

with higher skin/fruit flesh ratios had increased antioxidant capacity compared with larger fruits. It indicates that the antioxidant compounds predominantly accumulate in fruit skin. Considering that all samples were collected in orchards located in the same region, these differences are likely to be explained by the different genetic backgrounds of cultivars and cultivar candidates. Some cultivar candidates were characterized by higher antioxidant capacities and mineral element contents than the main commercial cultivars pointing to the possibility for increasing health-benefits of apple even under constant level of fruit consumption.

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Temporal changes of antioxidant parameters in *Acorus calamus* L.

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Sweet flag (*Acorus calamus* L., Araceae) is widely used medicinal plant as extracts or dried rhizome for several diseases, for external or internal use, as well. Numerous studies performed its antioxidant effects such as decrease of lipid peroxidation in noise-stressed rat brain after application of alcoholic extracts of *Acorus*. Since, sweet flag is under protection in Hungary and we have relatively little information about antioxidant properties of Hungarian population we decided to estimate some antioxidant parameters and temporal changes of these during vegetation period.

Plant material was collected twice in 2008 (June and October) and after washing with distilled water leaves (L), rhizome with (H) and without bark (HL) were used freshly (homogenate) or as alcoholic and watery extracts made of dried drugs. Parameters measured were FRAP (ferric reducing-antioxidant power), glutathione (GSH) level and free radical scavenging ability using DPPH. Statistical analysis was performed using STATISTICA 8.0 software (analysis of variance and correlation).

Our results showed that homogenate and alcoholic extract of leaves had significantly higher FRAP-values compared to those of watery extracts, in June. Antioxidant capacity in rhizome was usually lower than in leaves. In temporal aspect, a significant decrease (40%) of FRAP appeared in alcoholic samples of leaves, while there were no changes in rhizome. Glutathione (GSH) level was 4-6-fold higher in leaves than in both forms of rhizome and was in significantly positive correlation with FRAP. Fraction of residual DPPH radical (%) was the highest in rhizome with bark (H) which means that it had quite low reducing ability, nevertheless, free radical scavenging capacity of homogenates of leaves and rhizome with bark showed to be significantly higher in October compared to June. According to FRAP we can make a sequence qualifying the three types of samples: homogenate > alcoholic extract > watery extract.

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Table beet and red cabbage, as natural source of antioxidant compounds

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Free radicals derived from oxygen play an important part in the pathomechanism of different illnesses. Living organisms are supplied with an effective defence system against oxygen radicals. The first defence line is composed of antioxidant enzymes but different vitamins and low molecule compounds, such as phenols, thiols and flavonoids, are also effective against radicals. These compounds can be found in high quantities in vegetables. These compounds are mostly of polyphenol type and are able to bind free radicals and protect from the oxidation of biological molecules, membranes and tissues induced by active oxygen and free radicals. In evaluating bioactive content of vegetables an important role is provided to those compounds and are able to bind free radicals and protect from the oxidation of biological molecules, membranes and tissues induced by active oxygen and free radicals. Such are for example phenol type substances whose group includes pigment content as well. The colour materials of table beet and the red cabbage are suitable for natural pigment production and the same time they have favourable nutrition effect too.