Abstract
Diabetes mellitus, which is associated with oxidative damage, has a significant impact on health, quality of life, and life expectancy. An ethanol extract of Gymnema sylvestre leaf was examined in vitro and in vivo to investigate the role of antioxidants in diabetic rats. The extract exhibited strong antioxidant activity in the assays, including TBA (56%), SOD-like (92%), and ABTS (54%). Blood glucose levels in the diabetic rats fed G. sylvestre extract decreased to normal levels. The presence of the antihyperglycemic compounds gymnemagenin and gymnemic acids in G. sylvestre extract was detected by LC/MS analysis. Lipid peroxidation levels were decreased by 31.7% in serum, 9.9% in liver, and 9.1% in kidney in the diabetic rats fed the extract. Feeding G. sylvestre extract to the diabetic rats decreased the activity of glutathione peroxidase in cytosolic liver and glutamate pyruvate transaminase in serum to normal levels.