



Food and drink by the dose

Science and innovation help push
new processing formulations **BY NICK ROSKELLY**

Consumers have made it abundantly clear that they prefer getting medicinal benefits from foods and beverages rather than from well, medicine. As a result, food and beverage processors are under pressure from consumers to offer new products that contain value added benefits. As consumers become better educated about the foods they eat, they are gaining familiarity with concepts like food as medicine, food as treatment and food as a disease preventative. Such knowledge and awareness creates an intense demand for foods and beverages to be more than tasty, convenient and affordable. They have to have a specific function.

Chr. Hansen put resources behind probiotic development in an effort to extend the beneficial bacteria beyond yogurt. Fresh, chilled beverages such as orange juice are likely candidates.

Whether it's increasing metabolism, fostering digestive health or lowering cholesterol, foods with function are being sought by consumers.

Some foods have natural functions: Scientists at Seoul National University successfully used kimchi sauerkraut to treat chickens infected with avian flu. Kimchi is a seasoned variety of sauerkraut that shares *Lactobacillus* bacteria with traditional

sauerkraut, which may be the critical element in preventing avian flu. Both kimchi and traditional sauerkraut are made by fermenting sliced cabbage, producing a high level of lactic acid. Now, there's a specific function.

But processors aren't always able to capture the inherent goodness in foods like sauerkraut; they need help from suppliers with the scientific

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knowledge and research capabilities to develop successful functional foods and nutraceutical beverages.

Functional foods

For processors searching for suppliers with the expertise to assist in the development of functional food products, the process can be daunting because of the sheer number of functional ingredients available. Just narrowing ingredient choices can be a harrowing task, much less selecting a supply partner to provide that ingredient and needed consultation.

Suppliers like Orafiti Active Food Ingredients, Malvern, Pa., have made efforts to distinguish functional ingredients by branding them (a common practice among suppliers) and also developing a trademark for retail product labels (a less common, but growing trend). For instance, until recently scientific and nutritional communities have recognized Orafiti's products generically as inulin and oligofructose. Food manufacturers have generally accessed them according to their proprietary brand names, Raftiline and Raftilose, respectively, and consumers in many parts of the world have come to recognize the health benefits of Orafiti's ingredients via the Beneo trademark on retail product labels. Now the Beneo designation officially unifies all levels of Orafiti's marketing to form a single, cohesive communications program that allows Orafiti's overall message of better nutritional choices to be more readily recognized and understood by all concerned.

Processors get streamlined scientific,

DSM developed a logo and brand for its Teavigo product that streamlines marketing efforts from supplier to processor to consumer.



communication and marketing support, while consumers get an instantly recognizable label for health and well-being benefits.

Examples of branding an entire line of ingredients on the behalf of processors and consumers are found across the industry. McNeil Nutritionals' sweetener Splenda and The Solae Co.'s Solae soy products are two mainstream examples.

Outside of marketing and branding efforts for functional ingredients, suppliers have also gone a long way with research and development to better understand the science behind why certain ingredients perform the way they do. Chr. Hansen, Milwaukee, has recently put resources behind probiotic development. Probiotics are a successful ingredient in modern, functional foods, and Chr. Hansen is

helping processors take the beneficial bacteria beyond yogurt. Fresh, chilled beverages such as orange juice are likely candidates for frontrunner in the next probiotic market development. The key to the development of the second generation of probiotic products is a special Direct Liquid Inoculation system. It allows food producers to add the probiotic bacteria directly to the finished food product.

A division of Bioenergy Inc., Valen Labs Inc., Minneapolis, Minn., produces D-ribose as a functional food/nutraceutical active ingredient and finished clinical nutrition products based on D-ribose as the core functional ingredient. The functional ingredient is sold under the brand Bioenergy Ribose, and finished products under the brands CORvalen and CORvalenM.

"Valen Labs products are all centered on patented technology involving the use of D-ribose, a simple 5-carbon monosaccharide or pentose sugar," says Clarence Johnson, chief executive officer and chairman of Valen Labs. "D-Ribose is proven through a large volume of clinical and laboratory studies to accelerate energy recovery in stressed tissue. Stressed tissue may include muscles that are overworked, stressed by repeated bouts of intense exercise or are affected by various chronic disease states, such as fibromyalgia, peripheral vascular disease, or other neuromuscular diseases that affect the cells' ability to metabolize energy."

The company's products are precisely the kind of science supported, market targeted ingredient processors are demanding.

Omega-3s are also seen as a hot functional trend that will get even hotter in 2006. Among suppliers that are applying new technologies and science to omega-3s is Martek, Columbia, Md. The company developed Martek DHA, which is

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Photo courtesy of DSM



made from algae. Martek DHA is a vegetarian source of DHA — the omega-3 for brain health — so it is appropriate for traditionally vegetarian foods and has many advantages over fish oil.

Regarding microencapsulation of fish oils and other vitamins, minerals and nutrients, companies like The Wright Group, Crowley, La., know that such ingredients possess unique characteristics that can affect the appearance, color and odor of the final product.

“Microencapsulation is an effective method of masking unwanted sensory characteristics while maximizing nutrient function,” says S.L. (Sam) Wright IV, president and chief executive officer. “Developed through extensive research and product development, Wright’s proprietary Smart microencapsulation technology,

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—S.L. (Sam) Wright IV, president and chief executive officer, The Wright Group

SuperCoat Omega-3 provides a tasteless, odorless, ready-to-use functional dry powder with excellent process properties that can be used in a range of bakery products, functional food and nutritional supplements.”

Nutraceutical beverages

Processors narrowing the search for nutraceutical beverage ingredients are under the same puzzling pressure as those seeking functional food ingredients. The options are vast, and the need for technologically advanced, science-based, easily marketed ingredients is urgent.

Companies such as DSM, Heerlen, Netherlands, have tried to reach out to processors with products like Teavigo. Teavigo is highly purified EGCG (Epigallocatechin Gallate) is one of the main catechins in green tea. A catechin is a type of tannin (polyphenols with an astringent taste), which is found in green tea. DSM scientists and collaborators have conducted studies with positive results in various factors of obesity, including a reduction in body fat and weight, a reduction in body weight gain and increased metabolism and fat oxidation. With obesity and weight reduction on the minds of many Americans, brands like Teavigo are reaching out to processors who face a clear consumer need.

A slew of beverage suppliers have stepped up technological and scientific research to provide processors with new ways of achieving nutraceutical beverages with points of differentiation. For example, Geni Herbs, Noblesville, Ind., recently developed PomElla TG, which contains the same natural ratio of polyphenols as are found in whole pomegranates. (Polyphenols are the main compound cited as responsible for the fruit’s vast health benefits.) A study last year found that PomElla TG pomegranate extract offers up to five times higher antioxidant capacity in vitro than vitamin E or ellagic acid.

Ingredients for functional foods and nutraceutical beverages are in high demand, but as science and technology progress, the manner in which to meet that demand will become versatile and responsive to subtle changes in the marketplace. ■