Food Research International 100 (2017) 227–234

Contents lists available at ScienceDirect

Food Research International

journal homepage: www.elsevier.com/locate/foodres

Eating flowers? Exploring attitudes and consumers' representation of edible flowers

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ARTICLE INFO

Keywords:
Edible flowers
Social representation
Consumer
Word association
Attitude
Unfamiliar food

ABSTRACT

Edible flowers have gained more attention in recent years thanks to their perceived health benefits. Despite this attention, it seems that edible flowers are not popularized for consumption in South America, being considered unfamiliar for some cultures from this continent. In this context, the general goal of the present study was to investigate the three dimensions of social representation theory, the *representational field*, the *information* and the *attitude* of the two conditions of edible flowers: a more general "food made with flowers" and more directional product "yoghurt made with flowers", using Brazilian consumers. To achieve this goal, a free word association task was applied. A total of 549 consumers participated in this study. Participants were divided into two conditions, in which the inductor expressions for the free word association task changed: (a) *food products made with flowers* and (b) *yoghurt made with flowers*. Results showed a very positive *attitude* to both situations, and consumers associated *Food products made with flowers* to "health care" while the central core of *yoghurt made with flowers* reflected the innovative condition of this product, supported here by their unpredictable character (*information* generated).

1. Introduction

The understanding of unfamiliar foods may help the knowledge of consumer intentions and attitudes capable of changing their food behavior. In our contemporary society, food is important not only as a source of nourishment, but also for developing trading and cultural links between nations (Wright, Nancarrow, & Kwok, 2001). The patterns and rules of food consumption may vary according to the cultural differences of consumers (Mead, 1943; Pieniak, Verbeke, Vanhonacker, Guerrero, & Hersleth, 2009) and the acceptance of a "new food" or "unfamiliar food" seems to depend on making it appear consistent with cultural perceptions and consumption patterns.

The research around "unfamiliar foods" has advanced considerably in recent decades. In some cases, this food category is the main research object (Tuorila, Meiselman, Cardello, & Lesher, 1998) In other cases, scientists have used this topic in the advancement of the knowledge on gender differences in food preferences (Alley & Burroughs, 1991) and as a vector in the study of new foods development, and consumers' food neophobia (Tuorila, Lähteenmäki, Pohjalainen, & Lotti, 2001).

Unfamiliar foods catch the attention of consumers based on the induction of curiosity (Van Trijp & Steenkamp, 1992), thanks to their exotic appearance and unknown character. An example is the use of insects and flowers in some cultures' diets. For certain cultures, insects and flowers are part of the daily diet in countries like Mexico (Acuña, Caso, Aliphat, & Vergara, 2011) or China, while in other cultures they are completely strange and unfamiliar (Hartmann, Shi, Giusto, & Siegrist, 2015). Scientific work dedicated to the knowledge of consumers' understanding and acceptance of edible insects (Looy, Dunkel, & Wood, 2014; Caparros Megido et al., 2014; Tan et al., 2015; Piha, Pohjanheimo, Lähteenmäki-Uutela, Křečková, & Otterbring, 2016) is very widespread. Nevertheless, for edible flowers, very little has been done, making it an important object of study.

At the moment, the appearance of edible flowers has mainly been limited to high-end foodservice establishments using them as garnish,

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http://dx.doi.org/10.1016/j.foodres.2017.08.018
Received 7 May 2017; Received in revised form 9 August 2017; Accepted 12 August 2017
Available online 15 August 2017
0963-9969/

but their potential is substantially greater. Visually stunning and bursting with health benefits, they have much to offer today's health and wellness conscious consumers keen on adding something interesting to their salads (Euromonitor International, 2014). Today, the literature on edible flowers and consumer perception is rather limited. One of the rare and very recent studies developed by Taiwanese scientists seems to reveal the factors that can influence the attitude of consumers towards edible flowers (Chen & Wei, 2017). Through focus groups and questionnaires, the authors demonstrated the great influencers on attitude towards the consumption of edible flowers: specific curiosity, aroma and health consciousness. Regarding this last factor, the main interest in the use of flowers as food is due to its demonstrated healthiness capacity (Choi & Hwang, 2003; Cunningham, 2015; Shi, Gong, Liu, Wu, & Zhang, 2009; Vinokur & Rodov, 2005) such as nutritional and antimicrobial properties (Lara-Cortés, Osorio-Díaz, Jiménez-Aparicio, & Bautista-Baños, 2013) and antioxidant capacity (Mlcek & Rop, 2011).

Concerning their consumption, flowers have long been present in the Asian cuisine and can be consumed fresh as a garnish or as an integral part of the dish (Kaisoon, Siriamornpun, Weerapreeyakul, & Meeso, 2011). Flowers can also be used to add color and flavor to food such as salads, soups, entrées, desserts and drinks (Barash, 1998). Over time, flowers have earned a place at the table of other cultures such as the European, Victorian English, East Indian and Middle Eastern. Despite this migration from East to West, it seems that edible flowers are not popularized for consumption in South America, thus being considered unfamiliar to some cultures from this continent. An example is Brazil. Flowers in Brazil have a recent commercial history (Aki & Perosa, 2002) and are almost always used for decorative purposes. However, nowadays, with globalization and its contribution to a better awareness in consumers and also to the comeback of earlier lifestyles, edible flowers have played an important role (Rop, Mlcek, Jurikova, Neugebauerova, & Vabkova, 2012), but how does the Brazilian consumer represent the use of flowers as a food product? In this context, the main objective of the present study will be to verify the Brazilian consumer's understanding with regards to products made with flowers.

