

玉郎伞提取物对食饵性高脂血症大鼠肝脏脂蛋白代谢相关酶活性及脂肪肝的影响

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中文摘要:目的: 研究玉郎伞(YLS)块根提取物(包括总黄酮、多糖及其水提物)对食饵性高脂血症大鼠肝脏脂蛋白代谢相关酶活性及肝脏脂肪变性的影响。方法: 用高脂膳食饲喂SD大鼠6周, 造成饵食性高脂血症, 将高脂血症大鼠按照血清总胆固醇(TC)水平随机分成高脂模型组、YLS总黄酮高剂量组(YFH)、YLS总黄酮低剂量组(YFL)、YLS多糖高剂量组(YPH)、YLS多糖低剂量组(YPL)、YLS水提物高剂量组(YAH)、YLS水提物低剂量组(YAL)和洛伐他汀组8组, 每组10只。空白组和高脂模型组均灌服空白溶剂 $15 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$; 洛伐他汀组灌服洛伐他汀溶液 $3.0 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$; YFH, YFL组分别灌服YLS总黄酮 $0.1, 0.025 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$; YPH, YPL组分别灌服YLS多糖 $0.15, 0.0375 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$; YAH, YAL组分别灌服YLS水提物 $15.00, 3.75 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ 。连续给药14 d后检测各组大鼠脂蛋白酯酶(LPL)、肝酯酶(HL)、超氧化物歧化酶(SOD)、丙二醛(MDA)和血脂TC、甘油三酯(TG)、低密度脂蛋白-胆固醇(LDL-C)水平等各项指标, 用HE染色法观察大鼠肝组织病理形态学改变情况。结果: 与高脂模型组比较, 各用药组TC, TG, LDL-C, MDA水平降低, HDL-C, LPL, HL和SOD水平升高($P < 0.01$ 或 $P < 0.05$), 肝组织脂肪变性情况有不同程度改善, 其中YFH、YFL组改善效果最明显。结论: YLS提取物对饵食性高脂血症大鼠脂质代谢紊乱有显著的调节作用, 能有效缓解高脂性脂肪变性, 其机制可能与其能提高肝脏脂蛋白代谢相关酶和SOD的活性有关。

中文关键词: [玉郎伞](#) [提取物](#) [高脂血症](#) [脂蛋白代谢](#) [脂肪肝](#)

Effects of Yulangsans Extracts on Enzymes of Lipoprotein Metabolism and Fatty Liver in Hyperlipidemic Rats Induced by High Fat Diet

Abstract: Objective: To explore the effects of the Yulangsans (YLS) extracts (YLS flavonoids, polysaccharide and aqueous extract) on enzymes of lipoprotein metabolism and fatty liver in the hyperlipidemic rats induced by high fat diet. Method: Eighty healthy SD rats were raised by hyper-fatty feed for 6 weeks to induce the hyperlipidemia rat model. Then the rats were divided into 8 groups randomly according to their serum TC: model group, high dose group of YLS flavonoids (YFH), low dose group of YLS flavonoids (YFL), high dose group of YLS polysaccharide (YPH), low dose group of YLS polysaccharide (YPL), high dose group of YLS aqueous extract (YAH), low dose group of YLS aqueous extract (YAL) and lovastatin group. Model group and blank control group were given with vehicles ($15 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$), lovastatin group was given with lovastatin solution ($3.0 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$), YFH and YFL groups were given with YLS flavonoids ($0.1 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ and $0.025 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ respectively), YPH and YPL groups were given with YLS polysaccharide ($0.15 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ and $0.0375 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ respectively), YAH and YAL groups were given with YLS aqueous extract ($15.00 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ and $3.75 \text{ g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ respectively). Serum lipoprotein level, lipoprotein lipase (LPL), hepatic lipase (HL), superoxide dismutase (SOD) and malondialdehyde (MDA) were tested after treated with corresponding drugs once per day for 14 days, and the changes of pathomorphology of liver tissue were observed by HE dye. Result: Compared with the model group, the levels of the serum TC, TG, LDL-C, and MDA were decreased significantly, while HDL-C, LPL, HL and SOD were increased significantly ($P < 0.05$ or $P < 0.01$). In all treated groups, the liver weight, liver coefficient decreased significantly, and the liver adipose degeneration was ameliorated in some degree after the treatment with YLS extracts. High- and low-dose groups of YLS flavonoids had especially the most obvious improved effects.

Conclusion: The lipid metabolic disorder and the liver adipose degeneration in hyperlipidemia rats were improved significantly after the treatment with YLS extracts, which may be related with the increase on enzyme activity of lipoprotein metabolism and SOD.

keywords: [Yulangsan extracts](#) [hyperlipidemia](#) [lipoprotein metabolism](#) [fatty liver](#)

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