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French and Vietnamese: How do they describe texture characteristics of the same food? A case study with jellies

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Abstract

Visual appearance and texture of jellies were assessed in two countries with important differences in food consumption habits and languages (France versus Vietnam) using methodologies with different levels of verbalisation and complexity: free sorting task followed by verbalisation, flash profile and conventional profile. Free sorting task and flash profile were applied both in France and Vietnam and conventional profile was applied in France only. Sensory maps were derived using multidimensional methods. The assessment of global similarities between product configurations showed that the same key sensory concepts were identified in both cultures. Specificities were also identified in each culture. Free sorting task results suggest that compared to French subjects, Vietnamese subjects adopted more similar strategies to sort the products. Flash profile results showed that Vietnamese subjects spontaneously used fewer attribute, and used them in a more similar way to rank the products. Concerning the methods, flash profile configurations were more similar to the conventional configuration than free sorting task configurations whatever the country.

Keywords: Texture; Cross cultural; Flash profile; Free sorting task; Conventional profile

1. Introduction

Food choice is a complex function of sensory characteristics (taste, odour and texture) and non sensory characteristics such as familiarity, food-related expectations and attitudes, health claims, ethical concerns and mood (Prescott, 1998; Prescott, Young, O'Neill, Yau, & Stevens, 2002). In the context of globalization of trading across countries with very different cultures, food industries carry out both consumer research and sensory analytical tests, such as sensory profiles in countries with different cultures. Such cultures often have different food experiences and languages. Food industries try to relate consumers' preferences to the sensory profile produced by a trained panel. Preference mapping techniques make it possible to identify the sensory characteristics responsible for preference. Nevertheless, there are possible pitfalls in using preference mapping techniques to combine preference data established in a given culture with data of a conventional sensory profile established by a panel with a different culture. Prescott (1998) discussed the case of sensory concepts that do not have equivalents in another culture: for example, the Korean sensory concept *kusu*, an important and desirable attribute in noodle flavour, does not have an exact translation in English, but reflects a conglomeration of attributes into a single concept. An important question is then to know up to what limit it is possible to transpose the results of a sensory profile from one culture to another. To answer

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this question, a lot of research has been conducted to study the possibility of relating sensory profiles established in different cultures. Depending on the studies, various methodological approaches have been adopted concerning the management of attributes in different cultures. The studies encountered can be divided into three groups. In a first group of studies, the laboratories in the different countries were free to choose their methodology to describe the products (de Jong, van der Knaap, & van der Knaap, 1998; Drake et al., 2005; Follet, Lê, McEwan, & Pagès, 2006; Mojet & de Jong, 1994; Nielsen & Zannoni, 1998). In a second group of studies, the attributes were set up in one country and then translated into the language of another panel in another country, possibly with the addition of extra attributes (Daget & Collyer, 1984; Hirst, Muir, & Næs, 1994; Risvik, Colwill, McEwan, & Lyon, 1992). In a third group of studies, the aim was to build a set of attributes common to different countries with different languages, in order to more easily compare the results between the panels and to reduce the variability between countries (ESN, 1996; Hunter & McEwan, 1998). Regardless of the methodological approach chosen, one feature these studies share is that the relative positions of the products on the maps were similar when using conventional profiling techniques with panels of different cultures.

Nevertheless, the use of conventional profile to assess the sensory characteristics of foods in different cultures presents some practical drawbacks. First of all, the comparison of sensory profiles established in different cultures speaking different languages involves complex translation problems (Zannoni, 1997). Translation problems can arise at a late stage, during the comparison of the results of panels from different cultures that generated their own attributes. Translation problems can also arise during the process of transfer of attributes from one panel to another: "(...) care must be taken in transferring sensory results from one country to another, because strict translation of words has been shown to be only partially effective for certain descriptors" (Hunter & McEwan, 1998). Second, conventional profile is time-consuming and requires extensive training of the subjects (Lachnit, Busch-Stockfisch, Kunert, & Krahl, 2003) and it is often argued that even after training, disagreement between subjects can remain (Bárcenas, Pérez Elortondo, & Albisu, 2003).

Alternative methods to conventional profile have successfully been applied to characterise the sensory characteristics of food by untrained subjects using free sorting task (Faye et al., 2004; Saint-Eve, Kora, & Martin, 2004), free-choice profiling (Delahunty, McCord, O'Neill, & Morrissey, 1997; Deliza, MacFie, & Hedderley, 2005; Gains & Thomson, 1990), napping (Pagès, 2005) or flash profile (Dairou & Sieffermann, 2002; Delarue & Sieffermann, 2004). Only a few studies have been conducted with alternative methods to determine the sensory characterisation of food products in different cultures. For example, Murray (2001) successfully used free-choice profiling to determine Australian and Chinese consumers' perception of snack foods.

The first objective of our study was to compare the sensory characterisation of products evaluated in two countries with important differences in food consumption habits and languages: France and Vietnam. The choice of the products constituting the product set is a crucial step when the comparison of panels – or of methods – is involved (Baty-Julien, Cornu, & Sauvageot, 2003; Delarue & Sieffermann, 2004). We chose to study jellies because they present strong textural diversity. For this study we focused the evaluations on visual appearance and texture. Jellies are products largely consumed in Ho-Chi-Minh-City (Vietnam), mainly by the younger part of the population, whereas they are not consumed at all in France. There are two kinds of gels in Vietnam. Traditional gels, such as agar-agar (*rau câu*), black jelly (*sương sáo*) or grass jelly *sương sâm*), have been consumed for centuries, whereas the consumption of commercial gels is much more recent. In order to ensure that the products have exactly the same textural characteristics in France and Vietnam the products were formulated. The formulated products included the variety of textures encountered in the products actually consumed in Vietnam. Our second objective was to study the influence of different sensory methodologies on the characterisation of the products in each country. We used three complementary methods with various verbalisation and training levels to make a detailed assessment the differences in sensory characterisations of the products in the two cultures. The three methods were free sorting task (Béguin, 1993; Issanchou, 1998), flash profile (Dairou & Sieffermann, 2002; Delarue & Sieffermann, 2004) which is a method derived from free-choice profiling, and conventional profile (ISO 13299, 2003).

2. Materials and methods

2.1. Samples

Two kinds of products were studied: formulated products and products actually consumed in Vietnam. All the products were coded with three digit numbers, stored at 4 °C and consumed within 24 h and 48 h.

2.1.1. Vietnamese products

Three products with strawberry flavour and red color were selected from the variety of commercial jellies encountered on the Vietnamese market: two commercial products ready for consumption and one product to be prepared at home. The two products ready for consumption were New Choice Mini Fruity Gels (Taiwan) and Squeez'n'bites (Taiwan). Both products contained pieces of hard gel (coconut-based gels) imbedded in a softer gel. New Choice jellies contained water, sugar, fructose, konjac, seaweed extract, citric acid, flavouring and coloring agents. Squeez'n'bites jellies contained water, sugar, fructose, locust bean gum, agar-agar, carrageenans, citric acid, flavouring and