



Next level flavours without the sugar

Excise taxes on sugary drinks are spreading and the lawmakers' target remains the same globally: Get a grip on soaring sugar consumption through beverages.

From a composition point of view, reformulated products do not show surprises. Predictably, sugar has been partially replaced by traditional artificial sweeteners. The question remains however: do traditional artificial intense sweeteners satisfy the taste expectations of a consumer who is used to drinking the full sugar beverage?

Without a convincing taste, the risk of sugar free drinks falling in the market is high. Stevia-based sweeteners do not have this additional burden, but need refinement to ensure further and more widespread use in the reduced sugar and sugar free beverage segment. Jungbunzlauer, supplied locally through Savannah Fine Chemicals, offers a tool that greatly supports this refinement.

NEW TYPE OF FLAVOUR ENHANCER

Erylite Erythritol is a fermentation-based polyol, approved in the EU in 2010 for use in beverages as a flavour enhancer. The maximum allowable amount is 1.6 per cent (w/w) in energy-reduced flavoured drinks or those with no added sugar.

Fermentation based production qualifies the additive as the only natural polyol approved for use in food and beverages. From a physiological point of view, it has zero caloric value and a zero glycaemic index. It does not increase the calorie load and is safe for diabetics. It is also a highly effective flavour enhancer. On its own, Erylite imparts a clean, sweet flavour that resembles the taste of sucrose.

When used in beverages, it offers the following benefits:

- Improves the taste of sweeteners based on steviol glycosides. Stevia plant extracts always impart a characteristic taste profile even at high purity levels. That taste profile is characterised by liquorice, with occasional bitter notes, and a hard-to-ignore lingering effect. Although steviol glycosides have improved in flavour over recent years, Erylite significantly mitigates remaining unpleasant notes and eliminates lingering effect. This is even observed on steviol glycosides with the highest concentrations of rebaudio- side A. Positive effects are not



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Limited to stevia extract, but are perceptible when used with traditional sweetening alternatives.

- Used at permitted levels of up to 1.6 per cent, exhibits some quantitative synergies on sweetness with common sweeteners, i.e. steviol glycosides. When used in combination with stevia extracts rich in rebaudioside A, the sweetness of the combination of stevia extract and Erylite is higher than the sweetness imparted by stevia extract alone. In a sensory test, total sweetness perceived by the panel for a stevia extract and Erylite combination exceeds the sum of the individual sweetness contribution of both substances. A higher sweetness is clearly advantageous, as it helps to restrict dosage and cost.

SENSORY TESTS

Conducted on four different beverage types sensory tests reveal a trend towards a better taste and higher flavour intensity with the addition of 1.6 per cent Erylite to energy-reduced drinks. The effect differs in strength for each type. While the improvement on the cola drink is visible but not extraordinary, it is much stronger for apple-flavoured soft drinks and strawberry/pomegranate-flavoured vitamin water.

Another beverage that amply demonstrates the positive effect of Erylite as a flavour enhancer is an ice tea flavoured drink. A cassia-flavoured iced tea was formulated with 50 per cent less sugar. Sweetness is adjusted to a 100 per cent sucrose level with rebaudioside A at 97 per cent. Using the same sensory panel setup, the drink was also tested against an upgraded version containing the maximum allowable amount of Erylite (1.6 per cent). In this setup, potassium lactate was used.

Lactates, neutralisation products of lactic acid, are known to heighten flavour-enhancing effects of sweeteners and mask off-tastes of certain sweeteners and bitterness of substances such as caffeine and minerals. The effect of potassium lactate on improving the taste of stevia extracts rich in rebaudioside A is particularly noticeable. Typically, 0.15 to 0.20 per cent potassium lactate is added.

The addition of potassium lactate significantly increased the acceptance level of the reduced-sugar iced tea drink. With 0.19 per cent potassium lactate, liquorice aftertaste of the stevia is masked well, which explains the improved sensory results. The addition of Erylite also improved the acceptance of the drink. The effect is even more pronounced than the effect of potassium lactate. Improvement goes beyond taste and flavour intensity. Sugar reduction not only changes the sweetness and taste of products, mouthfeel suffers too. Sugar is the main contributor of bulk to the drink.

Erylite at 1.6 per cent creates additional bulk, but using Erylite and potassium lactate together improves the drink's performance further. This sets a new benchmark in terms of flavour as compared with the original formula.

Based on this convincing result, it seemed appropriate to test the combination of Erylite and potassium lactate on a drink with 70 per cent less sugar instead of 50 per cent. The result was just as convincing, as the taste panel showed a preference again substantially higher than the original drink with 50 per cent less sugar.



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