

# HOW OIV MAY DEFEND THE WINE ONLY WITH THE DEFENSE OF THE SCIENTIFIC TRUTH

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## SUMMARY

In October 2008, the article *Heavy metal ions in wines: meta-analysis of target hazard quotients reveal health risks* (Naughton, Petróczi, 2008), in continuation of the article *Determination of metal ion content of beverages and estimation of target hazards quotients: a comparative study* (Haghe *et al.*, 2008), was published in the *Chemistry Central Journal*. The aim of this study was to determine target hazard quotients (THQ) from literature reports giving empirical levels of metal ions in table wines. Contributions to the THQ value were calculated for seven metal ions along with total values for each wine. Incredibly, the authors have concluded about the values of THQ on wines from different countries and their influence on consumers' health.

These results, published in a scientific journal, made the front pages of newspapers in various European countries. The negative impact of this article could have been more intense if one of us had not clarified the journalist who took the trouble to contact us and seek scientific advice a few hours before the *on-line* publication of the article.

From a scientific point of view, we can not admit conclusions such as those presented in the article, with a sampling which is also *sui generis* and without any scientific rigor as the one used. It also seems unacceptable that this article ignores all bibliography published during the last decades in scientific journals around the world, validated by scientific criteria universally accepted, and concerning the metals in wines (the evolution of its contents, their origin, the internationally accepted limits, the influence of the use of some oenological practices).

In this communication, a strong criticism is made of this method of producing “science” and especially of the disclosure of the scientific results. We are therefore concerned above all in drawing attention to the role of OIV towards situations like the one that has been described, seeking to defend the wine, its consumers, its producers and the scientific truth.

## RESUME

À la fin d'Octobre 2008, il est issu l'article *Heavy metal ions in wines: meta-analysis of target hazard quotients reveal health risks* (Naughton, Petróczi, 2008), en continuation de l'article *Determination of metal ion content of beverages and estimation of target hazards quotients: a comparative study* (Haghe *et al.*, 2008), publié dans le *Chemistry Central Journal*. L'objectif de ce travail a été la «détermination» des indices THQ (*target hazard quotients*), concernant les niveaux de quelques ions métalliques présents dans les vins de table, avec des données retirées de la littérature. Avec ces données, les auteurs ont évalué la contribution de sept métaux pour les valeurs de THQ pour les différents vins et, incroyablement, ils ont même conclu sur les valeurs de THQ des vins des différents pays et leur influence sur la santé des consommateurs.

Invraisemblablement aussi, ces résultats, publiés dans une revue scientifique, ont fait la une des journaux de divers pays européens. L'impact négatif de cet article aurait pu être plus intense si l'un de nous n'avait pas éclairé le journaliste qui a eu la prudence de nous demander un avis scientifique quelques heures avant la publication *on-line* de l'article.

Du point de vue scientifique, on ne peut pas admettre qu'on tire des conclusions comme celles présentées dans l'article, avec un échantillonnage aussi *sui generis* et sans aucune rigueur scientifique, comme celle qui a été employée; il nous paraît aussi inadmissible que cet article ignore toute la bibliographie, publiée pendant les dernières dizaines d'années dans des revues scientifiques du monde entier, validée par des critères scientifiques universellement acceptés, et concernant les métaux dans les vins (l'évolution de ses teneurs, leur origine, les limites internationalement acceptées, l'influence de l'utilisation de quelques pratiques œnologiques).

Dans cette communication, une forte critique est faite sur cette forme de produire de la « Science » et surtout de faire la divulgation des résultats dit scientifiques. Et, par conséquent, on est intéressé, surtout d'attirer l'attention sur le rôle que l'OIV devra avoir face des situations comme celle qui a été pour décrite, cherchant à défendre le vin, ses consommateurs, ses producteurs et la vérité scientifique.

### **A scientific article published**

In October 2008, the article *Heavy metal ions in wines: meta-analysis of target hazard quotients reveal health risks* (Naughton, Petróczi, 2008), in continuation of the article *Determination of metal ion content of beverages and estimation of target hazards quotients: a comparative study* (Haghe *et al.*, 2008), was published in the *Chemistry Central Journal*. Their Abstract refers, as background, that “in the case of heavy metals ions, the focus is often on exposure to potentially toxic levels such as of ions lead and mercury”. The aim of this study referred by their authors, “is to determine target hazard quotients (THQ) from literature reports giving empirical levels of metal ions in table wines using the reference upper safe limit”. Still, according to the authors, “the contributions to the THQ value were calculated for seven metal ions along with total values for each wine”.

