

# Metal hazard from table wines

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Potentially hazardous levels of metal ions are present in many commercially available wines. An analysis of reported levels of metals in wines from sixteen different countries, published in the open access *Chemistry Central Journal*, found that only those from Argentina, Brazil and Italy did not pose a potential health risk owing to metals.

Professor Declan Naughton and Doctor Andrea Petróczi from Kingston University, South West London, carried out the study, using a formula developed by the United States' Environmental Protection Agency for the estimation of potential health risks associated with long-term exposure to environmental pollutants. This Target Hazard Quotient (THQ) gives an indication of risk based on published upper safe limits for various chemicals. A THQ below 1.0 is considered to be non-hazardous.

According to Professor Naughton, "The THQ is a risk assessment designed to avoid underestimation. It therefore incorporates several assumptions, such as maximum absorption of ingested metal ions and lifetime exposures. In contrast, bolus dosing (e.g. binge drinking) and cross effects with other potential toxins (e.g. alcohol) are not accounted for, nor are the effects on the elderly, the young or those with a clinical condition".

The authors found that THQ values for most wines were well above the value of 1.0 and thus are of concern. Typical potential maximum THQ values ranged from 50 to 200, with Hungarian and Slovakian wines reaching 300. THQ values for both red and white wines studied were

high, having values ranging from 30 to 80 based on a 250mL glass per day. Naughton said, "These values are concerning, in that they are mainly above the THQ value of 1.0. Excess intake of metal ions is credited with pathological events such as Parkinson's disease. In addition to neurological problems, these ions are also believed to enhance oxidative damage, a key component of chronic inflammatory disease which is a suggested initiator of cancer".

These results also question a popular belief about the health-giving properties of red wine: that drinking red wine daily to protect from heart attacks is often related to levels of 'anti-oxidants'. However the finding of hazardous and pro-oxidant metal ions creates a major question mark over these supposed protective benefits. The authors recommend that, "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".

Source: BioMed Central

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