The Sensory Wave: Reinventing the Wheel

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Background

The standardized use of words to describe the sensory properties of foods and beverages has been around since the dawn of the flavor profile method in the 1940s. These standardized vocabularies, known as lexicons, typically involve many of hours of trained panel time and statistical validation. In the 1970s, the concept of a "wheel" was introduced to represent the sensory lexicons for wine and beer in a visual hierarchy. Since then, numerous wheels have been published in scientific journals and many others have been created by product category experts (such as sommeliers) and consumer enthusiasts. (Drake & Civille 2003; Lawless & Civille 2013; Suwonsichon 2019; Asih et al. 2021). To date, sensory wheels have been limited in scope to lexicons and fail to indicate specific product descriptions or intensities. For instance, wheels have been developed for spice lexicons but fail to describe the flavor profile of cinnamon (Lawless et al. 2012). Therefore, the objective of the Sensory Wave© is to visually depict sensory descriptions for the world of spices including relative intensities of perceived aromatics, basic tastes and mouthfeels.

Materials & Methods

To create the wave, over 70 samples representing the world of shelf stable spices were evaluated by a team of trained sensory panelists and Spice Sommeliers®. Spices were evaluated as a tea made with 1-2% spice, steeped in boiling water, strained, and cooled (Image 1). Four to five samples were evaluated per thrice weekly session. The evaluation was carried out in a moderated discussion with consensus to agree on terminology. The initial evaluation was repeated and reviewed with an expanded group of experts. The generated lexicon included over 80 aromatic descriptors, 7 mouthfeels, 5 basic tastes, and 3 intensity indicators (light, medium, strong). Part used of plant used was also indicated (leaf/herb, fruit/seed, rhizome, flower, bulb, root, bark). Data was captured in a spreadsheet and provided to the Fuchs Gruppe marketing department and a graphics agency to develop a visual depiction of the data.

Image 1. spices evaluated as tea

Figure 2. online interactive Sensory Wave© tool

Results

Several versions were created, and the team decided on the shape of a wave which incorporated color coding for spice vs. herb, part of plant used, and aromatic intensity. A separate numeric and color-coding system was utilized to notate basic tastes and mouthfeels. All information was organized onto one page with herbs and spices listed in rows alphabetically (Figure 1).

In addition to a graphical depiction, an interactive online tool was created that returns a list of spices for any given sensory attribute(s). For instance, spices that have a licorice aromatic include anise, fennel, licorice root, and star anise (Figure 2, Figure 3).

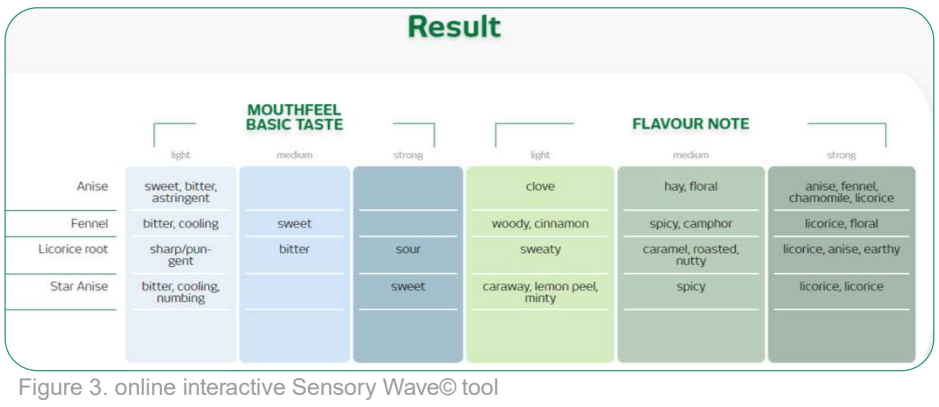

Figure 3. online interactive Sensory Wave© tool

Conclusion

By incorporating a more comprehensive and deeper level of information, the Sensory Wave© succeeds in providing a consumer friendly and holistic picture concerning the flavor profile of spices. This project is an example of a successful partnership between sensory professionals, category experts (Spice Sommeliers®) and marketing.

