Natural alternatives benefit sensory attributes

Salt perception is a strong marker of sensorial attributes and consumer acceptance in food products. The use of salt or sodium chloride in food processing is at an all time high. This is the result of consumer expectations of processed and convenience food that often results in an overconsumption of salt.

PRESSURE TO REDUCE the sodium content in foodstuffs is continuing. *Bouillon* cubes, powdered broths, soups, gravies, soy sauce, snack foods, bacon, sauces and spreads are some of the food groups that contain the most sodium per 100g portion. Lallemand Savory Ingredients, supplied locally through Savannah Fine Chemicals, offers innovative solutions to create savoury products without elevated sodium content.

The company provides a full range of whole cell yeast, autolysed yeast, and yeast extracts that vary in taste profiles and functionality. Lyfe yeast extracts contain natural peptides and free amino acids (including a significant amount of glutamic acid), nucleic acid and other compounds. The ingredient acts like seasoning, and assists in improving taste while bringing out balance and flavour in food products.

High-Lyfe yeast extracts contain a natural source of 5'-nucleotides (5'-inosine monophosphate and guanosine monophosphate). These important flavour enhancers impart *kokumi* and *umami* sensations, while rounding off sharp notes in food products. The 5'-nucleotides also have a synergistic effect with certain amino acids, such as glutamic acid (flavour enhancer), aspartic acid and phenylalanine (starter material for peptide sweeteners).

Torula yeast products can be used to help reduce the use of additives such as MSG and HVPs. Products are suitable for use in a wide range of applications. When combined with other yeast extracts, they are effective in reducing sodium while retaining salt perception. In some industrial recipes, yeast or yeast extracts can reduce sodium up to 25 per cent.

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New ways to cut sugar in desserts

Consumers are looking for alternatives to traditional, sugar-loaded desserts. However, they are not willing to sacrifice too much sugar taste for health benefits. Sugar influences different properties of desserts, leaving formulators with two main challenges when reducing sugar content:

- Preserving sweetness and taste
- Maintaining texture.

Classic artificial high-intensity sweeteners (HIS) are not the first choice for this job. Although they cut calories significantly and provide sweetness, considerable R&D is required to make the sweetness profile fit the flavour of the finished product.

Commonly used HIS are known for their off-flavours and lingering after taste. They are mainly produced by chemical synthesis, so their use does not meet consumers' demand for natural ingredients. Due to their low dosage level, they are unable to bring texture to the product. These difficulties explain why sugar-reduced or sugar-free desserts based on artificial high-intensity sweeteners rarely see commercial success: They don't meet the expectations of the consumer.

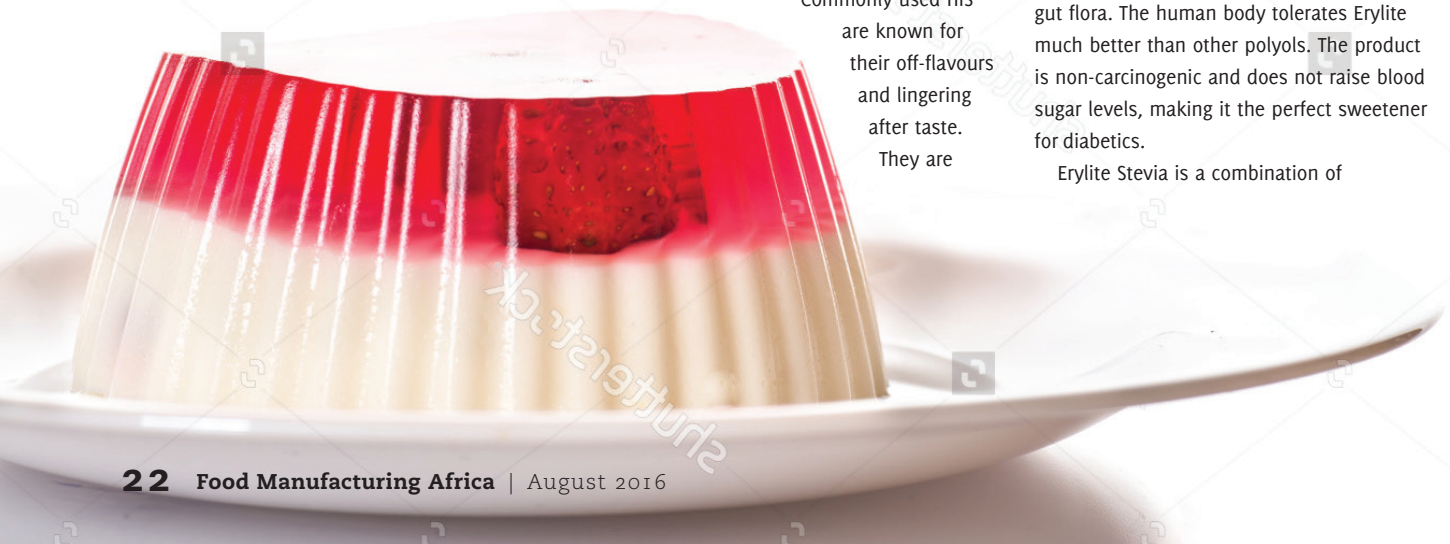
Sugar alcohols, on the other hand, may replace some part of sugar's functionality, providing texture as well as sweetness. Since most sugar alcohols have to be labelled with a caloric value of 2.4kcal/g, a significant calorie reduction is quite difficult to achieve.

