Morinda citrifolia L. leaf extract prevent weight gain in Sprague-Dawley rats fed a high fat diet

ABSTRACT

Background: Morinda citrifolia L. is widely used as a folk medicinal food plant to manage a panoply of diseases, though no concrete reports on its potential anti-obesity activity. This study aimed to evaluate the potential of M. citrifolia leaf extracts (MLE60) in the prevention of weight gain in vivo and establish its phytochemical profile.

Design: Male Sprague-Dawley rats were divided into groups based on a normal diet (ND) or high fat diet (HFD), with or without MLE60 supplementation (150 and 350 mg/kg body weight) and assessed for any reduction in weight gain. Plasma leptin, insulin, adiponectin, and ghrelin of all groups were determined. 1H NMR and LCMS methods were employed for phytochemical profiling of MLE60.

Results: The supplementation of MLE60 did not affect food intake indicating that appetite suppression might not be the main anti-obesity mechanism involved. In the treated groups, MLE60 prevented weight gain, most likely through an inhibition of pancreatic and lipoprotein activity with a positive influence on the lipid profiles and a reduction in LDL levels . MLE60 also attenuated visceral fat deposition in treated subjects with improvement in the plasma levels of obesity-linked factors . 1Spectral analysis showed the presence of several bioactive compounds with rutin being more predominant.

Conclusion: MLE60 shows promise as an anti-obesity agents and warrants further research.

Keyword: Morinda citrifolia; Anti-obesity; Flavonoids; High fat diet; Lipoprotein lipase; Pancreatic lipase