

THE POSSIBILITIES FOR IMPROVING OF VITICULTURE IN MOLDOVA REPUBLIC, USING THE SEEDLESS GRAPES VARIETIES

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Abstract

Viticulture in Republic of Moldova is the main branch of the agricultural complex. At the present, the vineyard area constitute about 120.000 Ha, but approx. 25.000 Ha are young vineyards planted after 2000 year. According to the decision No. 1313/7.10.2002 of Moldova's government - the new vineyards area should be in 2020 about 100.000 Ha, including varieties of table grapes up to 20.000 Ha. The grape varieties, approved in the republic at the present moment, not totally sure the consumers' requirements. Therefore the proposed research is based on evidence of seedless varieties, which are to improve the general viticulture and, in particular, for farmers. The grapes for direct sale will produce a profit over 5.000 USD on 1 ha, but after storage depending on the duration of the increases even at 10-15 times. As a result, research has revealed the seedless grape varieties with good quality after treatment with gibberellin: Loose perlete, Thompson seedless.

INTRODUCTION

Viticulture in Republic of Moldova is the main branch of the agricultural complex. At the present, the vineyard area constitute about 120.000 Ha, but approx. 25.000 Ha are young vineyards planted after 2000 year. According to the decision No. 1313/7.10.2002 of Moldova's government - the new vineyards area should be in 2020 about 100.000 Ha, including varieties of table grapes up to 20.000 Ha [3]. The grape varieties, approved in the republic at the present moment, not totally sure the consumers' requirements.

Therefore the proposed research is based on evidence of seedless varieties, which are to improve the general viticulture and, in particular, for farmers. The grapes for direct sale will produce a profit over 5.000 USD on 1 ha,

300 hectares of vineyards, but because Wineries already

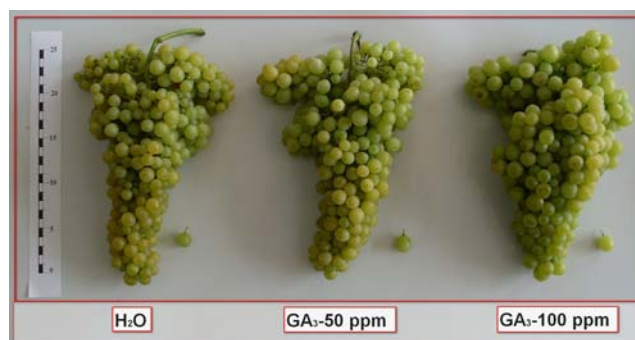


Photo 1. Effect of gibberellin (GA3) on the appearance of bunches and berries of Loose perlete variety

| Indicators | Variants | | | | | |
|---|----------------------------|-------|-------------------------|-------|--------------------------|-------|
| | Control - H ₂ O | | GA ₃ -50 ppm | | GA ₃ -100 ppm | |
| | \bar{x} | % | \bar{x} | % | \bar{x} | % |
| Weight of bunches, g | 656,0 | 100,0 | 663,8 | 101,2 | 929,6 | 141,7 |
| berries | 640,8 | - | 652,3 | - | 914,9 | - |
| The number of berries in the bunch, (normal / abnormal), pieces | 619,0 | 100,0 | 481,5 | 77,8 | 504,5 | 81,5 |
| | 98,5 | - | 15,7 | - | 0,0 | - |
| Weight of 100 berries, g | 138,4 | 100,0 | 158,1 | 114,2 | 221,6 | 160,1 |
| | ± 3,8 | - | ± 10,1 | - | ± 9,5 | - |
| Yield, kg per vine | 5,00 | 100,0 | 5,10 | 102,0 | 7,10 | 142,0 |
| content of sugars | 164 | - | 161 | - | 146 | - |
| content of acids | 9,2 | - | 9,2 | - | 10,6 | - |
| The level of profitability, % | 118 | - | 172 | - | 185 | - |

Table 1. The reaction of Loose Perlete variety for processing of cauliflowers with gibberellin (GA3) on the stage after fecundation period (2008).

but after storage depending on the duration of the increases even at 10-15 times [2,5,6]. At this moment in order to stimulate the establishment of vineyards with table grapes varieties, the State pays a subsidy of \$ 4000 per hectare [4,5]. Improving the technology of table grape varieties, as well as exploring new varieties in the climacteric condition of Moldova republic are the main objectives of our research [1].

These studies are related to the fact that the climatic conditions of Moldova Republic permit to cultivate about

established their vineyards, but the small farms are only profitable to cultivate the table grapes.

