The Effect of **Fucoxanthin** on Tendency of Obesity among Japanese People: A 4-Week Double-blind, Placebo-controlled Clinical Study

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1. Objective

To examine the anti-obesity effect of seaweed fucoxanthin among Japanese subjects in a human clinical trial.

2. Test materials

Hard capsules containing fucoxanthin 1% (using Fucoxanthin-P1 from Oryza Oil & Fat Chemical Co., Ltd.). Placebo capsules filled with excipients.

3. Test subjects

Sex: Male and Female

Age: between 27 – 57

BMI: over 25, less than 30; 30>BMI>25

Hip/abdominal circumference: >85cm (male); >90cm (female)

Prior to the trial, all subjects were briefed on the trial before written consent is signed upon agreement on the voluntary participation.

4. Method

The study was conducted with ethics according to the Declaration of Helsinki (Edinburgh Meeting 2000, revised).

It is a placebo-controlled double-blind study where 27 test subjects are divided into 3 groups, each consists of 5 males and 4 females:

Group 1: Placebo

Group 2: Oral Fucoxanthin 1mg/day

Group 3: Oral fucoxanthin 3mg/day

Duration: Four weeks where intake is recommended after meal

Anti-obesity effect was evaluated according to the following parameters before and after the ingestion of fucoxanthin:

i. CT scan of abdominal fat area (total fat, visceral fat, subcutaneous fat)
ii. Measurement of body composition (weight, BMI, body fat, fat mass, lean mass and muscle mass)

iii. Circumference of waist, upper arms, neck and thigh

5. Results & Discussion

Figure 1 showed results of various parameters measured in the study. It is clear that there is reduction observed in the weight and BMI of test subjects in fucoxanthin intake group especially group consuming fucoxanthin 3mg/day show significant difference. Meanwhile the weight and BMI remain unchanged in placebo group.

Result showed that fat mass is decreased in both placebo and fucoxanthin groups, however, the reduction is greater in groups consuming fucoxanthin. Upon CT scanning on abdominal fat area, visceral fat and subcutaneous fat of test subjects taking fucoxanthin demonstrated a dose-dependent reduction in fat area with significant difference in group consuming fucoxanthin 3mg/day. Meanwhile, subcutaneous fat area and total fat area were significantly reduced in days in test subjects taking fucoxanthin 1mg/day. CT scan images of the fat area is shown in Figure 2.

In addition, a decrease in the circumference of neck and thigh (left and right) was observed where reduction is greater in test subjects consuming fucoxanthin.

Based on the above, results suggest that fucoxanthin is effective in improving the obesity parameters in human. Furthermore, no adverse reaction or incidence occur with oral administration of fucoxanthin during the trial period. No adverse changes observed in other clinical parameters such as pulse, blood pressure, blood and urine analysis (data not shown). In conclusion oral administration of fucoxanthin (1 month) demonstrated anti-obesity effect without adverse reaction.
Fig. 1. The effect of Fucoxanthin on obesity parameters
Fig. 2. CT scan of abdominal fat area (an example from group consuming fucoxanthin 1mg/day)