



## Wpływ spożywania czerwonego wina na poziom testosteronu i 17 $\beta$ -estradiolu oraz aktywność aromatazy w gonadach u samców szczurów Wistar

The influence of red wine consumption on testosterone  
and 17 $\beta$ -estradiol level, and aromatase activity  
in the gonads of male Wistar rats

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**Abstract – Introduction.** Alcohol abuse can, among others, significantly alter the reproductive functions. The aim of this study was to investigate the impact of red wine and ethanol consumption on peripheral plasma concentrations of sex steroid hormones and their metabolism in young male rats.

**Method.** The effect of ethanol and red wine consumption on plasma testosterone, 17 $\beta$ -estradiol concentration and aromatase activity was studied in blood plasma (sex steroid hormones) and gonadal microsomal fraction (aromatase). Thirty days old male Wistar rats (n=22) were studied and divided into 3 groups after adaptation period: the control group (n=8), the group receiving a red wine of 10% alcohol content and the group receiving 10% water ethanol solution. After six weeks the rats in the experiment were bled from the heart and gonads collected under Thiopental (120 mg/kg) anesthesia. Plasma testosterone (T) and 17 $\beta$ -estradiol (E2) concentration were measured by the RIA method using commercial kits; aromatase activity was analyzed *in vitro* using thin layer chromatography (TLC).

**Results.** There were no significant effects of alcohol consumption – both in the group, which had received 10% water ethanol solution and the one which had received red wine – on plasma testosterone concentration and aromatase activity in the gonads. However, 17 $\beta$ -estradiol concentration was significantly dependent on the type of alcohol consumed (ANOVA, p<0.001) and was higher among animals which had received red wine.

**Conclusions.** The results indicate that long-term alcohol consumption in the form of red wine can alter the level of hormones that regulate reproduction in male rats.

**Key words:** red wine, ethanol, testosterone, 17 $\beta$ -estradiol, aromatase, HPG axis

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