

Functional Flavor Profiles

Health ingredients require custom-tailored formulas

Several times a year, beverage flavorist Kathi Sparks and members of the flavor chemist team at Wild Flavors take part in “proactive flavor” projects, developing lines addressing particular industry trends. This time, the team custom tailored a flavor range for the company’s health ingredients for beverages, nutritional bars and coatings, and other foods with functionality.^a

“Consumers are becoming more health conscious and have a strong desire for natural products,” says Sparks. “They want efficacious ingredients in both beverage and food products that taste great and are natural—and they want those products to be easily accessible.” As a result, Sparks and her colleagues regularly work on functional and low-calorie products, often using stevia extracts and other natural sweetener blends.

“We’ve always focused on natural flavors, ingredients and technology,” says Sparks. “It’s a really good fit for us. We’re continually searching out new natural impactful aroma chemicals and ingredients to formulate with.”

Sparks notes that the flavor chemists routinely collaborate both with the applications team and health ingredients group in developing flavor concepts for functional applications. “Our [health ingredients] team developed all of these extracts and emulsions,” she explains. “They’re very clean tasting, but there’s still a taste that’s imparted. For example, in our green coffee extract the active component is [the antioxidant] chlorogenic acid. It imparts a slight acidic taste.” The extract supports weight management by helping reduce the amount of carbohydrates absorbed by the body. It can also help manage blood sugar levels.

Despite its functionality, the material is, as mentioned, acidic, in addition to solubility issues, requiring technical solutions from the formulation team. “If you involve the flavorist at the beginning of developing a beverage or a finished product, we know exactly what’s in the base, what processing parameters the product’s going to go through and what the customer is looking for,” says Sparks. “The health ingredients team puts them through their paces in different model systems so that we really know the stability of the ingredient. And we can taste that [functional] product to see what flavor it’s imparting and pick flavors



that will pair very well with it. Also, we can incorporate different [taste] blocking technologies to help the customer tailor the product to what they need.”

One profile the team of flavor chemists created to compliment the acidic aspect of the green coffee extract was a natural tamarind flavor WONF (with other natural flavors). The formulation works with the functional material’s existing taste profile, Sparks explains. “The tamarind is very earthy, sweet and resinous,” she says. “It has a very acidic taste and pairs very well with the coffee extract.” In addition, the chemists developed a natural pineapple dragonfruit flavor WONF that is tailored to work with the extract.

In another example, Sparks says, “Our [antioxidant] lutein emulsion has a slight creaminess and a slight fatty mouthfeel. One of the flavors we picked for that was guava mango passion fruit. It really pairs well with the fleshy juiciness of the mango.” Lutein can be used to support skin and eye health claims in food and beverage products, but requires emulsion technology to overcome its solubility issues. For this ingredient, the Wild flavorist team also developed both natural and artificial versions of a beignet type flavor intended for applications such as dairy and soy-based beverages. “It’s a healthy indulgence,” says Sparks.

The flavorists also formulated with the company’s natural antioxidant blend, MaxImmune.^b The product,

^aMarketed under the company’s HITS banner.

^bMaxImmune is a trade name of Wild Flavors.

extracted from grape skin, grapeseed, shitake mushrooms and green tea, has three times the antioxidant activity of red wine or green tea and has measurable health benefits, including supporting a healthy immune system. Red-purple in color at pH levels lower than 6.5, the blend, says Sparks, “has deep, rich, berrylike undertones, and some earthiness and astringent notes. We’ve designed a wild cherry flavor [WONF] that has a dark, sweet, adult-type flavor profile, and a natural pinotage wine type flavor. Due to the expected astringent component, wine flavors pair very well with MaxImmune.” Combined with a flavor and masking technology, the functional ingredient can be applied to enhanced waters, juices and smoothies.

Meanwhile, says Sparks, “The acai [extract] has an abundance of nutrients and polyphenols. It works well with acai flavor [WONF]; that brought out the tropical berry notes and the hint of blueberry, earthy chocolate, some slight musky notes—a very adult profile.” The extract has also been paired with a natural Yumberry, or yangmei, flavor WONF and a natural raspberry mandarin flavor WONF. Of the latter, Sparks says, “The raspberry mandarin—pairing common fruit with citrus, the sweet red raspberry notes with the fresh juiciness of the mandarin—went very well with the acai.”

“The hesperidin and naringin citrus bioflavonoids typically have slight bitter notes and can add some woodiness as well,” says Sparks, which necessitates pairing the material with taste modifiers. The antioxidants help support heart, skin and eye health at low levels, she adds, and can be incorporated into “beauty from within” type food and beverage products. Here, the flavor chemists paired the technically challenging antioxidants with a natural blackberry lime flavor WONF and a natural grapefruit flavor WONF (tangor type).

The flavorists also formulated flavors for an antioxidant blend of rooibos tea, grapeseed, white tea and green tea extracts that is clean-tasting and lightly colored and added to food and beverage products to support immune function and skin health. To meet the profile of the ingredient, the flavor chemists created a natural pineapple lime favor WONF and natural blueberry type flavor.

Finally, for green tea catechins, which support weight management, the flavorists created a rhapsody blue berry black currant flavor WONF and a natural root beer type flavor, the latter which also contains sea buckthorn extract, which supports blood circulation and heart health claims.

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