



## Research article

## Impact of information and Food Technology Neophobia in consumers' acceptance of shelf-life extension in packaged fresh fish fillets

Eugenio Demartini<sup>a,\*</sup>, Anna Gaviglio<sup>a</sup>, Piermichele La Sala<sup>b</sup>, Mariantonietta Fiore<sup>b</sup><sup>a</sup> Department of Health, Animal Science and Food Safety "Carlo Cantoni" (VESPA), University of Milan, Via Celoria, 2, 20133, Italy<sup>b</sup> Department of Economics, University of Foggia, Via Romolo Caggese, 1, 71121 Foggia FG, Italy

## ARTICLE INFO

## Article history:

Received 18 May 2018

Received in revised form 26 July 2018

Accepted 27 September 2018

Available online xxxx

## 1. Introduction

Consumers are increasingly searching for sustainable, safe and healthy products (Fiore et al., 2017; Cafarelli et al., 2017; Demartini et al., 2018b). In this sense, consumers should consider as a positive attribute of foods the use of new packaging technologies assuring shelf-life extension (SLE) that increases the sustainability of food products with no loss in terms of sensory characteristics and nutritional value. On the other hand, due to natural aversion to novelties, consumers may oppose novel foods (Costa-Font et al., 2008; Dovey et al., 2008; Siro et al., 2008; Barrera and Sánchez, 2013) and new food technologies (Cardello et al., 2007; Siegrist et al., 2007; Chen et al., 2013; Lusk et al., 2014). Thus, as inventing and promoting new products are expensive activities (Esbjerg et al., 2016) food firms often avoid innovation. The Eurostat Report on Innovation statistics (Release March 2017) confirms this interpretation. Indeed, during the period 2012–2014, less than a quarter of the surveyed European firms introduced a new product on the market. The vast majority of non-innovators stated that they were not motivated to innovate and, when asked, the most frequent deterring factor was the low level of market demand. These data suggest that consumers' attitudes towards novel products is one of the leading preventing factors for industry to invest on R&D activities.

The aversion to novel foods derives from a partly unjustified sense of risk of buying something that is perceived as dangerous or might not satisfy consumers' quality and safety expectations (Pliner et al., 1993). This inappropriate phobia towards novel foods has been called "food neophobia" or "new food technology neophobia" to specifically designate consumers' averseness towards

food produced by using new processes (Sjöberg, 2000; Cox and Evans, 2008; Faraji-Rad et al., 2017; Damsbo-Svendensen et al., 2017). The public and private interest for innovation, related to expected increase of food safety and security, taste and convenience at lower price and improvement of nutritional properties (Lusk et al., 2014) encouraged researchers to search efficient strategies to increase consumers' acceptance of new products.

The present paper contributes to the literature by testing the impact of two different informative messages on acceptance of a shelf-life extension on a traditional fresh fish product. Despite the improvement offered by shelf-life extension technologies, fish consumers may not appreciate the innovation in fresh packaged fish, because of very traditional food purchasing habits (Honkanen et al., 2005), and the high heterogeneity of fish products in the market (Gaviglio et al., 2013). Thus, an on-line survey on shelf life extension (SLE) technology by 10 days on fresh fish has been conducted. Participants valued a portion of 400gr of fresh sea bream fillets (*Sparus aurata*) presented as packaged by using a new package. Two information treatments randomized between subjects have been introduced in order to evaluate the best message to increase consumers' acceptance of the product.

The remainder of the text is organized into four paragraphs. Paragraph 2 presents the review of the literature review on consumer attitudes towards fish and novel food and the role of information in changing consumers' attitudes. Paragraph 3 discusses the materials and methods and the statistical approach used in the analysis. Finally, paragraphs 4 and 5 are devoted to the results and their discussion respectively.

## 2. Theoretical background

The present paper discusses the results of an experiment that aims to increase the attitudes towards a novel fresh fish product using different informative messages and to explore the role of neophobia on product acceptance. Thus, the literature review

\* Corresponding author.

E-mail addresses: [eugenio.demartini@unimi.it](mailto:eugenio.demartini@unimi.it) (E. Demartini), [anna.gaviglio@unimi.it](mailto:anna.gaviglio@unimi.it) (A. Gaviglio), [piermichele.lasala@unifg.it](mailto:piermichele.lasala@unifg.it) (P. La Sala), [mariantonietta.fiore@unifg.it](mailto:mariantonietta.fiore@unifg.it) (M. Fiore).

takes into consideration three main aspects: (1) the consumers attitudes towards fresh fish products, and their relationships with other individual characteristics and fish consumption; (2) the relationship between neophobia, with specific reference to new food technology neophobia, and novel food acceptance; and, (3) the role of informative messages in changing consumers attitudes towards foods.

