

## **ABSTRACT**

Obesity, a global issue and metabolic disorder, is a non-infectious chronic disease has affected more than one-third of the world's population today that threaten human health. The objective of this study was to evaluate the antihyperlipidemic effects of fibroin on serum profile and histology of selected organs in obese mice. This experiment was conducted in seven groups; Negative Control (NC-Normal), Positive Control (PC-Obesity untreated), Low Dose fibroin (LDFN 250mg/kg), High Dose fibroin (HDF-400mg/kg), Low Dose fibroin nanoparticles (LDFN-250mg/kg), High Dose fibroin nanoparticles (HDFN-400mg/kg), Preventive group (PG) with both high fat diet and high fibroin dose (HFD +HDF). The mice groups were administered orally with respective doses for consecutive 28 days. Weekly body weights were measured. Mice were euthanized on day 28 to collect: blood serum and selected organs (liver and kidney) for histology. Biochemical assay of Liver Function Test (LFT), Renal Function Test (RFT) and histological study of liver and kidney were performed for determination of protective role of different treatments. The LFT showed the significant reduction in ALP and AST level and increase in bilirubin levels after treatment with HDF and HDFN when compared with PC. The RFT results showed the manageable range of urea and creatinine. Hence, fibroin and fibroin nanoparticles has potential to recover increased body weights, hematological parameters and degenerative changes in liver, kidneys and could be used as a potent anti obese agents in the disease treatment.