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Abstracts

confirmed by extraction and analysis by GC. The thrombin-induced thromboxane B_2 production was inhibited either in whole platelets or in platelet homogenates, indicating a direct effect of resveratrol on arachidonate pathway. Using dichlorofluorescin diacetate, we found that resveratrol markedly reduced the agonist-induced generation of peroxides and oxidation products within platelets. This is possibly due to its potent antioxidant activity and to its inhibitory effect on oxygenases. We also found that platelet cyclic AMP concentration was increased after incubation with resveratrol. By means of radiolabeled arachidonate incorporation into platelet membrane, we found that free arachidonate and its metabolites were significantly reduced in the presence of micromolar resveratrol concentrations. These results indicate that resveratrol inhibited early events in the platelet activation process such as free arachidonate liberation through phospholipases activation. As the process is sensitive to an increase in cytosolic calcium through extracellular influx, we investigate the effects of resveratrol in the presence of ^{45}Ca. We found that as little as 0.2 µmol/L resveratrol significantly inhibited the thrombin-induced calcium influx. We conclude that resveratrol inhibits platelet activity (aggregation and thromboxane synthesis) by reducing cytosolic calcium concentration through actions on calcium fluxes such as influx blockade and enhanced cyclic AMP-dependent resequestration. Due to the key role of platelet hyperactivity in atherothrombosis, these effects might contribute to the beneficial properties of resveratrol-containing red wines in the prevention of cardiovascular disease.

THE EFFECTS OF OLIVE OIL ON ANTIOXIDANT ENZYME ACTIVITIES IN SOME TISSUES OF RATS

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The purpose of our study was to elucidate the effects of olive oil on antioxidant enzyme activities: superoxide dismutases (SODs): total (Tot SOD), copper zinc containing (CuZn SOD) and manganese containing (Mn SOD), catalase (CAT), glutathione peroxidase (GSH-Px), glutathione-S-transferase (GST) and glutathione reductase (GR) in liver, kidneys, heart and testes of male, two months old Wistar albino rats. The animals were divided in two experimental groups: (1) control animals (C) and (2) animals treated with olive oil (o. oil, 100 mL of virgin olive oil, i.m., every fifth day during 30 days). All animals were decapitated at the end of treatment always between 8 and 10 a.m. to avoid any possible rhythmic variations in the antioxidant level. Both experimental groups consisted of seven rats. The obtained results were compared in respect to the control animals.

Our results show that olive oil induced a significant decrease of Tot SOD activity in liver, kidneys and heart of rats, while in testes Tot SOD activity was significantly increased. At the same time, CuZn SOD activity was significantly increased in kidneys and heart, whereas in testes was significantly decreased. Contrary, Mn SOD activity was significantly decreased in kidneys, heart and testes of animals treated with olive oil. The activity of CAT was markedly decreased in liver, kidneys and heart of animals treated with olive oil, while in testes CAT activity was significantly increased. GSH-Px activity was significantly decreased in liver, kidneys and heart, whereas in testes the changes was not observed. The activity of GR was significantly increased only in the liver of animals treated with olive oil.

The obtained results show that olive oil influenced antioxidant enzyme activities in all examined tissues of rats. At the same time various tissues exhibit different response to olive oil, depending of their metabolic activity.