

THE CONCENTRATION OF THE TERPENE ALCOHOLS FROM THE JUICE OF BERRY OF THE INTERSPECIFIC HYBRIDS TO THE VINES (*VITIS VINIFERA* L. X *MUSCADINIA ROTUNDIFOLIA* MICHX.)

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Abstract

Comparing the concentration of the terpene alcohols from the juice of berry of the interspecific hybrids to the grape-vine *V.vinifera* L. x *M.rotundifolia* Michx. BC3 with traditional indigenous varieties of grape-vine *Vitis vinifera* L. ssp. *sativa* D.C. (*Feteasca White*, *Black Feteasca*, *Black Rara*) been found that concentrations of these constituents are limits appropriate intervals. For a category of terpene compounds such as, for example, linalool, geraniol and xotrienol, the perception threshold is lower than their concentrations in juice berries. Thus, these hybrids are easy to make out the aromas that are specific of these compounds, such as those rose, white acacia blossom, geranium leaves.

Key words: berry, gas phase chromatographic method, interspecific hybrid, terpene alcohols, vines

INTRODUCTION

Flavoring chemical compounds derived product dictates the character and quality of the wine. The perception olfactory of chemical molecules is due to their volatile properties. So to be perceived they must stand support. The aromas of wines that are perceived about smell, is due to several classes of chemical compounds: higher alcohols, esters, terpenes, lactones, aldehydes etc. The maximum concentration of odorous substances are recorded 10-15 days after peak levels of carbohydrates, when berries ripening on the stalk and synthesis of these flavorings is favored by the increased content of carbohydrates and amino acids [1; 2; 12; 13].

MATERIALS AND METHODS

As object of the study have served interspecific hybrids of vines *Vitis vinifera* L. x *Muscadinia rotundifolia* Michx. BC3 (DRX-M3-3-1; DRX-M4-502, -512, -571, -578, -580, 609, -640), as well as three classic

varieties indigenous of vine (*Feteasca Alba*, *Feteasca Neagra* and *Rara Neagra*) [1; 2; 4; 5; 9].

There were identified and quantified seven of the most important representatives of terpene alcohols: linalool, xotrienol, ϵ -terpeniol, citronellol, linalool oxide-cis, trans-linalool, geraniol.

The determination of the quantitative and qualitative terpene alcohols was carried out according to the gas phase chromatographic method [10; 11; 15; 16; 17; 18].

RESULTS AND DISCUSSIONS

The content of terpene derivatives ranges from variety to variety, as follows: 0.3 to 3.5 mg/l in flavored varieties, 0.5 mg/l discreet aromatic varieties (*Sauvignon*, *Muscadelle* etc.) and 0.2 mg/l unflavoured varieties but manifesting a certain specific (*Feteasca Alba* *Silvaner*, *Rhine Riesling*, etc.). In some varieties, terpene compounds are in the quantities which can't be dispensed or may even be absent.

By using the method with gas phase chromatography were investigated interspecific hybrids of vines BC3, on the content of terpene alcohols in the juice of berries. As a result were identified and quantified seven of the most important representatives of terpene alcohols: linalool, xotrienol, £-terpeniol, citronellol, linalool oxide-cis, trans-linalool, geraniol [13; 14].

The results obtained demonstrate that of terpene alcohols concentrations in the juice berries are much lower in comparison with their threshold of perception: £ -terpeniol,

citronellol, linalool oxide-cis, trans-linalool quantify the perception threshold is much higher than the concentrations determined.

Thus, from an organoleptic point of view, nuances can be detected as having a weak character (wild flowers, petals of rose hips, in some cases thyme).

But for one category of these of terpene compounds for example such as linalool, geraniol xotrienol and perception threshold is lower than their concentrations in juice berries.

Table 1. Terpene alcohols in the juice of berry of the vine

Terpene alcohols, µg/dm ³							
	Linalool	Hotrienol	£-terpeniol	Citronelol	Cis-linalool oxid	Trans-linalool oxid	Geraniol
Interspecific hybrids of vines <i>Vitis vinifera</i> L. x <i>Muscadinia rotundifolia</i> Michx. BC3							
DRX-M3-3-1	129	91	51	3	11	16	131
DRX-M4-502	137	79	17	5	9	19	117
DRX-M4-512	169	87	19	6	17	15	108
DRX-M4-571	109	110	26	8	14	11	98
DRX-M4-578	117	127	20	3	12	17	89
DRX-M4-580	96	77	18	2	15	15	118
DRX-M4-609	146	110	29	7	13	14	121
DRX-M4-640	115	116	28	8	12	16	120
The classical indigenous varieties of vines <i>Vitis vinifera</i> L. ssp. <i>sativa</i> DC							
Feteasca Albă	179	127	59	9	22	19	146
Feteasca Neagră	157	111	44	6	16	16	122
Rară Neagră	129	88	31	4	13	10	93
Terpenic alcohols threshold of perception, µg/dm ³							
	15	110	250	18	3,000	65	30

Source: Own determinations.

