



‘Syrah’ tropical red wine and residue health benefits according to ‘*in vitro*’ and ‘*in vivo*’ analysis using Wistar rats

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According to literature, in red wines and its residue, a considerable amount of phenolic compounds that can act as antioxidants in human body is found, being responsible to initiate cardioprotective and chemopreventive mechanisms. The objective of this study was to determine the antioxidant activity of ‘Syrah’ red wines produced at the São Francisco Valley region and its residue, using ‘*in vitro*’ approaches and evaluate the potential beneficial effects of their consumption on biochemical and hematological parameters in Wistar rats. Grapes from ‘Syrah’ variety were harvested in November, 2015 at the experimental field of Embrapa Semi-arid (Petrolina, PE, Brazil) and were submitted to microvinification in triplicate using the traditional method for red wines winemaking. The residue was collected at the end of the maceration stage (7 days) after the wine pressing, consisting of grape skin and seeds. The total phenolic content and the monomeric anthocyanins were determined spectrophotometrically. The ‘*in vitro*’ antioxidant activity was evaluated according to the DPPH method using Trolox and gallic acid as standards. For the ‘*in vivo*’ experiment, Wistar rats received during 60 days the treatments through oral gavage with water (control group), alcohol-free and lyophilized red wine (wine group) and with lyophilized residue (residue group) at a concentration of 100 mg.kg⁻¹, both dissolved in water. The rats received free demand of food and water throughout the treatment. At the end of the experiment, the animals were submitted to 8 hours of fasting for the blood collection, which were submitted to biochemical parameters analyses (glucose, triglyceride, total cholesterol and the fraction LDL, HDL and VLDL) and hemogram. The total phenolic contents of the wine and in the residue were 2.84 and 85.42 g kg⁻¹, respectively. The anthocyanins were expressed as cyanidin-3-*O*-glucoside, and values of 193.28 and 548.97 mg kg⁻¹ for the wine and its residue were observed, respectively. The antioxidant activity of wine and residue were respectively 5.54 and 25.25 μmol EAG g⁻¹, when expressed as gallic acid equivalent and 30.97 and 70.39 μmol TEAC g⁻¹, when expressed as Trolox equivalent. The results of the ‘*in vivo*’ tests with rats showed that wine and residue increased significantly (p<0.05) the hematocrit and HDL-cholesterol values in the control group. Whereas, LDL cholesterol levels decreased in the residue, when compared to wine and control and VLDL-cholesterol and triglyceride levels decreased in the wine compared to residue and control. For female rats, significant differences were observed (p<0.05) in the number of red blood cells, which increased in wine and residue groups. Moreover, VLDL-cholesterol and triglyceride concentrations in reduced waste in relation to wine and control. Thus, the results of this study indicated that both red wine and the residue of ‘Syrah’ grapes produced at the São Francisco Valley region can present a good antioxidant activity and promote health benefits.

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