



Physiological Functions

Dietary fiber

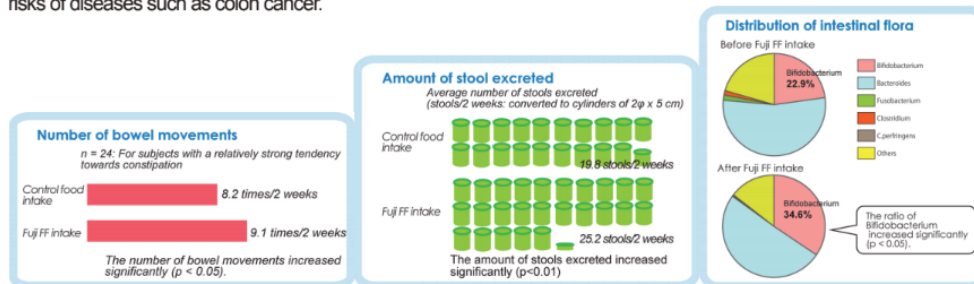
Dietary fiber is one of the important nutrients needed to maintain good health. Deficiency in dietary fiber result in a poor intestinal environment, which can allow the growth of harmful bacteria, thereby increasing the risk of health problems. The main risks include constipation, diabetes, increased blood cholesterol, arteriosclerosis, hypertension, and obesity. The intake of Fuji FF with daily meals contributes to a balanced diet.

Prebiotics with intestinal regulation effect

Taking Fuji FF increases the level of beneficial bacteria, such as Bifidobacterium, and improves intestinal flora. Furthermore, it increases stool excretion and shortens the time that intestinal putrefactive products stay in the body. It is expected that these effects will reduce the risks of diseases such as colon cancer.

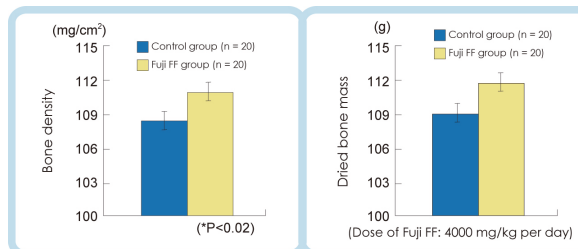
Intestinal regulation and intestinal flora improvement effects of Fuji FF

Human clinical studies (n = 28 – subjects with constipation)
12 g per day (6 g x 2 times) Food intake for 2 weeks continuously



Mineral absorption

Dietary Ca deficiency causes various bone-related problems. In particular, osteoporosis, which appears with increased age, is a major problem. Fuji FF is effective in promoting calcium absorption and increasing bone density.



In a low-calcium diet, the group that was administered Fuji FF for three weeks was found to have higher bone density and dry bone mass compared to the control group.

Suppression of triglyceride

Due to an increased intake of fat, there is an increasing number of people with high lipid levels in the blood. Hyperlipidemia may lead to myocardial infarction or cerebral infarction. According to our studies, Fuji FF was found to be effective in decreasing triglyceride in blood, as well as the cholesterol in the liver.

Suppression of blood sugar increase

Fuji FF is a polymerized fructose and a non-digestible type of sugar, and therefore does not increase the blood sugar level by itself. Also, Fuji FF, when taken with food, is effective in suppressing the increase blood sugar levels after meal.

Low calorie

Fuji FF is a polymerized fructose and a non-digestible type of sugar that is difficult to digest in the human stomach and intestines. Due to this property, Fuji FF is able to reach the large intestine and is then utilized after undergoing enzyme degradation. The calorific value of Fuji FF is estimated to contain 2 kcal/g.

Fuji FF (Inulin)

Experiences and Examples of Use

Reinforcement of dietary fiber

Fuji FF is high in dietary fiber at 94.7% or higher (as solid), highly soluble in water, and occurs as a tasteless, odorless white powder. For this reason, it can be used in food in which you wish to reinforce the content of dietary fiber without affecting the natural flavor of the food product. Fuji FF is used widely in areas such as health foods, confectioneries, bread, dairy products, beverages, processed meat and fish, noodles, and rice.