According to the results presented, it is stated that “apart from the wines selected from Italy, Brazil and Argentina, all other wines exhibited THQ values significantly greater than those indicating levels of risk”, “the levels of vanadium, copper and manganese had the highest impact on THQ measures”, “typical potential maximum THQ values ranged from 50 to 200 with Hungarian and Slovakian wines reaching 300” and “THQ values for a sample of red and white wines were high for both having values ranging from 30 to 80 for females based on a 250 mL glass per day”.

The conclusions of the article are the following: “Relatively high levels of potentially hazardous metal ions are frequently found in both red and white wines originating from various countries. For consumption of 250 mL daily, these wines give very high THQ values and may present detrimental health concerns through a lifetime based upon the metal content alone. Further research is warranted in this area in the interests of public health to determine the mechanisms of metal inclusion/retention during wine production. These studies should include the influence of grape variety, soil type, geographical region, insecticides, containment vessels and seasonal variations. In

addition, levels of metal ions should appear on wine labels along with the introduction of further steps to remove key hazardous metal ions during wine production”.

### **A critical opinion on this article**

Incredibly, the authors have concluded about the values of THQ on wines from different countries and their influence on consumers' health, based only on data from scientific bibliography.

From a scientific point of view, we can not admit conclusions as those presented in the article, with a sampling so *sui generis* and without any scientific rigor as the one used. It also seems unacceptable that this article ignores all bibliography published during the last decades in scientific journals around the world, validated by scientific criteria universally accepted, and concerning the metals in wines (the evolution of its contents, their origin, the internationally accepted limits, the influence of the use of some oenological practices).

For example, the base of data used considers as a representation of the Portuguese wines two wines referred to in a work published by some of us (Catarino *et al*, 2006). The aim of this work was only to develop and validate an accurate method by ICP-MS focalized to the measurement of contaminant elements in wines, in special those with legal importance, and in addition the evaluating the suitability of ICP-MS semi-quantitative methodology in order to reduce the time and cost of analysis. Twenty-six contaminant elements of wine (Li, Be, Al, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Ag, Cd, In, Cs, Ba, Hg, Tl, Pb, Bi and U) were measured using quantitative and semi-quantitative calibration approaches, in diluted white and red wines. For this purpose, as explained in this article, the samples used are only two wines (a white wine and a red wine), used by us (Catarino *et al.*, 2006). It would be therefore ridiculous to consider like base of data of Portuguese wines!

On the advice given about the development of studies aiming at the knowledge of the metal occurrence in wines, the statements produced strongly reveal a deep ignorance of many of the studies that the scientific international community has been carrying out on this matter.

### **The impacts in the social communication**

These results, published in a scientific journal, made the front pages of newspapers in various European countries. There are some examples:

*Cientistas alertam para níveis potencialmente tóxicos de metais nos vinhos comerciais (Scientists alert for potentially toxic levels from metal in the commercial wines), in PUBLICO (Portugal, 2008-10-30).*

*Researchers question health benefits after metal found in wines. Hungarian and Slovakian had highest levels in study. Impurities linked to risk of Parkinson's and diabetes. Tests on red and white wines from 15 countries showed many contained "hazardous" levels of metal ions, in Daily Mail (UK, 2008-10-30).*

*The heavy metal "health risk" in your daily glass of wine, in Daily Telegraph (UK, 2008-10-30).*

*Metal in wine can risk health, in Guardian Today (UK, 2008-10-30).*

Curiously, all these references in newspapers are in the same date of the publication of the scientific article on-line (2008-10-30)!

With effect, we were contacted, on the previous day (2008-10-29), by a Portuguese newspaper (*Público*), asking for an opinion on the article that would be going to be published to the 24 h of this day. In Portugal, the negative impact of this article could have been more intense if one of us had not clarified the journalist who took the trouble to contact us and seek care scientific advice a few hours before the *on-line* publication of the article, explaining several aspects (the role of *OIV* and *Codex Alimentarius*, international organizations of reference; the limits adopted internationally for the metal presence in wines; the need for a sampling scientifically based in order that conclusions can be drawn like the ones presented; the minimizing of metal elements contents in wines, with limits today established well below the limits of any toxic levels, has been equally very well accompanied by the productive sector, with adaptation of technologies for the effect).

### **Conclusions**

In this communication, a strong criticism is made of this method of producing “science” and especially of the disclosure of the scientific results. We are therefore concerned above all in drawing attention to the role of *OIV* towards situations like the one described, seeking to defend the wine, its consumers, its producers and the scientific truth.

### **BIBLIOGRAPHY**

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