

Effect of dragon fruit extract on oxidative stress and aortic stiffness in streptozotocin-induced diabetes in rats

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ABSTRACT

Cardiovascular complications are consistently observed in diabetic patients across all age groups. The objective of the present study was to investigate the effect of aqueous extract of the fruit pulp of *Hylocereus undatus* (DFE) on aortic stiffness and oxidative stress in streptozotocin (STZ)-induced diabetes in rats. Twenty-four male, Sprague-Dawley rats were randomized into four groups: I (control), II (diabetic), III (DFE, 250 mg/kg) and IV (DFE 500 mg/kg). Diabetes was induced in groups II, III and IV by intraperitoneal (i.p.) injection of STZ (40 mg/kg). After confirmation of diabetes, group III and IV received DFE for 5 weeks. Pulse wave velocity (PWV) was used as a marker of aortic stiffness and was determined at the end of 5 weeks. DFE significantly decreased (P, 0.05) the fasting blood glucose levels in diabetic rats, but not to normal levels. Systolic blood pressure, pulse pressure and PWV were significantly increased (P, 0.05) in diabetic rats at the end of 5 weeks in comparison with control group. DFE treatment significantly decreased (P, 0.05) these elevations. Oxidative damage was observed in group II after 5 weeks. Plasma malondialdehyde levels significantly decreased (P, 0.05), while superoxide dismutase and total antioxidant capacity significantly increased (P, 0.05) with DFE treatment in comparison with group II. These data demonstrate that DFE treatment was effective in controlling oxidative damage and decreasing the aortic stiffness measured by PWV in STZ-induced diabetes in rats.

KEYWORDS

Arterial stiffness . diabetes . *Hylocereus undatus* . pulse wave velocity . streptozotocin

REFERENCES