Introduction: The cardiovascular protection associated with moderate consumption of wine has been widely described. Evidence based on human and animal studies has demonstrated cardiovascular protective effects of tyrosol and hydroxytyrosol present in white wine. Therefore, white wine polyphenols are promising bioactive compounds for the food and beverage industry in functional food formulations. The challenge is to obtain a higher polyphenol concentration comparable to red wines.

Objectives: The goal of this research was to evaluate the cardiovascular protective effect of de-alcoholized white wines with various antioxidant capacities.

Method/Design: Mid-hypercholesterolemic animal model was used for long-term antioxidant beverage supplementation. Animals were distribute in one control and two groups of animals (n=8), supplemented during 12 weeks with de-alcoholized white wine with 7 or 14 mmol Trolox equivalents respectively. Cardiovascular risk biomarkers were analyzed based on lipid profiles, antioxidant protective effects and endothelial function. All the experimental process was evaluated and approved by the Institutional Animal Ethics Committee of La Paz University Hospital and followed the experimental animal protection legislation (RD 1201.2005).

Results: The beverage with the highest antioxidant capacity was more efficient in reducing LDL and the LDL-HDL ratio (p<0.05) in plasma samples and lipid peroxidation in renal tissue (p<0.05) than the medium antioxidant beverage. There was an inverse linear relationship between beverages' antioxidant capacity and plasma LDL-cholesterol concentrations, LDL-HDL ratios, triglycerides, hepatic lipid peroxidation and a direct linear relationship with NO concentration at the aortic level.

Conclusions: We conclude that the prototype with the highest antioxidant capacity has promising beneficial cardiovascular properties, and that this result should be confirmed in a human intervention trial.

Key Words: De-alcoholized white wines, Antioxidants, Lipid profile, Lipid peroxidation, endothelial function