

INCREASE THE COLOR STABILITY OF POMEGRANATE JUICE WITH COLOR STABILIZERS

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Abstract

For most methods of obtaining and storing colored fruit juices, the priority is to ensure the stability of anthocyanins. For this purpose, the artificial introduction of various additives into pomegranate juices, both individually and in a mixed format, was studied. The functions of the additives were to slow down undesirable color changes as a result of the antioxidant activity shown by the additives, antiseptic action (sodium sulfite, sorbic acid, sodium benzoate), inhibition of enzymes (citric acid), or increase or decrease in the viscosity properties of juices (glucose, sucrose, distilled water).

After that, the above-mentioned additives were added to the juices in the amounts of 3 g/100 g of juice (pomegranate peel extract, beet juice), 2.5 g/100 g of juice (glucose, sucrose, distilled water), 0.25 g/100 g of juice (citric acid), and 0.01 g/100 g of juice (all others). Their effectiveness was judged on the basis of measuring the optical density of the colored extracts of the studied samples of the same juice with various additives after they were kept for 24 hours at a temperature of + 18 °C and after cold storage for 4 and 10 days at 0 - +1 °C. Taking into account the greatest influence on the preservation of the color intensity of the juice in the initial state, 3 additives were selected: "glucose" - 2.5 g/100 g of juice; "glucose and citric acid" - 2.5 g and 0.25 g/100 g of juice and "glucose, citric acid and sorbic acid" - 2.5 g, 0.25 g and 0.01 g/100 g of juice. The selected additives were subjected to further tests, during which they were introduced into freshly squeezed filtered juices, which then underwent several processing stages (clarification, deaeration, etc.), including pasteurization.

It was found that among these three pre-selected additives, the highest percentage of anthocyanin preservation is provided by the addition of "glucose + citric acid" 2.5 g and 0.25 g/100 g of juice. In pasteurized juices with this additive, after 6 months of storage at 18 °C, the percentage of anthocyanins was 65.6 (38.6 % in juices without this additive), and after 9 months of storage at 0 - +3 °C the percentage of anthocyanins was 65.6 (50.2 and 58.7% in juices without this additive prepared in two different ways).

Thus, this additive can be used as an environmentally friendly color stabilizer of pomegranate juices.

Key words: Juicing, Settling in the air, Pasteurization, Storage, preservation of anthocyanins, Color stabilizers.