Turun yliopisto
University of Turku

Update on activities

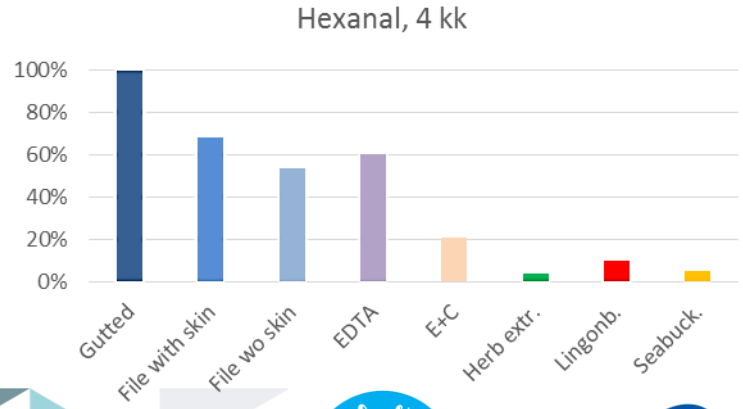
Annelie Damerau

Steering group meeting
8.11.2018

Blue Products
KALASTUKSEN
INNOVAATIO-OHJELMA

Fish mass storage test (in collaboration with FFF)

- **Aims**: Increase the storage stability of silakka fish mass at -20 °C to extend the availability of product all year around by addition of natural antioxidants; storage stability up to 10 months; green label products
- **Means**: natural additions of CO_2-herb extract 1%, milled dried lingonberry skin 3%, milled dried sea buckthorn skin 3%; natural addition are compared to chemical antioxidants
- **Methods**: Lipid oxidation (volatile profiles); consumer sensory tests done by FFF



EUROOPAN MERI- JA KALATALOUSRAHASTO
SUOMEN TOIMINTAOHJELMA
2014-2020

Fish mass storage test (in collaboration with FFF)

- **Outcomes so far (6 month of storage)**: Natural antioxidants work as well as chemical ones or even better: **prove of concept**; sensory test showed products with natural additions are less well accepted because of smell (herb extract) or taste/looks (berry additions)
- **Continuation**: new storage test is planned testing different level of additions and how hide them better in final products; product concepts like fish patty will be tested

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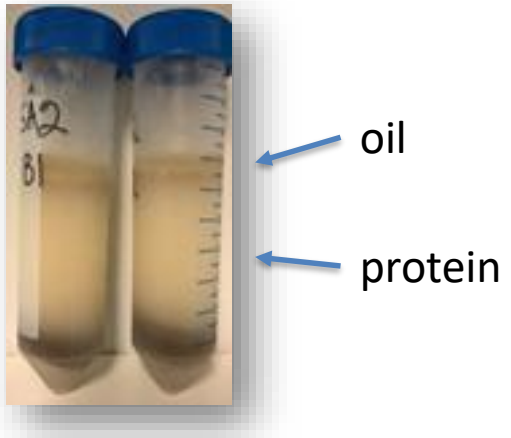
Protein isolates (collaboration with VTT)

- **Aims**: To utilize too small catch and fish production side-streams by production protein isolates (side product: fish oil)
- **Process**: freeze-dried protein isolates are produced from särki and silakka using enzyme hydrolysis with three different proteases and pH-shift with pH 2.5 and 11.5 by VTT
- **Methods**: Measurement of quality parameters: protein and lipid content, composition and oxidation



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Protein isolates (collaboration with VTT)

- **Outcome so far**: amino acid and volatile profiles are different between processes, proteins from enzymatic process are water soluble, from pH-shift process they are not soluble, still a fishy smell remaining in the final product (but could be used for stabilization of fish products)
- **Continuation**: finishing the analysis of current set of samples, possible continuation depending on VTT

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2014-2020

pH-shift process (collaboration with Åbo Akademi)

- **Aims**: Similar as the collaboration with VTT regarding the protein isolate; main differences: the end-goal of this collaboration is a surimi-type product while the end goal of the previous one is more to develop a food ingredient
- **Process**: Silakka processed using pH shift at pH 11.2 with prior washing steps of raw material to enhance the whiteness, afterwards sous-vide cooking of protein mass to get a stable gel structure
- **Methods**: Measurement of quality parameters and sensory tests

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2014-2020

pH-shift process (collaboration with Åbo Akademi)

- **Outcomes so far**: first process parameters tested and first product concepts tested
- **Continuation**: further development of the process to increase yield and improve color, further product development, sensory testing