



## Juice innovation – from ingredients to finished products



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10.04.2018

By

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CHICAGO – Drink your veggies,” “get juiced,” or “Mother Nature’s energy drink” are some of the catch phrases beverage marketers are using to make juice relevant to today’s consumers, many of whom have been avoiding packaged juices the past decade because of their inherent high-sugar content. Ironically, it’s that sugar content that helps make 100% juice an attractive ingredient in other beverages and various food applications.

Further, juice – consumed alone or in other products – may help improve a consumer’s daily diet. Many fruit and vegetable juices are sources of important vitamins, minerals and often times, fiber.

“More than 80% of Americans do not eat the recommended amount of fruits and vegetables,” said Diane Welland, a registered dietitian with the Juice Products Association, Washington. “One hundred per cent juice is an easy, tasty way to incorporate more fruits and vegetables into your diet.”

In many applications, 100% juice is used for its sweetening function. Other times it provides color, flavor and nutrition. In some instances, its acidity assists with adjusting the pH of foods, which in turn may influence quality and shelf life.

“With the new labeling requirements, using added sugars could have a negative impact on product labels,” said Jeannie Swedberg, director of business development, Tree Top Inc., Selah, Wash. “Juice ingredients may assist by adding natural sweetness and nutritional value, often without the added

sugars. They can also provide natural color to candies, frozen novelties, fruit snacks, jams, jellies, sauces and, of course, beverages.



“Fructose is approximately 20% sweeter than sucrose and is abundant in fruits, as are other sugars,” she said. “For example, single-strength apple juice contains about 5.9% fructose, 2.7% sucrose and 2% other sugars.”

All types of foods and beverages may use fruit and vegetable juice ingredients as a source of sweetness, with or without characterizing flavor. Depending on the application and the usage level, it may be possible to

not declare the juice’s sweetness as an added sugar.

“Juice concentrate counts as added sugar, although you can subtract the single-strength equivalent,” Ms. Swedberg said. “You do not have to count single-strength juice as added sugar. Fruit purée does not count as added sugar.

“Juices can replace sugar or corn syrup in many applications, allowing consumer appealing label claims such as ‘made with real fruit juice.’ In many applications, mom feels better about feeding her kids products that are sweetened with fruit juice or fruit purée.”

Some juice concentrates are sweeter than others. This is reflected in the degree Brix measurement. The higher the Brix, the sweeter the ingredient.

“We standardize our juice concentrates to provide consistent sweetness,” Ms. Swedberg said. “Most are at 70 degrees Brix. How they vary is in flavor, color and nutrition. Our various berry juice concentrates, for example, contribute antioxidants, while unfiltered pear juice concentrate is a source of fiber.”

Fruit juices also contain various acids that contribute to their flavor profile. This characteristic often dictates what juice concentrate works best in an application.

“Malic acid, for example, has a smooth, lingering tartness found in many common fruits, such as apple, cherry, pear, peach and plum,” Ms. Swedberg said. “Tartaric acid, on the other hand, creates sharp taste. That’s what you find in grape juice.”



Citrus fruits supply citric acid, as the name suggests. But many berries, as well as some tropical fruits, including banana and pineapple, also possess the strong, sour tartness of citric acid.

It is this acid content that makes juice ingredients a useful tool for influencing the pH of a food. In varied non-beverage applications, such as dressings, marinades and yogurt, pH is an important consideration since it impacts product quality and shelf life.

## **Vegetables as a sweetening option**

Most consumers do not think of vegetable juices as being sweet, but ingredient suppliers are now employing technologies to make them viable sweetening options, too.

Jicama juice concentrate provides such an opportunity. Made from 100% vegetable, it delivers a neutral color and flavor profile with intense sweetness.

“Jicama juice concentrate is an alternative to traditional sweeteners that can support reduced calorie formulating,” said Leonardo Christol, marketing manager, Kerr Concentrates, Salem, Ore. “It will not impact added sugar labeling when diluted back to single strength.



“To make this unique ingredient, we start by macerating the jicama tuber and straining out the solids. We then concentrate the naturally occurring sugars by boiling off some of the water. The resulting 70 degree Brix juice concentrate has a sweet flavor and amber color.”

In sensory profiling, jicama juice concentrate has flavor and sweetness impact close to that of apple and pear juice concentrates. The difference is jicama brings vegetable goodness to the application, as it’s a concentrated source of potassium – a nutrient lacking in many diets, as well as a critical electrolyte for hydration – and contains other vitamins and minerals, even some plant protein.

Sweet potato juice concentrate is another newer sweetening option. Carolina Innovative Food Ingredients Inc., Nashville, N.C., markets a range of ingredients that contribute vegetable servings and natural sweetness to any product where sweetener is added.

“Our clear sweet potato juice concentrate provides a high level of clarity, coupled with a mild flavor that makes it perfect for use in multi-juice blends,” said Paul Verderber, vice-president of sales. “At 60 degrees Brix, it’s lower in calories, carbohydrates and sugar content than popular fruit juices, yet still sweet.

“For premium beverages, we offer a pressed, cloudy, not-from-concentrate juice that delivers the superior nutritional and taste profile of the sweet potato. Its natural orange color contributes a vibrant color.”