Texture improvements

Adding a small amount of Fuji FF to the food product can improve its crispness and the melt-in-the-mouth feel of baked confectioneries, give a moist texture to bread and cakes, increase the smoothness of mousse and chocolate, add to the firmness of noodles, and improve how processed meat and fish feel in the mouth, as well improving production yield.

Masking

Fuji FF can mask the unpleasant taste or odor of functional materials, help improve the flavor of the food product, and can be used in vegetable, diet, soymilk, and vegetable beverages. It also has the effect of enhancing the flavor of spices.

Areas in which Fuji FF is used

Category	Items	Fiber enrichment	Fat replacement	Mouth feel improvement	Taste improvement
Dairy product	Yogurt	■	■	▲	▲
	Ice cream	■	▲	■	
	Dairy beverages	■	■		
	Spread	■	■		
	Whipped cream	■	■		
Confectioneries and bread	Bread	■	▲	■	
	Cake	■		■	
	Chocolate	■	■	■	▲
	Nutritional bar	■		■	▲
	Jelly	■		■	
Beverages	Coffee	■		■	■
	Soy milk	■			■
	Vegetable juice	■		▲	■
	Functional beverages	■		■	■
Meal dishes	Ham,sausages	■		■	
	Processed raw meat	■	▲	■	
	Rice	■		■	■
	Processed egg	■		■	
	White sauce	■	■		
	Mayonnaise	■	■		
	Dressing	■	■		
Noodles	Chinese noodles	■		■	

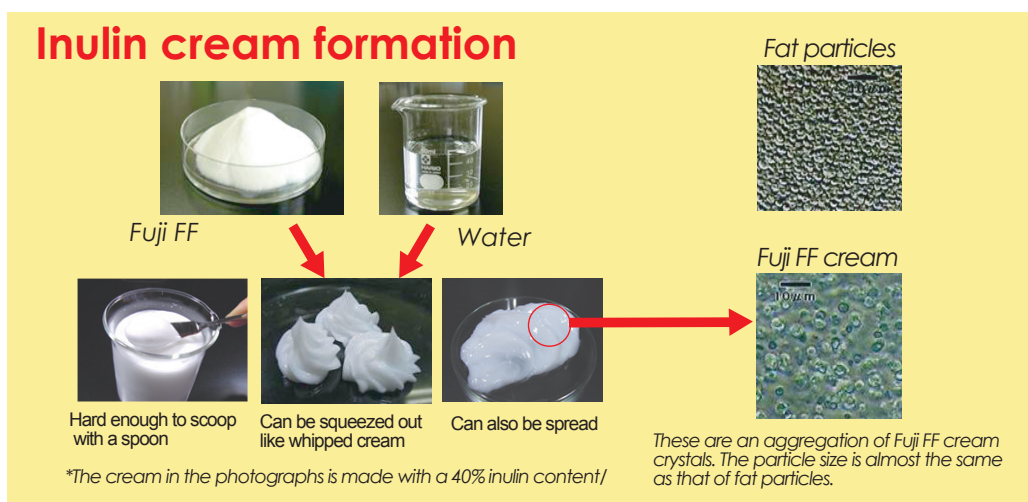
■ = Very effective
▲ = effective



Fat Replacement Function

Inulin cream

When a solution containing Fuji FF is cooled, microcrystals of inulin are formed, and the texture becomes cream-like. The particle size of the microcrystals is similar to that of fat. The microcrystals also have a similar texture in the mouth to fat and dissolve similarly to how fat does. We will be able to assist in providing a low fat, low-calorie food by replacing a part or whole of the fat in products with inulin cream.



Low fat, low calorie

By using inulin cream instead of fat, we can assist in developing products such as low-fat margarine, low-fat whipped cream, and non-fat mayonnaise.

