

Seeking new sources of energy ingredients

Suppliers are developing the next generation of functional ingredients for the energy segment

Twenty-five years ago consumers typically turned to a cup of sugar-sweetened espresso when they wanted a quick boost. But when Starbucks became trendy in the mid-90s, transforming coffee's functional role from a wake-me-up beverage to a social drink, Red Bull charged into the United States and created a new beverage category that continues to evolve.

The energy drinks and shots market is one of the most dynamic beverage categories within the non-alcoholic beverage industry. Total U.S. sales exceeded \$12.5 billion in 2012, with sales growing 60% from 2008 to 2012, according to the report *Energy Drinks and Shots: Market Trends in the U.S.* from Packaged Facts, Rockville, Md.

During this time, the category progressed from tall, sleek cans to shot-style bottles, and today it encompasses all shaped and sized containers. Product formulations continue to evolve, as energy is something all adults crave, not just college students cramming for finals and night club patrons.

The demand for greater diversity in energy beverages has many formulators looking

for alternate sources of energy, besides caffeine and sugar. The most significant trend is the growing category of clean energy drinks, many of which are touting the use of plant extracts that are natural sources of caffeine and other energy-boosting ingredients.

Getting a boost

There are two distinct concepts that define how we think about mental energy, according to DSM Nutritional Products LLC., Parsippany, N.J.

"Our brain cells need fuel to support our thought processes, and we also identify with a feeling of being awake and energetic," said Deshanie Rai, senior scientific leader for DSM. "Both concepts have a good scientific rationale and are supported by a host of nutritional ingredients that contribute to mental energy."

Although the brain is only about 2% of the body's weight, it consumes about 20% of the body's total energy, said Ms. Rai. Glucose is the simplest and the favored calorie (energy)-providing carbohydrate of nerve cells.

"And caffeine is a universally recognized stimulant that

boosts reaction speed and enhances alertness," Ms. Rai said. "About 80% of the energy used in the brain is related to the brain's signaling processes."

It is these processes that have product formulators exploring ingredients beyond carbohydrates and caffeine. For example, ginkgo biloba is recognized for improving alertness and cognitive speed while ginseng is known for improving mood and the ability to complete cognitive tasks. Coenzyme Q10 and B vitamins don't contribute energy, per se, but they support energy generation at the cellular level.

Despite issues concerning the safety of energy drinks, in particular the frequency of consumption by young consumers and the large doses of caffeine they are ingesting, the category is experiencing an influx of new players, and at the same time the original marketers are adding new products to their line-up.

Earlier this year, The Hain Celestial Group Inc., Melville, N.Y., rolled out Enerji Green Tea Energy Shots, which are powered by green tea's inherent caffeine. The beverages also are enhanced with B vitamins and ginseng.

Xyience, Las Vegas, marketers of sugar-free and zero-calorie Xenergy drinks, recently added "plus" products, including Xenergy + True Hydration, Xenergy + Tea, and Xenergy + Lemonade, to the product line. Since the beverages are sugar-free, carbohydrates are not a source of energy in any of the beverages. The drinks include a proprietary blend of B vitamins, caffeine and ginseng, along with other functional ingredients recognized for contributing to mental energy, including D-glucuronolactone, guarana, inositol, L-carnitine and taurine.

Next generation ingredients

At the Institute of Food Technologists annual meeting and food exposition, held July 13-16 in Chicago, a number of ingredient suppliers showcased next-generation energy beverages that included more than a dose of caffeine.

For example, BASF Corp., Florham Park, N.J., featured a low-calorie tropical drink containing three of the company's energizing ingredients: caffeine and vitamins B5 and B12. DSM sampled 2-oz Energy Plus! Shots made with a premix containing ingredients such as B



vitamins, caffeine, taurine, D-glucuronolactone and L-tyrosine.

Caffeine may be added indirectly through the use of ingredients that are inherent sources of the stimulant.

"We are the only supplier of guayusa extract, which contains two all-natural stimulants: caffeine and theobromine," said Greg Robertson, president and founder of Teawolf, Pine Brook, N.J. "When the two stimulants are consumed together, one experiences a balanced energy without any jitters, crash or jolted buzz."

The extract comes from the

leaves of the guayusa plant, which is an Amazonian tree of the holly genus and native to the Ecuadorian Rainforest. Natives have long dried the leaves and brewed them much like traditional tea.

