



Functional-Beverage Bonanza

**By Philip Fass and
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Today's consumers are increasingly health-conscious and concerned about a number of health-related issues, such as heart health, fat intake and BSE (bovine spongiform encephalopathy). Consequently, some individuals are seeking to maintain health and well-being by dietary means and, in order to do this, will include nutritional substances, such as antioxidants, calcium, prebiotics or soy products through food fortification or supplementation. This demand has led to the development of the functional-foods market worldwide. Functional beverages are growing, with all players in the product supply chain keen to capitalize on their increasing popularity.

An important consideration for R&D is the development of functional beverages with associated health benefits. Functional ingredients might be linked to one or more health benefits, and providing clear explanations to consumers can present challenges. However, the appeal of functional beverages is more achievable if the focus is placed on positioning products as a component of a healthy, active lifestyle with the emphasis on key attributes of product quality and refreshment, rather than the so-called "death marketing" approach.

Versatile ingredients are now available, offering manufacturers significant opportunities for product innovation. Two examples of products increasingly used in the functional-beverage sector are soy protein isolates and natural-source vitamin E, which combine technological innovation with health-enhancing properties. Here, we review these ingredients and the emerging market opportunities.

Changing perceptions

Soy is a rich source of protein and oil, and manufacturers use the many derivatives of these components in a vast range of foods. A staple of the Asian diet for centuries, the soybean was introduced into the Western diet in the early 1920s when farmers realized its enormous potential and began to grow it in commercial quantities.

Although traditionally the domain of vegetarians, certain allergy sufferers and those with lactose intolerance, the perception — and most importantly, the consumption — of soy-based products is now changing. Barriers that prevented soy-based products from becoming mainstream — limited retail availability, poor taste and consumers' lack of awareness of the health benefits — are

gradually being broken down. Manufacturers and consumers are now more aware of the properties of soy, which make it a versatile and healthy food ingredient. Today's soy-based ingredients have been improved by the development of new techniques to remove or mask some of the bitter flavors and to create better textures.

Awareness of the health benefits of soy protein has been increased by the approval of generic health claims by both FDA in 1999 and the U.K. Joint Health Claims Initiative (JHCI) in 2002. Both health claims say, "25 grams of soy protein per day, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease." Products carrying the claim must contain a minimum of 6.25 grams of soy protein per serving. Furthermore, consumers are now more knowledgeable about soy-related health benefits.

Soy-enriched beverages

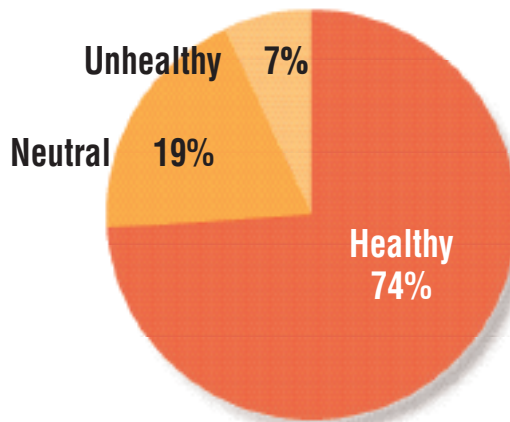
Although the soy-beverage market is still perceived as niche, it is rapidly moving into the mainstream. Soymilk and nondairy versions of beverages, such as milk shakes, protein drinks and yogurt smoothies, are growing in popularity with products appearing on supermarket shelves across the world, includ-

Soyfoods and Health

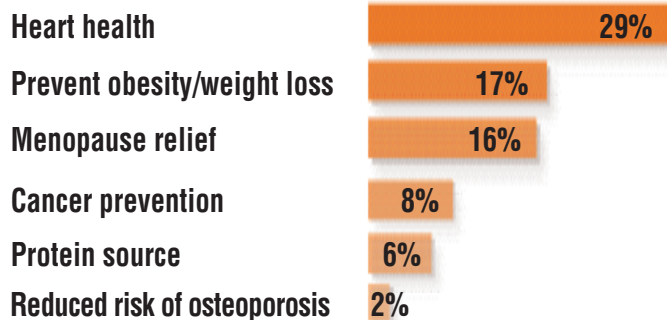
Most U.S. consumers (74%) perceive soy products as healthy. More females (44%) than males (28%) stated soy might provide a healthy addition to their diet. This knowledge encouraged 27% of consumers to seek out products that specifically contain soy.

