

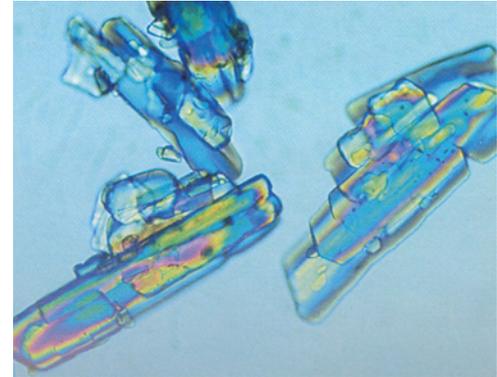
# ARABINO

## ARABINO IS A FUNCTIONAL NATURAL SWEETENER DERIVED FROM PLANT FIBER:

### ARABINO (HIGH PURITY L-ARABINOSE):

ARABINO is L-Arabinose, a naturally derived pentose which inhibits the sucrase. Under normal conditions, sucrase hydrolyzes sucrose in the small intestine and facilitates the absorption of sucrose into the body. ARABINO effectively suppresses the digestion and absorption of sucrose resulting in the effective prevention of the elevation of the blood glucose level. We are the first company in the world to successfully mass produce the L-Arabinose.

ARABINO has been evaluated by the Japanese Ministry of Health, Labor and Welfare as a "Food for Specified Health Uses." This is a seal of approval given only to food with genuine health benefits.

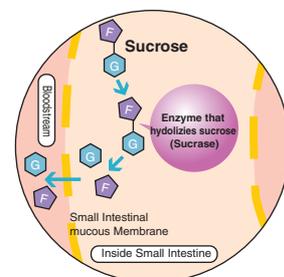


## ARABINO'S MECHANISM OF SUPPRESSING SUCROSE INTAKE:

Normally, sucrose is hydrolyzed by sucrase into glucose and fructose, which exists in the mucous membrane of the small intestine. ARABINO's unique inhibitory mechanism blocks the sucrase activity. When ARABINO is taken together with foods which includes sucrose, it effectively suppresses the digestion and absorption of sucrose into the bloodstream.

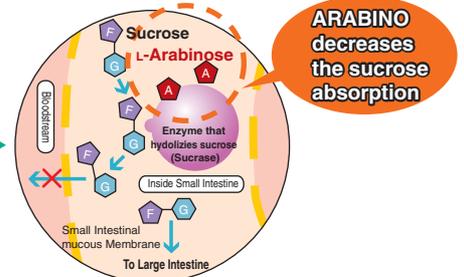
This suppresses blood glucose level elevation, and in turns prevents the secretion of insulin. Moreover, the remaining unabsorbed sucrose reaches the large intestine and acts as a "prebiotics" substance.

#### WHEN SUCROSE IS TAKEN ALONE:



Sucrose is hydrolyzed into Glucose (G) and Fructose (F) by sucrase and absorbed by the small intestinal mucous membrane and into the bloodstream.

#### WHEN SUCROSE IS TAKEN TOGETHER WITH ARABINO:

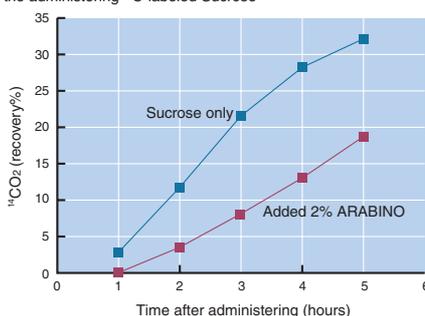


ARABINO inhibits the sucrase activity and the unabsorbed sucrose moves into large intestine.

### SUCROSE ABSORPTION IS SUPPRESSED TO APPROXIMATELY 60% OF NORMAL LEVEL:

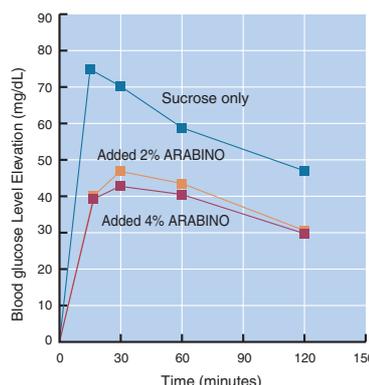
Normally, the sucrose absorbed by the human body is catabolized and produces Carbon Dioxide, which is excreted through exhalation. When ARABINO is taken together with sucrose, the level of Carbon Dioxide excretion becomes moderate compared to when sucrose is taken alone. In other words, when sucrose is taken with small amount of ARABINO, it will effectively suppress the digestion and absorption of sucrose.

Percentage of <sup>14</sup>C-labeled Carbon Dioxide in exhaled air after the administering <sup>14</sup>C-labeled Sucrose



### ARABINO SUPPRESSES THE ELEVATION OF BLOOD GLUCOSE LEVEL:

Under normal conditions, uptaken sucrose is digested and absorbed in the small intestine, resulting in the elevation of blood glucose levels. When ARABINO is taken together with sucrose, its digestion and absorption is suppressed. As a result, the elevation of blood glucose level is suppressed.



