

John Michaelides and Kathryn Cooper

DIETARY FIBRE PART 2

Healthy Fibres for Export Only

Some of the newest healthy fibres can only be found in Canadian foods bound for export markets. Ingredients such as inulin, resistant starches and fructooligosaccharides have become embroiled in the controversy over the definition of dietary fibre. Although many of these products are permitted for use in Canada, they are not considered dietary fibre under the current definition. Nutrition labelling poses a special problem for these products. The Association of Official Analytical Chemists approved chemical methods for determining dietary fibre pick up products such as resistant starch as dietary fibre. However, according to Health Canada, dietary fibre from resistant starch cannot be included on the label. This and other related complications leave processors questioning the value of adding these ingredients, even in the face of overwhelming consumer health benefits.

Resistant Starches

Resistant starch is a unique insoluble fibre that can be used in breads, cakes and pasta to increase the fibre level without affecting taste or colour of the finished product. It is currently approved almost everywhere else in the world. It can be used in products that contain high levels of refined flour.

“Resistant starch is a better-for-you carbohydrate,” says Rhonda Witwer, business development manager of nutrition at National Starch Food Innovation. “Our Hi-Maze resistant starch has been proven to promote gut health, lower the glycemic response of foods, increase calcium absorption, assist in weight control, increase insulin sensitivity and strengthen the body's immune system.” More than 130 studies have been published that demonstrate that Hi-Maze, a prebiotic fibre, increases the population of beneficial bacteria within the large

intestine, producing certain “short chain fatty acids” that protect the intestinal tract against cancer and help to burn body fat. In addition, studies indicate that when Hi-Maze is substituted for flour, it can reduce radical swings in blood sugar, and assist with controlling appetite and energy levels through its slow breakdown in the colon.

In March 2002, National Food Starch Innovation approached Health Canada, armed with a mass of scientific evidence, which included 60 human clinical studies, for approval of its Hi-Maze under the traditional definition of dietary fibre. Nearly three years after making the original submission, and long after the low carb trend has come and gone, Hi-Maze resistant starch is still not available to Canadian processors or consumers. “Hi-Maze has been approved as a fibre in the U.S., Europe, Australia, New Zealand and Japan,” says Bill Ruderman, vice-president, Food Division, National Food Starch Innovation. “Our product even meets the Canadian definition for dietary fibre, and still Health Canada withholds permission for its use without any explanation.” Ruderman says that Canadian consumers are the biggest losers in what has been called an “indefensible” delay in the approval process. “We talk about harmonization of regulations and the protection of consumer health. How is it that Health Canada can ignore outright such a large body of medical evidence?”

Inulin

Inulin is a plant derived carbohydrate with the benefits of soluble dietary fibre. It functions as a prebiotic as it is fermented in the colon by beneficial bacteria. Inulin has been associated with enhancing the gastrointestinal and immune systems. In addition, it has been shown to increase the absorp-

tion of calcium and magnesium, influence the levels of blood glucose and reduce the level of cholesterol and serum lipids. "Some Canadian companies have formulated inulin into various products such as yogurt, breads, cereal and nutrition bars," says Graciela Ralli, product manager for Orafit inulin products at Quadra Chemicals. She points to yogurts such as Astro's BioBest and some of Yoplait's products. Cultured products and inulin are a natural fit because of the synergies between inulin and beneficial microflora such as *Bifidobacteria*. Inulin promotes the health of the large intestine by acting as a source of food for the health promoting bacteria.

Ralli says that Canadian consumers are missing out on an array of healthy inulin based products because it is not recognized in Canada as a dietary fibre. "There are a number of Canadian companies who have formulated their products to contain inulin, but are withholding the launch until they are able to declare inulin as a fibre," says Ralli. "Processors are saying, 'Why go to the extra expense of creating a very healthy product, if you cannot promote it and gain back the additional value from the marketplace.'" Ralli feels that Canadian processors are further disadvantaged by U.S. exports to Canada. "Many of the products that contain inulin, coming in from the U.S., include inulin as a dietary fibre. Given the choice, health conscious consumers will choose the product from the U.S."

In the U.S. inulin has also been used in low carb food products, particularly baked goods, because it provides elasticity to dough and baked products. Furthermore, it is used in sweetener blends because it acts as a bulking agent during sugar replacement.

