



Attitude towards resveratrol as a healthy botanical ingredient: The role of naturalness of product and message



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ABSTRACT

Medicinal research is exploring an increasing number of botanical substances with potentially favorable health effects, amongst others resveratrol. For marketing botanicals in consumer products, it needs to be determined which food products consumers prefer as a carrier and what kind of communication they react most favorably to. An online survey and experiment with 578 Danish respondents analyzed attitude towards a resveratrol product, varying carrier type and health information. Attitudes were more favorable for food categories perceived as natural (versus processed). Categories perceived as serving functional (versus hedonic) needs were significantly more favorably received when health information was phrased as 'natural'. Respondents expressing concerns about agricultural and food technology were more likely to state less positive attitude towards the product when the information was phrased as 'scientific'. When presented with a mock-up media report contradicting the naturally framed health information, attitude towards the product decreased more for categories perceived as natural. The same was observed for categories perceived as serving hedonic needs, but only if these had been presented with scientifically phrased health information. The results underline the crucial importance of perceived naturalness of product and information to consumer's acceptance, and the decisive role of consumer's beliefs. Food producers need to explain naturalness in marketing new health-related substances, while policy makers must ensure legislation allows and secures truthful and correct communication on naturalness.

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1. Introduction

Today an increasing share of consumers in developed countries are health-conscious and purchase functional foods or nutraceuticals (Kaur & Das, 2011; Siró, Kápolna, Kápolna, & Lugasi, 2008; Verhagen, Vos, Francl, Heinonen, & van Loveren, 2010), food or dietary supplements (Beitz, Mensink, Hintzpetter, Fischer, & Erbersdobler, 2004; Pillitteri et al., 2008), or alternative medicine (Bishop & Lewith, 2010). However, many of these consumers are interested in both healthiness as well as 'naturalness', and consumer's health interest is believed to have moved towards combining naturalness and health through e.g. 'naturally functional' foods (Ares & Gámbaro, 2007; Aschemann-Witzel, 2015; Mellentin, 2013). Plants offer an astonishing diversity of substances, and science has found many of these to provide health-related benefits (Rietjens, Slob, Galli, & Silano, 2008), as for example substances found in garlic, ginseng or ginkgo. Therefore, plant-based substances are especially promising to use in new functional food innovations.

Making use of plant-based, botanical ingredients either as a food supplement or as a functional food ingredient requires sufficient scientific substantiation of the effect¹ (Pittler, Schmidt, & Ernst, 2005; Rietjens et al., 2008), the identification and development of suitable foods as so-called carrier products, and the truthful and convincing communication to the consumer target group. Choice of the right carrier product has been shown to be decisive for functional food acceptance (Krutulyte et al., 2011; Urala & Lähteenmäki, 2007). The product must match consumer's dietary habits and the carrier-substance combination needs to 'fit' in the perception of consumers. An example for this is calcium's perceived fit with yoghurt, but not with orange juice. Communicating the benefit of a healthy ingredient needs to take departure in consumers' personal interests, beliefs and attitudes to capture attention and trigger favorable attitude as a prerequisite for intention to purchase and use the product.

Research has therefore explored consumer preferences for functional food carrier products (e.g. van Kleef, van Trijp, & Luning,

¹ At the time of writing, so-called 'botanicals' have hardly yet been assessed as sufficiently scientifically substantiated to allow for a health claim in the EU's nutrition and health claim regulation.

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2005; Verbeke, Scholderer, & Lähteenmäki, 2009) and how communication on functional foods can appeal to and meet consumer interest (e.g. Bech-Larsen & Grunert, 2003; van Kleef et al., 2005). However, research on carrier-ingredient fit is scarce so far, and botanicals have hardly been in the scope of research. Also, the impact of divergent and contradictory information consumers might receive about the new ingredients and its benefit needs more attention.

Using the botanical substance resveratrol as an example, we explore how attitude towards the product is influenced by product carrier characteristics and by the way the health-related benefits are communicated. More specifically, we aim to answer the following questions: Firstly, to what extent does attitude to the product depend on the categorization of the functional food carrier as a category perceived as natural and not highly processed, or a category perceived as serving functional and not hedonic needs? Secondly, does this attitude differ depending on whether the benefit is communicated as ‘scientific’ information versus non-scientific information focusing on ‘naturalness’, and does it change when contradictory information (questioning the health information seen earlier) is presented? Thirdly, which interactions between product carrier characteristics and information can be found? Fourthly, which influence is found for individual’s attitudes towards science versus naturalness? The study contributes to the understanding of the right fit between substance, product carrier and communication from a consumer perspective, with implications for product development and marketing as well as public policy in governing health-related information on foods and supplements.

