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Consumer perceived healthiness and willingness to try functional milk desserts. Influence of ingredient, ingredient name and health claim

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ABSTRACT

A conjoint study was carried out in order to study the influence of two functional ingredients (antioxidants and fiber), the name used to declare the addition of the ingredient (common vs scientific name), and the type of health claim (no claim, 'enhanced function' and 'disease reduced risk' claims) on consumers' perceived healthiness and willingness to try functional milk desserts.

The use of compounds or scientific names might not be recommended as they could have a negative impact on consumers. If a functional food manufacturer wants to emphasize the use of a novel ingredient, the ingredient could be declared using its scientific name but incorporating a health claim on the label, in order to achieve a positive association in consumers' mind between the ingredient and its health effect. Besides, consumers showed the same attitude towards 'enhanced function' or 'reduced disease risk' claims.

Women and old people seemed to be the most positive groups toward the evaluated functional foods. Women gave more importance than men to the type of name used to declare the addition of the functional ingredient, which could be probably attributed to the fact that women are more familiar with the health effects of fiber and antioxidants than men. Besides, young people emphasized the disease preventing claims, while older people tended to be also interested in claims that focus short term effects on health.

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1. Introduction

According to the EU project FUFOS (Functional Food Science in Europe) coordinated by ILSI (International Life Sciences Institute), "a food can be regarded as functional if it has been satisfactorily demonstrated to affect beneficially one or more target functions in the body beyond adequate nutritional effects in a way that is relevant to either an improved state of health and well-being and/or a reduction of risk of disease" (ILSI Europe, 2002).

The functional foods market has been growing worldwide, new products are being launched continuously and competition has become more intense (Menrad, 2003). To survive the competition, a functional food product has to be developed considering consumer wants and needs (Diplock et al., 1999). For this reason, studying and understanding consumer perception of functional foods is essential to develop products that have a good consumer acceptance.

Consumers can only be expected to consider substituting conventional with functional foods if the latter are perceived as comparatively healthier. However, this benefit cannot be perceived directly by consumers, unlike other characteristics such as sensory ones (Urala & Lähteenmäki, 2004). Consumers have to trust the

information concerning the functional effect as the functional and conventional product can appear to be identical when used (Urala & Lähteenmäki, 2004). Therefore, one of the most important aspects for functional food manufacturers is how to communicate the health effects reliably to consumers (Jonas & Beckmann, 1998; Nicolay, 2003; Oude Ophuis & van Trijp, 1995; Poulsen, 1999; Vieira, 2003).

The extent to which consumers find health claims appealing depends on a number of factors, including the content and format of the message (Mazis & Raymond, 1997). There are basically two types of health claims: 'enhanced function' and 'reduced disease risk' (Diplock et al., 1999). 'Enhanced function' claims relate to the consumption of a food or food component that contributes beneficially to health. 'Reduced disease risk' claims relate to the consumption of a food or food component that helps to reduce the risk of a specific disease or an undesirable health condition. The use of one type of claim depends on which has the greater persuasive impact on consumers (van Kleef, van Trijp, & Luning, 2005). According to Krishnamurthy, Carter, and Blair (2001) and Levin, Schneider, and Gaeth (1998), in the context of attribute framing, people react more positively to positive than negative framing. Therefore, enhanced function claims might be more appealing to consumers than reduced disease risk claims, because the former evoke positive associations from memory (van Kleef et al., 2005). Reduced disease risk might confront consumers with illness and

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problems they might suffer in the future. However, results in literature regarding the effect of claims are rather contradictory. While van Kleef et al. (2005) reported that Dutch consumers reacted more favorably to disease reduced risk claims than to enhanced function framed health claims; Bech-Larsen and Grunert (2003) reported the opposite trend. Little research has been made on this topic, particularly in developing countries like Uruguay.

New ingredients are launched continuously, which raised the question of how to declare their addition in functional foods. One example is the addition of fiber. Several products have been developed with the addition of different kind of fiber (inulin, glucans, polydextrose, resistant starch, etc.). Food companies could declare fiber enrichment using its common name (i.e. fiber), focusing on the effects of a food component familiar to consumers, the name of the compound or its scientific name. Little research has been performed on the influence of how ingredients are named on consumer perception of healthiness and their willingness to try functional foods.

