Nutrition Bars: Raising the Bar

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Functional ingredients to distinguish your nutrition bar from the bunch.

Nutrition bars, in their usual form, offer ingredients like soy protein crisps, rice flour, and oats—maybe chocolate for added appeal. Over time, the recipes have blurred. Inspect an energy bar market shelf, and you’ll be hard-pressed to find diversity. But food science continues to put new ingredients on the table. Here’s a handful of ingredients that could shake up the future bar market.

Resveratrol

This polyphenol antioxidant from wine grapes needs no lengthy consumer introduction. Consumers already hold positive associations between wine consumption, antioxidants, and the Mediterranean Diet, making incorporating resveratrol in a food product that much easier. One need only look at the endurance of the WineTime bar (the first of its kind) to understand that there is an appeal for wine’s nutrients outside of the bottle.

Resveratrol research continues to grow—ClinicalTrials.gov indicates 35 resveratrol studies are either ongoing or recently completed—and what is currently understood about resveratrol is positive. Resveratrol (via supplements and dietary sources) has been linked to reduced oxidative stress, reduced inflammatory responses, and increases in blood flow and nitric oxide in humans.(1) Scientists have even alluded to a potential for resveratrol to curb risks of atherosclerosis and diabetes.

These days, talking about resveratrol can also bring pterostilbene to mind. The blueberry-derived compound is similar to resveratrol and often touted for higher bioavailability. Pterostilbene research is gaining on some of resveratrol’s familiar grounds, including blood pressure and oxidative stress. ChromaDex Corp. (Irvine, CA) just achieved Generally Recognized as Safe (GRAS) status for its pTeroPure ingredient for use in foods and beverages, so don’t be surprised if there’s a pterostilbene bar in our near future.

Vitamin K2

Among its various functions, vitamin K2 can carboxylate (or activate) osteocalcin, a protein responsible for moving calcium from the blood to bones.(2) Add to the science a 2009 health claim for bones from the European Food Safety Authority, and you have one of today’s most exciting bone-health ingredients.

With bone health one of the world’s leading health troubles, incorporating vitamin K2 and other bone-health compounds in bars seems a logical response. About 20 bars are already doing so (with “bone health” claims) around the world,(3) says Peter Wisler, director of business development for Danisco Health and Nutrition (Singapore). “With more than half of those products launched last year, there is no doubt that this market is growing and will increase in the coming years,” he says.

Danisco offers the ActivK-brand vitamin K2 ingredient. It is already being showcased in a “triessential bar” containing ActivK, vitamin D, and calcium.

Manufacturers should note that all K vitamins are light-sensitive. Keep this in mind when it comes to packaging.

CoQ10

Sad as it is, the threat of cardiovascular disease isn’t going away any time soon. With heart disease the leading cause of death in the United States, ingredients pledging heart-health benefits will remain important. Coenzyme Q10 (CoQ10) has surfaced as one ingredient paving the way for modern cardiovascular research. Ingredient suppliers have been achieving CoQ10 GRAS recognition for several years now, and it seems only a matter of time before the ingredient will start gearing up in nutrition bars.

In January, Israel witnessed its first market launch of a CoQ10 bar, when ingredient supplier
Herbamed (Rehovot, Israel) launched a NutraVida-brand bar that hit drug, health food, and bicycle shops throughout the country.
Recent CoQ10 studies point to the potential benefits of reduced oxidative stress,(4) resistance to muscle damage,(5) improvements in blood pressure,(6) and even an anti-wrinkle campaign.(7,8) But researchers still claim that CoQ10 bioavailability and CoQ10 uptake from products remain key challenges. Herbamed is one company that aims to solve this issue with its patented Ultrasome formulation, which the company says can increase CoQ10 bioavailability by 300%.

L-Carnitine
Bars containing this proven free radical scavenger have been in the pipeline for some time, but consumer familiarity with the ingredient is still in its early stages. L-carnitine is implicated in the development of ATP, and studies suggest that L-carnitine’s antioxidant capacity may be the mechanism behind L-carnitine’s potential to reduce damage to muscle tissue. An ability to spare glycogen stores and reduce lactic acid buildup in athletes may be responsible for anti-fatigue effects that are commonly linked to this ingredient.(9)

The potential benefits of L-carnitine make it an obvious fit for sports-performance bars—it’s already in some—but Lonza, developer of Carnipure-brand L-carnitine, says there are other areas of interest. Studies have linked this amino acid to improved fat oxidation (an appealing tip for weight management). Additionally, L-carnitine can only be received from the diet through meat consumption. It can be synthesized naturally, but the other amino acids needed for its production are often not consumed enough by vegetarians, says Lonza.

According to Lonza, this pH- and heat-stable, colorless ingredient is well-suited for bars and other food products. Herbamed is planning a Fall 2011 launch of a CoQ10 and L-carnitine “Sports Advantage” bar.

Omega-3
Flax and other plant sources of omega-3 fatty acids can already be found in bars. But what if I told you fish oil could work, too?
Through a partnership with QualiTech Inc., Omega Protein (Houston) now offers its OmegaPure fish oil in confectionery particulates. These fish oil “flavor-ettes” can be customized for flavor and color. Quirky as it may be, fish oil flavor-ettes make omega-3 further accessible to a U.S. population in dire need of it. Here’s to a new way of getting omega-3’s numerous health benefits, including eye, brain, and heart support.

Ingredient Care
New or old, ingredients bound for a bar may require care in handling. For one, flavor specialists will be eager to point out that basic ingredients used to fortify bars (especially meal-replacement bars) can be naturally characterized by their own, often unwanted, aftertastes.

“Nutrition bars, by their nature, call for vitamin and mineral fortification,” says Virginia Dare (Brooklyn, NY) applications manager Evelyn Gonzalez. “The challenge exists of incorporating high-enough RDA levels to make the bars fulfill their nutrition purpose, without the fortification contributing to undesirable aromas and sulfury metallic taste notes. Off-tastes are often attributed to high levels of B-complex vitamins. Ingredients like taurine and betaine, commonly used in sports bars, can also impart metallic notes.”

But the list continues. In an interview with Virginia Dare, the company told Nutritional Outlook of the unwanted greeny and leafy tastes of vegetable sources; the beany, fatty, astringent, and drying tastes of protein sources; and the drying effects and caffeine-like bitterness of botanicals intended for sustained energy, including ashwaganda, L-theanine, and CoffeeBerry, an ingredient patented by FutureCeuticals (Momence, IL), a division of Van Drunen Farms. Even fiber sources can create taste challenges.

If your bar’s shelf life is at risk, microencapsulation can save the day, while also hiding flavors.
“There is a wide range of stability issues involved with vitamins, minerals, and other ingredients,” says Brandon Rudyk, sales and marketing manager for The Wright Group (Crowley, LA). “Ascorbic acid does not play well with iron, and B12 is sensitive to oxygen and light. Minerals themselves are generally very stable, but vitamin stability can be adversely affected. We also have to take into account heat, pH, processing conditions, and shelf life concerns.”

The Wright Group alleviates these concerns with its patented SuperCoat microencapsulation system, available in a variety of shell materials, matrix types, and processing technologies to satisfy needs.
from dry powders to oil-based materials. SuperCoat can support traditional vitamins and minerals and newer ingredients, such as resveratrol, L-carnitine, omega-3s, and probiotics.

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