抗氧化配方製品對於大白鼠脂質代謝及抗氧化狀態之影響

Effect of Antioxidant Fomula Products on Lipid Metabolism and Antioxidative Status in Rats

中文摘要

本實驗係以 Wistar 雄性大白鼠為實驗動物，進行以綠茶萃取物和葡萄籽萃取物為主要成份之抗氧化配方製品之功能性評估。實驗組含該產品之低、中、高三種劑量進行實驗。實驗期共 4 週，實驗期第 0、2、4 週固定時間採取尾靜脈血；實驗結束後犧牲動物，進行相關試驗。測定項目包含：血漿及組織中總膽固醇（TC）、三酸甘油酯（TG）、麩胱甘?過氧化? (GSH-Px）、超氧化物歧化?（SOD）、脂質過氧化物（TBARs）以及總抗氧化狀態（TAS）。結果顯示：在脂質變化方面，實驗組動物血漿及肝臟的 TC 及 TG 較對照組低，除了肝臟 TG 隨著劑量增加而顯著降低(p<0.05)外，其他結果並無劑量上的差異。抗氧化酵素活性試驗方面，僅血漿 GSH-Px 活性於實驗末，於最高劑量組有顯著較高(p<0.05)的情形，SOD 之活性均無明顯變化；肝臟 GSH-Px 活性於實驗組均無明顯變化，而 SOD 之活性於低倍劑量組則有顯著降低之現象(p<0.05)。血漿 TAS 分析，攝取抗氧化配方製品之各組有顯著增加(p<0.05)之情形；在肝臟 TAS 分析，則以投與 2 倍劑量組效果最佳。脂質過氧化物方面，於實驗組其血液中脂質過氧化物的生成有顯著降低 (p<0.05)，且呈現出劑量效應之趨勢，而攝取抗氧化複方食品對於肝臟脂質過氧化物的生成於實驗各組均無顯著的影響。由以上結果可知，在為期 4 週的試驗期間，每日攝取 264mg 以上之抗氧化配方製品連續 4 週可以顯著降低 Wistar 雄性大白鼠血漿及肝臟中總膽固醇以及三酸甘油酯濃度，並且顯著提升了動物體內的總抗氧化力，降低脂質過氧化物的生成，顯示抗氧化複方食品具有降低血脂質濃度及提升抗氧化能力的作用。

英文摘要

The purpose of this study is to investigate the effect of green tea extract and grape seed extract complex products on lipid metabolism and antioxidant status in male Wistar rats. Rats were assigned to four groups:control group, low dose group (1X), regular dose group (2X) and high dose group(5X). The experimental period was 4 weeks. Total cholesterol (TC), triglycerides (TG), glutathione peroxidase (GSH-Px), superoxide dismutase (SOD), thiobarbituric acid (TBARs), malondialdehyde (MDA) and total antioxidant status (TAS) in plasma and liver were examined. The result indicated that rats in experiment group showed significantly lower plasma and liver’s TC and TG concentration, but no difference between dosages. Plasma SOD activity showed no difference among all groups. Plasma GSH-Px activity in high dose group showed significantly (p<0.05) higher than control group. Experiment groups showed

significantly ($p<0.05$) dose dependent lower than control group. All experiment groups showed siginificantly increase on total antioxidant status. Hepatic TG and TC lowered in all experimental groups compare than control group. Hepatic SOD activity showed siginificantly lower in low dose group. Regular dose group showed the best effect on TAS. We concluded that regular antioxidants complex products with daily dose of 264mg for administrated 4 weeks, presented significantly decrease on plasma and hepatic TC and TG concentration, and increase the total antioxidant status in rats.