Though the explanatory power of demographic background variables, such as gender, age and education, has been decreasing in explaining functional food acceptance (Dagevos, 2005), their role in functional food acceptance cannot be ignored. Generally, the most positive groups towards functional foods have been women and middle-aged or elderly consumers (Bogue & Ryan, 2000; Poulsen, 1999). Therefore, it is important to identify market segments in order to attend their needs when developing functional foods.

Table 1
Attributes and levels description for conjoint analysis

Attribute	Description
Functional ingredient	Fiber Antioxidants
Name of the ingredient	Common (fiber, antioxidants) Scientific (β -glucan, flavonoids)
Claim	No claim 'Enhanced function' claim ^a 'Reduced disease risk' claim ^b

^a 'Encourage calcium absorption and growth of beneficial bacteria in the gut' for fiber and 'prevents body fat oxidation and favors cellular health' for antioxidants.

^b 'Reduce the risk of cancer in the gut' for fiber and 'reduce the risk of heart disease and certain kinds of cancer' for antioxidants.

Table 2
Description of the 13 milk desserts presented to participants and corresponding attribute levels (c.f. Table 1)

Description	Functional ingredient	Ingredient name	Health claim
Milk dessert ^a	–	–	–
Milk dessert containing fiber	1	1	1
Milk dessert containing β -glucans	1	2	1
Milk dessert containing antioxidants	2	1	1
Milk dessert containing flavonoids	2	2	1
Milk dessert containing fiber. Fiber consumption encourage calcium absorption and growth of beneficial bacteria in the gut	1	1	2
Milk dessert containing fiber. Fiber consumption reduce the risk of cancer in the gut	1	1	3
Milk dessert containing β -glucans. β -glucans consumption encourage calcium absorption and growth of beneficial bacteria in the gut	1	2	2
Milk dessert containing β -glucans. β -glucans consumption reduce the risk of cancer in the gut	1	2	3
Milk dessert containing antioxidants. Antioxidants consumption prevents body fat oxidation and favors cellular health	2	1	2
Milk dessert containing antioxidants. Antioxidants consumption reduce the risk of heart disease and certain kinds of cancer	2	1	3
Milk dessert containing flavonoids. Flavonoids consumption prevents body fat oxidation and favors cellular health	2	2	2
Milk dessert containing flavonoids. Flavonoids consumption reduce the risk of heart disease and certain kinds of cancer	2	2	3

^a Regular milk dessert, used as control.

The aims of the present work were to (a) study the influence of the name of the functional ingredient (common vs scientific name) and type of health claim on consumers perceived healthiness and willingness to try a functional milk dessert and (b) to study age and gender differences in healthiness perception and willingness to try functional milk desserts.

2. Materials and methods

2.1. Subjects

One hundred and fifty questionnaires were distributed at shopping areas, universities and public places in Montevideo (Uruguay) to people who volunteered to participate in the study. As part of the questionnaire, milk dessert frequency consumption was asked. Only people who consumed milk desserts at least once a week were considered. Thus, 82 questionnaires were selected to take part in the study. The sample included 46 females (55%) and 36 males (45%), ranging in age from 20 to 78 years (mean 37.3, standard deviation 14.9). Participants were sorted into two groups according to their age: 42 young people (between 20 and 34 years old), comprising 51% of the sample, and 40 old people (older than 35 years), comprising 49% of the sample.

2.2. Conjoint study

The base product of the study was a milk dessert considering that they are widely consumed worldwide, and particularly in Uruguay, by several groups of consumers, including children and elderly people. Besides, there is increasing marketing activity regarding milk desserts, as most dairy companies have launched new low-fat and low-calorie desserts.

The conjoint design consisted of three categorical factors: type of functional ingredient (2 levels), name of the ingredient (2 levels), and claim (3 levels). The first factor described whether the milk dessert was enriched with antioxidants or fiber. The other described whether the functional ingredient was declared using a common or a scientific name. The last factor, the claim factor, was related to the presence of claims: no claim, enhanced function claim and reduced disease risk claim. Table 1 summarizes factor levels used in the study. The three factors were varied independently of each other, following a full factorial design. This design

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