The results of our studies showed that the proteins from flying fish caviar are characterized by a full set of essential and nonessential amino acids (the tryptophan content was not analyzed). According to the content of essential amino acids (valine, isoleucine, leucine, lysine, threonine, and the sum of tyrosine and phenylalanine), flying fish caviar proteins even exceed an "ideal" protein. Methionine and cystine represent limiting amino acids. The amino acid composition of caviar proteins is comparable with that of other caviar types, including sturgeon caviar.

The fractional composition of the lipids of flying fish caviar is mainly comparable with that of the caviar of other fish species; however, waxes are absent and the sterol content is twice higher than in the lipids of other caviar kinds.

The content of polyunsaturated fatty acids is rather high in both frozen and dried caviar. In addition, the presence of many fatty acids of ω3 and ω6 classes evidences a high biological value of the lipid fraction of the caviar.

In the most of the examined caviar samples (both frozen and dried) we revealed the presence of bacteria from the colibacillus group and the exceeding of the standard level of a total microbial contamination. At the same time, during the whole storage period we did not revealed any *Salmonella* bacteria, *Staphylococcus aureus*, sulphite-reducing clostridia, yeast, and mould in all examined samples.

The content of lead, arsenic, cadmium, and mercury in the samples of recovered frozen caviar was 0.007, 0.005, 0.005, and 0.02 μg/kg, respectively, which is 100–1000 times lower than the standard values. The content of HCH and isomers did not exceed 0.005 μg/kg, whereas the standardized value makes 0.2 μg/kg; the content of DDT and its metabolites was 0.007 μg/kg, which is significantly lower than the standardized value (2.0 μg/kg).

The revealed inadequacy of the flying fish caviar samples to standard microbiological parameters can indicate, from the one hand, some violations in the sanitary state of the producing facilities and, from the other hand, some breakdowns in the applied technology or its imperfection. Thus, the purpose of our further studies is the substantiation of technological procedures for the recovery of dried flying fish caviar to provide the quality and safety of prepared caviar products.

MARBIO- A MEDIUM/HIGH-THROUGHPUT SCREENING PLATFORM

Jeanette Hammer Andersen

Marbio, University of Tromsø, Norway, Tromsø
e-mail: jeanette.h.andersen@uit.no

Marbio is a medium/high-throughput analytical platform at the University of Tromsø for the identification of novel bioactive compounds from marine organisms. The workflow in Marbio relies heavily on automation of sample handling, preparation and analysis, and this is true for all the three workstations; purification, bioactivity screening, and identification.

Marbio is routinely screening for molecules with these activities:

- Anti-viral
- Anti-bacterial
- Antioxidants
- Anti-diabetes
- Immunomodulatory
- Anti-cancer

In order to extract the widest possible array of compounds from the marine organisms, both aqueous and organic (dichloromethane:methanol) extracts are prepared from freeze-dried biological material. Larger organisms are divided into organ or tissue specific subsamples prior to extraction. The extracts are fractionated by semi-preparative reversed-phase HPLC, and 40 semi-purified fractions from each extract are screened for biological activity. High-resolution mass spectrometry is our primary tool to identify known compounds in active fractions from the bioactivity screening. Accurate mass data acquired by a time-of-flight MS is used to calculate elemental composition of the active compounds. All the available information on the active compound, i.e. elemental composition, biological source and the total bioactivity profile, is used to search databases. If the active compound is known, it is eliminated from further development. Novel compounds are characterized both chemically and biologically in order to evaluate their potential as drug leads. The presentation will give an overview of the workflow and some of the results in the screening program for MabCent-SFI.