Organoleptically, for these hybrids of juice berries it is easy to determine the terpene alcohols such as specific aromas that smell aromatic with shades of rose, white acacia blossom, geranium leaves [5; 7; 8; 12].

Citronellol, been found that the threshold of perception and concentration of terpene alcohols are quite close: values of 5.25 µg/dm³ concentration in juice berries average and 18.0 µg/dm³ the threshold of perception.

Contrary to results determined for linalool showed an average concentration in the juice of berries 127.5 µg/dm³ just 15.0 µg/dm³ the threshold of perception.

Comparing the terpenes alcohols content of interspecific hybrids juice berries of the vine *Vitis vinifera* L. x *Muscadinia rotundifolia* Michx. BC3 with classic varieties native of the vine *Vitis vinifera* L. ssp. *sativa* D.C. (Feteasca Alba, Feteasca Neagra, Rara

Neagra) found that concentrations of these constituents are limits close intervals (Table 1. Fig. 1).

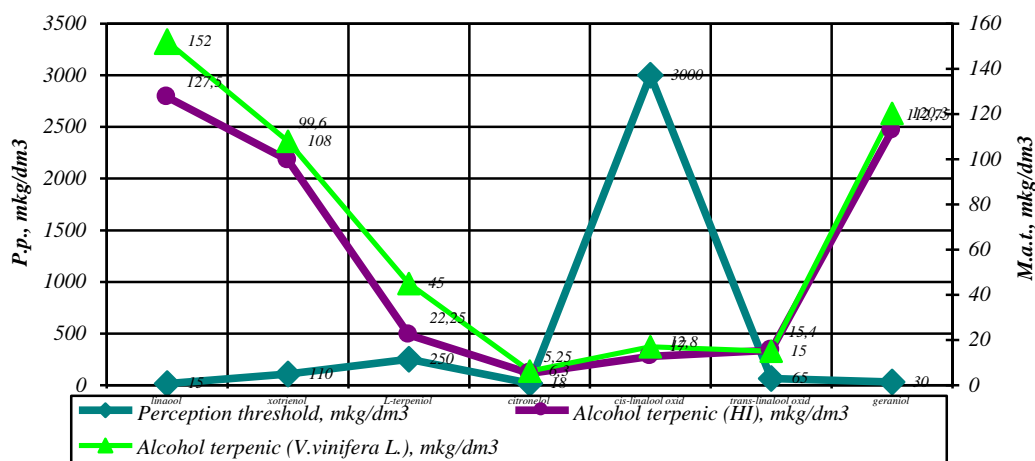


Fig. 1. The mean concentration of terpenic alcohols in the juice of berry of the interspecific hybrids of vines (*Vitis vinifera* L. x *Muscadinia rotundifolia* Michx.) BC3 in compared to the threshold of perception.

P.p. – threshold of perception of the alcohols terpenic, $\mu\text{g}/\text{dm}^3$.

M.a.t. – the mean of the alcohols terpenic in the juice of berry of the interspecific hybrids of vines, $\mu\text{g}/\text{dm}^3$.

Interspecific hybrids in these diversities F4 terpenes alcohols content are due to the particularities genetics of the genitors - participants in the creation of these varieties.

CONCLUSIONS

Comparing the terpenes alcohols content of interspecific hybrids berries juice grape-vine *V. vinifera* L. x *M. rotundifolia* Michx. BC3 with of classical indigenous varieties of grape-vine *Vitis vinifera* L. ssp. *sativa* D.C. (Feteasca Alba, Feteasca Neagra, Rara Neagra) found that concentrations of these constituents are limits appropriate intervals. For a category of terpenes compounds such as, for example, linalool, geraniol and xotrienol, the perception threshold is lower than their concentrations in juice berries. Thus, these hybrids are easy to discern specific aromas of these compounds, such as rose, white acacia blossom, geranium leaves.

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