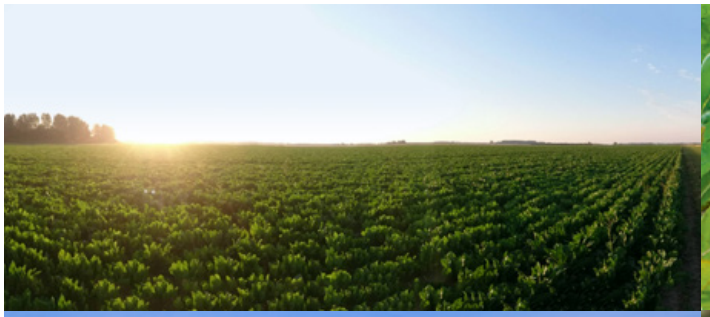
FROM CHICORY ROOT TO FIBER

ALL ABOUT INULIN

inspired by inulin

A ROYAL COSUN COMPANY
SENSUS






What is inulin?

Inulin, **also known as chicory root fiber,** is a natural dietary fiber that is present in many plants. It is a carbohydrate composed of many units of fructose joined together (a polysaccharide). Plants make inulin as a reserve energy source.
It is also important in the plant's defense against the cold. Chicory roots are the main source for inulin.

Inulin has scientifically-proven health benefits. Due to the specific bond of the fructose molecules, our digestive system is not able to break down inulin. So, it reaches the gut intact, and acts there as a dietary fiber. Dietary fiber improves digestion and bowel function, gut- and heart health, and curbs appetite. Inulin is already part of our daily diet. It is naturally present in fruit and vegetables like onions, leek, bananas and garlic.

NATURAL PRODUCT
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Growing season

April
Sowing

May/June
Weed control and cultivation

September/December
Harvesting

September/December
Processing

Chicory seeds are sown in spring. As the plants develop and the leaves grow, chicory produces inulin to store in the root. The roots are harvested from September to December and are brought to the Sensus site in The Netherlands. Between September and December inulin is extracted from the chicory roots and turned into powders and syrups.

Production process

Health benefits

Improved gut health

Inulin stimulates the growth of beneficial gut bacteria (like *Bifidobacteria*) that contribute to good bowel movement and digestion. Research indicates that gut bacteria may also affect energy regulation, immune response and the gut-brain interaction.

"Prebiotic dietary fiber for better digestive health"

Cardiovascular health

Research shows that dietary fibers, like inulin, help to lower blood cholesterol and glucose levels. In addition, dietary fiber intake seems to be linked to lower blood pressure and reduced risks for hypertension, heart disease and metabolic syndrome.

Lower blood glucose rise

Glycemic response is the change in blood glucose levels after eating food that contains sugars. Inulin results in a lower glycemic response when used to replace sugars, supporting better blood glucose management. Inulin is recommended for diabetics. An EFSA-approved health claim on lowering the rise in blood glucose is possible.

"Lower impact on blood sugar levels"

Less calories

Inulin contains half the calories of sugar. Inulin arrives unchanged in the large intestine (colon) and therefore means less calorie intake. Our gut bacteria ferment inulin into beneficial short-chain fatty acids (SCFAs). These beneficial SCFAs are partly absorbed by the body and contribute to less calorie uptake than normal digestible carbohydrates.

Weight management

Dietitians recommend dietary fiber for losing weight. It satisfies the appetite and reduces blood-sugar fluctuations. This can help decrease appetite. Inulin increases volume and slows the process of food emptying from the stomach. It affects the digestive hormones that increase satiety, leading to less energy.

"Inulin is up to 60% as sweet as sugar, but has only half the calories"

Sugar reduction

The consumption of sugars is often out of balance. Interest in limiting or replacing the sugar content is rising. 'No added sugar' or 'sugar-reduced' formulations need ingredients that can replace sugar. These should have a lower caloric value, but offer almost the same sweetness. Inulin can provide up to 60% sweetness.

"Chicory root is a natural source of inulin that is often used in healthy products with natural ingredients"

Creating healthier food products

Inulin is a prebiotic dietary fiber that is derived from a natural source; the chicory root. It provides health benefits with texturizing properties and a neutral to sweet taste. Inulin comes in a range of powders and liquids with different technological properties. Both powders and liquids have similar nutritional and health properties.

"Chicory root is a natural source of inulin that is often used in healthy products with natural ingredients"

Is inulin safe to eat?

Inulin is a safe ingredient to eat and is already included in the diet of most people. Chicory inulin is non-allergenic. If foods containing inulin cause a reaction, it is usually due to other ingredients, like peanuts, milk, soya, shellfish or wheat. Inulin is a completely natural product. It can be labeled on food packaging as inulin, oligofructose, FOS, chicory root fiber or chicory root extract.

"Labeled on food packaging as inulin, oligofructose, FOS, chicory root fiber, or chicory root extract"

How much inulin should we eat?

The European Food Safety Authority (EFSA) and the US Food and Drug Administration (FDA) recommend a **fiber intake of at least 25 grams per day**. EFSA estimates that the actual daily fiber intake is on average 20g, with the lowest intake only 10g. Health authorities recognize inulin as an easy way to reduce this 'fiber gap'.

"FDA and EFSA recommend a minimum daily fiber intake of 25 grams per day"

"We believe in inulin to contribute to consumer health"

Global supplier

Sensus is worldwide specialist in chicory root fiber. It manufactures Frutafit® inulin and Frutalose® oligofructose. These functional ingredients are used all over the world to make a wide range of food products. Applications include dairy foods, bread and bakery products, confectionery, cereals and cereal bars, savory, infant nutrition and beverages.

Sensus brands

Frutafit® inulin and Frutalose® oligofructose are functional ingredients made from chicory roots. Both products are water-soluble dietary fibers with prebiotic properties and a low caloric value. The products are easy to use and can be added to common foods without affecting their taste. They have other benefits for food manufacturers, such as:

- texture modifiers
- sugar- and fat replacers
- water binders
- mouth feel improvers
- gelling agents

Royal Cosun

Sensus is part of Royal Cosun. This global, agro-industrial cooperative manufactures natural ingredients for the food industry. The group is also developing non-food applications. Other Royal Cosun companies include: Aviko, Duynie, Suiker Unie and SVZ.

Research and development

Sensus has a global network of high-level research organizations, universities and academic medical centers that cooperate in finding scientifically proven health benefits. To inspire customers, Sensus also conducts consumer research in countries all over the world.

Processing food ingredients industrially requires specialist knowledge. Royal Cosun has its own research facility, the Cosun Innovation Center. Sensus works closely together with this Innovation Center. Technical research includes taste- and texture profiling and the investigation of synergy with high intensity sweeteners.

Sensus utilizes high-tech test facilities, sensory panels and a dedicated team of specialists for various food applications to develop new product concepts. It aims to create the most value from the raw materials it processes and works in partnership with its customers and industry.

"Global network of high-level research organizations, universities and academic medical centers"

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For more information contact:

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Or visit our website **www.inspiredbyinulin.com**

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