

Reduced-sodium seafood products: salmon pâté



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SUMMARY

Table salt is approximately 40% sodium and 60% chloride. The human body requires sodium to conduct vital functions, but too much sodium in diets is known to increase blood pressure, which can lead to heart attack, strokes, dementias and kidney diseases. In most European countries, sodium intake is approximately double the level recommended by the World Health Organisation. Reducing consumption of sodium is one of the most effective ways to improve public health. This knowledge output consists of a consumer-validated formula for producing salmon pâté that reduces sodium levels by 27%, without compromising on taste, quality or food safety. The naturally derived formula also has the potential to reduce sodium levels in many other seafood products and other foods, and so could have a significant contribution to improving public health.



KNOWLEDGE NEED

Seafood is a rich source of important nutrients, and while unprocessed seafood is generally low in sodium, processed smoked, cured, salted or dried seafood products typically contain high quantities. There is a need for processed seafood with lower sodium content, without compromising product quality or safety.



RESULTS

This Knowledge Output consists of a new economically viable and validated formula for producing salmon pâté with reduced sodium content. Saltwell®, a natural salt containing a mixture of sodium chloride and potassium chloride, was used for partial substitution of sodium chloride (table salt) alone in the formulation. Three different sodium concentrations were evaluated using microbiological, sensory and chemical analyses. It was possible to replace all the sodium chloride with Saltwell® without affecting microbial activity. A trained sensory panel observed minor differences in three of the twelve sensory attributes that were evaluated (coherent texture, saltiness, canned fish flavour). Surveyed consumers indicated no preference between the reduced sodium product and a reference product. The result show that Saltwell® is a viable alternative to sodium chloride to produce seafood products with reduced sodium content, without compromising quality and safety. In addition, an economic feasibility and valuation study of this product has also shown that this product has high market potential, with large target consumer groups and limited additional costs in comparison to traditional production methods.

IMPACTS

This knowledge has the potential to improve consumer health and reduce the risk of cardiovascular disease, by providing an alternative to sodium needed for processed products. This is expected to contribute to an improved health profile of the European population overall, as well as an increase in seafood sector growth, sustainability and profitability.

Contributes to the UN Sustainable Development Goal 12: Responsible consumption and production, and **Goal 3:** Good health and well-being.



END-USERS & APPLICATIONS

➔ **Salmon processors / pâté producers:** could use this knowledge to improve the health benefits and nutritional quality of their products, by replacing sodium chloride with Saltwell®.

➔ **Food processing companies:** could apply the formula to other processed seafood and food products.

➔ **Food scientists and research community:** working in the area of nutrition and food safety, could use the knowledge to support further research and developments in this area.

➔ **Consumers:** If brought to market, this knowledge could improve public health and increase consumption leading to economic growth in the sector.

DISSEMINATION AND EXPLOITATION

Scientific publications:

- Nielsen T *et al.* (2020). New formulation for producing salmon pâté with reduced sodium content. *Food and Chemical Toxicology*, 139, 111509. DOI: 10.1016/j.fct.2020.111546.
- Open access version: [sciencedirect.com/science/article/pii/S0278691520304361](https://www.sciencedirect.com/science/article/pii/S0278691520304361)
- Open access validated data sets: snd.gu.se/en/catalogue/study/2020-201

Exploitation activities for policy makers:

- Managers, regulators and policy makers will be reached through the final **SEAFOOD^{TOMORROW}** event, EC info session, and a dedicated EU policy event.

Dissemination activities for society / all users:

- Project newsletter and news articles
- Promotion on Twitter and LinkedIn

Exploitation activities for seafood industry:

- RISE has reached out to seafood processing companies participating in the project to support uptake of this knowledge
- This product was presented and available for tasting at the **SEAFOOD^{TOMORROW}** demonstration workshop in Spain, of which the proceedings can be found on the project website.
- The method was shared with the Irish Seafood Development Agency and Irish Aquaculture technology and Innovative Platform (April 2020).
- Horizon Results Platform: seafoodtomorrow.eu/horizon-results-platform



INNOVATION STATUS

Technology Readiness Level 7 – formula has been demonstrated in operational environment. Results have been published and data is available in open access.

Patents and IPR: Not applicable



FUTURE RESEARCH

An area for further research and development is applying this formula to other seafood products, or verifying its application in other food types. To complete and qualify the system, the potential impacts must be showcased to end-users.

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