Understand challenging flavor profiles through a unique approach of decoupling the sensorial experience

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Introduction

Unique flavor profiles continue to emerge as US consumers increasingly look for eating experiences that deliver authentic tastes reflective of traditional ethnic cuisines and culinary techniques.

Challenges with Chili Peppers

- Strong overall intensity
- Presence of heat and other feeling factors
- Non-volatile components/taste complexity

As the result of a unique decoupling approach to this challenging flavor profile and modifications to the tasting protocol, Givaudan developed a comprehensive sensorial map of over 80 market products and 16 fresh chili pepper varietals. Insights from the map led to the creation of differentiating flavor profiles relevant to consumers.

Consumer awareness is high for Chipotle, Jalapeno, Habanero, & Poblano

63%
of consumers use chili peppers for eating or cooking

Givaudan G-Source™ Findings 2016.

Decoupled Language Development & Evaluation Approach

Orthonasal Language Development

Figure 1.
MiniVAS™ Device

- MiniVAS™ (Virtual Aroma Synthesizer) (Figure 1)
- 11 descriptive panelists
- 10 chili pepper varietals
- Panelists experience the head-space of peppers and characterize perceptions through smell
- Panelists use free description, Givaudan's SenseIt™ language, and expanded descriptors

Retronasal Language Development

- Descriptive eating experience
- 11 descriptive panelists
- Samples were pre-screened by project team to narrow down to 3 differentiating chili pepper profiles for language development
- Panelists used terms from MiniVAS™ session and added taste, mouthfeel, and other flavor attributes

Foundational Language & Descriptive Profiling

- Over 20 descriptors describe the sensory perception of aroma, taste, and flavor characteristics of chili pepper varietals
- This serves as foundation for chili pepper-flavored product evaluations
- Only 3 references are non-SenseIt™ adaptations based on regional influence
- Descriptive analysis conducted of top-selling & iconic chili pepper-flavored market products using trained external panel
- Quantitative Flavor Profiling (QFP) methodology
- Additional attributes were added to the language as appropriate for market products

Results & Insights

Deeper Understanding of Chili Pepper Profiles

- There is value in the decoupling approach:
  - Better differentiation of aromatics that most commonly are lost due to the heat intensity
  - Expanded sensory language
  - Unique panel training tool utilizing the MiniVAS™
  - Actionable information to support flavor development of chili pepper flavors with authentic aromatics
  - Applied learning to chili pepper-flavored market products (Figure 2)

Chili Pepper Flavor Opportunities

- Understanding of potential flavor gaps from the market led to the creation of differentiating chili pepper flavors
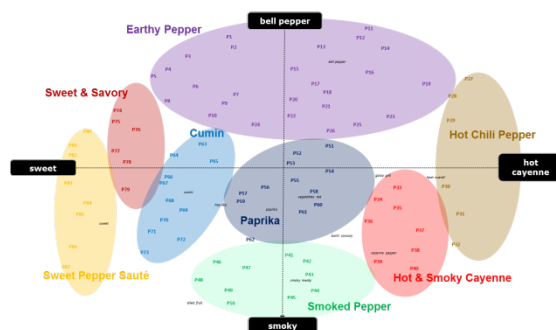- Select flavors were optimized in application and submitted for descriptive analysis and consumer testing

Figure 2 . Chili Pepper Retail Product Market Map