The construction of the Brazilian food repertory has accompanied the process of colonization of the country. Besides the presence of the Amerindians in the North of the country over the centuries, Brazil has been receiving immigrants from a diversity of cultures, for instance, European immigrants in the South, such as Germans, Poles and Italians, among others (Schwartzman, 1999); in addition, the Northeast of the country had a history of strong African presence due to slavery (Pena et al., 2011); Italians, Portuguese, Japanese (Reichl, 1995) and Lebanese (Narbona, 2007) also settled in the center of Brazil. This multicultural migratory chain forged a Brazilian food identity based on sensory diversity characteristics. According to Neto and Bezzi (2007) this is a result of the process of globalization, with emphasis on its consequences for the homogenization of customs to the detriment of the expression of cultural singularities. Globalization is also responsible for the transformation of Markets provoking fierce competition beyond country borders and hence changing consumers' behavior. In this context, innovation is not just a matter of profitability; it has become a matter of survival for businesses (Michaut, 2004; Wind & Mahajan, 1997). Studies have shown that new products provide corporate vitality, enhanced performance-price index for consumers and opportunity to differentiate from competitors (Adams & Lacugna, 1994). Therefore, the introduction of flowers in the manufacture of food products in Brazil can be explained by the process of globalization and can add diversity and innovation to the country's trade, in addition to the nutritional benefits and health scope already shown for consumers.

To verify the Brazilian consumer's understanding of products made with flowers, we relied on the theory of social representations. This theory has been used in the past to approach consumer knowledge and understanding of food science (Bäckström, Pirttilä-Backman, & Tuorila, 2003; Bäckström, Pirttilä-Backman, & Tuorila, 2004; Bartels & Reinders, 2010; Gómez-Corona, Lelievre-Desmas, Buendía, Chollet, & Valentin, 2016; Onwezen & Bartels, 2013; Rodrigues, Ballester, Saenz-Navajas, & Valentin, 2015). The social representations in contemporary society can be equated with the myths of traditional societies, to the extent that they form systems of values and beliefs, providing people with a common code of communication (Moscovici, 1961; Moscovici, 2011; Wagner et al., 1999; Huotilainen & Tuorila, 2005).

The theory of social representations was born of the concept of collective representations enunciated by Durkheim (1898), however,

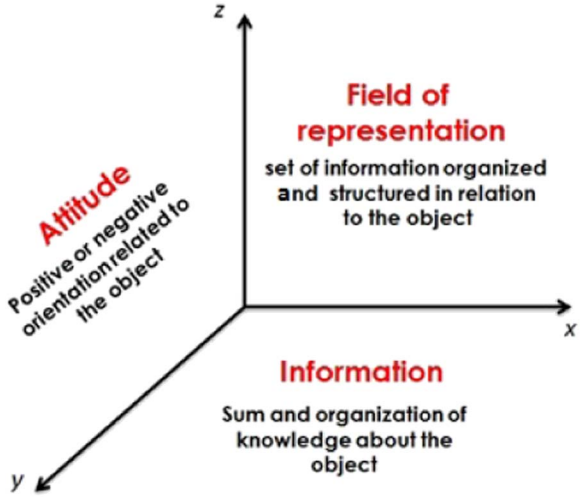

Fig. 1. Three-dimensional representation of the knowledge emanated from the social representations theory (Moscovici, 1961).

Table 1
Demographic characteristics of the participants.

	Inductor expression 1	Inductor expression 2
	%	%
Gender		
Men	50	50
Women	50	50
Age		
19–29 years	61	61
30–39 years	24	25
40–51 years	15	14
Education level		
University	69	60
High school	21	34
Elementary	10	6

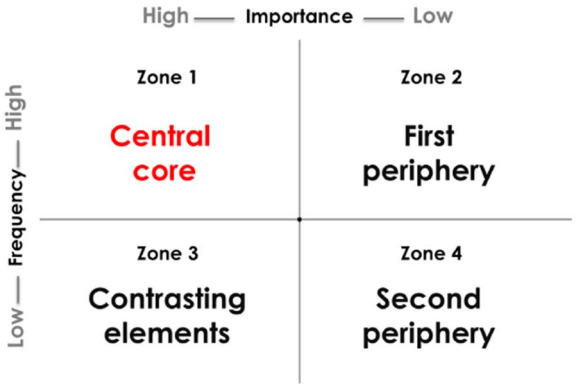

Fig. 2. Frequency-Importance analysis showing the 4 zones in a structural approach of the social representation (adapted from Abric, 2003).