STABILITY IN TIME OF THE ALCOHOLIC EXTRACTS OBTAINED FROM SEEDS AND SKINS OF *VITIS VINIFERA*

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Information about the stability in time of the concentrations of total poly-phenols and anthocians in the vegetal alcoholic extracts obtained from the seeds and skins of Vitis vinifera or other vegetal sources rich in these compounds is not present in the specialized literature. This aspect is very important since the vegetal alcoholic extracts represent either the raw material from which, by complex methods, they isolated pure active principles, or they are used as such in different pharmaceutical, cosmetic and food products due to the benefic effects on the human health. [3,5] Starting from these we want to study the stability in time of the total poly-phenols and anthocians from the alcoholic extracts obtained from the seeds and skins of Vitis vinifera.

The degree of stability of the concentrations of total poly-phenols, anthocians and the index of tanoid matters (ITM) was appreciated by calculation to % the values obtained at To as compared to the ones determined at given time intervals. We did not notice a specific manifestation of the stability in time depending on the grapes breed used as a raw material for the obtaining of alcoholic extracts. The experiment revealed that the total poly-phenols are stable in the first 3 months, but at 6 months the percentage values of the concentrations decrease so that at 9 months the degree of decrease of concentrations frequently surpasses 50%. All the alcoholic extracts, a significantly better stability of anthocians as compared to the stability of poly-phenols registering percentage values very high of concentrations even after 9 months from the moment of obtaining the extracts.

***Keywords**: stability, vegetal extracts, poly-phenols, anthocians, tanoid matters, Vitis vinifera.*

The poly-phenolic compounds stand out by a series of properties that influence the conditioning, separation and analysis techniques for the alcoholic extracts. The composition of the vegetal extracts is complex both by the high number of compounds and the spectral properties of molecular mass and solubility of these. [2,4]

MATERIAL AND METHOD

The extractive processes were made in glass bottles with a ground-glass stopper and a flat bottom where we introduced the vegetal materials, seeds or the grapes skins prepared according to the standardized methods by the association "International Seed Testing Association (ISTA)". The vegetal material ratio / solvent (ethylic alcohol) to obtain the alcoholic poly-phenolic or anthocianic extracts was 1/10. The alcoholic poly-phenolic and anthocianic extracts were obtained by the discontinuous method in static conditions and were kept at the temperature of 4^{o}C in brown glass containers.

At To we determined the concentration in total poly-phenols (grams equivalent gallic acid /L) by the method Singleton and Rossi – 1965 [7], anthocians (mg/L) by the method Rybereau Gayon and Sonestreet – 1965 [6] and the index of tanoid matters according to Bourzeix – 1986 [1]. Every three months we effectuated analyses to appreciate the stability of the alcoholic poly-phenolic and anthocianic extracts. To represents the first determination of the total poly-phenols, anthocians and the index of tanoid matters effectuated after the obtaining of the alcoholic vegetal extracts.

RESULTS AND DISCUSSIONS

In this paper we tried to evaluate the stability in time of the alcoholic poly-phenolic and anthocianic extracts obtained from seeds and skins of grapes belonging to the breeds Cabernet, Merlot, Băbească neagră and Fetească neagră. 8]

To appreciate the degree of stability in time we calculated and represented graphically, as compared to To, the percentage values of concentrations in total poly-phenols, anthocians and the index of tanoid matters (ITM) at intervals of 3 months, 6 months and 9 months.

In *figure 1* it is represented the stability in time for the concentrations of poly-phenols, anthocians and the index of tanoid matters in the extracts obtained from grapes seeds from the breed Cabernet. Total poly-phenols have a great stability in the first 3 months, afterwards concentration decreases abruptly so that after 9 months we registered a value of 44,3 % for the concentration in total poly-phenols as compared to the concentration to the moment To.

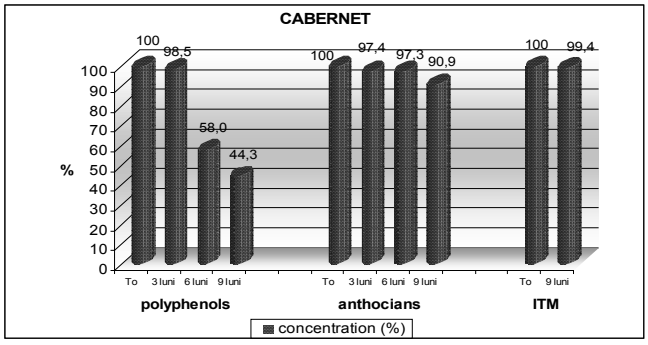

Figure 1. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes seeds from the breed Cabernet**

The concentration in anthocians decreases in 9 months by only 9% as compared to the moment To and the index of tanoid matters decreases gradually at 9 months registering a high value (99,4%) of concentration as compared to the moment To.

