

SENSORY CHARACTERISTICS AND CONSUMER PREFERENCE OF THAI SWEET CHILI SAUCES

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Introduction

Sweet chili sauce is one of the most popular Thai condiments. It is generally used as a sauce for fried chicken, fried wonton and grilled chicken. This sauce is composed of chili, garlic, sugar, vinegar, salt, and water. Sweet chili sauce has low viscosity, contains chili and garlic particles, and has high intensities of sweet and sour tastes. There are many sweet chili sauce available in Thai market. There products have different sensory characteristics, which could influence consumer acceptance. However, there is no research on the descriptive analysis, and consumer acceptance of sweet chili sauce. Therefore, the objectives of this study were to investigate sensory properties, to categorize products based on sensory profiles, and to study consumer acceptability and key attributes that effect on consumer acceptability.



Materials and Methods

Sample and Sample Preparation: Twenty-five sweet chili sauces in Thailand were randomly selected for this study. Forty (40) ml. of sweet chili sauce were provided to each panelist. For visual inspection, samples were presented in 200 ml. glass bottles.

Sensory Evaluation: Eleven trained panelists from Kasetsart University Sensory and Consumer Research Center (KU-SCR) participated in this study. Each panelist had completed more than 120 hours of training in descriptive sensory techniques, including attribute identification and scaling on products. The panel used a numerical scale from 0 (None) to 15 (Extremely high). No carrier was used for the sensory panel.



Consumer Testing: A total of 200 sweet chili sauce consumers participated this study. Each consumer evaluated 5 samples, including a warm up sample, using 9-point hedonic scale (1=dislike extremely to 9=like extremely), consumers evaluated overall liking and liking of appearance, viscosity, sweetness, salty, overall flavor, and heat/burn. Fried wonton sheets were used as a carrier for the sauce.

Data Analysis: Principal Component Analysis (PCA) using Unscrambler (V. 7.8) was conducted to identify the principal components of sensory profiles. Cluster analysis in SPSS[7] (V.12.0) was used for classification of products based on similarities of sensory profiles. The average preference ratings for each of samples were related to the descriptive sensory data by using Partial Least Square Regression analysis (PLS), performed by XL-stats V.2006. Data were presented in a map showing attributes and samples related to consumer preferences



Results

The descriptive lexicon was developed to measure the intensity of 24 attributes. The flavors, tastes, and heat sensation showed similarities among some products and differentiation among others. Large differences were found among products in sensory data. The first three factors explained 60% (27%, 19%, and 14%) of data variability. According to *figures 1 and 2*, PC1 separated samples into 2 groups based on heat intensity. PC2 discriminated samples into 3 groups based on different flavor and taste intensities. PC3 separated samples based on degree of viscosity and amount of particles.

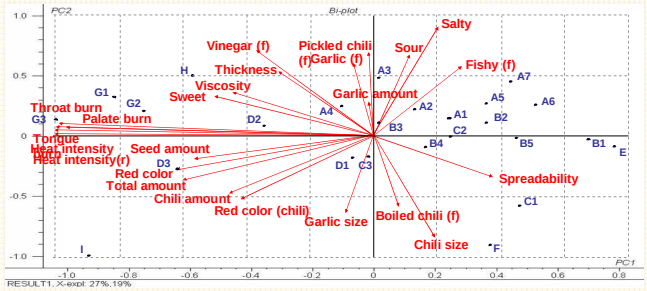

Figure 1 Sensory map of the principal component (PC) 1 and 2 for describing sensory attributes and grouping of Thai sweet chili sauces.

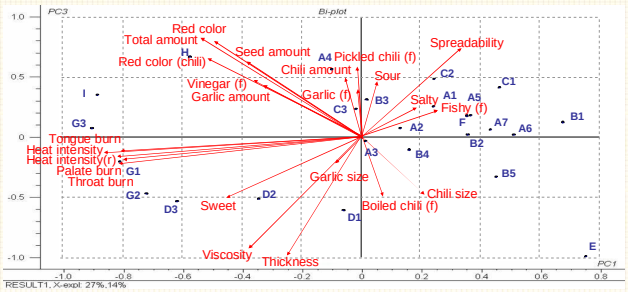

Figure 2 Sensory map of principal component (PC) 1 and 3 for describing sensory attributes and grouping of Thai sweet chili sauces.

The overall liking scores of samples ranged from 3.44-7.09. PLS 2 was used to determine relationships among consumer liking and sensory characteristics as shown in *figure 3*.

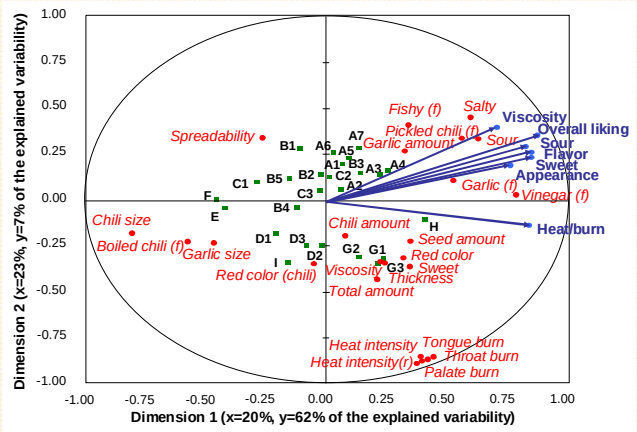

Figure 3 Preference Mapping of sweet chili sauce's descriptive sensory characteristics (X) for describing consumer preferences (Y) using Partial Least Square Regression 2

Conclusion

The most-liked samples had low heat intensity and sweet taste with high sourness and saltiness. The most liked samples also had red color containing of large amounts of particles which provided high flavor intensities. Samples with low liking scores had less/excessive amount of particles, orange or brown color, and a pickled/boiled chili flavor.