Targeting health-conscious consumers: *Enriched* seafoods

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The aim is to increase the value of ocean based raw materials, reach new seafood consumer groups and increase market share of the companies involved as a step forward for production of enriched seafood dishes for targeted consumer groups

**Seafood enriched different ingredients**
- Omega-3 (known among consumers)
- Seaweed extract (unknown among consumers)
- Proteins (known but more as powder for body-builders)

**Collaboration between R&D, seafood processors and ingredients producers funded by Nordic Innovation**
Why enrichment of already healthy foods
  • Consumer trends towards enriched food
  • Health conscious people who are they?

Various ingredients (health claims)

Concept testing regarding enrichment
  • Focus groups in Iceland
  • Consumer survey in Iceland and Finland

Product development:
  • Consumer tasting, sensory evaluation

Conclusion and further steps
Why enrichment of already healthy foods

Consumers tend to favour functional foods over supplementary pills to as means to prevent diseases. The market for these types of products is one of the fastest growing markets in the world. (*Euromonitor International, 2010*)

Consumers expect the foods and beverages they consume to provide some kind of added nutritional benefit, that will enable them to maintain a healthy lifestyle or somehow improve upon their overall health

Important to understand that they are not willing to sacrifice taste to realize these nutritional benefits (*What’s On-Trend for 2013? the World of Food Ingredients Dec 2012*)

The food industry is now moving from producing nutritious food into food promoting health and well-being, preventing illness and reducing the risk of chronic disease
Who are those consumers?

The consumer groups are likely to be athletes, elderly people, patients but the products might also appeal to all health oriented consumers.

The aim was to identify the size and characteristics of the consumer groups.
Consumer attitudes and health claims

Compared to consumers elsewhere in the Western world, European consumers generally seem to be more suspicious towards enrichment of food.

Health claims in food products communicate the health effect
• not necessarily make the products more appealing to consumers

Development of enriched foods requires understanding of consumers’ demands

Consumers in the Nordic countries have on average neither positive nor negative attitudes towards foods with health claims

Use of food labelled with health claims was highest in Finland (Grunert et al, 2009)
Health claims and consumer experience

Food with health claims affects the consumer experience of other properties of foods

For example consumers feel natural qualities of the foods are reduced and the food tastes even worse if it bear health claims

It depends on the knowledge of the substance that is being referred to the in the claim

In general claims have not beneficial effect on other properties of foods

Liisa Lähteenmäki et al, 2010
Attention on health aspects of increasing long chain n-3 PUFA intake has motivated the food industry to incorporate these fatty acids into food products

Omega-3 several health claims have been accepted and omega-3 is very well known among consumers
Seaweed

The unique polyphenols found in seaweeds have been shown to have an outstanding antioxidant activity. Antioxidative compounds derived from seaweed have a broad array of additional health-promoting benefits such as prevention of diseases linked to oxidative stress.

Seaweed extract also food enhancer and expected to act as a salt reducer in food.

Not very known by consumers

Seaweed no health claims are accepted but scientific evidence through research is on the way.
Permitted health claims for proteins are only four

• refer to protein promotes the growth of muscle mass, protein contributes to maintaining muscle mass and protein contribute to the maintenance of bones.

Enormous use of proteins in form of powder (ie. Body-builders)

High protein content (more than 12%) difficult to obtain in convenience products except by adding proteins
Focus group discussions: functional foods

The focus group work showed that bioactive compound were not known to the participants, but generally sounded positive rather than negative to them.

Antioxidants, seaweed and omega-3 were usually experienced as positive and omega-3 associated with healthy fish oil and protection against diseases.

Proteins as such and proteins used to increase protein content of seafood were both experienced as positive and negative.
The effect of information about ingredients and health effects

One product - different information

Traditional home fish cakes

Fish cakes have been enriched with fish proteins. Proteins are important for maintenance and build-up of muscles, not the least for physically active people”

Fish cakes have been enriched with seaweed. Seaweed is rich of antioxidants which among others are believed to protect cells in the body”
Consumer liking (Home use test)

Overall informed tasting negatively affected seaweed enriched fish cake liking!

