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Synthetic dye’s substitution with chokeberry extract in jelly candies

Abstract

Matching the general trend of replacing synthetic additives with healthier natural products, the present research studies the effects of different concentrations of chokeberry extract which substitute carmoisine dye in jelly candies. Also, the colour

and antioxidant properties of the aforementioned extract and their changes at various pH and in presence of different mineral salts from foods are analysed. The phenolic content of the extract was determined using HPLC and spectrophotometric methods. A high concentration of polyphenols was found in the chokeberry extract, of which around 97% were flavonoids. Catechin, epicatechin, ferulic acid and its methyl esther, protocatechuic, gallic and *para*-hydroxybenzoic acids were the major phenolics identified in the extract. The total antioxidant activity decreased in acidic media, while close-to-neutral and alkaline pH values did not exhibit any effect on this parameter. Furthermore, the green/red colour parameter, the chroma and the hue angle were enhanced in the most acidic media (pH 2.3 and 3.5). From the studied salts, CaCl2 and KNO3 had the most significant effects on colour. The chokeberry extract proved to be suitable as replacement of carmoisine dye in jelly candies, as the physicochemical and microbiological properties comply with the regulated requirements. More than that, the extract improved the antioxidant and sensory properties of jellies in all studied concentrations and the best total sensory score was obtained for 1.5% extract. After 5 and 50 days of storage, the microbiological properties were improved in candies prepared

with aronia extracts compared to carmoisine, as the total viable count registered important diminutions.