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**PLANTA+**

**STUDY OF DIFFERENT FORMS OF TERPENOIDS  
IN STRAWBERRY JUICES**

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**Introduction.** The pleasant aroma of strawberry fruits is due to the presence of volatile aromatic substances. By chemical nature, aromatic substances are terpenoids, higher alcohols, monocarboxylic acids, esters, aldehydes and ketones, these

compounds can quickly oxidize, polymerize and lose their properties. The content and composition of aromatic compounds significantly depends on the variety, growing conditions, degree of ripeness and storage conditions. Among the many aromatic components there are those that are specific to a certain species or variety of fruit. It is known that esters, terpenoids and aldehydes play a predominant role in the formation of the specific aroma of fruits and processed products, while higher alcohols and volatile acids play a secondary role. From 20 to 40 terpenoids are synthesized in plants, among which only 1-2 are in significant quantities, besides, they are valuable from the point of view of nutrition physiology, stimulate appetite, stimulate the secretion of digestive glands, have antiseptic, antitumor and antispasmodic properties. According to a number of sources, the primary role in the formation of the aroma of fruits and processed products belongs to terpene alcohols, which are found in fruits in a free and bound state. Currently, there is data that the intensity of the aroma depends on the concentration of complex esters. In berry juices, aromatic substances undergo significant degradation during grinding, sulfitation, pressing, fermentation, and storage, while qualitative changes of complex esters to organic acids and higher alcohols occur, which cause the formation of aldehydes with an intense aroma, and a decrease in the content of free and bound terpene compounds.

The aim of our study was to identify varietal characteristics of the accumulation of different forms of terpene alcohols in strawberry juices, their effect on aroma and changes during storage.

**Materials and methods.** Experiments were carried out at the department of technology of storage, processing and standardization of plant products named after B.V. Lesyka of the NULES and in the Institute of Horticulture of the NASU. Strawberry varieties Yasna, Tenora, Koralova 100, Prysvyata, Red Gauntlet, Chamomile festival, Rusanivka were grown in research farms of IH. Strawberry fruits were analyzed at the stage of full ripeness. The resulting fresh juice was filtered and distilled to 16% vol. alcohol. The obtained juices were studied according to biochemical indicators and organoleptically. The organoleptic evaluation of natural juices was carried out on an eight-point scale. The chemical composition of alcoholized juices was determined according to methods adopted in winemaking.

**Results and their discussion.** The juices of the studied strawberry varieties differed in the content of both free and bound terpene alcohols. The concentration of bound terpene alcohols in strawberry fruits is lower compared to the content of free ones - by 2.0-2.1 times and varies depending on the variety from 1.1 mg/dm<sup>3</sup> (Rusanivka) to 1.4 mg/dm<sup>3</sup> (Koralova 100). At the same time, juices from the Yasna, Koralova 100, and Prysvyata varieties were distinguished by the highest content of free terpene alcohols (from 2.5-2.6 mg/dm<sup>3</sup>), while juices from the fruits of the Rusanivka variety had a low concentration (2.1 mg /dm<sup>3</sup>).

Among the samples of strawberry juices, the highest organoleptic indicators were the samples prepared from the varieties Yasna, Prisyvata, Red Gauntlet and Koralova 100 (7.95-7.9 points), the lowest tasting score was for the varieties Yasna and Rusanivka - 7.76 and 7.71 points respectively. In most cases, a higher concentration of free terpene alcohols was recorded in juices that received a high

tasting rating: in apple juices, bound terpene alcohols averaged 10.8%; in strawberries by 13.6%, respectively (Fig. 1). To establish the relationship between the organoleptic parameters of strawberry juices and the concentration of free and bound terpene alcohols, a correlation analysis was conducted, which showed that there is a close relationship between these parameters ( $r_{\text{free}} = 0.90 \pm 0.21$  and  $r_{\text{bound}} = 0.69 \pm 0.08$ ).

Among the studied strawberry varieties, it is possible to single out the varieties that are most suitable for the production of high-quality juices and wines with high organoleptic indicators, these are juices from strawberry fruits of the following varieties: Prysvyata, Red Gauntlet, Koralova 100.

The obtained strawberry juices are stored for a certain time before use, during storage, a decrease in the intensity of the aroma was noted, which is associated with the oxidation of free terpene alcohols, which are characterized by a less intense aroma, therefore it is advisable to analyze the changes in free and bound terpene alcohols during storage.

During the storage of strawberry spirits, the concentration of free terpene alcohols decreases by 20.5%, and the concentration of bound terpene alcohols decreases by 51.6% after 7 months of storage. This is due to the transition of bound forms of terpene alcohols into free ones, which in turn are oxidized by dissolved oxygen. The decrease in the concentration of terpene alcohols, both free and bound, takes place regardless of the strawberry variety. A higher concentration of free terpene alcohols by 6.7-10.2% is observed in juices that were distinguished by a higher amount of free and bound terpene alcohols before storage.

**Conclusions.** As a result of the conducted research, it was established that free terpene alcohols play an important role in the formation of the aroma of strawberry fruits and their juices, while bound terpene alcohols play a smaller role. To obtain high-quality blending components for the production of various processing products for storage, it is advisable to use juices with a high concentration of both free and bound terpene alcohols. Alcoholic juices prepared from strawberry varieties: Prysvyata, Red Gauntlet, Koralova 100 were of the highest quality, so it is advisable to use them for the production of natural, high-quality processing products.

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