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| УДК 664.95 DOI: 10.17217/2079-0333-2023-66-8-17  **MODELING OF RECIPES FOR MOLDED SEMI-FINISHED FISH PRODUCTS**  **USING SECONDARY RAW MATERIALS OF JUICE PRODUCTION**  Mosharova M.E., Titova I.M., Naumov V.A.  Kaliningrad State Technical University, Kaliningrad, Sovetsky Prospekt Str. 1.  When developing recipes for molded semi-finished fish products using secondary raw materials from juice production, it is necessary to establish the optimal composition of the minced fish system to ensure its formability. The researches on modeling the recipes of molded semi-finished fish products from minced pollock with the addition of vegetable powders by the mathematical experiment planning method using a second-order orthogonal central compositional plan for two factors were made. The optimal content of vegetable powders (apple, carrot and berry) was 10%, on average, and the mixing time of the minced system was 6 minutes. It allows to obtain a semi-finished fish product with high organoleptic characteristics and an optimal value of water-holding capacity necessary to ensure good formability of minced fish.  **Key words:** secondary raw materials of juice production, mathematical experiment planning,molded semi-finished fish product. |
| УДК 664.6/.7 DOI: 10.17217/2079-0333-2023-66-18-28  **COMPOSITE MIXTURES FOR BREADSTICKS PRODUCTION  AND THEIR RHEOLOGICAL PROFILE**  Sadygova M.K.1, Abushaeva A.R.1, Osyka I.A.2, Karpenko R.S.1, Tursunbayeva Sh.A.3  1Saratov State University of Genetics, Biotechnology and Engineering named after N.I. Vavilov, Saratov, Petr Stolypin Prosp., 4/3.  2Federal Center of Agriculture Research of the South-East Region, Saratov, Tulakova Str. 7.  3Almaty Technological University, Almaty, Tole bi Str., 100.  In this paper, in order to optimize the recipe components, we proposed using composite mixtures in production of bread sticks, which included buckwheat, corn flour, light rye flour, vegetable powders. We studied the rheological profile of semi-finished products from composite mixtures using a farinograph. The increased content of dietary fiber in the raw materials extended the swelling time of colloids, increased the time of dough formation, but at the same time accelerated its liquefaction. However, the technological operation such as rubbing the dough was eliminated, therefore facilitating the rolling process and not requiring proofing of dough pieces; altogether, the technological process was significantly reduced. The use of light-grain rye flour “Solnyshko”, buckwheat and corn flour, vegetable powders, and black cumin oil in the recipe of bread sticks was justified. Taking into account the multifunctional properties of additives, the developed products would expand the range of products for specialized purposes.  **Key words:** valorimetric assessment, wheat flour for general purpose, light rye flour, dough liquefaction, mixing ability, dough stability, farinograph, bread sticks. |
| УДК 543:582.272.46 DOI: 10.17217/2079-0333-2023-66-29-40  **TISSUE DESTRUCTION IN THE BROWN KELP SEAWEED *SACCHARINA LATISSIMA* (LAMINARIALES, OCHROPHYTA) FOR OBTAINING AN ALGINATE-CONTAINING GEL**  Klochkova N.G.1, Klochkova T.A.2  1Kamchatka Branch of Pacific Geographical Institute FEB RAS, Petropavlovsk-Kamchatsky, Partyzanskaya Str. 6. 5.  2Kamchatka State Technical University, Petropavlovsk-Kamchatsky, Klyuchevskaya Str. 35.  In this paper, in order to prepare an alginate-containing gel, we used fertile two-year-old plants of *Saccharina latissima* (samples collected in September), which is one of the most abundant kelp seaweed in Kamchatka.  We discussed the anatomical organization of samples that we used and analyzed references on the chemical composition of this species from Kamchatka. We also described stages of the disintegration process of various tissues that occur under the influence of thermo-alkaline treatment used to obtain alginate-containing gel, and also results of monitoring this process, based on the use of microscope to determine the size of pieces of algal gel and their internal state. As shown, it takes 45 minutes to prepare an alginate-containing gel without inclusion of cell aggregations of 100–200 µm in size, which are visible under a microscope.  **Key words:** alginate-containing gel, Kamchatka shelf, laminariacean seaweeds, *Saccharina latissima.* |
