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### Horticultural Science

Total polyphenol and main flavonoid antioxidants in different onion (*Allium cepa* L.) varieties

J. Lachman, D. Proněk, A. Hejtmánková, J. Dudjak, V. Pivec, K. Faitová

Hort. Sci. (Prague), 30 (2003): 142-147

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Polyphenolic antioxidant compounds were studied in three onion varieties (red – cv. Karmen, yellow – cv. Všetana and white – cv. Ala) regarding their total content and qualitative composition of flavonoid complex. The effects of temperature and storage period during onion storage were also studied. The total content of polyphenols was estimated

spectrophotometrically with Folin-Ciocalteu's phenolic reagent and individual flavonoid components by HPLC method using Waters™ chromatograph on Watrex 250 × 4 mm Sepharon SGX C18 7DM. An increase in total polyphenols during storage was found in red and yellow varieties, esp. during storage at a laboratory temperature (22°C). Among the flavonoid and polyphenolic compounds as major constituents spiraeoside (quercetin-4'-O--D-glucoside), rutin and quercetin and three other not identified compounds were found. Significant varietal differences were found. The compound with the highest content was spiraeoside (32,234 mg/kg DM in red cv. Karmen, 23,283 mg/kg DM in yellow cv. Všetana and 265 mg/kg DM in white cv. Ala). Rutin ranged from 15 mg/kg DM in cv. Ala to 157 mg/kg DM in cv. Karmen and similarly quercetin from 1 mg/kg DM in cv. Ala to 163 mg/kg DM in cv. Karmen. During storage an increase in flavonoids could be observed, esp. at a laboratory temperature compared to storage at a lower temperature.

## Keywords:

onion; red, yellow and white varieties;  
polyphenols; spiraeoside; rutin; quercetin;  
varietal differences; changes during  
storage

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