### 2.1. Consumers attitudes toward fresh fish products

According to (FAO/WHO, 2011), eating fresh fish products guarantees health benefits such as protecting against depression and cardiovascular diseases, and in controlling the cholesterol levels in blood. Despite several WHO promotion strategies, fish consumption continues to be low and relevant differences in consumption levels are measured across countries (Zhou et al., 2015; Altintzoglou and Heide, 2016). Due to the role of fresh fish products in a balanced, healthy and high quality diet, the growing variety in consumer's dietary needs and their low consumption levels, the study of consumers' perception and attitudes towards fresh fish products reached more and more attention over the last decades. The latest studies show that perception of quality attributes plays a relevant part in buying behavior and consumers' attitudes toward fresh fish products (Wang et al., 2009; Altintzoglou and Heide, 2016; Maciel et al., 2016). An Italian study (De Devitiis et al., 2018) investigates consumers' acceptance of a new fish burger that seems to overcome consumption barriers, thank to both convenience and health benefits (deriving from the functional enrichment with omega-3 fatty acids) and nutritional claims. Another study (Nicolosi et al., 2019), focusing on Italy and Spain, highlights that the perception and attitudes towards fish products varies depending on local cultures and consumption habits. A Norwegian survey demonstrates that perception of quality of fish products certainly affects buying-behavior of fresh fish fillets. Furthermore, the perception of quality depends on subjective and objective knowledge about fish quality and social and individual characteristics (Altintzoglou and Heide, 2016). A study made in China (Zhou et al., 2015) offers evidences that economic and socio-demographics factors act as determinants of fish consumption. Through the estimation of a Marshallian demand function, authors found that consumption relates positively to household income and knowledge of health issues. A mixed research investigated the fish consumption habits of consumers from Brazil and Portugal (Maciel et al., 2016) and proved that it is firstly linked to the quality attributes such as country of origin, the certification of sustainable production methods. As a secondary determinant of consumption, the same research reports the preparation and preservation methods and the marketing strategies adopted for the fish products. In line with this research, some authors investigated consumers residents in the city of Corumbá, Mato Grosso do Sul State, Brazil (Maciel et al., 2015) and demonstrate that the sensory and quality characteristics of products are the key drivers in shaping fish consumption habits.

### 2.2. Consumer aversion to novel food and new food technology neophobia

The global food context is characterized by the increasing demand for functional, convenience and healthy foods. Albeit new food technologies help to respond to the recent market needs, some consumers oppose these novelties, mostly due to unmotivated perception of risky outcomes. For example, despite food irradiation is a useful, cheap and safe technology with many application in food conservation, European consumers seem not appreciate it (Diehl, 2002). Consumers are also generally averse to genetically modified food and do not differentiate between cisgenically vs transgenically modified products (Delwaide et al., 2015) even if

heterogeneity in preferences has been found, being the younger consumers the less averse towards GMOs (Hu et al., 2004). On the other hands, in a very recent study focused on the acceptance of shelf-life extension among Italian students by Cavaliere and Ventura (2018) shows that the willingness to try an innovative foods differs among young consumers depending on the knowledge and interest on sustainability. Somehow counter-intuitively, the results of this surveys demonstrate that the higher is the involvement in sustainability, the less the sustainable innovation is accepted.

Consumers show their reluctance also against functional foods produced using new technologies and unfamiliar ingredients, being the European normally more averse than American towards these wide category of food (Siro et al., 2008).

According to Pliner et al. (1993) consumers' opposition towards novel products may relate to the perception of the novel food as harmful or the perceived risk that new foods will dislike their expectations. The researchers traditionally refer to the aversion to novel food as "neophobia" (Pliner and Hobden, 1992; Damsbo-Svendensen et al., 2017) and, more recently, started using the term "new food technology neophobia" (Cox and Evans, 2008) to indicate consumers' reluctance towards food produced using new processes. The "new food technology neophobia" has several facets either relate to consumers' aversion to try novel food products either to accept new production and processing technologies (Cox and Evans, 2008; DeSteur et al., 2016).

### 2.3. Changing consumers' attitudes using information

Consumers might oppose novel foods because they are not aware of the method used for their production (Cardello et al., 2007). Thus, providing consumers with information about innovative technologies should reduce their information gap (Contò et al., 2016; Barsics et al., 2017). Some researches confirm that this approach can be effective in the creation of positive attitudes towards foods and foods technologies. A study conducted in New Zealand (Lee et al., 2016) offers evidences that information positively influenced consumers' attitudes towards apple juices that was untreated and processed using high hydrostatic pressure, while it had no effect on pulsed-electric field treated juice. A research conducted in Europe and USA involving experimental auctions (Lusk et al., 2004) proved that providing information about potential benefits of GMOs decrease the money that consumers accepted to buy the GM food. Researchers focused also on the quantity of information provided. Also in this case, there evidences that information shape consumers evaluation of targeted products. For instance, the study of Pohlman et al. (1994) proved that the participation to an educational program improved the attitudes towards food irradiation technologies, while McCullough and Ostrom (1974) proved that mere exposure to similar short messages persuaded involved positive evaluation of daily-use products. However, the information does not always provide positive changes in attitudes. For instance, Jaeger et al. (2015) conducted a qualitative research and measured that providing description changed positively and negatively the evaluation of new food technologies in different group of consumers.

## 3. Materials and methods

In order to increase the attitudes towards a novel fresh fish product using information and explore the role of neophobia on product acceptance, we firstly analysed the negative values attached to the product and created two informative messages targeting these specific adverse attributes. Secondly, we identified a set of dependent variables represented by the attitudes towards

Download English Version:

<https://daneshyari.com/en/article/11263360>

Download Persian Version:

<https://daneshyari.com/article/11263360>

[Daneshyari.com](https://daneshyari.com)