

Sensory Characteristics of Sucralose and Comparison with Other High- Intensity Sweeteners

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Abstract

Sucralose, a new high-intensity sweetener, has a molecular formula of $C_{12}H_{19}O_8Cl_3$ and superior stability under heating and storing conditions.

In order to clarify its sweetness intensity, palatability and properties, a comparison test was conducted between a simple sucralose solution and a sucralose formulation in canned coffee, fried Kamaboko (fish paste cake), noodle dip sauce, canned Shiruko (sweet red-bean soup), a carbonated drink and anon- juice jelly.

The sweetness intensity and palatability were also studied by another comparison test using aspartame, sodium saccharide and stevia.

The sweetness threshold value of sucralose is 0.0006 ± 0.00014 % while that of sucrose is 0.61 ± 0.0492 %. The sweetness intensity of sucralose compared to sucrose at the sweetness threshold was approximately 1,000 times. The sucrose-equivalent concentration was found to be expressed by the following formula.

$$y = 108.24 x^{0.6789}$$

y : sucrose concentration(%) x : sucralose concentration(%)

The sucralose sweetness intensity depends on the kind foods. A higher sweetness intensity was observed in low pH foods or foods with a high salt content (see Figure 3).

The sweetness profile in solution was evaluated as mild, with less bitterness and aftertaste than other high- intensity sweeteners (see Figure 1). When formulated in foods, it was indicated that sucralose has a similar sweetness profile to sucrose (see Figure 5), creates a better palatability in foods than other high-intensity sweeteners (see Table 4) and adds a highly palatable sweetness to a wide range of food

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