The company recently introduced a purple sweet potato juice concentrate. The natural purple anthocyanins are a concentrated source of antioxidants. Use in applications adds the purple healthy halo associated with well-recognized anthocyanin-rich fruits, such as blueberries and acai.

“In sweet potatoes, anthocyanins are in acylated forms, which are known for their color stability when compared to non-acylated forms, such as those present in most fruit sources,” Mr. Verderber said. “The purple sweet potato juice concentrate also contains a high concentration of chlorogenic acid derivatives, which are also known for their health properties.”

Purple sweet potato juice concentrate contributes natural sweetness and desirable purple color to many types of products. This includes beverages, baked foods, confections, condiments, dairy and even craft brews.



### Juices new to the market

While juice ingredients have many applications, using them to color, flavor and sweeten beverages is their most common application. New York-based Bontá markets a line of no-sweetener-added namesake juice beverages. Bontá, which is Italian for goodness, is described as light and delicious in flavor, low in calories, and loaded with nutrients for health.



Through the use of fruits and botanical extracts, the company is able to keep total sugar content to 3 grams to 8 grams, with each single-serve 16-oz bottle containing 30 to 35 calories.

Glow Capri Lemon Ginger is a blend of lemon and ginger juices with plant extracts, such as white tea and marigold, all known to enhance radiance.

Immunity French Blueberry

blends blueberry and pomegranate juices with lavender extract and immunity-boosting plant extracts to yield a beverage designed to support the immune system.

“Restore Sicilian Blood Orange is our anti-inflammation formula,” said Royce Pinkwater, founder and chief executive officer of Bontá. “It contains turmeric, blood orange juice and hibiscus. Vitality Turkish Cherry has resveratrol, which builds heart health. The drink is infused with antioxidant-rich cherries,

lycopene and elderflower and other invigorating ingredients to help rejuvenate the body.”

The Campbell Soup Co., Camden, N.J., has launched a plant-based hydration beverage that harnesses the natural goodness of sweet potato juice. V8+Hydrate taps into the naturally occurring electrolytes and glucose of the sweet potato and blends it with water to create an isotonic beverage that quickly replenishes fluids and nutrients. Each 8-oz can offers a full serving of vegetables and a mere 45 calories without the use of artificial sweeteners. The vegan-friendly beverage comes in three varieties: coconut watermelon, orange grapefruit and strawberry cucumber.

Earlier this year, the company rolled out Bolthouse Farms B Balanced smoothies, which contain 50% less sugar than the leading 100% juice smoothie and have no added sugar. Free of artificial flavors and preservatives, and with a lighter consistency, the fruit and vegetable blended smoothies are available in berry (blackberry, strawberry and a touch of apple), strawberry banana, sweet green (kiwi, apple, pineapple and cucumber) and tropical (mango, passionfruit and guava).

There are also two new varieties of 1915 Organic Cold-Pressured Juice. They are cucumber, which is a light and refreshing green juice made with leafy green vegetables and unique ingredients like ginger and moringa, and watermelon, a blend of two simple juice ingredients, watermelon and lemon.

Uncle Matt’s Organic, Clermont, Fla., now offers green tea organic kombucha, which contains no added flavors, sweeteners or preservatives. Sweetness comes from not-from-concentrate juices, such as blueberry, grapefruit and lemon ginger.

Some bottled juices are simply 100% juice. While still inherently high in natural sugars, they do not contain “added sugars.”

Cherrish, from the same-named company located in Bellevue, Wash., is only 100% premium U.S. whole cherry juice. The drink combines the health benefits of Montmorency tart cherries with the sweet flavor of Bing cherries.

“We created Cherrish because we learned firsthand that Montmorency tart cherries could pack a punch when it comes to muscle recovery and overall health, but eating fresh cherries in bulk was hard to do, and the powders and tart cherry juices available on the market year-round weren’t convenient or tasty,” said Dan Haggart, founder.

To lower the calories of juice, some manufacturers will dilute it with water and then add back taste with flavors, with or without the addition of no- or low-calorie sweetener.



Simply Beverages, Apopka, Fla., recently grew its line of refrigerated not-from-concentrate fruit-based beverages with Simply Light, a line of clean label drinks containing less sugar and fewer calories than



its original line. Offerings include pulp-free orange and orange with calcium and vitamin D, which are both made with pasteurized orange juice and contain 50 calories per 8-oz serving. The new light lemonade and lemonade with raspberry contains only 25 calories per serving.

New Mott's Sensibles from Plano, Texas-based Keurig Dr Pepper combines various

fruit and vegetable juices to offer a 100% juice with 30% less sugar. The apple raspberry variety combines apple and raspberry juices with coconut water and a splash of vegetable juice. The drinks contain no artificial colors, flavors or sweeteners.

And just in time for back to school, Harvest Hill Beverage Co., Stamford, Conn., introduced lower-sugar Juicy Juice Splashers Organic. The shelf-stable pouch drinks are blends of organic fruit juice and filtered water, with 44% organic fruit juice and 50% less sugar than traditional juice.

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