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| Original article  УДК 664.955.2 DOI: 10.17217/2079-0333-2024-68-8-21  **THE EFFECT OF THE USE OF CARBON DIOXIDE  ON THE QUALITY OF SALMON CAVIAR**  Rumyantsev A.Е., Efimova M.V., Efimov А.А., Chugunkov S.Yu., Kolesnikov D.V.  Kamchatka State Technical University, Petropavlovsk-Kamchatsky, Klyuchevskaya Str. 35.  In this paper, we present the results on the effect of carbon dioxide application in the technology of salmon caviar on the quality of finished product. The dependence of the mechanical strength of eggs on the aggregate state of carbon dioxide during caviar processing with gaseous CO2 and its solutions at different stages of the technological process is shown. The negative effect of carbon dioxide solutions on the condition of salmon egg’s membrane was concluded, since the membrane strength reduced, which was accompanied by an increase in the manifestation of defects in the burst eggs and, as a result, liquid sediment in the product. The rational duration of carbon dioxide treatment of salmon eggs was determined and it made 25–30 minutes. The directions of further research on caviar CO2 technologies were determined.  **Key words:** antiseptic, carbon dioxide, burst salmon egg, salmon caviar, salmon egg strength. |
| Original article  УДК 664.953:595.384.12 DOI: 10.17217/2079-0333-2024-68-22-43  **DEVELOPMENT OF A PATE RECIPE BASED ON NORTHERN SHRIMP MEAT  FOR THE NUTRITION OF ELDERLY**  Barabashina S.I., Glukharev A.Yu., Dubrovin S.Y.  Murmansk Arctic University, Murmansk, Sportivnaya Str. 13.  A pate based on northern shrimp meat (*Pandalus borealis*), dairy cream and sunflower oil was developed to feed elderly. The optimal combination of main ingredients of the pate (% by weight of raw materials) was established: minced northern shrimp meat – 50.59%, milk cream – 30.59%, sunflower oil – 17.92%, based on a study of organoleptic, structural-mechanical and optical parameters of the final product. The pate based on northern shrimp meat contains 12.65% protein and 24.38% fat, which are important for a balanced diet for older people. The use of gentle heat treatment – pasteurization – contributed to the preservation of nutrients, improving the organoleptic and structural-mechanical properties of the product. The results of the study of microbiological and biochemical parameters during storage indicated stable storage of the product for 108 days at temperatures from 0 to 6°C.  **Key words:** nutrition for the elderly, optimization, pate, northern shrimp. |
| Original article  УДК 598.279.23(571.66) DOI: 10.17217/2079-0333-2024-68-44-56  **WINTERING STELLER'S SEA EAGLES (*HALIAEETUS PELAGICUS*) IN KAMCHATKA  AND NORTHERN KURIL ISLANDS UNDER THE ANTHROPOGENIC CONDITIONS**  Lobkov E.G.  Kamchatka State Technical University, Petropavlovsk-Kamchatsky, Klyuchevskaya Str. 35.  In winter, in Kamchatka and Northern Kuril Islands (Paramushir Island) Steller's Sea eagles regularly patrol fishing vessels near marine harbors and control their unloading process to be able to eat the discarded and injured fish, other seafood and food household wastes from the ships. They also willingly use landfills and industrial water discharges as habitats in case food wastes are present there. Besides, in Kamchatka Steller's Sea eagles use artificial structures (in particular, power transmission towers) as roost sites, can pick up animals hit by cars on the roads as prey and land on the snow-free concrete surface of the runway at the airport (Yelizovo city). This is similar to the well-known situation for the wintering conditions of Sea eagles from Japan, and the difference is that the larger portion of the local winter population of Sea eagles winters in Hokkaido under the anthropogenic conditions, and a smaller portion winters in Kamchatka.  **Key words:** *Haliaeetus pelagicus*, Steller's Sea eagle, Kamchatka, Kuril Islands, garbage dumps, industrial water discharges, solid domestic waste, trophic relationships. |