| УДК 597.3:(639.3+664.95) DOI: 10.17217/2079-0333-2023-66-41-57  **COTTIDAE FISH OF WESTERN KAMCHATKA SHELF,**  **THE CURRENT STATE OF THEIR FISHING AND PROCESSING**  Matveev A.A., Terentiev D.A.  Kamchatka Branch of the Russian Federal Research Institute of Fisheries and Oceanography (KamchatNIRO), Petropavlovsk-Kamchatsky, Naberezhnaya Str. 18*.*  The work is devoted to the long-term monitoring of Cottidae fishing which inhabit the shelf off the western coast of Kamchatka (Sea of Okhotsk). According to the results of marine scientific expeditions carried out in different seasons of the year the estimates of the catch (by-catch) of gobies by fishing gear are given. The proportion of fish that is not taken into account in official statistics in bottom longline fishing is estimated. Possible prospects and directions of use of the studied objects of fishing are shown.  **Key words**: gobies, bottom longline, trawl and Danish seine fishing, Western Kamchatka, Western Kamchatka shelf, Sea of Okhotsk, processing, bycatch, fishing, Cottidae. |
| УДК [582.272.46:581.95]"2018-2023"(265.53) DOI: 10.17217/2079-0333-2023-66-58-79  **RECORD OF LAMINARIACEAN ALGAE AND OTHER MACROPHYTES  AT BOTTOM TRAWL AND LONGLINE SURVEYS  ON THE WESTERN COAST OF KAMCHATKA IN 2018–2023**  Klimova A.V.1, 2, Matveev A.A.3, Klochkova T.A.1, Klochkova N.G.2  1Kamchatka State Technical University, Petropavlovsk-Kamchatsky, Klyuchevskaya Str. 35.  2Kamchatka Branch of Pacific Geographical Institute FEB RAS, Petropavlovsk-Kamchatsky, Partyzanskaya Str. 6.  3Kamchatka Branch of the Russian Federal Research Institute of Fisheries and Oceanography, Petropavlovsk-Kamchatsky, Naberezhnaya Str. 18.  Data are provided on findings of marine macroalgae during bottom trawls and longline fishing on the Western Kamchatka shelf in 2018-2023. During the study period, algae were noted at 65 stations in the depth range from 20 to 350 m. Most of the algae findings were found in the Kamchatka-Kuril fishing subzone, within the South Kamchatka Nature Reserve. Among the macrophytes, representatives of the order Laminariales predominated: *Agarum pertusum, A. clathratum, Alaria esculenta, Arthrothamnus bifidus, Eualaria fistulosa, Hedophyllum bongardianum, H. dentigerum, Laminaria yezoensis, Laminaria inclinatoriza* and *Thalassiophyllum clathrus.* For southwestern Kamchatka, only 9 out of 13 species of kelp algae indicated in the literature were discovered. Brown algae *Fucus distichus, Desmarestia intermedia*, red algae – *Ptilota* *asplenioides, Turnerella mertensiana* and lamellar green algae – *Ulva fenestrata* were found sporadically. A comparative analysis of aerial photography data of coastal areas from Cape Sivuchy to Cape Lopatka in 2002 and modern satellite images did not reveal significant changes in the distribution of littoral and sublittoral algae beds. In the coastal line of capes Sivuchy, Kambalny and Maria that we studied, the kelp belt with an average width of 100-130 m reached in the summer of 2018–2023 the total coverage area is 1.92 km2. The use of accompanying data when conducting bottom surveys of commercial invertebrates and fish, longline cod fisheries, together with the analysis of satellite images, allows for an expert assessment of changes in the species composition and distribution of kelp algae, and is also a promising tool for monitoring the state of macrophyte communities in the Far Eastern seas of Russia.  **Key words:** deepwater drifting plants, bottom trawl surveys, bottom longline, Western Kamchatka, macrophytes, satellite image, *Arthrothamnus radicans,* Laminariales. |
| УДК 661.74:638.162 DOI: 10.17217/2079-0333-2023-66-80-87  **THE POSSIBILITY OF USING TRICHLOROACETIC ACID FOR ACETOLYSIS  OF POLLEN GRAINS IN MELISSOPALYNOLOGICAL ANALYSIS**  Goncharov B.I., Lebedko M.V.  Kamchatka Branch of the Russian Federal Research Institute of Fisheries and Oceanography (KamchatNIRO), Petropavlovsk-Kamchatsky, Naberezhnaya Str. 18.  The possibility of using trichloroacetic acid instead of the classical mixture of acetic anhydride with sulfuric acid for acetolysis of pollen grains in the melissopalynological analysis of honey is demonstrated. This substance in comparison with other derivatives of acetic acid allows holding the sample in a boiling water bath that improves the result of acetolysis of pollen grains. The possibility of using various solvents for transferring acetolyzed pollen grains to glass slides for further microscopy was also investigated. The optimal reagents and parameters for this analysis were studied and identified during the experiments.  **Key words:** apertures, acetolysis, melissopalynological analysis, intin, pollen grain coats, pollen analysis, trichloroacetic acid, exine. |