From *figure 2* we notice a stability in time more reduced of poly-phenols as compared to anthocians and the index of tanoid matters. Thus, total poly-phenols have the following concentrations as compared to To: 95,6% after 3 months, 59,0% at 6 months and 41,5% at 9 months.

Anthocians are much more stable in time, in the first 3 months registering a insignificant decrease of concentration of only 0,2%, after half a year a decrease of 2% as compared to the moment To. The index of tanoid matters has an important stability after 9 months its value is very close (99,7%) to the one registered at To.

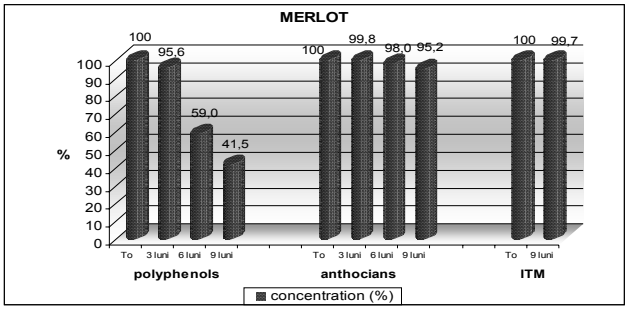

Figure 2. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes seeds from the breed Merlot**

As for the alcoholic extracts obtained from grapes seeds from the breeds Băbească neagră and Fetească neagră *(figures 3 and 4)*, comparing the concentrations determined every 3 months, ewe notice that total poly-phenols have a higher stability in the first 3 months. After 9 months, the poly-phenol concentrations are by 50% smaller as compared to To.

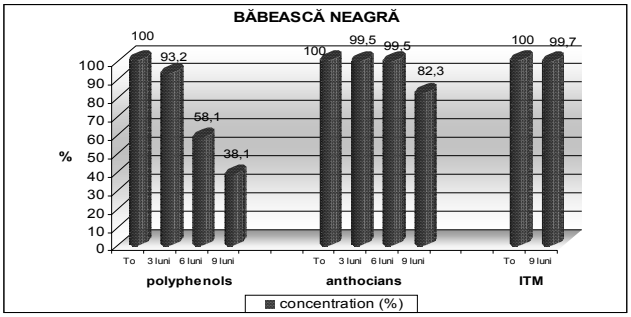

Figure 3. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes seeds from the breed Băbească neagră**

Anthocians from the poly-phenolic extracts have a significantly better stability. In the extracts from the breed Băbească neagră we determined the following percentage values of anthocians as compared to To: 99,5% after 3 months, a value that stays steady for 3 months more and 82,3% after 9 months. The

degree of decrease for the concentration of anthocians in the iodine extracts form the breed Fetească neagră is small ranging between 1,3% after 3 months and 9,9% after 9 months.

After 9 months, the value of the index of tanoid matters is 99,7% from the initial concentration (at To) for the extracts from the grapes seeds of Băbească neagră and 99,8% from the grapes Fetească neagră.

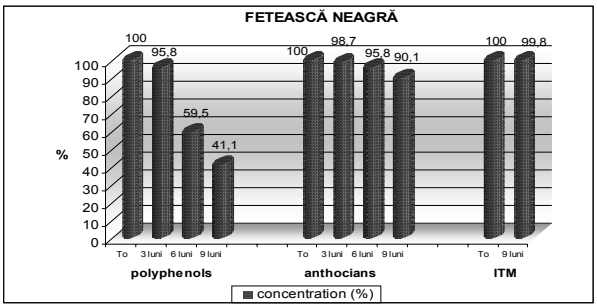

Figure 4. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes seeds from the breed Fetească neagră**

We determined the stability in time of the concentrations for total poly-phenols, anthocians, the index of tanoid matters and the alcoholic extracts obtained from the grapes skins of the breeds Cabernet, Merlot, Băbească neagră and Fetească neagră (*figures 5 - 8*).

From *figure 5* we notice that anthocians and the index of tanoid matters are stable in time as well as the extracts obtained from the seeds of Cabernet registering after 9 months a value of concentration in anthocians of 88,8 as compared to the moment To and 99,7% for the index of tanoid matters. Total poly-phenols from the vegetal extracts from the Cabernet skins have a greater stability in the first 6 months having a decrease of concentration of only 6%.

