

ABSTRACT

Obesity is a major global health problem identified by excess body fat. This is associated with metabolic conditions like atherosclerosis, diabetes, hypertension, cardiovascular disease, and dyslipidemia. Although genetic, hormonal, and environmental elements also play significant roles, obesity development is generally linked to an imbalance between energy consumption and dissipation. This study explored the effects of chia seeds (ethanolic extract) and camel milk (raw) on body weight, liver and kidney functions, lipid profile, and histological examination of liver, kidney and small intestine of high fat diet (HFD) obese mice. Forty-five male albino mice were categorized into 9 groups with five mice in each group. Weekly body weight measurements were made for sixteen weeks; biochemical and histological assessments were conducted afterwards. Liver enzymes were markedly improved by combination 1 (high dose of chia seeds + low dose of camel milk), with normal levels of urea (20–25 mg/dl), creatinine (0.6–0.9 mg/dl), bilirubin (0.3–0.7 mg/dl), AST (15–25 U/L), and ALT (20–25 U/L). Similarly, Combination 2 (chia seeds low dose + camel milk high dose) showed bilirubin (0.6–0.9 mg/dl), AST (25–31 U/L), ALT (22–30 U/L), urea (21–25 mg/dl), and creatinine (0.7–1.0 mg/dl) demonstrating recovered hepatic and renal activity. Lipid profile analysis showed notable improvements in LDL, HDL, triglycerides, and cholesterol levels. Combination treatment also retained elongated intestinal villi, renal glomeruli, and hepatic central veins as shown by the results of histology. Overall, chia seeds and camel milk both showed significant antiobesity effects individually but their combination exhibited better therapeutic and protective results in obese mice.

Key Words

Obesity, high-fat diet, Camel milk, Chia seeds.