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THE IMPACT OF DRYING METHODS OF VINE VARIETY BUNCHES ON PRODUCTION OF FINISHED PRODUCTS AND THEIR QUALITY

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ВЛИЯНИЕ МЕТОДОВ СУШКИ НА КАЧЕСТВО ПРОДУКЦИИ ИЗ ИЗЮМНЫХ СОРТОВ ВИНОГРАДА

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Abstract. This article conveys the results of investigations conducted on the study of the impact of drying methods of vine variety bunches on finished product and quality. For carrying out experiments Katta Kurgan, Kara Janjal, Sultani, Khusayni Muscat vine varieties bunches were used. As drying methods, we applied sun–dry and film–dry and artificial drying methods. It was noted that abundant finished goods of best quality were observed in the variants of black film–dry and artificial–dry. The highest evaluation for degustation of finished product was in bunches of Sultani variety in black film–dry variant.

Аннотация. В этой статье представлены результаты исследований, проведенных по изучению влияния методов сушки на качество готовой продукции из различных сортов винограда. В качестве сырья использовались виноградные грозди таких сортов винограда как Катта Курган, Кара Джанжал, Султани, Хусаини Мускат. В качестве методов сушки использовались: сушка на солнце, сушка под пленкой и искусственная сушка. Высокие производительность и качество готового продукта зарегистрированы в вариантах сушки под черной пленкой и искусственной сушке. Наивысшая оценка при дегустации готовой продукции получена для винограда сорта Султани при сушке под черной пленкой.

Keywords: variety, grape, vine head, bunch of grapes, raisins, drying, sun-dry, staple, film, product, colour, taste.

Ключевые слова: сорт, виноград, виноградная лоза, гроздь винограда, изюм, сушка, сырье, пленка, продукция, цвет, вкус.

Introduction

The grape is considered one of the most cultivated and favorite fruits in Uzbekistan. Therefore, we may enjoy its taste the whole year: in seasonal fresh form, in raisins and dried forms. In recent years the demand for dried grape product is rapidly rising not only in our republic, but also in foreign countries. It must be emphasized that climatic conditions of soil in our country, particularly, mountainsides are the best suitable areas for cultivation of grape and raisin grape varieties. And we can develop wine–growing methods on new and modern demands and implements effective techniques of grape drying which allow to improving abundant production of fresh grape and processed grape products in these areas [1, 4].

Most of local varieties of grape with full bunches have been already registered in state register for agricultural crops suggested to be cultivated in the lands of our republic, but the cultivation facilities and raisins production of these grapes in mountainous parts of the republic haven't been thoroughly investigated yet. Consequently, the deeper scientific study and analysis of different drying methods of these varieties will enable to increase raisins and dried grape production in the republic and affect to the export potential of these products as well.

Materials and methods

In our republic lots of local vine varieties with full bunches are grown. Out of these varieties Katta Kurgan, Kara Janjal, Sultani, Khusayni Muscat varieties with high sugariness have been selected to be dried in various ways. Evaluation for vine head and grape bunch of these varieties has been conducted according to the method of N. N. Prostoserdsov [3]. Drying processes have been performed on the basis of the methods suggested by the scientists Kh. Ch. Buriyev, R. M. Rizayev [2], Z. S. Iskandarov [3]. Sun–dry, staple (black and white film–dry) and artificial drying methods (SP–P artificial drier) have been implemented during the experiment.

Grape bunches were dried as the follows: whole vine heads were separated into small bunches, and damaged, rotten and mechanically damaged bunches were removed. Then the heathy bunches were kept in boiled solution of 0.4% caustic soda concentration with water within 5–7 minutes. The light–colored varieties were cured in smoke of Sulphur under film in staple method. In the control variant bunches were dried by sun–dry (drying in air under sun) method without any processing.

Results and their analysis

The results of experiment showed that the drying methods and specific peculiarities of varieties had a considerable impact on drying duration. The longest duration of drying process was observed in sun–dry method (the control variant). Comparing to the control variant artificial type drying had the shortest drying period (Figure).