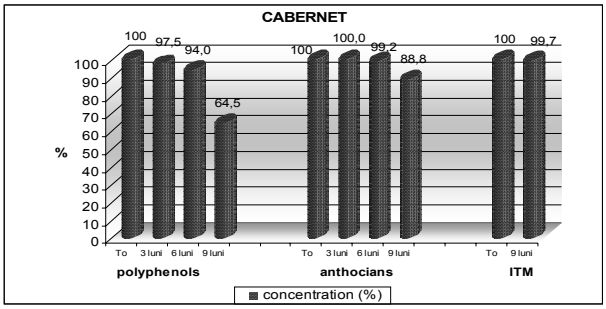

Figure 5. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes skins from the breed Cabernet**

The graphic representation of the stability in time for poly-phenols, anthocians and the index of tanoid matters in the extracts from grapes skins from the breed Merlot *(figure 6*) shows a high stability of anthocians in these extracts as compared to the stability of poly-phenols. Thus, poly-phenols have a value of concentration of 87,7 % as compared to the moment To at 6 months and 68,4% at 9

moths, and anthocians even after 9 months register a value higher than 95% as compared to To.

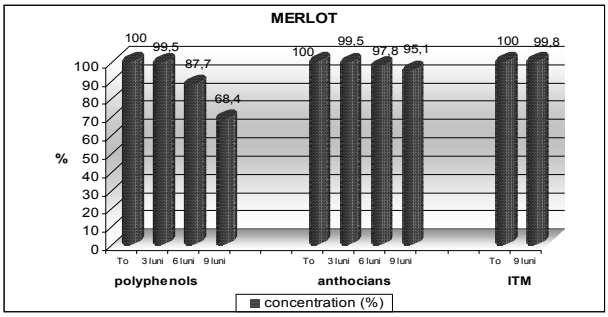

Figure 6. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes skins from the breed Merlot**

The results obtained for the extracts from skins of Băbească neagră are presented in *figure 7*. After 9 months the extracts from the skins of Băbească neagră have a concentration in anthocians of 98,1% as compared to To. The index of tanoid matters maintains at high values - 99,6% as compared to To.

The percentage of decrease for the total poly-phenol concentration is smaller as compared to the one registered for the extracts from the breeds Cabernet and Merlot. Thus, after 3 months concentration does not change as compared to To, after 6 months concentration is 88,7% and after 9 months the decrease is 28% as compared to the value registered at the initial moment To.

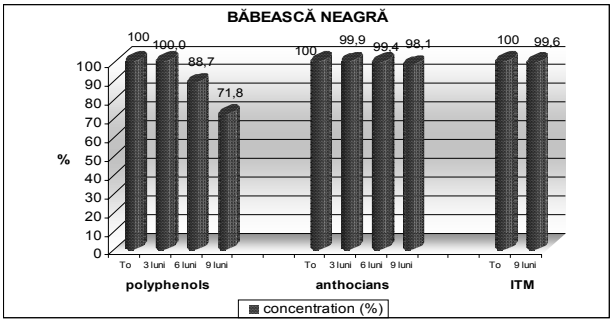

Figure 7. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes skins from the breed Băbească negră**

In *figure no. 8* they present the characteristics of the extracts obtained from the grapes skins form the breed Fetească neagră. The values obtained for anthocians prove the stability of anthocians in the extracts from the skins of Fetească neagră.

After a period of 9 months, the index of tanoid matters registers a decrease percentage of only 1% as compared to the moment To.

Total poly-phenols from these extracts are the most stable in time as compared to the anthocianic extracts from the breeds Cabernet, Merlot and Băbească neagră and the poly-phenolic extracts obtained from the grapes seeds from the breeds Cabernet, Merlot, Băbească neagră and Fetească neagră.

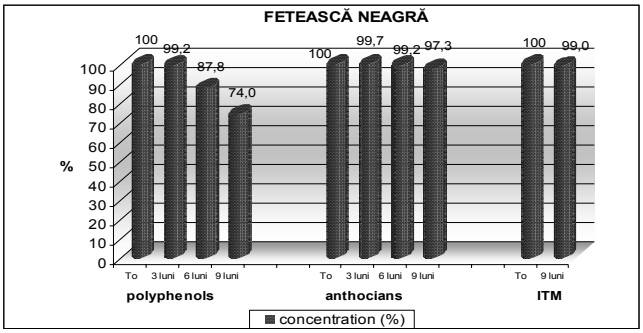

Figure 8. **Stability in time for the concentrations of poly-phenols, anthocians and ITM in the extracts obtained from grapes skins from the breed Fetească neagră**

CONCLUSIONS

1. Total poly-phenols have a high stability in time in the first 3 months both for the extracts obtained from the grapes seeds and skins but after 6 months their stability starts decreasing.

2. Total poly-phenols in the extracts obtained from the grapes skins are more stable than those from grapes seeds, the degree of concentration decrease being on average 36% for the former case and 58% for the latter case.

3. In the vegetal extracts both from seeds and skins anthocians are stable for 9 months registering high values of concentrations. The index of tanoid matters has values over 99 % as compared to the moment To, even after 9 months, so the tanoid matters are stable in time.

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