Fructooligosaccharides (FOS)

Fructooligosaccharides (FOS) are natural soluble fibres derived from a wide variety of fruits, vegetables and grains. They have shown positive effects on laxation, control of blood cholesterol and blood glucose levels. The main benefits of short chain FOS include improving intestinal integrity and function, increasing calcium and magnesium absorption, modulating intestinal immune response, supporting a healthy cholesterol metabolism and increasing soy isoflavone

absorption. "The body of research for short-chain fructooligosaccharides (scFOS) spans more than 20 years," says Dr. Linda Douglas, scientific affairs manager for GTC Nutrition, a company working with Casco in Toronto that will be the sole North American producer of scFOS. "Short-chain fructooligosaccharides have been widely recognized as a safe and healthy source of soluble fibre in many countries. The lack of its fibre status in Canada is preventing Canadian consumers from realizing the many proven benefits of this product." Bob Crane at N2 Ingredients agrees the regulatory environment is impeding the use of this product for the Canadian market. "Some Canadian companies are formulating with FOS for export markets," notes Crane. "Until something changes, Canadian consumers will not have the benefit of this ingredient."

Nora Lee, acting chief of nutrition evaluation division for Health Canada, notes that the status of resistant starches, inulin and fructooligosaccharides as dietary fibre will be reviewed when the definition of dietary fibre is reviewed. "Such ingredients can be used in foods provided they are safe," says Lee. "They are not currently permitted to be declared as dietary fibre."

On the horizon are other new fibre ingredients not defined as fibre in Canada. These include arabinogalactan, gums, lignins and polydextrose. In many countries these compounds and their derivatives are considered fibres, but not in Canada. According to Ron Doering, a lawyer with Ottawa-based Gowling Lafleur Henderson representing National Food Starch Innovation on resistant starch, something has to change. "I believe that the rigid position taken by government on products like resistant starches undermines innovation and competitiveness of the Canadian food processing industry." Doering believes that both industry and government representatives are victims of an outdated and inflexible regulatory system that must change.

Health Claims

The definition of dietary fibre is not the only regulatory complexity in this case, the lack of dietary health claims also looms large. A 1992 National Institute of Nutrition study on



Canada Dairy Commission / **Commission canadienne du lait**

Canada

Attention Dairy Product Manufacturers and Further Processors!

Are you looking for ways to grow your business? Do you need help in product innovation, but lack the resources? If so, we have good news for you.

How we can help

The CDC has created two new funds to facilitate access to expert technical support and advice. For more information on the **Direct Access Fund** and the **Innovation Support Fund**, contact Mark Lalonde at (613) 792-2072, toll free at 1-866-366-0676 or mlalonde@agf.gc.ca.

MILKingredients.ca

HEALTH CLAIMS	CANADA	OTHER COUNTRIES
Fruits & Vegetables, low in fat, and cancer	Yes	Yes - U.S.
Whole grain foods and heart disease and some cancers	No	Yes - U.S.
Soluble fibre (including Oatrim) from foods such as oat bran, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease Oatrim – soluble fibre fraction produced by alpha-amylase hydrolysis of oat bran or whole oat flour containing 10% beta-glucan	No	Yes - U.S.
Diets low in saturated fat and cholesterol that include soluble fibre from oatmeal may reduce the risk of heart disease	No	Yes - U.S.
The inclusion of oats can help reduce cholesterol as part of a diet low in saturated fat and a healthy lifestyle	No	Yes - U.K.
Soluble fibre, as part of a diet low in saturated fat and cholesterol, may reduce the risk of coronary heart disease.	No	Yes - U.S.

Consumer Use and Understanding of Nutrition reported “Health Claims were the pivotal element influencing product choice when health was a concern.”

While Canadians have access to one claim on fruits and vegetables and cancer, other claims that might specifically connect soluble and insoluble fibre and health benefits are not available. Other jurisdictions, such as the U.S., have numerous claims on soluble and insoluble fibre.

Consumers need to significantly increase their consumption of dietary fibre. The health benefits of insoluble and soluble fibres have been established. New fibre products provide an opportunity to deliver fibre in ways that taste good in a wide variety of products. A number of serious regulatory challenges are facing the Canadian food industry restricting its competitiveness and innovation. If the health benefits of dietary fibre are going to be available to Canadian consumers, industry, government, health care professionals and consumers will need to make the resolution of these issues a serious priority.

Dr. John Michaelides is technical director, and Kathryn Cooper is vice-president, marketing & client services, and both are with the Guelph Food Technology Centre. Tel: (519) 821-1246 ext. 5025.



SILLIKER
Food Safety & Quality Solutions

Are Nutritional Labelling Rules & Regulations Keeping Your Product Out of the Marketplace?

Call on SILLIKER Canada experts for all of your Canadian and U.S. nutritional labelling needs. Our accredited testing methods and nutritional labelling knowledge can help you pass inspection and prevent regulatory issues before they cost you time and revenue. Our services include:

- Sampling Information
- Nutritional Analysis
- Label Formatting
- Nutrient Content and Health Claims

Trusted by Companies and Regulators Worldwide

Silliker is the leading international network of accredited food testing laboratories with locations in 11 countries.
 SILLIKER Canada Co. • Tel: +1 905/ 479 5255 • Fax: +1 905/ 479 4645
www.silliker.com • info@silliker.com