



Issue 33: May, 2020: This e-bulletin is aimed at personnel in fisheries and aquaculture, at fish packers, processors, distributors, retailers and finally, consumers.

Fish in the Faroes (WEFTA 2019)

The 49th WEFTA (West European Fish Technologists Association) conference took place in Tórshavn, Faroe Islands on 14-18 October 2019 with the theme 'Blue Value Creation, Bioeconomy, Health and Safety'. Jákup Mørkøre (Faroe Islands) together with local and scientific committees organised the event. The 35 long and 31 short presentations, and 39 posters were organised in seven sessions: (i) Value creation from pelagic and demersal fish species (Industry Session); (ii) Sustainable aquaculture – healthy production today and in the future; (iii) Zero waste production and biorefining; (iv) Health effects of seafood consumption and promotion of marine-based food; (v) Seafood safety and authenticity; (vi) Micro and macroalgae and future applications; (vii) Advanced processing technologies and impact on quality of seafood. Focus below is on four selected areas in sessions (iv) and (v).

Health effects of seafood consumption

Many organisms in the marine food chain are high in contaminants, e.g. mercury and persistent organic pollutants. High dietary intake of these species leads to high blood concentrations in humans. High exposure is associated with negative impact on the human central nervous and immune systems. Mercury from polluting industrial centres travels thousands of miles before raining down into the oceans and thus contaminates fish. Tuna, swordfish, cod, hake and whiting are contributors to exposure in adult age groups and also in children. Unborn children are the most vulnerable group but analyses of blood and hair samples indicate mercury levels well below tolerable weekly intakes, but not in all cases. The European Food Safety Authority (EFSA) has called for increased volumes of data on inorganic and methylmercury contamination in all foodstuffs so that a more complete picture can be formed and decisive action taken.

Diabetes mellitus is among the fastest growing health concerns worldwide. Dipeptidyl-peptidase 4 (DPP4) selectively degrades hormones and glucagon-like peptide-1 and glucose-dependent insulinotropic polypeptides, which are major regulators of post-prandial insulin secretion. Drugs such as sitagliptin, vildagliptin and linagliptin inhibit DPP4 and are used for treatment of Type-2 diabetes. Although generally well tolerated they can cause urinary tract infections and headaches. Enzyme hydrolysis of side streams (heads, skins and viscera) of Baltic herring (*Clupea harengus membras*) produced hydrolysates that effectively

inhibited the DPP4 enzyme activity *in vitro* and could have application in treatment of Type-2 diabetes. The hydrolysates can be processed further by membrane filtration to increase the DPP4 inhibitory activity.

Seafood safety and authenticity

Microplastics (MPs) are a major problem in sea and ocean environments and are found in fish, shellfish, crustaceans and cephalopods. This raises quality and safety issues in seafoods and needs a risk analysis approach. This requires robust analytical procedures with good sampling plans where MPs are isolated/extracted and quantified from seafoods using reproducible and reliable methods. Equally important is the harmonisation of methodology so that direct comparisons can be made on MP results from different laboratories at national and international level. This will enable an accurate picture to be formed on the extent and seriousness of the MPs problem and lead to policy considerations on how best to start reducing the problem.

Listeria monocytogenes is considered the main risk in many ready-to-eat (RTE) smoked and marinated seafood products. Several outbreaks of Listeriosis with some fatal outcomes have been linked to consumption of these products. Preventing *L. monocytogenes* growth going above the EU critical limit of 100cfu/g is an effective way of preventing/reducing cases of Listeriosis. In 2010 the Royal Greenland Seafood A/S (RGS) started to produce smoked and marinated fish products (salmon, Greenland halibut and cod) with addition of acetic and/or lactic acids to change their status from high risk to low risk products. This has led to the development and use of predictive models to successfully predict growth of *Listeria monocytogenes* in RTE smoked and marinated seafood products with a high degree of safety and in compliance with EU-regulations. Appropriate concentrations of organic acids to prevent growth of *L. monocytogenes* were determined using predictive models and validated through regular risk assessments of the products. The work was based on cooperation between the RSG and the seafood industry over a 15-year period. The predictive models have been included in the Food Spoilage and Safety Predictor Software (<http://fssp.food.dtu.dk/>) to make them more widely accessible. More recently, new predictive models have been developed for the growth of psychrotolerant *Clostridium botulinum* in RTE seafood products with an outcome that allows salt reduction without compromising product safety.



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