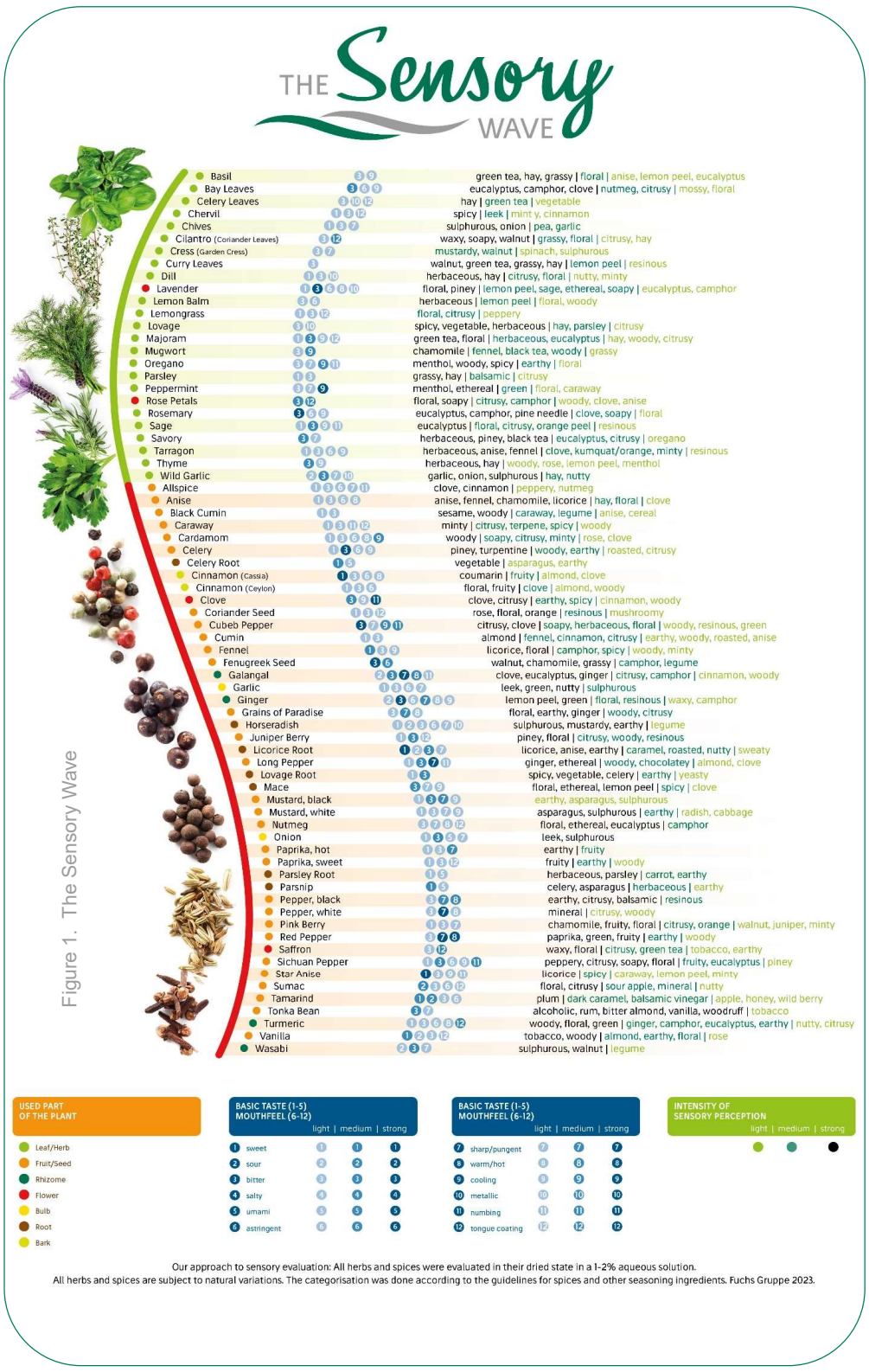

Figure 1. The Sensory Wave

References & Acknowledgements

Asih, N. E., Ramadhanty, K. P., Ramandias, J., Azkarama, F., & Sunarharum, W. B. (2021, November). Lexicon, sensory wheel and kit as sensory communication tools: a review. In IOP Conference Series: Earth and Environmental Science (Vol. 924, No. 1, p. 012027). IOP Publishing.

Drake, M. A., & Civille, G. V. (2003). Flavor lexicons. Comprehensive reviews in food science and food safety, 2(1), 33-40.

Lawless, L. J., Hottenstein, A., & Ellingsworth, J. (2012). The McCormick spice wheel: A systematic and visual approach to sensory lexicon development. Journal of Sensory Studies, 27(1), 37-47.

Lawless, L. J., & Civille, G. V. (2013). Developing lexicons: A review. Journal of Sensory Studies, 28(4), 270-281.

Suwonsichon, S. (2019). The importance of sensory lexicons for research and development of food products. Foods, 8(1), 27.

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