It is the lack of tannins that allows for a smooth, clean-tasting beverage, said Tyler Gage, co-founder and co-chief executive officer of Runa L.L.C., Brooklyn, N.Y., which markets two lines of energy drinks based on guayusa extract. Runa sources the guayusa leaves and supplies them to Teawolf to make the extract.

The ready-to-drink Runa Focused Energy line has been on the market since early 2012. The formula is simple: guayusa extract combined with carbonated water, citric acid, natural flavors and sweetener. There is an unsweetened, zero-calorie version, as well as a variety sweetened slightly with organic cane sugar that contains 50 calories.

Recently the company introduced 8.4-oz sleek cans of Runa Clean Energy. The formulation is basically a concentrated version of the bottled line.

"One can of Runa Clean Energy has 50% more caffeine than a Red Bull, 650 mg of polyphenol antioxidants and a clean, smooth taste — all from brewed leaves, not a lab," said Dan MacCombie, the company's other co-founder and co-c.e.o. "It provides you with clean energy. It puts you in the right state of mind to actively appreciate and love everything you do. We like to call it 'the energy drink for people who don't drink energy drinks.'"

Quercetin is another emerging clean-energy ingredient. It is a natural polyphenolic antioxidant flavonoid that was granted GRAS (Generally Recognized as Safe) status by the Food and Drug Administration in early 2011.

Foster City, Calif.-based The FRS Co. markets FRS Healthy Protein, which is fueled by a



patented blend of quercetin and essential vitamins. Each 12-oz bottle delivers 20 grams of whey protein isolate, 7 grams of dietary fiber, 325 mg of quercetin, 85 mg of green tea catechins and seven essential vitamins.

At the I.F.T., Naturex, South Hackensack, N.J., showcased some of its energizing ingredients — ginseng, guarana and maca — in a variety of delivery vehicles, including beverage, drink mix and chews. Maca, a tuber, contains high amounts of minerals, vitamins, especially

those in the B family, enzymes and all of the essential amino acids. Maca root is known to stimulate and nourish the hypothalamus and pituitary glands and is known to provide energy in the form of improved libido.

The theme at Morris Plains, N.J.-based Beneo Inc.'s exhibit during the I.F.T. show was "smart energy management." The company showcased how its specialty carbohydrates and prebiotic fibers address weight management from an energy perspective.

"The key to a sustainable and healthy weight is to keep the balance between calorie intake and energy output," said Joseph O'Neill, president and general manager.

Beneo offers an ingredient that provides a sustained source of energy.

"Isomaltulose is derived from sugar beets," Mr. O'Neill said. "It is a fully digested carbohydrate, but it is digested more slowly than other

sweeteners, resulting in a full supply of energy from glucose over a longer period of time. Being low-glycemic, it releases energy the balanced way without sudden peaks and drops of the blood glucose level."

Isomaltulose also has been shown to promote the body's own fat oxidation. This means that it increases the ratio of energy derived from fat relative to the total amount of required energy while active, leaving carbohydrate stores available for longer. Furthermore, it is the first fully digestible tooth-friendly carbohydrate.

Nth Degree Innovations Inc., Milltown, N.J., uses isomaltulose in Nth Degree Low Gi Performance Drinks. In addition to providing a sustained source of carbohydrates, the drinks are fortified with B vitamins.

Ribose, a naturally occurring sugar made in the body from glucose, also accentuates the body's natural process of

energy synthesis. Marketed by Bioenergy Life Science Inc., Minneapolis, ribose helps to reduce the loss of energy during stress and accelerates energy and tissue recovery. Through this action, ribose helps muscles regenerate lost energy and potentially minimizes any physiological consequences of this energy depletion situation.

Full Throttle, an energy drink produced by The Coca-Cola Co., Atlanta, through its Fuze Beverage business unit, has long used ribose, along with caffeine and vitamin B3, to deliver energy to consumers.

David Sprinkle, research director for Packaged Facts, believes energy drinks will continue to evolve as different consumer segments discover the quick boost the beverages provide.

"Brand line extensions and new marketer entry are both important to meeting varied consumer needs and keeping short-attention-span consumers



engaged," Mr. Sprinkle said. "Energy drink purveyors can retain their edginess by taking brand imaging, product innovation, flavor juxtapositions, packaging technology and marketing tactics to a new level of extremity." ■■

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