Responding to the no-sugar, zero-calorie craze

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Many American consumers are seeking to reduce or eliminate sugar in increasing numbers. According to the International Food Information Council's (IFIC) 2017 Food and Health Survey, 76 percent of consumers now say they are avoiding or limiting their sugar intake.

The study also noted record numbers (60 percent) are cutting back on their calories by drinking low- and no-calorie beverages. The trend is also gaining ground in Europe, where 60 percent are watching their dietary sugar intake and 25 percent are actively looking for low sugar products.

Many Americans want food and beverage products to be natural, with simple ingredients that are minimally processed; they want the calorie count to be low or, if possible, zero; they want no added sugars; and, by the way, they want them to taste great too.

It's a tall order for brands and product formulators. The IFIC study added, that sugar is still the most preferred sweetener (38 percent), but almost as many now say they use low- or no-calorie sweeteners (32 percent). And of those who use sweeteners, 63 percent say they do so to help with their sugar and calorie consumption.

Fortunately with new advances in sweetener ingredients, formulating for sweetness, calorie count and good taste has never been more precise. New sweetener technologies now offer varied functionality and sweetness levels appropriate for a widening range of food and beverage applications, and to meet the expanding needs of this growing consumer group.

Following are some of the recent advances:

Stevia Leaf Extract — for taste and precision

Stevia leaf extract may be the closest thing that the zero-calorie sweetener market has to a holy-grail ingredient. Extracted from the leaves of the plant species Stevia rebaudiana, it is a zero-calorie sweetener and its active compounds, called steviol glycosides, are heat stable and offer a sweetness 250 times that of sugar. Recognized for performance and versatility, stevia-based ingredients have become popular in many applications from beverages and baked goods to sports nutrition products. There is, however, one key issue with stevia-based extracts: they can create an unwanted, bitter aftertaste, especially when used at higher concentrations.

Ingredient scientists have been working to address the taste issues and build the case for stevia leaf extract by studying steviol glycosides. With more than 40 of these compound in the plant, researchers have learned that they interact in unique and unpredictable ways and can be combined to meet different sweetness levels and sugar-reduction targets.

The next generation of stevia based sweeteners are now in development featuring Reb D and Reb M, the sweetest components of the stevia leaf. These compounds have the potential to reach up 100 percent sugar reduction with no calories and no aftertaste.

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However, Reb D and Reb M are only present in one percent of the stevia leaf, so harvesting enough plants to produce an ingredient is prohibitively expensive. As a result, food scientists have found a way to create these compounds using fermentation and baker's yeast to convert simple sugar to Reb D and Reb M. The ingredient is especially well-suited for beverage applications, powdered drink sticks, yogurts, cereals, bars and confection products.

This work has done much to improve the perception of stevia as an ingredient in many types of products. According to the International Stevia Council, stevia leaf extract has a growing positive perception among consumers as compared to other sweeteners, such as sucrose, aspartame and sucralose. It is now the most discussed low- and no-calorie sweetener on the internet, making up 37 percent of overall online conversations. It also has a positive perception in online conversations (social media, forums, blogs) regarding health, naturalness, weight loss and obesity.

Polyols — an effective choice

Erythritol is a zero caloric bulk sweetener naturally present in fruits such as berries and some vegetables. Commercially produced via fermentation, erythritol can mask the aftertaste of intense sweeteners, like stevia leaf extract, and are useful in products for those on a restricted-sugar diet. They can provide a great tasting product with reduced or zero calories. Some erythritol is even Non-GMO Project Verified.

Erythritol has a high digestive tolerance, is safe for diabetics and can help products meet dietary and weight-loss goals. It is used in a variety of food and beverage applications and is often effective for confectionary products or those designed to reduce risk of tooth decay.

Reproducing the functionality of sugar remains a challenge. The growing scope of great ingredients that can meet a wide range of sugar-reduction goals is just the first step. Because sweeteners vary in taste, cost and functional attributes, formulators should also look for an ingredient partner who can help identify the best sweetener solution for each of their products.

Given the growing demands from today's low- and no-sugar consumer, it is critical to partner with a supplier who is flexible and collaborative. They can help provide insights as to balancing sweetness profile with desired flavor, achieving function and mouthfeel without sugar, and for maintaining an appropriate shelf-life.

For more information about Cargill's Sugar Reduction ingredients visit ***www.cargill.com/sugarreduction***

*FDA has not defined natural

Sources:

IFIC Food and Health Survey 2017 http://www.foodinsight.org/press-releases/survey-nutrition-information-abounds-many-doubt-food-choices

Sugar reduction now a key mindset of consumers, survey shows. *Foodnavigator-usa.com* http://www.foodnavigator.com/Science/Sugar-reduction-now-a-key-mindset-of-consumers-survey-shows

Growing buzz around safe and natural stevia. International Stevia Council http://www.internationalsteviacouncil.org/index.php?id=217

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