Jungbunzlauer is a responsible and sustainable producer of fermentation-based food ingredients. The company has created a unique and alternative sugar replacement solution, Erylite Stevia, which can successfully reduce sugar and calories in popular dessert products.

Erylite is a sugar alcohol that occurs naturally in low concentrations in grapes, melons and honey. Higher amounts can be found in fermented foods such as cheese and wine. It is the only zero-calorie sugar alcohol that is commercially produced by a natural fermentation process that uses non-GMO yeast.

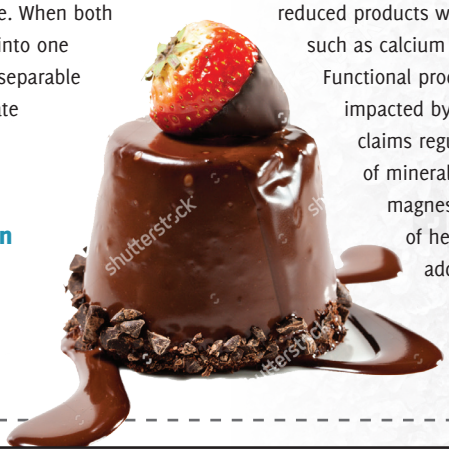
The product offers additional advantages. Its molecular structure means that the product does not undergo fermentation by human gut flora. The human body tolerates Erylite much better than other polyols. The product is non-carcinogenic and does not raise blood sugar levels, making it the perfect sweetener for diabetics.

Erylite Stevia is a combination of



Erylite and the natural, high-intensity sweetener Rebaudioside A. The latter is the recently approved extract of the *Stevia Rebaudiana* plant's leaves. Given that Erylite is about 50 per cent as sweet as sugar, the sweetness gap is closed by adding Rebaudioside A. The highly purified steviol glycoside is roughly 300 times sweeter than sugar, but has no bulking function of its own.

High-intensity sweeteners are known to impart taste profiles different from its full-calorie counterparts. Rebaudioside A is no exception. In its pure form, the ingredient has a lingering sweetness accompanied by an off-taste commonly described as bitter and liquorice-like. When both sweeteners are fused into one crystal and form an inseparable blend, they demonstrate convincing benefits in sugar replacement.



Cutting out sugar in popular desserts

Jungbunzlauer tested Erylite Stevia in different popular dessert applications such as chocolate pudding, chocolate mousse and jelly. All types are typically high in sugar, leading to an elevated calorie count and a high glycaemic load. Common sweeteners used in these types of desserts include sugar and glucose syrup. In all formulas the sugar part was completely replaced by a combination of different Erylite Stevia types. The end product was compared to the benchmark product in terms of caloric content, taste and, texture.

Stevia combined with important minerals

Jungbunzlauer has fortified selected sugar-reduced products with functional minerals such as calcium and magnesium.

Functional products have been strongly impacted by the revision of health claims regulations in the EU. The use of minerals such as calcium and magnesium offer a wide range of health claim options that address top health concerns such as bone health and cognitive functions. When fortifying dessert products like chocolate mousse and jellies, mouthfeel and taste are the main sensory property that must be monitored. Calcium lactate gluconate (an organic salt), is highly soluble and has a very low taste impact compared to other soluble calcium salts. It can be added to sugar-reduced chocolate mousse and to sugar-free gelatine-based jelly to achieve a 15 per cent recommended daily allowance(RDA) without affecting taste or texture. Similar fortification success can be achieved with trimagnesium citrate anhydrous, which serves as a source of magnesium. This salt is characterised by high magnesium content (16 per cent), high solubility and a neutral taste. With the addition of trimagnesium citrate anhydrous, a fortification of 15 per cent RDA is possible without impacting negatively on taste or mouthfeel. ▪

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