MATERIAL AND METHOD

Studies performed in 2008 at the experimental station with seedless grape varieties: Loose perlette and Thompson seedless, in The Central part of the Moldova Republic. We used the methods recommended for this type of research in viticulture. During the period of vegetation we studied the

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|---|----------------------------|-------|-------------------------|-------|--------------------------|-------|
| | Control - H ₂ O | | GA ₃ -50 ppm | | GA ₃ -100 ppm | |
| | \bar{x} | % | \bar{x} | % | \bar{x} | % |
| Weight of bunches, g | 857,2 | 100,0 | 970,1 | 113,2 | 865,6 | 101,0 |
| berries | 842,9 | - | 947,9 | - | 846,7 | - |
| The number of berries in the bunch, (normal / abnormal), pieces | 416,0 | 100,0 | 444,5 | 106,9 | 249,5 | 60,0 |
| | 111,5 | - | 78,5 | - | 61,0 | - |
| Weight of 100 berries, g | 188,2 | 100,0 | 228,7 | 121,5 | 242,1 | 128,6 |
| | $\pm 3,9$ | - | $\pm 17,2$ | - | $\pm 10,2$ | - |
| Yield, kg per vine | 6,01 | 100,0 | 6,79 | 113,0 | 6,06 | 101,0 |
| content of sugars | 180 | - | 196 | - | 182 | - |
| content of acids | 8,1 | - | 8,3 | - | 7,4 | - |
| The level of profitability, % | 115 | | 223 | | 174 | |

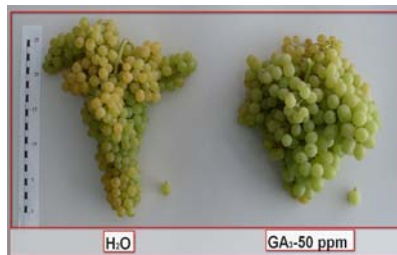
Table 2. The reaction of Thompson Seedless variety for processing of cauliflowers with gibberellin (GA₃) on the stage after fecundation period (2008).

agrobiological properties of varieties. The cauliflowers were treated with gibberellin: 50 and 100 ppm.

RESULTS AND DISCUSSIONS

The results of our researches are shown in Tables 1 and 2, as well as in photos 1 and 2.

As a result of processing cauliflowers with gibberellin



the Loose Perlette seedless grape variety adds to the weight of bunches of 656 g to 929,6 g or 141,7% (100 ppm), but the Thompson variety - of 857,2 g

to 970,1 g or 113,2 % (50 ppm).

The number of berries in the bunch of both varieties decreased. The Loose Perlette variety from 619,0 to 481,5 pieces or 77,8 % (50 ppm), and 504,5 pieces or 81,5 % (100 ppm), but the Thompson seedless - from 416 to 249,5 pieces or 60 % (100 ppm).

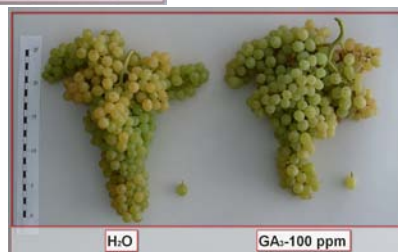


Photo 2. Effect of gibberellin (GA₃) on the appearance of bunches and berries of Thompson seedless variety

Decrease in the number of berries is accompanied with the increase of their mass. The Loose Perlette seedless variety, had risen to 114,2 % (50 ppm) and 160,1 % (100 ppm), but the Thompson seedless variety - had risen to 121,5 % (50 ppm) and 128,6 % (100 ppm).

The yield increases only on the Loose Perlette variety, but the Thompson seedless variety showed the minor changes. Also minor changes observed on indicators of quality.

The main indicator of economic efficiency is the level of profitability. This indicator amounted to the Loose Perlette variety 185 % (100 ppm) and 172 % (50 ppm), and control – 118 %, but the Thompson seedless variety – 223 % (50 ppm) and 174 % (100 ppm), and control – 115 %. The level of profitability is based on prices in the market of Moldova in 2008.

CONCLUSIONS

1. As a result of the test gibberellin on seedless varieties of grapes, it was found that the effect of the drug depends on the biological characteristics of variety and concentration of the drug solution.

2. The processing of cauliflowers of seedless variety Loose Perlette with gibberellin, during after fecundation period, occurs the increase in mass bunches of berries in bunch weight, mass, and the crest of change of the structure of clusters. The optimal concentration of the drug is GA₃-100 ppm. The yield of the vines growing on 42,0-92,3% and improves the quality of grapes, compared with control.

3. The reaction Thompson Seedless varieties clone (FPS 05) characterized by high productivity, compared with the original variety, seen in the dose of GA₃-50 ppm. Yield increases by 13,0 %, increasing size and improving their taste quality.

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