

## Intake of Mung Bean Protein Isolate Reduces Plasma Triglyceride Level in Rats

Nobuhiko Tachibana\*, Satoshi Wanezaki†, Mayuko Nagata, Takayasu Motoyama,  
Mitsutaka Kohno, and Sayuri Kitagawa

Basic Research Institute, Research and Development Division, Fuji Oil Co., Ltd.

**\*Corresponding author:** Nobuhiko Tachibana, Basic Research Institute, Research and Development Division, Fuji Oil Co., Ltd., 1-Sumiyoshi-cho, Izumisano-shi, Osaka 598-8540, Japan.

Submission date: August 19, 2013; Acceptance date: September 29, 2013; Publication date: September 30, 2013

### **ABSTRACT**

**Background:** Mung bean is well known as a starch source, but the physiological effects of mung bean protein have received little attention. In this study, we isolated mung bean protein from de-starched mung bean solutions, and investigated its influence on lipid metabolism.

**Objective:** The aim of this study is to clarify the influence of the lipid metabolism by consumption of mung bean protein isolate (MPI)

**Methods:** Diets containing either mung bean protein isolate (MPI) or casein were fed to normal rats for 28 days.

**Results:** Both groups ate the same amount of food, but the plasma triglyceride level, relative liver weight and liver lipid contents (cholesterol and triglyceride pool) in the MPI group were significantly lower than in the casein group. In the MPI group, the expression of sterol regulatory-element binding factor 1 (SREBF1) mRNA in the liver was significantly different when compared with the casein group. The significantly lower levels of insulin and free fatty acids in the MPI-fed rats may be due to the regulation of genes related to lipid metabolism in the liver.

**Conclusions:** These results suggest that MPI may improve the plasma lipid profile by

normalizing insulin sensitivity.

**Keywords:** mung bean, *Vigna radiata* L., 8S globulin, triglyceride,  $\beta$ -conglycinin, 7S globulin, insulin sensitivity, SREBF1