The liking depended on education level, age, attitudes towards food, health and ingredients in fish cakes

Liking differences by attitudes

- Price conscious consumers: higher liking of traditional fish cakes
- Consumers interested in proteins: higher liking of fish cakes with information on proteins
- Health/healthy food – oriented consumers: higher liking of fish cakes with information on seaweed
Consumer concept test in Iceland and Finland

Seafood purchase and use of food supplements

Questions regarding the different concepts

Attitudes related to
  • healthy eating
  • new foods
  • functional foods
  • convenience regarding meals

Information related to
  • physical activity
  • demographic factors
Web-based questionnaires were used to study Icelandic and Finnish consumer´s responses towards concepts of convenience seafood products enriched with

• omega-3
• fish proteins
• seaweed extracts

with different information about possible effects/functional properties.
This product is tasty

Traditional

Seaweed instead of salt
Seaweed instead of salt + antioxidants and minerals
Seaweed: more info
Seaweed: rich of antioxidants
Seaweed: rich of antioxidants and minerals
Seaweed: rich of antioxidants and minerals +...
This product is healthy

- Seaweed instead of salt + antioxidants and minerals
- Seaweed instead of salt
- Seaweed: more info
- Seaweed: rich of antioxidants and minerals
- Seaweed: rich of antioxidants
- Seaweed
- Omega-3: more info
- Omega-3: lowering cholesterol
- Omega-3
- Fish protein: more info
- 4% quality fish protein
- Fish protein
- Traditional

Totally disagree = 1
Totally agree = 7

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Buying intention according to attitudes towards healthy foods (HF)

*Seaweed: more information

Seaweed

*Omega-3: more information

Omega-3

Fish protein: more information

Fish protein

Traditional

Very unlikely = 1
Very likely = 7
Who are the health conscious consumers?

More than 50% placed high emphasis on the healthiness of food according to their attitudes towards healthy eating.

More likely to use information provided on packaging, consume more fish, take vitamins, minerals, fish oil and other food supplements.

More positive attitude towards functional foods but placed less emphasis on convenience around meals.

Consumers more emphasis on the healthiness of food:
- more women,
- higher education level,
- higher average age

No differences were found by residence or income, or physical activity.
Icelandic results (n = 460)

Cod product concepts:

Enrichment of convenience seafood an realistic option, especially with omega-3

Although information about enrichment had rather negative effects, information about ingredients and health effects positively affected buying intention

The effect of information was greater among consumers who placed higher emphasis on health and expressed more positive attitudes towards functional foods
Salmon cakes enriched with Omega-3-
Finnish consumers (n=432) – Concept testing

Products enriched with seaweed received relatively highest scores
  • provided with information about salt reduction

Salmon is a fatty fish already rich in omega-3

Including omega-3 ingredients in salmon cakes
  • Even or more healthy
  • Lower naturalness and tastiness of salmon
  • Buying intention decreases significantly

Naturalness and tastiness are important factors behind consumers’ food choice

Adding omega-3 to an already rich in omega-3 product such as salmon, might not be enough to convince consumers to prefer the enriched product over the traditional one
Web-based consumer survey in Iceland and Finland

Product development with the seaweed is a very interesting option
  • fat and lean fish species

Positive outcome for this relatively unknown food ingredient seaweed

Omega-3 could be an interesting option
  • lean fish species

Fish protein for products
  • aimed at more specific consumer groups (interested in functional foods)

Enrichment of convenience seafood products with marine based ingredients is a realistic option for the seafood producers

Extremely important to consider labelling and information provided to the consumers
Product development – sensory evaluation

Development of fish-cakes with the 3 different ingredients

Trained sensory panel to evaluate sensory characteristics (i.e. off-flavours, rancidity, oily, bitterness)

Seaweed enhancement of flavour
Quality of the ingredients is of high importance
Quantity of the ingredients

Several types of convenience enriched seafood dishes
Promising results
Conclusions and next steps

Added value of sensory evaluation, consumer tasting, consumer concept testing for product development of enriched seafood dishes with the aim of producing tasty foods attractive to consumers

Further market research

New product category „healthy“ enriched convenience seafood products the market
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