Inhibition of adiposity and related metabolic disturbances by polyphenol-rich extract of Boswellia serrata gum through alteration of adipo/cytokine profiles.

Gomaa AA1, Farghaly HSM2, El-Sers DA3, Farrag MM2, Al-Zokeim NI2.

Abstract:

Abstract BACKGROUND: The role of proinflammatory cytokines in adiposity is well established. The anti-inflammatory and antihyperglycemia effects of Boswellia serrata (B. Serrata) gum have been demonstrated by many investigators. The present study aimed to investigate the anti-obesity potential of B. serrata extract. METHODS: The effects of B. serrata extract on lipase activity and acute food intake were investigated. The present study aimed to investigate the anti-obesity potential of B. serrata extract. The effects on lipase activity and acute food intake were investigated. Body weight changes, biochemical and histopathological markers were demonstrated in rats fed a high-fat diet. RESULTS: Boswellia serrata extract inhibited alterations in pancreatic lipase activity, but orlistat was more efficacious. B. serrata and ephidrene, but not orlistat, significantly suppressed cumulative food intake in mice. In obese rats, B. serrata or orlistat significantly decreased weight gain and weight of visceral white adipose tissue. B. serrata-treated animals exhibited a significant reduction in serum glucose, TC, TG, LDL-C, FFA, IL-1β, TNF-α, insulin and leptin levels of obese rat groups while HDL-C and adiponectin levels were significantly increased by orlistat or B. serrata extract. Histopathological examination of the liver revealed that B. serrata was more effective than orlistat in alleviating steatosis and adipocyte hypertrophy shown in obese control rats. CONCLUSIONS: Boswellia serrata is as effective as orlistat in preventing obesity, hyperlipidemia, steatosis and insulin resistance. These actions may be mediated by suppression of food intake and decrease levels of TNF-α, IL-1β and leptin resistance along with increasing adiponectin.

Published In:

Inflammopharmacology., NULL, NULL