2. Background

2.1. Effects of carrier product characteristics on consumer attitudes to functional foods

For food producers developing functional foods, it is decisive to understand how consumer acceptance of and purchase intentions for functional foods depend on the combination of ingredients with different types of food carrier. The food category chosen as a carrier has been found to have a major impact on consumer response (Urala & Lähteenmäki, 2007), and might in some cases even supersede the influence of the benefit claim (Williams, Ridges, Batterham, Ripper, & Hung, 2008). Research on cue-consistency suggests that evaluation of a product differs depending on whether two cues are consistent or inconsistent (Akdeniz, Calantone, & Voorhees, 2013). It can be expected that when two quality cues (in this case the ingredient and the carrier) are assessed both positively and as matching, a strong favorable interaction occurs. If, on the other hand, one of the cues is assessed negatively, the negative cue might dominate the assessment of the combination (Miyazaki, Grewal, & Goodstein, 2005). For example, if a consumer has a positive perception of both smoothies and blueberries, she or he assesses the combination as particularly positive, but if a consumer dislikes the chunkiness of smoothies in general, this dislike might dominate the overall assessment. The expectation that combining cues that are perceived as similar increases favorable evaluation also underlies the idea of co-branding attribute-similar brands (Swaminathan, Gurhan-Canli, Kubat, & Hayran, 2015) and has been found to be effective (Simonin & Ruth, 1998). Therefore, food producers need to ensure that both elements, the ingredient and the carrier, are favorably perceived so that they contribute to the overall product evaluation. They also need to aim for a good perceived fit of ingredient and carrier in consumer’s minds.

Previous research has shown that perceived fit of the combination greatly impacts purchase intention. Interestingly, the perceived fit is related to familiarity of the combination (Krutulyte

et al., 2011). It can be expected that familiarity of the combination might be impacted both by familiarity of the ingredient (Bornkessel, Bröring, Omta, & van Trijp, 2014) and of the carrier. Furthermore, the ‘naturalness’ of the combination, that is, whether or not the ingredient is in fact a substance contained in the food without need of any enhancement, impacts preference for the combination (Ares & Gámbaro, 2007; Grunert et al., 2009). Familiarity as a crucial factor has been found in a number of studies (Dean et al., 2012; Verbeke et al., 2009).

Apart from familiarity, another important characteristic impacting acceptability of functional food is the perceived healthiness of the carrier (Bech-Larsen & Grunert, 2003; Kraus, 2015; Krutulyte et al., 2011; Lähteenmäki, 2013; Lähteenmäki et al., 2010). Furthermore, the expected benefit from a functional food and its carrier-ingredient combination has been found to be crucially relevant for consumer’s favorable attitude, intention or willingness-to-pay. For the individual, the health benefit must seem necessary (Urala & Lähteenmäki, 2007) and be personally relevant (Dean et al., 2012; van Kleef et al., 2005), for example due to illness in the family (Verbeke, 2005).

Given these research findings, it appears that consumers, when assessing a functional food with an ingredient yet unknown to them, might greatly rely on characteristics of the food category. These characteristics might especially be related to whether or not the food category is familiar or perceived as natural or healthy. However, a further characteristic of relevance might be whether or not the food category is seen to serve functional/utility needs versus being a food consumed for hedonic motives (Lowe, Fraser, & Souza-Monteiro, 2015; Roininen, Lähteenmäki, & Tuorila, 1999): A health benefit might not fit well with food categories consumed mostly for hedonic purposes. There is a research stream looking into food categories classified as ‘vice’ or ‘virtue’ (serving hedonic needs versus contributing to healthy eating; Chernev & Gal, 2010; Sela, Berger, & Liu, 2009). For example, a study found that organic foods, which are often assumed to be more natural (Aschemann-Witzel, Maroscheck, & Hamm, 2013), appear to be less popular in vice food categories (van Doorn & Verhoef, 2011), suggesting the ‘viceness’ of the category is ‘spoilt’ when it is combined with a ‘virtue’ characteristic such as organic (van Doorn & Verhoef, 2011). Thus, one might expect consumers to perceive a product carrier from a hedonic category to be ‘spoilt’ when presented with a health-related ingredient, leading to less favorable evaluations.

The current study investigates attitude towards ingredient-carrier combinations with the substance resveratrol, comparing various carrier products. Based on previous research results, we expect that the product shown is assessed more favorably when the carrier category is perceived as natural rather than processed (hypothesis 1a, as e.g. fruit yoghurt versus energy drinks), and assessed less favorably when the category is perceived as hedonic rather than functional (1b, as e.g. red wine versus a fruit bar).

2.2. Effects of communication

The carrier-ingredient combination is assessed by consumers based on their previous knowledge and the information they receive when being exposed to the product in question. The same factual information, though, might be differently presented. According to framing theory, it can be expected that differences in context and framing of the information presented will differently impact how consumers process the information in interaction with information they retrieve from their memory. Thus, the context and differences in communication will determine the evaluation of the product (Evans, 2011; Kahneman, 2011; Levin, Schneider, & Gaeth, 1998; Scheufele, 2004).

In functional food research, the choice of claim (nutrition, health or risk reduction claim) has been researched extensively

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