### Quality Standards

Item	characteristics
appearance	white crystalline powder
moisture	≤ 1%
pH (30% w/v solution)	4.5 ± 1.5
color	≤ 0.250
turbidity	≤ 0.200
assay	≥ 95%
Ash	≤ 0.1%
Arsenic (as As <sub>2</sub> O <sub>3</sub> )	≤ 4 ppm
Heavy Metals (as Pb)	≤ 10 ppm
Total Plate Count (count/g)	≤ 300 per gram
Coliforms	negative

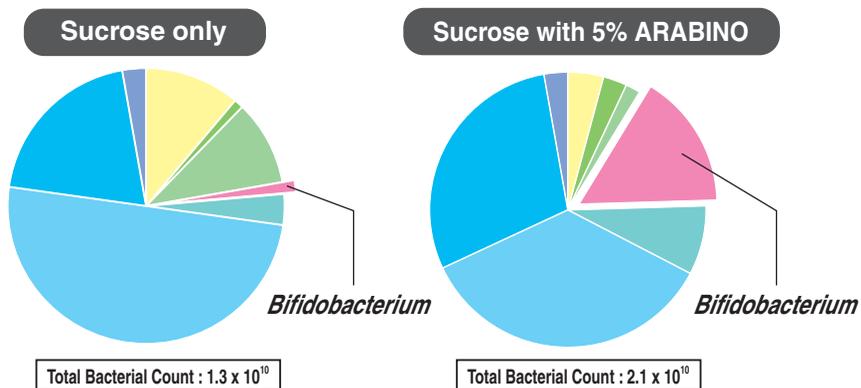
#### CAUTION FOR USAGE

- Discoloration occurs when ARABINO is exposed or subjected to high temperature for an extended period of time.
- Transient diarrhoea may occur when taken at larger than suggested doses.

## THE EFFECTIVENESS OF ARABINO AND THE UNDIGESTED SUCROSE FOR HOST HEALTH:

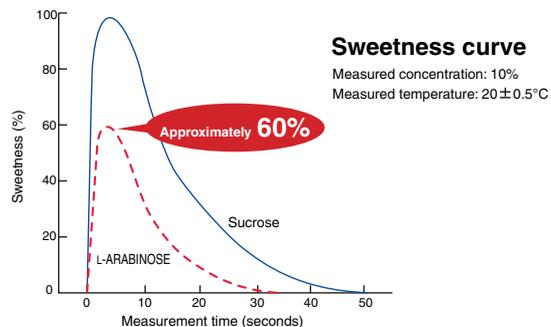
Normally, sucrose is digested and absorbed in the small intestine. ARABINO suppresses this uptake of sucrose and allows it to progress into the large intestine. Sucrose and ARABINO facilitates the growth within the large intestine of microflora such as the *Bifidobacterium*.

Change observed in microflora of cecum as a result of simultaneous intake of sucrose and ARABINO.



## ARABINO IS A DELICIOUS FUNCTIONAL FOOD MATERIAL:

Since ancient times, "sucrose" has been the most desired sweetener. With ARABINO, one can enjoy the unadulterated natural taste of "sucrose" and at the same time decreases the uptake of sucrose into the body!! ARABINO itself has a sweetness index rating of 60% when compared to natural sucrose, and can be enjoyed with wide variety of food and drink.



## ARABINO IS A FUNCTIONAL NATURAL SWEETENER WHICH HAS A POTENTIAL TO BE USED FOR WIDE RANGE OF NEW PRODUCT DEVELOPMENTS:



There are two urgent issues that need to be addressed in the present world. The first is the ever increasing prevalence of "lifestyle-related diseases" and second is the ever-increasing desire for people to lose weight by dieting. ARABINO was developed by SANWA CORNSTARCH COMPANY to address these consumer needs. The high quality of natural sweetness and the stability of ARABINO has wide potential for a variety of products: as table sugar, as prepared food sweetener, as sweetener of soft drinks or medical and health products. We highly recommend this wonderful product which has captured the imagination of today's health conscious consumer.



\* Food for Specified Health Uses:  
Food with an official label of approval by the Japanese Ministry of Health, Labor and Welfare. These foods have been shown in laboratory tests to contain physiologically and biologically safe and beneficial ingredient to human or animal health. This is one of the earliest designation (labeling) system in the world which was introduced in 1991 to promote the maintenance of health and welfare of the Japanese Population. Presently, there are approximately 700 foods with this designation (as of August 2007).  
This product was developed by the cooperation of professor emeritus, Dr. Susumu Hizukuri and by the New Technology Contract Development Project sponsored by Japan Science and Technology Agency (JST)

