

Consumer liking and perceived sweetness of *Sujeonggwa* differing sweeteners

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Sujeonggwa is a Korean traditional beverage made with cinnamon and ginger, then sweetened with honey and dried persimmon⁽¹⁾. Over time, these traditional sweetening ingredients were replaced by sugar to reduce cost and to reflect consumers' ever changing liking⁽²⁾. Recently the American Heart Association pointed out sugary beverages as the major source of added sugar in Americans' diet and recommended to limit maximum calorie intake from added sugar⁽³⁾. Thus the objectives of this study were to develop *Sujeonggwa* with various sweeteners and to determine consumers' liking and perceived sweetness.

To make *Sujeonggwa* samples, cinnamon and ginger were simmered separately. Then the mixture was sweetened using traditional ingredients (dried persimmon and honey), sugar, sugar and short chain-fructooligosaccharide (sc-FOS), or sugar and Stevia. Both sc-FOS and Stevia substituted proportion of sugar to provide the same sweetness. Also, *Sujeonggwa* sweetened with sugar was carbonated to mimic soft drink.

Descriptive panel evaluated 'sweetness' with no prior knowledge on types of sweeteners used in the samples. Results indicate that all five samples had different perceived sweetness. Carbonation reduced perceived sweetness significantly compared to sugar sweetened sample. Traditionally sweetened sample had the highest brix value, but perceived sweetness was only slightly higher compared to sugar sweetened sample. Though there might be beneficial substances such as soluble fiber from dried persimmon and antioxidants from honey, higher calories can exceed probable benefits. Sugar and Stevia sweetened sample had the lowest perceived sweetness and it may be caused by the bitterness from Stevia.

A total of 100 Korean consumers evaluated overall liking and liking of sweetness. Samples sweetened with sugar or sugar and sc-FOS received the highest overall liking. Traditional recipe sweetened with dried persimmon and honey received the lowest liking score which may reflect change in consumers' experience with *Sujeonggwa*. Although the carbonation decreased overall liking significantly, there was a segment of consumers who liked it very much.

This result indicates that calories of sugar may be reduced without negatively influencing consumers' liking. In case of sc-FOS, added health benefit could be used for marketing.

Sweetened with	Brix(%) ^a	Perceived Sweetness ^b	Overall Liking ^c	Liking of Sweetness ^c
Sugar	11	9.01	6.36	6.43
Sugar and Carbonated	11	7.52	4.67	5.23
Dried Persimmon and Honey	15.5	9.41	4.34	4.95
Sugar and sc-FOS	–	8.77	6.38	6.38
Sugar and Stevia	–	7.68	5.29	5.59

^a Measured using Refractometer (AR 200, Reichert, Inc. Depew, NY, USA)

^b Values are means where 9 descriptive panelists evaluated independently in triplicate using a 15-point where 0 means none and 15 means extreme.

^c Values are means for 100 consumers' response and a 9-point hedonic scale was used.

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