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Flaxseed and Quercetin improves anti-inflamatory cytokines level and insulin sensitivity in animal model of metabolic syndrome, the fructose-fed rats

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Objective: The purpose of this study is to assess the beneficial effect of quercetin, flaxseed and/or in combination as synergetic in an animal model of metabolic syndrome (MtS), high fructose (HF) -fed rats.

Methods: male Sprague-Dawley rats, 3-month .old, weighing 110-120 g were randomly divided into 5 groups. Rats were given drinking water (-ve control) or 10% fructose (HF) for 8 wk. After 4-wk HF feeding, rats were were daily oral administered; 10% HF (5 mg/kg, + ve control), flaxseed (F; 50 mg/kg), quercetin (Q; 50 mg/kg), flaxseed+quercetin, (FQ; 25 mg/kg of each) respectively. Serum glucose, insulin, lipids profile, leptin, and adiponectin were estimated.

Results: serum glucose, insulin, triacylglycerols, total cholesterol & LDL-C levels were significantly decreased after administration of F, Q & FQ in HF fed rats. Whereas, serum HDL-C was a significant increased in FQ group. The increased of serum leptin level was decreased significantly in F, Q & FQ groups. Whereas the reduction of serum adiponectin level in HF fed rats was increased in F, Q & FQ groups.

Conclusion: These data suggested that protective effect of flaxseed and quercetin could be reduced risk for people with decreased insulin sensitivity and increased oxidative stress, such as those with the metabolic syndrome or type 2 diabetes.

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