

Thesis Title Effects of Sweet Basil Seed Extract
 Treatment in Obese Women

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ABSTRACT

The purpose of this study is to evaluate the efficacy and safety of sweet basil seed extract (SBSE) treatment in 22 obese women who attended the Nutrition Clinic, Department of Medicine, Ramathibodi Hospital. All of them were totally obese based on body mass index (BMI) of $\geq 25 \text{ kg/m}^2$ and abdominally obese based on waist-over-hip circumference ratio (WHR) of >0.8 . The study consisted of 4 wks of dietary advice only and 12 wks of SBSE treatment. Throughout the study, they were instructed to decrease their energy intake with dietary energy distribution of 20% protein-, 30% fat-, and 50% carbohydrate-calories.

After receiving the SBSE treatment for 12 wks, they were categorized into; responders and non-responders to SBSE treatment. Responders were the patients whose body weight decreased >2 times out of 3 visits during wks 8-16 from that at wk 4 whereas non-responders were patients whose body weight decreased 0-1 time out of 3 visits during wks 8-16 from that at wk 4. The results show that there were 11 responders and 11 non-responders.

In SBSE responders receiving 4 g of SBSE daily for 12 wks with 80.5-82.4% of compliances in consuming SBSE, they did not show any significant changes in their total energy intake and dietary energy distribution. In SBSE non-responders receiving the same dosage and duration of SBSE treatment with 81.9-84.2% compliances, they had significantly lower intakes of total energy and fat at wk16 than those at wks4 and 8, respectively.

SBSE responders exhibited significant decreases in their body weight and BMI during receiving the SBSE treatment. The mean net decrease in body weight in 11 SBSE responders at wk16 from that at wk4 was 1.32 kg which constituted of 0.64 kg of body fat mass (BFM) and 0.62 kg of fat free mass (FFM). These results indicate concomitant loss of FFM in these patients.

In SBSE non-responders, their body weight and BMI at wk12 were slightly but significantly higher than those at wk4; their BFM and FFM also increased but the values did not reach statistically significant difference from those at wk4. However, there was no further increase in their body weight at wk 16 and their mean body weight at wk 16 was not significantly different from that at wk4. This is most likely due to the significant reduction of their total energy and fat intakes at wk 16.

Our results imply that the daily ingestion of 4 g of SBSE for 12 wks in 22 obese women had a mild effect in inhibiting bioavailability of dietary energy. Besides, we have also shown that in evaluating the changes of body composition under such small decrease in body weight, the determination of BFM and FFM should be employed.

The adverse effects of severity of obesity on CHD risk factors are also observed evidenced by significantly positive correlations between BMI or BFM and serum M-particle (reflecting VLDL), plasma fibrinogen, systolic blood pressure (BP), and diastolic BP, as well as between WHR and plasma total cholesterol (TC), triglyceride, LDL-C, serum apo B, M particle, S-particle (reflecting LDL), plasma fibrinogen, blood glucose, systolic BP, and diastolic BP but significantly negative correlation between WHR and plasma HDL-C. The results imply that

abdominal obesity coexisting with total obesity aggravates adverse effects on lipoprotein and glucose metabolism.

There were no significant changes in plasma TC and LDL-C levels in our obese women during receiving SBSE. However there were significant increases in plasma HDL-C in SBSE responders at wk16 and in SBSE non-responders at wks 8, 12, and 16.

The results indicate that daily ingestion of 4 g of SBSE for 12 wks did not affect fatty acid composition of total serum and erythrocyte lipids.

There are no significant changes in serum total proteins, albumin, transferrin, and retinol-binding protein levels during the study and the mean levels of these serum protein are within normal limits.

Daily ingestion of 4 g of SBSE in obese women for 12 wks is safe. This is evident by the absence of clinical and laboratory adverse effects. The patients did not show any significant changes in their hematological parameters, serum mineral levels, liver and renal function tests. Besides, all of these values were within normal limits.