Integration of the sensory experience and post-ingestive measures for understanding food satisfaction. A case study on sucrose replacement by Stevia rebaudiana and addition of beta glucan in fruit drinks

The present study provides a more holistic view on consumers’ hedonic food experience compared to what is traditionally seen in sensory research, by integrating the hedonic sensory experience and post-ingestive sensations in one study to understand food satisfaction. The study was performed using apple-cherry fruit drinks with different levels of beta-glucans and different sweeteners, sucrose or Stevia rebaudiana. The aims were: 1) to study the hedonic sensory experience, 2) to study time and product effects on post-ingestive sensations and satisfaction, and 3) to study main drivers of satisfaction. A randomized cross-over consumer study was conducted using 66 subjects. Hedonic ratings of sensory perceptions were collected immediately after intake, and subjective ratings of post-ingestive sensations were collected pre intake and in 10Â min intervals up to 40Â min post intake. Significant hedonic differences of sensory properties were found between all fruit drinks, except between the fruit drinks varying in type of sweetener only. Differences in post-ingestive sensations were found immediately â€“ and 10Â min post intake between fruit drinks with and without added beta glucan. Satisfaction with sensory attributes was found to be the main driver of food satisfaction, while post-ingestive sensations drove satisfaction as well. While replacing sucrose with Stevia rebaudiana did not affect the hedonic and post-ingestive sensations, addition of beta glucan resulted in both positive and negative post-ingestive sensations. In general, adding beta glucan without compromising satisfaction is difficult. This study show that a detailed description of hedonic sensory â€“ as well as post-ingestive sensations can bring important information about factors driving consumers’ satisfaction.

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