

牛心柿叶多糖对链脲佐菌素致糖尿病小鼠胰脏损伤的保护作用

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中文摘要:目的: 研究牛心柿叶多糖对链脲佐菌素致糖尿病小鼠胰脏损伤的保护作用。 方法: 建立糖尿病小鼠模型,随机分为模型组、二甲双胍组($32 \text{ mg} \cdot \text{kg}^{-1}$)及牛心柿叶多糖低、中、高剂量组($30, 60, 120 \text{ mg} \cdot \text{kg}^{-1}$),连续灌胃给药15 d。采用葡萄糖氧化酶法测定空腹血糖(FBG);放射免疫法测定空腹胰岛素(FINS);酶联免疫法(ELISA)测定血清中肿瘤坏死因子- α (TNF- α)和白介素-8(IL-8)和白介素-6(IL-6);HE染色观察小鼠胰脏病理形态;Western blot检测胰脏中核转录因子 κB (NF- κB)的表达。 结果: 与模型组比较,牛心柿叶多糖明显降低糖尿病小鼠血糖,恢复胰岛素水平 ($P<0.05$);可降低血清炎症细胞因子水平 ($P<0.05$),对胰脏损伤有保护作用,并下调胰脏组织中NF- κB 蛋白水平。 结论: 牛心柿叶多糖具有降血糖和调节胰岛素作用,可能与其恢复糖尿病小鼠胰岛功能以及抑制胰脏中炎症因子有关。

中文关键词:牛心柿叶多糖 降血糖 胰岛素 NF- κB 保护作用

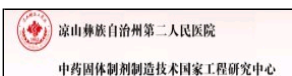
Protective Effect of Polysaccharides from Niuxin Persimmon Leaf on Pancreas Injury Induced by Streptozotocin in Diabetic Mouse

Abstract: Objective: To study the protective effect of polysaccharides from Niuxin persimmon leaf on pancreas injury induced by streptozotocin (STZ) in diabetic mouse. **Method:** Diabetic mice model was established by injection of STZ. The model mice were randomly divided into 5 groups: model group, dimethylidiguanide group ($32 \text{ mg} \cdot \text{kg}^{-1}$), low-, medium- and high-dosage groups of Niu Xin persimmon leaf polysaccharides ($30, 60, 120 \text{ mg} \cdot \text{kg}^{-1}$). The drugs were given to mice daily for 15 consecutive days. Fasting 12 h at the end of 15th day, the blood samples were collected and centrifuged to obtain serum for test. Glucose oxidase (GOD) and radioimmunoassay (RIA) were used to examine the index of glycemia and insulin for fasting blood glucose (FBG) and fasting insulin (FINS); the levels of tumor necrosis factor (TNF), interleukin-8 (IL-8), interleukin-6 (IL-6) in serum were tested by ELISA. Pathological change was observed by HE staining for mouse pancreas specimens; Expression of NF- κB in pancreas was determined using Western blot analysis. **Result:** Compared to model control group, Niuxin persimmon polysaccharides significantly reduced the levels of blood-sugar and restored insulin levels in diabetic mice, with significant difference ($P<0.05$). Inflammatory cytokine levels in serum were reduced by the polysaccharides with a significant difference ($P<0.05$). The polysaccharides also showed protective effect against the pancreatic injury; as well as down-regulation of NF- κB protein in pancreatic tissue. **Conclusion:** Niuxin persimmon leaf polysaccharides can play the role of hypoglycemic activity and regulation of insulin. The mechanism may be associated with restoring islet function and inhibition of the inflammatory pathway in the pancreas.

keywords: Niuxin persimmon leaf polysaccharides hypoglycemic activity insulin NF- κB protection

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