biochem@lsdi.lt

Key words: tomato, color, lycopene, β -carotene, non-destructive analysis

Poster

Amount of carotenoids in different color tomatoes

The most important external characteristic of tomato fruits is color. The color of fruits and vegetables results from the presence of carotenoid pigments. The measurement of color can be used in describing processes of changing fruits color, such as fruit ripening or drying. The applicability of using skin color measurements to predict changes in pigment composition was investigated using a selection and evaluation of the different colors of tomato (*Lycopersicon esculentum* Mill.) varieties for the food industry. Investigation was carried out at the Institute of Horticulture, Lithuanian Research Centre for Agriculture and Forestry in the presence and acquiring skills for students of Kaunas University of Technology and industry JSC "Paslaugos žemdirbiams". Different colors of tomato fruit 'Svara' (red color fruit), 'Gold Sunrise' (yellow), 'Oranž 1' (orange), 'Black sweet cherry' (black) and 'White Beauty' (bright yellow) was investigated for lycopene and β -carotene quantities and CIELab color coordinates. Tomato fruits for analysis were picked at peak of the fruit ripening period. NIR (Near Infrared spectroscopy method based on the transmittance principle, using near-infrared wavelength spectrophotometer) and colour coordinate spectrophotometry was used in this study to simplify the determination of carotenoids without tomato damage.

It was established that red colored fruits of Lithuanian cultivar 'Svara' distinguished with the highest amount of lycopene – 9.5 mg 100 g⁻¹ and tomatoes of orange color distinguished with the highest amount of β -carotene 2.56 mg 100 g⁻¹. Tomato cultivar's 'White beauty' fruits were very poor quality according to amount of carotenoids: amount of lycopene reached only 0.06 and β -carotene – 0.12 mg 100 g⁻¹. In black colored fruits amount of lycopene and β -carotene was respectively 2.5 and 3.5 times lower compared with the red ones.

Investigations were carried out for training the businesses and students to quickly and non-destructively determine the amount of carotenoids in tomato fruits.

Acknowledgements. This work was supported by the grant VP1-3.1-ŠMM-10-V-02-021, Ministry of Education and Science, European Social Fund Agency, Lithuania.