Viscosity, a cross-modal factor in sweet beverages?

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Introduction
Some companies use bulking agents, for example pectin to increase the viscosity of sugar-reduced beverages to mimic the mouthfeel of sugar-sweetened beverages. We therefore tested the effect of viscosity on sweet taste perception and cross-modal aroma-sweetness interactions.

Method

Conclusion
At low levels of hydrocolloids, viscosity was found not to significantly affect sweet taste perception nor the cross-modal effect of aromas on sweet taste. As these could potentially have decreased the intensity of flavour perception, this absence of effects is preferable as a mouthfeel mimicking of sugary beverages can be obtained without affecting the sweet taste in sugar-reduced beverages.

Results
At viscosities below 4 cP, pectin did not significantly affect sweet taste nor the cross-modal effect of aromas on sweet taste in either of the tested matrices. At viscosities above 4 cP, pectin affected sweet taste and the cross-modal effect of aromas on sweet taste differently depending on matrix and aromas. Viscosity generally had similar effects in both trained sensory panels and consumers.

Figure 1. The cross-modal effect of pomegranate aroma on sweet taste with or without the presence of pectin. The study was carried out in an apple-elderflower drink by a trained sensory panel. There was a significant effect of aroma (*), but not pectin on sweet taste. Nor was the interaction between aroma and pectin significant.