Non-Fat Margarine-style Spread

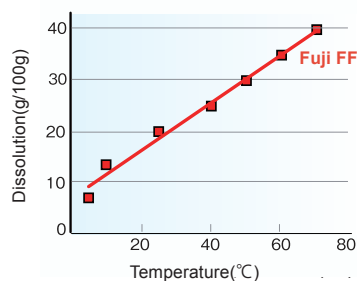
Fuji FF	37.3%
Water	44.8%
Meringue	14.9%
Skim Milk	1.5%
Salt	1.1%
Flavoring	0.1%
Coloring	0.3%



Fuji FF (Inulin)

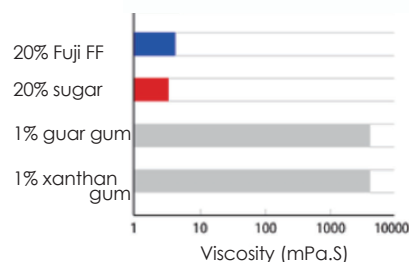
Properties

Solubility



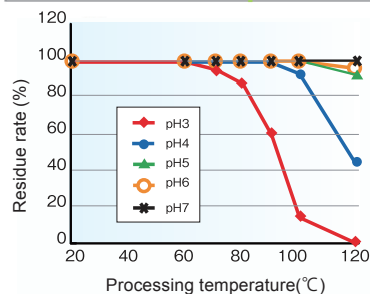
Fuji FF is readily soluble in water, and a 20% solution can be prepared at 25°C and a 40% solution can be prepared at 70°C.

Viscosity



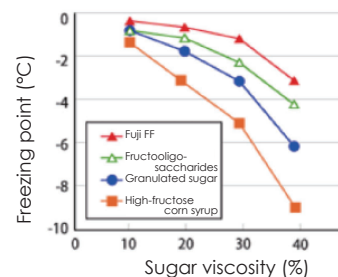
The viscosity of a 20% solution of Fuji FF at 25°C is low, at almost the same level as that of granulated sugar. The viscosity seen in thickening polysaccharides is virtually absent in these products.

Thermal stability at various pH values



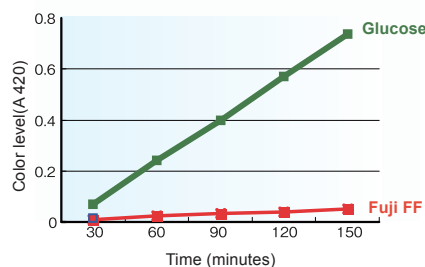
The residue rate was measured for the 10% Fuji FF solution, which was adjusted to various pH then heated for 15 minutes. The product is stable at pH 4 after heating to 100°C.

Freezing point depression



Since the freezing point for Fuji FF is not lowered as it is in granulated sugar and high-fructose corn syrup, it is easily frozen and thaws slowly after freezing.

Maillard reaction



The model solution, which was prepared by adding glycine to a 20% Fuji FF solution, was maintained at 100°C with a pH 6.0, and the color level was measured against processing time. Since Fuji FF is non-reducing sugars, the Maillard reaction does not cause coloring.

Specifications and Safety

Fuji FF is inulin manufactured from sugar. Inulin is a natural component found in vegetables, and there is a long history of human ingestion of this material. Fuji FF is a safe food material that is non-GMO (not a genetically modified organism) and allergen free (does not contain allergic substances). The safety of Fuji FF has been verified in several safety tests.

Quality Administration Systems :

FSSC 22000

ISO 22000

HACCP

GMP

Halal

Kosher

Specifications

Test items	Fuji FF	Analytical methods
Appearance	White powder	Visual inspection
Solid content	97 ± 2.0%	HPLC
Inulin content	≥ 94.7%/dry	HPLC
pH	5-7	Glass electrode method
Total plate cell count	≤ 300cfu/g	MF method (standard agar medium)
Mold and yeast	≤ 20cfu/g	MF method (potato dextrose agar method)
Coliform bacteria	Negative	BGLB method
Samonella spp.	Not Detected per 25g.	ISO 6579:2002/Cor.1:2004

Shelf Life

3 years from production date

Package Details

Packing size: 20kg Kraft paper bag

Inner packing material: Polyethylene

Outside packing material: Kraft Paper of triple-sheets