

concentration of solids. Considering harmless microbiological index of the obtained brine, use of membrane element with MWCO value 300 kD was accepted expedient for purification of used brine.

During selection of purification mode the experiments on ultrafiltration of brine were conducted at different values of average capacity of the selected membranes in terms of filtrate. The following approximate parameters of used brine purification were established from the experiments: constant average capacity with respect to filtrate is 60 l/m² h, variation of operation pressure is from 0.05 MPa to 0.55 MPa at temperature 22 – 25 °C and flow rate 5m/sec. They ensure expansion of purification cycle from 3 to 3.5 hours with 84% yield value. At that, the purified brine remains with high concentration of salt (11.5%) and it meets the requirements of sanitary regulations and SanPiN 2.3.2.1078-01 in terms of safety microbiological index and can be reused.

Based on the conducted experiments, the production procedures were developed for purification of brine using ultrafiltration at salters.

DEVELOPMENT OF BIOLOGICALLY ACTIVE FOOD ADDITIVE TECHNOLOGY "CRAB OIL"

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Commercial crab is principally a source of raw material for obtaining valuable crab meat. The yield of meat amounts to 25% of the total crab weight; firm wastes (carapace containing residues) and liquid ones, i. e. liver (hepatopancreas) reach 75%.

Liquid wastes are proved to be valuable raw material for obtaining crab oil which is a rich source of unique compounds of lipid nature (alkoxyglycerides), polyunsaturated fatty acids (PUFA) – ω^3 , fat-soluble vitamins A, D.

For elaborating the method for obtaining crab oil the liver (hepatopancreas) was studied by its chemical composition, microbiological and parasitological indices, as well as by the characteristics of food safety aimed at obtaining crab oil. The result of investigations has shown a high percentage of oil (up to 26%). It was defined by the microbiological, parasitological, toxic indices that the crab liver were in agreement with the requirements SanPiN 2.3.2.1078-01 imposed upon the liver of hydrobionts and can be used for obtaining crab oil.

A method for obtaining crab oil from commercial crab frozen liver (hepatopancreas) was developed at VNIRO in two stages (Patent Nr. 2390274).

At the first stage some 60% of oil from the initial oil content into the raw material is released. Frozen liver is crushed, adding 3% of salt, mixed and heated up to 55 °C. Two hours later the mixture is cooled and settled, the upper layer of oil is decanted and the left bulk is centrifuged, while the oil is poured out.

At the second stage the remainder matter, where there is some 40% of oil left, is extracted by means of isopropyl alcohol in the ratio of 1:3, respectively, at thorough mixing for an hour and is settled and the resulting extract is filtered. It is liberated from isopropyl alcohol. After both stages the oil is mixed and cleared.

After being separated the oil is to meet the SanPiN requirements 2.3.2.1078-01 imposed upon the oil used for obtaining biologically active food additives. The resultant crab oil was studied for fatty acid and fraction composition which showed that the crab liver lipids were rich in biologically active substances and contain PFA ω^3 content up to 20.0 mg/g; alkoxyglycerides up to 160 mg/g; vitamin A up to 0.16 mg/g and vitamin D up to 1.6 mcg/g.

Thus, the crab oil obtained from crab liver is proved to be valuable and unique raw material for the production of biologically active food additive "Crab meat". Scientific and technical documentation was worked out for this additive and a certificate was obtained on the state registration of this additive, as well as a sanitary and epidemiological conclusion on the documentation.