Of those surveyed, 39% recognized awareness of specific health benefits gained by including soy in their diet. On an unaided basis, 29% of consumers reported awareness that soy is

Perceived Healthiness of Soy Products



Awareness of Health Benefits of Soy



good for the heart. Many menopausal and post-menopausal women sought out soy as a natural alternative to hormone replacement therapy (HRT) in 2003, following the cancellation of the National Heart, Lung and Blood Institute of the National Institutes of Health clinical trial, which found HRT might increase the risk of breast cancer, coronary heart disease, stroke and pulmonary embolism.

Source: "Consumer Attitudes About Nutrition," (2004, The United Soybean Board, Chesterfield, MO)

ing So Fresh in Egypt, Vitamilk J-Soymilk in Thailand and Haldane Foods' Soya in the United Kingdom. Many of these are not simply positioned as alternatives to dairy, but as additional beverage options with sensory and taste experiences in their own right.

Demand for soy-based beverages providing both refreshment and a healthy-lifestyle option has led to the development of a new generation of innovative soy ingredients. Whereas traditional soy isolates can have flavor

and dispersion issues in certain applications, new agglomerated soy isolates (highly digestible sources of amino acids) offer improved functionality and nutritional profiles. Agglomerated soy isolates contain more than 90% protein, enabling the development of products to meet the FDA and JHCI health claims. Furthermore, their gelation, emulsification and viscosity-building properties are particularly useful in the creation of high-protein, dairylike products having a bland fla-

vor. With such ingredients available, we can expect further examples of product innovation in this sector with, for example, fresh, single-portion soy-based beverages that appeal to younger consumers who favor "on the move" convenience.

Vitamin enrichment

Vitamin-enriched waters, juices, and sports and energy drinks have increased in popularity as consumers learn more about vitamins and long-

term health maintenance. The U.K. functional-drinks market now exceeds £250 million a year, and functional energy drinks are the strongest category, more than doubling in volume and value since 1999.

The bottled-water sector also offers opportunities for vitamin enrichment, with consumer demand driven by both awareness of the importance of proper hydration and concern over obesity and dental health, particularly in children. Bottled water is increasingly accessible in everyday life, with over 700 million bottles sold in pack sizes designed for consumption on the move and more than 1,500 million cups filled from water coolers in offices, shops and reception areas.

Natural E

Adding vitamins or other beneficial bioactive nutrients offers opportunities in the development of innovative functional foods and beverages. Natural-source vitamin E is well suited to healthy, functional-beverage applications. Vitamin E, a lipid-soluble antioxidant obtained from the processing of vegetable-oil crops, such as soybeans, maize, rapeseed and sunflower, is also found in small quantities in foods, such as sweet potatoes, avocados and nuts. The vitamin E found in nature is named RRR-

alpha-tocopherol (commonly known as d-alpha tocopherol), but other natural forms known as beta-, gamma- and delta-tocopherol also exist. The synthetic form is an equal mix of eight isomers and is correctly referred to as dl-alpha tocopherol.

Recent studies indicate that the natural form of vitamin E is utilized by the body in preference to the synthetic form of vitamin E because of greater initial retention. In practice, this means that natural-source vitamin E has a higher bioavailability than the synthetic alternative. Also, with increasing consumer preference for naturally derived foods, natural-source vitamin E is ideally placed to meet current consumer expectations. Ongoing scientific investigations indicate that vitamin E might be associated with a number of health benefits, including heart-health maintenance and combating the effects of free radicals implicated in degenerative processes.

Vitamin E is one of the fat-soluble vitamins and, as such, is insoluble in water. But now, a form of natural-source vitamin E is available, suitable for incorporation into clear waters, fruit and vegetable juices, juice concentrates, and nutritional or sports beverages with little or no change to existing formulations. ADM, Decatur, IL, manufactures such a product that dis-

perses rapidly in water with minimal mixing. In this unique formulation, tiny micelles of vitamin E called nanoparticles are produced; these particles are so small that they do not reflect light waves, which means that solutions are seen to be "clear," making the ingredient ideal for use in applications where water-clear transparency is regarded as essential.

Clearly, the use of innovative, high-quality ingredients is crucial to the development of functional beverages, enabling the creation of products that are not only associated with health and well-being, but also address the primary function of a beverage: refreshment and enjoyment. The added value offered by innovative ingredients, combined with good drinking quality, are the factors that can help ensure success in a very competitive marketplace. ■

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