

THE USE OF DRIED ACEROLA AS A SUBSTITUTE FOR ASCORBIC ACID IN CURED MEATS

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Abstract

The use of antioxidants in cured meats allows to extend the shelf-life and inhibit colour changes of the product. Gallates, butylhydroxytoluene, butylhydroxyanisole, ascorbic acid and its derivatives are most often used. The main function of ascorbates in meat processing is to support the colour-forming processes that take place during raw material curing, to reduce the oxidation of fat and the formation of undesirable compounds decreasing the taste of the product. There are attempts to use natural vitamin C. One of the richest sources of vitamin C is acerola, which in fruits, can contain from 1,000 - 4,500 mg of vitamin C in 100 g of fresh mass. Apart from containing an exorbitant amount of ascorbic acid the fruit also contains several phytonutrients like carotenoids, phenolics, flavonoids, and anthocyanins. The aim of the study was to analyze the effect of acerola dried-fruit (dried acerola powder, product number 075502, AVO-WERKE GmbH) on the durability and quality of sausage and the possibility of using this ingredient as a substitute for ascorbic acid in meat processing.

Four types of sausages were produced: I control - without antioxidants, II - sausage with 0.010% sodium isoascorbate (E316), III - sausage with 0.025% dried acerola powder, IV - sausage with 0.05% dried acerola powder. The sausages were minced and samples obtained were subjected to following chemical analyses: water content according to the standard PN-ISO 1442:2000, fat content according to the standard PN-ISO 1444:2000, protein content by Kjeldahl method (PN-75/A-04018), total ash content according to the standard PN-ISO 936:2000, total carbohydrates content was calculated. Color measurements were carried out using a Minolta CM-600d spectrophotometer. Texture profile analysis (TPA) of sausages was performed with TAXT2 Stable Microsystem texturometer. There was also performed sensory analysis and microbiological analysis of sausages.

The analysed sausages did not differ in terms of protein, fat or ash content. Only the carbohydrate content in the control sausage was lower compared to the sausages with the addition of sodium isoascorbate or dried acerola. The addition of acerola caused the deterioration of colour in the assessed sausages. The acerola sausages demonstrated lower flavour intensity, and the sausage with the addition of 0.050% acerola dried fruit was characterised by higher flavour intensity compared to other sausages. Those with the addition of dried acerola were characterised by greater cutting force and higher chewiness compared to other sausages. On the 30th day of refrigerated storage, all sausages exceeded the limit of yeast permitted by the standard for sausages, and in the control sausage, the limit of total microorganisms was surpassed.

It seems justified to conduct research with the use of acerola extracts and additives supporting the action of vitamin C, for example, with the addition of vitamin E.

Key words: *Acerola, Ascorbic acid, Antioxidant, Cured meat products.*