Raspberry keto ne and Garcinia Cambogia rebalanced disrupted insulin resistance and leptin silencing in rats fed high fat fructose diet

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Abstract

Aim
Obesity is a continually growing pandemic leading to many diseases that affect the overall quality of life. The widely marketed Garcinia cambogia (GC) and Raspberry ketone (RK) were used in this study. Despite their known dietetic effect, however, the metabolomic/signaling pathways involved in this effect are not fully elucidated. Hence, our study comprehends the possible trajectories of their combination against obesity and insulin resistance in addition to exploring their combination merit.

Materials and methods
Adult male Wistar rats were divided into 5 groups; viz., normal diet (ND), high fat fructose diet (HFFD), HFFD+GC (600mg/kg), HFFD+RK (55mg/kg) and HFFD +GC+RK. To assess our aim, we determined their effect on body weight, IPGTT, glucose homeostasis (glucose, insulin, HOMA IR), lipid profile parameters and SREBP-1c, oxidative stress markers, insulin and leptin signaling pathways (p-IRS-1/p-AKT/GLUT-4, and leptin/STAT-3), as well as liver and adipose tissue histopathology.

Results
GC/RK combinationcaused weight loss, corrected the disturbed glucose and insulin homeostasis, raised serum levels of HDL anddecreased all other lipid profile parameters. They also increased Nrf-2 expression, ad GSH, as well as p-IRS-1/p-Akt/GLUT-4 cue, while they decreased MDA, leptin/STAT-3 and SREBP-1c content compared to the HFFD group. Furthermore, the GC/RK combination abolished apoptosis, fatty changes and inflammation in hepatocytes and decreased sclerotic blood vessels and congestion in adipose tissue.

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