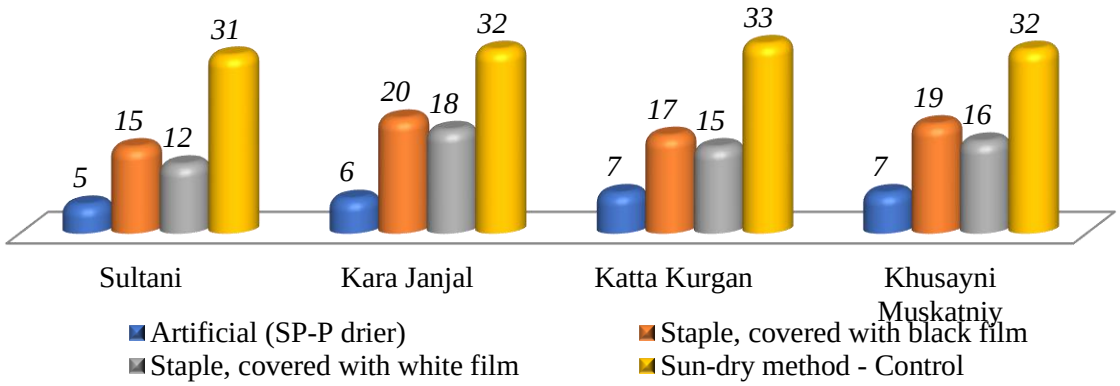

Figure. The duration of drying process is linked with drying method and vine variety.

As it is obvious in the picture, drying period duration is dependent not only on drying method, but also on the variety. Variety peculiarities has an impact on drying duration too. For example, when Sultani variety was dried with artificial drier within 5 days, other varieties required 1–2 days more for this process.

The same tendency was noted in staple drying method by covering raisin grape bunches with white and black–film. Only the exceptional variant was "sun–dry" type of drying which required

31–33 days for drying all vine varieties and after drying 1–2 days more for balancing humidity in shadowy places.

It should be emphasized that the efficacy of drying process is not evaluated by duration of producing processes. Finished products and their quality are main and desired principle in drying process.

Analysis of production and its quality basing on drying methods indicated that efficient production of finished products was observed in both type of drying vine bunches: by artificial drier and under black film staple drying. Through these types of drying production of finished products was around 24.5–25.5 and 25.5–27.1% relatively.

As was expected, the least production of finished products was observed in "sun–dry" (drying in air under the sun) method applied variant. Production of finished products made less than 21.0–22.3% in this variant of the experiment.

Quality indicators of dried finished products was dependent upon drying method. In order to evaluate the quality of product its mechanical content was analysed and graded by degustation. For this, 100 pieces of grapes were taken from each bunch dried in each variant, their average weight and size were defined by weighing and capacity of squeezing the liquid from measuring cylinder. The analysis results showed that, by the mechanical content and by degustation evaluation amoung the tested 100 pieces of raisins of all varieties from each variant, the raisin dried by applying black film covered staple method was the best with higher indications. The next raisin with these good indications was in the variant dried by artificial drier (Table).

Table.

THE IMPACT OF DRYING METHOD ON RAISIN PRODUCTION FROM BUNCH OF GRAPE AND ON QUALITY OUTCOMES

Grape variety	*Method of drying*	*Finished product, %*	*100 pcs raisin*		*Degustation grade*
			Weight, g	*size, cm^3*	
Sultani (Jaus)	staple (covered with white film)	23.8	214.4	20	9.0
	staple (covered with black film)	27.1	219.5	21	8.6
	Artificial (SP–P drier)	24.5	217.1	20	9.1
	sun–dry — control	22.6	206.6	18	8.1
Kara Janjal	staple (covered with white film)	23.0	190.5	18	8.1
	staple (covered with black film)	25.5	185.3	19	8.5
	Artificial (SP–P drier)	25.0	184.7	19	8.9
	sun–dry — control	20.8	180.5	15	8.0
Katta Kurgan	staple (covered with white film)	24.1	212.5	19	8.4
	staple (covered with black film)	25.6	217.4	20	8.8
	Artificial (SP–P drier)	24.6	215.8	19	8.7
	sun–dry — control	19.2	204.0	17	7.9
Khusayni Muscat	staple (covered with white film)	24.3	190.5	18	8.7
	staple (covered with black film)	25.8	195.2	20	9.2
	Artificial (SP–P drier)	25.5	194.9	19	9.0
	sun–dry — control	20.6	180.5	16	8.1

In accordance with table data we can state that product quality is linked with drying method and grape variety as well. As you can see high quality indicators in Sultani grape variety. Raisin production, its mechanic content and degustation grade were higher in Sultani dried grape bunches than others.

Conclusions

In order to achieve marketable raisin production of high quality Sultani grape variety with whole bunches should be chosen. It is suggested that the bunches of this type are to be dried under black film by staple method and by SP–P drier. Through implementing these drying methods the production of finished products makes more than 27% and their degustation grade can be around 9 scores. Besides them, drying Khusayni Muscat type of vine allows to high efficacy too. And this variety is differentiated with its specific Muscat taste.

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