



SCOPE

An important topic for modern oenology is the presence of contaminating metals in wines, but especially heavy metals. Thus, today there is a great interest in identifying the various sources that lead to the presence of heavy metals in wine, also aiming to reduce the content of these metals by using the various treatments allowed by the legislation in force.

METHODOLOGY

Determination of heavy metals in wine samples, using absorption spectrometry and reporting the results obtained to the values allowed by the law in force.

RESULTS AND DISCUSSION

The presence of metallic contaminants in wines can be due to several endogenous and exogenous factors.

Cadmium. The endogenous and exogenous presence of cadmium in wines is due to materials and atmospheric pollution, toxicological aspects and the natural reduction of contents during fermentation.

Lead. The endogenous presence is related to the characteristics of the soil. The exogenous presence is due to the use of lead-tin capsules, other materials used in the technological route, the use of fungicides and certain oenological practices, distillation in the case of liqueur wines, atmospheric pollution and natural conditions. In order to highlight whether the concentration of macroelements, microelements and heavy metals in the must influences the concentration of those in the wine, simple correlations were performed, thus obtaining the values of the Pearson correlation coefficients (table 1) between the average values of the studied metals in the wine must and the average values of the metals from the wine. It can be seen that the values of the Pearson correlation coefficients are positive, both in the case of macroelements, microelements and heavy metals.

In other words, the concentration of macro-, micro-elements and heavy metals in wine is directly influenced by the concentration of macro-, micro-elements and heavy metals in the must, the most important aspect of these metals is the concentration or quantity in which they are found in the wine must.

Table 1 Person correlation between the concentration of total metals in must and wine



	Fe	Cu	Zn	Pb	Cd	Ni
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Fe (mg/kg)	1.000					
Cu (mg/kg)	0.920	1.000				
Zn (mg/kg)	0.815	0.828	1.000			
Pb (mg/kg)	0.715	0.751	0.637	1.000		
Cd (mg/kg)	0.711	0.764	0.829	0.794	1.000	
Ni (mg/kg)	0.815	0.905	0.855	0.544	0.725	1.000



CONCLUSIONS

The accumulation of metals was largely influenced by the area of cultivation but also by the variety. Compared to must, wine contains fairly low concentrations of metals, especially trace elements and heavy metals. A possible explanation for this reduction in the concentration of metals would be the fermentation process of the must that directly influences the appearance of some hardly soluble compounds and which are removed from the wine by the wine yeast.