

The effects of fructose polymer, levan, on the body fat contents and serum lipid profiles in Korean women

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Abstract

Levan, high molecular-mass β -2,6-linked fructose polymer is found in microorganism and plants, and to be unlike with inulin (β -2,1-linkage) especially it's high solubility. Previous animal study showed that anti-obesity effect of levan attributed to up-regulation of UCPs expression and inefficient energy utilization. This study was performed to investigate the effects of levan diet on the body fat contents and serum lipid profiles of 29 Korean women over a period of up to 12 weeks (n=13 for the controlgroup, n=16 for the levan group). The subjects had uncooked diet (6 g) with 400 ml of tap water twice a day. The mean body weight and height measurements of the subjects (levan group) at the outset were 66.0 ± 8.8 kg and 156.7 ± 5.3 cm, respectively. The subjects showed a significant reduction in weight, body fat mass, anthropometric value and skinfold thickness during the experimental period. Body fat contents were 37.8 ± 4.9 at the outset, and fell to 35.0 ± 5.6 and 34.2 ± 6.4 % after 4 and 12 weeks of levan supplementation, respectively. The intake of levan was also influenced on the levels of serum Fe, leptin, lipoprotein lipase, HDL-Cholesterol, LDL-Cholesterol, and triglyceride. Serum glucose level was within the normal range during the experimental period. Initial serum triglyceride level was 113.0 ± 32.0 mg/dl but fell to 93.7 ± 26.9 mg/dl after 4 weeks of levan supplementation. The current study demonstrates that levan

diet is effective for controlling weight, body fat, HDL-Cholesterol, LDL-Cholesterol, and triglyceride.

Reference

1. S. A. KANG, K. H. HONG, K. H. JANG, S. H. KIM, K. H. LEE, B. I. CHANG, C. H. KIM, & R. W. CHOUE. Anti-Obesity and Hypolipidemic Effects of Dietary Levan in High Fat Diet- Induced Obese Rats. (2004) J Microbiol Biotechnol 14,796-804.