

JOINT EVENT

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&

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***Gynura divaricata* rich in dicaffeoylquinic acid and chlorogenic acid restrains islet cell apoptosis and improves pancreatic function in type 2 diabetic mice**Xiao Lu Yin, Bing Qing Xu and Yu Qing Zhang
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The aim of this study is to investigate the potential protective effect of *Gynura divaricata* (GD) in diabetic mice. *Gynura divaricata* (GD) is a kind of natural products for edible and medicine. The analytical results showed that the methanol extract of GD rich in 10.3% 3, 5- or 6.8% 4, 5-dicaffeoylquinic acid and 5.6% chlorogenic acid by high-performance liquid chromatography with diode array detection (HPLC-DAD). After STZ-induced 2 type diabetic mice (male ICR) were orally administered with 1%, 5% and 10% GD diet for 4 weeks, a series of assays was performed. The hypoglycaemic rate of Fasting Blood Glucose (FBG) reached 41.4% in 10% GD group and the fasting serum insulin in the highest dose GD group has decreased as low as normal group. GD treatment significantly reduced the glycosylated serum protein (GSP) level in diabetic mice. The activities of total Super Oxide Dismutase (SOD) and glutathione peroxidase were markedly increased; while the malonaldehyde (MDA) level was decreased in pancreas tissue by treatment of GD. HE-staining showed that the pathological damage in islets with pancreatic β -cells was ameliorated by GD treatment. An immunohistochemical assay showed that GD promoted marked β -cell regeneration. GD treatment also caused notable increase in GLUT2, GK, MafA, PDX-1, and Bcl-2 as well as reduction in Bax and caspase-3 expression as shown by Western Blot analysis. In conclusion, GD exerts the pronounced hypoglycaemic effect by restraining islet cell apoptosis and improving pancreatic function. Therefore, GD might be a promising food or medicine for the treatment of diabetes.

Recent Publications

1. Yin X L, Liu H Y and Zhang Y Q (2017) Mulberry branch bark powder significantly improves hyperglycemia and regulates insulin secretion in type II diabetic mice. *Food & Nutrition Research*. 61(1):1368847.
2. H Y Liu et al. (2016) Interference effect of oral administration of mulberry branch bark powder on the incidence of type II diabetes in mice induced by streptozotocin. *Food & Nutrition Research*. 60:31606.
3. Ding B, Lv Y and Zhang Y Q (2016) Anti-tumor effect of morusin from the branch bark of cultivated mulberry in Bel-7402 cells via the MAPK pathway. *RSC Advances*. 6:17396-17404.
4. Xu B Q, Yang P and Zhang Y Q (2015) Hypoglycemic activities of lyophilized powder of *Gynura divaricata* by improving antioxidant potential and insulin signaling in type 2 diabetic mice. *Food & Nutrition Research*. 59:29652.
5. Wan L Z, Ma B and Zhang Y Q (2014) Preparation of morusin from *Ramulus mori* and its effects on mice with transplanted H22 hepatocarcinoma. *Biofactors*. 40(6):636-645.

Biography

Xiao Lu Yin is currently a graduate student in Applied Biology from Soochow University, P R China. Her research interest focuses on biological properties and developing new use of sericulture waste, in particular applications of mulberry branches in biomedical materials, biomedicines, and cosmetics.

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