

POWER PLAY

Products enhanced with antioxidants offer increased wellness and marketability

BY CAROLYN COOPER

Antioxidants are not a new concept. Naturally, they occur in fruits, nuts and vegetables. Foods and beverages such as dark chocolate, tea and red wine are ideal sources of antioxidants as well. Manufacturers have also used synthetic antioxidants in processed goods for years as a preservative and stabilizer to prolong shelf life. However, as consumers become increasingly aware of the power of antioxidants, producers are adding them more frequently to a wider range of non-traditional products, boosting both their wellness quotient and their marketability.

While they are not antimicrobials, antioxidants do slow down the aging process, attacking the free radicals that lead to damage. For this reason they are excellent for use in packaged baked goods and snacks. They're thought to work the same way in our bodies, protecting us against the effects of oxidation and age, as well as diet-related dangers such as heart disease and cancers. Among others, antioxidants include vitamins C and E, polyphenols, lycopene and carotenoids.

In recent years, consumer interest in foods and beverages containing antioxidants has risen rapidly, primarily due to studies showing their positive health benefits. Items such as dark cocoa and pomegranate juice have been touted as super foods. A slew of research has also been produced in the past five years showing that moderate consumption of red wine reduces the risk of heart disease, while the antioxidant resveratrol may prevent some cancers. As a result, reports the NPD Group's *National Eating Trends* statistics, per capita consumption of red wine increased to 9.5 consumption occasions per year in September 2005, from a low of 6.6 times in September 2001. Other food and beverages with antioxidant properties have experienced similar increases, with berries jumping to per capita 16.2 occasions in 2005 from 6.7 in 2001, and green tea increasing to seven occasions last year from a low of 3.9 in September 2000. In May, a new study by ACNielsen announced that 2006 will be the year that antioxidants "hit the mainstream in a big way," with sales of the category leader, tea, up 1,000 per-cent year-over-year.

"The U.S. retail sales of fortified foods has increased more than 60 per cent in the last six years," says Todd Sitkowski, senior commercial manager, Human Nutrition and Health for DSM Nutritional Products, Inc. "It's expected to increase another seven plus per cent in 2006." DSM supplies a number of different antioxidants to food and beverage



manufacturers, but, says Sitkowski, carotenoids and vitamin C and E are some of the most widely recognized and used.

To cash in on this consumer interest, producers of foods and beverages such as juices, chocolate and tea have extended their lines to include antioxidant-rich ingredients. Now, an even wider array of manufacturers are using these ingredients to appeal to consumer health concerns and to differentiate themselves in the market. Weight maintenance and energy-related products have been quick to jump on the antioxidant bandwagon. Unilever's Slim-Fast Optima line now features antioxidant-rich blueberry muffin bars; Gatorade's Propel Fitness Water is fortified with vitamins C and E among other ingredients; and in May U.S.-based H3 Enterprises launched energy drink BG7 made of pure organic white tea. The company is marketing the beverage as "the healthiest energy drink to hit the market," noting that white tea "has five times the antioxidants and health benefits of green tea."

"The market for these types of ingredients and food products has really exploded in recent years," says John Michaelides, director of Technical Services for the Guelph, Ont.-based Guelph Food Technology Centre (GFTC). Michaelides notes that adding antioxidants is also a more feasible proposition now "due to new, more stable ingredients from many different sources. The total antioxidant activity of these ingredients is also now much easier to determine using new methods such as Oxygen Radical Absorption Capacity (ORAC)."

However, while there are seemingly endless opportunities for the use of antioxidants, there are also numerous challenges. For example, says Sitkowski, "The product developer must be aware of possible interactions between nutrients. Vitamin C destruction can be catalyzed by iron." Michaelides

adds that different antioxidants may also affect food product qualities. "These effects are not so severe because the amounts of pure antioxidants used are normally small and therefore the effect is minimized," he says. "However, when pure extracts of antioxidants are not used, certain ingredients, normally used in the products at higher concentrations, may affect or change the characteristics of the product."

Nor is it as easy as simply adding any antioxidant to any product. "There are many antioxidant ingredients of different activities and potencies available in the market today that are proposing to deliver different health benefits," says Michaelides. "Not all of them can be incorporated into all products. The type of product, the process used for the production of that product, and the packaging can determine which of them can be successfully incorporated into which product." Manufacturers must also ensure that "what they are adding in the product will withstand the processing conditions, and even at the end of the shelf life will deliver the health benefit to the consumer," he says. To help overcome these challenges, the GFTC and ingredient suppliers often work with manufacturers' R&D teams "to choose the right market form, the proper use, and guide them in the product development phase," says Sitkowski. "Willingness to work together is key."

There is still much research to be done on antioxidants, including whether or not some sources are better than others (for example, a U.S. Food and Drug Administration study released in May found there was no evidence that green tea reduces heart disease, despite earlier studies showing the effectiveness of green tea as an antioxidant), and how much can be absorbed by the body. Regardless, it appears that this is one trend consumers are unlikely to tire of. "Extrapolating the historical data, the trend should continue or possibly even increase," says Sitkowski. "Consumer spending on antioxidants continues to have the highest growth rate among the health-related categories." Al Frittenburg, owner of Brampton, Ont.-based The Ingredient

Company – suppliers of Kalsec's Herbalox Seasoning, a natural extract of rosemary with naturally occurring and standardized antioxidant activity – also believes demand will continue to grow. "The market continues to demand products that have a natural label, are GMO- and allergen-free, and have multi-functional benefits," he says. "This has moved from 'nice to have' to 'necessary to be successful' in Canada and Europe."

"There will be a lot more sources of antioxidant and other functional ingredients identified and developed in the future," agrees Michaelides. "These will be more concentrated, more potent and more specific in delivering health benefits. As a result, says Michaelides, "there will be a lot more opportunities to incorporate these ingredients in many different types of foods as new technologies are emerging." [E]

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