

## **INFLUENCE OF SALICYLIC ACID SOLUTION OF RESPIRATION RATE AND THE CONTENT OF ENZYMES IN SOUR CHERRIES FRUIT DURING STORAGE**

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Thanks to the balanced chemical composition of the fruit, cherries play an important role in human nutrition. But they have a short term of consumption, due to seasonal production. Therefore, the problem of extending their consumption period becomes relevant. For the solution of which today is the search for new technologies of fruit storage.

Salicylic acid and its derivatives play an important role in the course of physiological processes. After harvesting with salicylates, it reduces the intensity of breathing, improves the appearance and consistency of the fruits. This increases the activity of antioxidant enzymes: catalase, peroxidase, compared with fresh fruit.

Treatment with salicylic acid, reduces the production of ethylene, the intensity of respiration, affects the activity of enzymes: induces amylase, peroxidase.

The purpose of the research was to determine the effect of pre-treatment with salicylic acid solution on the change in the intensity of breathing and the enzymatic activity of the cherry fruit. To achieve this goal, the following tasks were set: to determine the effect of pre-treatment with salicylic acid solution to change the intensity of breathing of cherry fruit during storage; to determine the enzymatic activity of catalase in cherry fruit.

The research was carried out at the Department of technology of storage and processing of fruits and vegetables. The fruits of the cherry varieties of Shpanka and the Lotovka 2017–2018 harvest of the day before harvesting were sprayed with aqueous solution of 50 mg/l or 100 mg/l of salicylic acid. Dried by natural way. After 24 hours, the fruits were taken from trees typical of color and shape and placed in boxes of 5 to 5kg each. For control, raw fruits of cherries were taken.

The fruits were stored in the refrigerating chamber of the technology of storage and processing of fruits and vegetables at a temperature of  $5\pm 0.5$  °C and a relative humidity of  $95\pm 1\%$ .

During storage, the intensity of respiration of the cherry fruit and the activity of the catalase enzyme were determined. The repetition of the experiment is threefold.

According to research results, the intensity of breathing of cherry fruit depended on the variety and type of processing before storing cherry fruit.

Spraying cherry fruit with a solution of salicylic acid has allowed prolonging the storage time of fruits up to 21 days. The intensity of breath at the beginning of storage for the fruit of the cherry varieties of Shpanka and Lotovka was 18 and 13 ml CO<sub>2</sub>/kg\*h.

During five days of storage of cherry fruit in the control variant, the intensity of breathing slightly increased by 6 and 8%. Whereas in the experimental samples, the intensity of the breath of the cherry varieties of Shpanka and Lotovka, treated with 50 and 100 mg/l solution of salicylic acid, was lower by 6–11% and 8–15%, respectively, compared with the control variant.

At ten days, the intensity of respiration in the control version was at the level of the initial value in experimental variants did not undergo significant changes. On the fifteenth day of storage in the control version, it decreased by 6 and 8%.

In the prototype samples, on the twenty-first day, there was a further reduction in the respiration rate for the fruit of the cherry varieties of Shpanka and Lotovka, treated with 50 and 100 mg/l salicylic acid solution by 28–33% and 38–46%.

Since sugars, acids and other components are involved in the process of breathing, and enzymes are biological catalysts that are involved in breathing, we have determined their content during storage. As the results of the research showed, the activity of catalase depended on the characteristics of the variety and the method of processing before storing cherry fruit. The content of catalase for the fruit of the cherry varieties of Shpanka and Lotovka was 1,5 and 1 mol/min, respectively.

During storage, the catalase activity changed, in control, it increased by 10 and 24 days, compared with the initial content, by 23 and 33%. For a hundredth of Shpanka and aircraft in experimental variants treated with 50 and 100 mg/l solution of salicylic acid, it was increased by 40–43% and 52–63%, respectively, as compared to the control variant.

For the fifteenth day of storage in control for the fruit of the cherry varieties of Shpanka and the Lotovka, the activity of catalase increased by 9 and 11%. In all experimental variants, it decreased somewhat at the end of storage, but remained higher compared to control by 14–21% and 24–32%. In addition, it remained the highest for the fruit of the cherry varieties of Shpanka and Lotovk, treated with 100 mg/l of salicylic acid at 21 and 32%.

