

Purple Rice Extracted Anthocyanin Inhibits Apoptosis and Fibrosis Effects in STZ -Induced Diabetes Rat Hearts.

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Our research was divided into two parts, involving two kind of typical complications diabetes and obesity, and different natural herbal extracts were given to investigate the effectiveness of our measure. Diabetes and cardiovascular diseases among the top ten causes of death ranked in the second and fifth respectively, and among the diabetes are more causes of death about 80% come from the concurrent cardiovascular diseases. Previous studies point out that diabetes easily cause inflammation, cardiac hypertrophy, myocardial apoptosis and cardiac fibrosis, leading to myocardial remodeling affecting cardiac function and finally cause heart failure. Anthocyanin is a strong antioxidants, and shows effectiveness of cardiovascular protection. Many studies indicate that Anthocyanin could balance blood sugar in whole body. Firstly our aim is to identify if Anthocyanin extracted from purple rice exerts protective effect in diabetes hearts. The five-week-old male Wistar rats were administered with streptozotocin to induce β cells damage, insulin secretion impaired as Type 1 diabetes. Animal were randomly divided into normal group, DM group (by intraperitoneal injection STZ 55 mg / kg), DM plus anthocyanin group (250 mg / kg / day, feeding four weeks). After treatment, the H & E stain, Masson's trichrome stain, TUNEL, IHC stain and Western Blotting array were applied to observe the changes in heart tissues and protein expression. In the diabetes, those followed increase of myocardial inflammatory signaling pathways, and further accompanied by cardiac hypertrophy, myocardial apoptosis, fibrosis and associated proteins were significantly expressed. Furthermore, significant reduction of heart function index EF (blood ejection fraction), and FS (systolic fraction) were of served, suggesting the results of myocardial tissue damage and loss of heart function. But these pathological, biochemical and functional indicators were improved significantly by given Anthocyanin.

KEYWORDS: Diabetes mellitus, Anthocyanin, cardiomyopathy