Effect of *Siraita grosvenori* on postprandial blood glucose elevation in human

Aki Ogawa¹, Sayaka Yoshida², Takahito Ichi³, Rikako Inoue¹, Maya Tsumagari⁴, Miho Asai⁴, Satoko Hiramatsu¹, Kazuko Sumiyoshi⁴, Yasuyuki Irie¹

¹Nutritional Science, Okayama Prefectural University, Japan, ²Yokohama Oils & Fats Industry Co. Ltd., Japan,

³ FONTEC R&D, Japan, ⁴Nursing Science, Okayama Prefectural University, Japan

<Objectives> *Siraita grosvenori* (SG) is a traditional Chinese fruit used as a folk medicine for sore throats, coughs, and minor stomach and intestinal troubles. Its extract (SG-ex) contains potent sweet elements with a sweetness several hundred times higher than table sugar. Recently, SG-ex or its constituents have been shown to have various physiological functions. SG-ex has been found to reduce hyperglycemia after a single oral administration of maltose in the rats. In vitro, SG-ex, as well as its constituent mogroside V have been found to inhibit α -glucosidase. Thus the anti-hyperglycemic activity of the SG-ex has been reported in some animal models, however, little is known regarding the therapeutic activity of the SG-ex in human. The present study was performed to examine the effect of SG-ex supplementation in the diet on preventing postprandial hyperglycemia in human.

<Methods> Twenty-three women aged over 65 years were given pastries with and without SG in a cross-over manner. After overnight fasting, the subjects ingested bean-jam bun as a loading carbohydrate together with water. SG-ex was added to the meal at a dose of 0.067 g. Blood samples were taken and blood glucose levels were measured at 0 min, 15 min, 30 min, 60 min, and 120 min after the loading. Fasting blood insulin level and hemoglobin A_{1c} level were measured.

<Results> The administration of SG-ex lowered the mean blood glucose level 30 min, 60 min and 120 min after the meal. In particular, SG-ex significantly prevented postprandial hyperglycemia in subjects with blood glucose level of >200 mg/dL at 120 min, the mean area under the curve (AUC) of plasma glucose over 2 h was significantly reduced.

<Conclusions> The single ingestion of SG-ex suppressed the meal-induced hyperglycemic response. SG-ex may be useful for patient with diabetes or prediabetes with a high level of blood glucose.