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Colour and antioxidant activity of sour cherry juice influenced by different sweeteners and fortifying agents

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Cherries contain high amounts of anthocyanins, which generate a specific colour and contribute to the antioxidant activity of fruits and their products. Usually, the technological process of fruit juice fabrication involves the addition of other ingredients, especially sweeteners. Also, the fortification of beverages with essential minerals became a common procedure latest years. Researchers have reported that the occurring interactions between anthocyanins and other compounds influence the product properties: colour parameters, monomeric anthocyanin content, browning index, antioxidant activity and others. The purpose of this study is to investigate the influence of different compounds, i.e. sweeteners: sugar (white and brown), glucose, fructose, sorbose, xylitol, honey, galactose, lactose, maltose, or fortifying agents: calcium, magnesium, glycine, on the antioxidant activity, colour parameters and other characteristics of sour cherry juice. A time-dependent study was performed to appreciate the juice transformations and anthocyanins stability in time, in the presence of different compounds. The initial juice was characterized regarding the anthocyanin content, total phenolic content and individual polyphenols (HPLC), antioxidant activity (ABTS radical scavenging method). The colour changes, consequent to anthocyanins interactions with other compounds or to time-depending modifications were analysed by CIELab method. The anthocyanin degradation was appreciated also by calculating the degradation index and browning index. The determination of colour density, polymeric colour and anthocyanin colour was performed by bisulphite bleaching method. Our results revealed that the most important modifications of the chromatic parameters were induced by lactose and divalent metals (calcium and magnesium)–increase of colour intensity (chroma) and hue. Calcium decreased antioxidant activity, but enhanced colour intensity. We noticed the atypical effect of lactose, among the added carbohydrates and the inhibition of anthocyanins degradation due to glucose addition. The tested compounds induce different modifications of sour cherry juice colour parameters and slight changes of the antioxidant activity.

Biography

Antoanela Patras is an Assistant Professor at University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania. She completed her Graduation in Chemistry and PhD in the field of Biology, specialisation: Biochemistry from Al I Cuza University of Iasi. Her research interests include “functional foods and bioactive compounds, study of plant origin pigments and their capabilities to substitute synthetic food pigments, phenolic compounds from vegetables, fruits and aromatic plants, antiradical and antioxidant activities, effects of salinity and heavy metals on plants, study of sprouts and micro-greens”. She has more than 100 publications (books, research articles, congress presentations) and is involved in research projects as Researcher, Coordinator or Director. She is Reviewer and Member of Editorial Boards in peer-reviewed journals.

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