S07.293

Harvest Maturity Influences the Antioxidant Activity in Jalapeno Chilli

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Chillies are good sources of phytochemical compounds. The concentration of these compounds varies depending on the genotype, harvest maturity, location within the fruit, and the conditions during growth and postharvest handling. 'Jalapeno' chillies were tagged at flowering and harvested at different maturities to study the antioxidant capacity. Two assays, the ferric-reducing antioxidant power (FRAP) assay and scavenging of diphenyl-picrylhydrazyl (DPPH) radicals were used to assess the antioxidant activity while the Folin-Ciocalteu assay was used to measure total polyphenol content (TPC). Two extraction solvents were tested, water and 50% ethanol. The FRAP values significantly increased ($P<0.01$) in water extracts as the fruit matured. In contrast, harvest maturity had no influence on TPC or free radical scavenging activity in either solvent. Both FRAP and TPC values were significantly lower ($P<0.01$) in ethanol extracts than in water extracts. The results showed that the antioxidant activity as measured by the FRAP assay correlated positively with the TPC in both extracts indicating that the polyphenols are the major contributors to the antioxidant activity. Overall, maturity at harvest of 'Jalapeno' chilli is an important factor for health-benefit properties with fully mature fruit (i.e. 6 weeks after flowering) having the highest antioxidant activity measured by FRAP assay.

S07.294

Vitamin C and Anthocyanine Content in Fresh and Processed Berries

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The berries contain big quantity of pigments, which mainly are flavonoids belongs to the anthocyanine group with high antioxidant capacity. The high vitamin C content has significant antioxidant activity too. Our target was to test the antioxidant capacity of fresh berries species and the popular products made from berries consumed in Hungary. We got the raw samples from CAO fruit variety-test station. The samples contained intact, healthy fruits on same ripening level. The tested fruits were elderberry, black currant, blackberry, blueberry, josta, gooseberry, raspberry, cranberry, redcurrant, white currant. After the measuring the antioxidant components of fresh fruits different products were made in the departments' practicing kitchen. We used classical home-made or small-scale methods for quality products keeping the nutrition value of fresh fruit. Our working team used traditional spectrophotometric methods to determine the antioxidant activity, vitamin C and pigment content of samples: C-vitamin: water solution, ferri-chloride, dipiridil reagent. Anthocyanine: We solved from the samples the pigment colour with sulfuric-acid-etanol mix. After direct measurement of absorbance we counted the whole quantity of flavonoids with the equivalence of the main anthocyanine component (cyanidin-3-glucoside). Antioxidant activity: classical DPPH method. The results gave us a numerical comparison of the different berries related with the nutrition value. Among the examined fruits contained the biggest antioxidant activity: elderberry, black currant and blackberry. The processed products were keeping the quality of fruit in diffrernt ratio. The data we got from the fruit products were very diverse since the fruit content and the method and time of heat treatment. It is important to consider the raw material maturity and quality as well. Highest value we measured in black currant jam processed with low sugar and short heating. To conclude, with the results we can recommend these fruits to the people who are interested in continue a healthy diet.

S07.295

Quality, Bioactive Compounds and Antioxidant Activity in Fruits of a Seedless Peach Palm Selection from Acre, Brazil

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The peach palm (*Bactris gasipaes*) is native to the Amazon region, but is widely distributed in tropical forests throughout South and Central America. The fruit is yellow or orange, contains large amounts of carotenoids and is a popular local food most often consumed in cooked form. The vast majority of peach palm trees, whether cultivated or natural, produce seedless fruits, but parthenocarpy is a relatively common phenomenon. The objective of the present study was to evaluate the quality, bioactive compounds and total antioxidant activity of a selection of seedless peach palm drupes from Acre, Brazil. The selected drupes were flown to the Laboratory of Physiology and Post-Harvest Technology (Embrapa Agroindústria Tropical, Fortaleza, Ceará) for determination of total mass (TM), pulp mass (PM), peel mass (PM), pulp yield (PY), length (L), diameter (D), color, moisture, total lipids (TL), protein, pH, total acidity (TA), soluble solids (SS), SS/TA ratio, starch, reducing sugars (RS), vitamin C (VC), total carotenoids (TC), total anthocyanins (TAC), yellow flavonoids (YF), ß-carotene, total extractable polyphenols (TEP), total antioxidant activity (TAA) by the ß-carotene/linoleic acid method, and minerals. The average weight of the fruits was 11.3 g and the pulp yield was high (75%). The most important findings include: TL=47%; protein=3.97%; starch=14.11%; SS=23.93°Brix; VC=16.5mg/100g; TC=1.37mg/100g; YF=24.78mg/100g; TA=1.41mg/100g; beta-carotene=0.35mg/100g and TEP=54.48mg/100g. TAA, expressed as percentage inhibition of oxidation (OI), was 79.81% and 64.64% for the concentrations 5.0g/L and 2.5g/L, respectively. Overall, the fruit of the peach palm presents a considerable market potential based on its quality profile and bioactive compounds, especially with regard to antioxidant activity.

S07.296

Melatonin and an Isomer Are Present in Different Monovarietal Wines

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Melatonin (N-acetyl-3-(2-aminoethyl)-5-methoxyindole) is an indoleamine synthesized from L-tryptophan metabolism via serotonin. It is considered a neurohormone, and a chronobiotic and antioxidant compound. Due to its presence in vegetable tissue, MEL has been evaluated as a food component thanks to the cited biological activity. In order to determine its contribution as a bioactive compound, it is necessary to set up and design suitable methods for its qualitative and quantitative analysis. This paper aimed to detect accurately melatonin in wine for the first time by LC-ESI-MS/MS and multiple reactions monitoring mode (MRM). Melatonin was detected in wines by comparison of its retention time and MS, MS2 and MS3 spectra with its commercial authentic marker. In addition to melatonin, LC-ESI-MS/MS, analyses revealed the occurrence of a compound with an identical fragment pattern (positive mode ESI). The major mass fragmentation ions of the other $[M+H]+$ (233) at m/z: 216, 174.1 and 159.1 was tentatively identified as a melatonin isomer (not previously described in wines). It appeared in certain monovarietal wines (Jaen Tinto, Merlot and Palomino Negro) whilst melatonin was the only compound in others (Petit Verdot and Syrah) and a third group of wines showed both of them (Cabernet Sauvignon, Prieto Picudo and Tempranillo).