| Original article  УДК 581.93:581.526.325.3 DOI: 10.17217/2079-0333-2024-68-57-74  **PHYTOPLANKTON STRUCTURE IN THE ATLANTIC PART OF ANTARCTICA  IN SUMMER**  Diushkov N.P.1, 2, Naumenko E.N.2  1 Kaliningrad State Technical University, Kaliningrad, Sovetskiy Prosp. 1.  2 Atlantic branch of the Russian Federal Research Institute of Fisheries and Oceanography (AtlantNIRO), Kaliningrad, Dm. Donskoy Str. 5.  The study of phytoplankton was conducted from January to March 2020 in the Atlantic part of Antarctica, corresponding to the summer season. Phytoplankton was represented by 119 species belonging to 7 divisions: Cyanobacteria – 2, Cryptista – 2, Dinoflagellata – 31, Haptophyta – 4, Heterokontophyta – 76, Euglenophyta – 1, Chlorophyta – 3 taxa below the genus. The basis of the community was composed of variegated (64%) and dinophytic (26%) algae. The number of phytoplankton varied from 68 million cells/m3 to 20.3 billion cells/m3, biomass from 0.03 to 7.28 g/m3. For the first time, 4 communities were identified as part of the phytoplankton in the Atlantic part of Antarctica. On average, the number of phytoplankton amounted to (1 944 ± 457) million cells/m3, which was based on cryptomonads (44.8%). The average phytoplankton biomass in the summer was low and made (0.65 ± 0.33) g/m3, the largest contribution was made by diatoms (44.7%) and dinophytic algae (33.6%). The mosaic pattern in the distribution of phytoplankton was noted.  **Key words:** Atlantic part of Antarctic, species and spatial structure, phytoplankton, phytoplankton abundance and biomass. |
| Original article  УДК 504.45.058: 574.52(470.26) DOI: 10.17217/2079-0333-2024-68-75-88  **ECOLOGICAL STATE OF WATER BODIES AT DIFFERENT STAGES OF IMPROVEMENT WITHIN THE CITY BOUNDARIES OF KALININGRAD**  Sevostyanova E.A.1, Kukharuk E.D.1, Moiseenko V.V.1, 2, Tsupikova N.A.1  1 Kaliningrad State Technical University, Kaliningrad, Sovetskiy Avenue Str. 1  2 Atlantic branch of the Russian Federal Research Institute of Fisheries and Oceanography (AtlantNIRO), Kaliningrad, Dm. Donskoy Str. 5.  In this paper, we describe the hydrological-hydrochemical and hydrobiological conditions in 3 ponds from Kaliningrad city as registered in the summer of 2021–2022. The list of analyzed indicators included transparency, water temperature, pH value, TDS, water electrical conductivity, dissolved oxygen, permanganate value, nutrients, water hardness. The state of algae and zooplankton within the study period was described and assessed. Based on the survey results, the obtained values were identified pursuant to the scale of hydrochemical transformation. The well-maintained Poplavok pond, where supporting measures are regularly held, as well as the Lesnoye pond, a reservoir in the park area, are in a relatively favorable ecological condition. The ecological situation of the Letniy pond, according to the cumulative assessment, requires rehabilitation of the water body. This is confirmed by both hydrochemical and hydrobiological indicators.  **Key words:** water bodies, hydrochemical transformation, urban ponds, ecological state. |
| Original article  УДК 634.7+581(571.64) DOI: 10.17217/2079-0333-2024-68-89-97  **ASSESSMENT OF BIOCHEMICAL PARAMETERS OF GARDEN STRAWBERRIES (*Fragaria* × *ananassa* Duchesne) UNDER CONDITIONS  OF THE SOUTH AMUR REGION**  Pakusina A.P.1, Platonova T.P.2, Reshetnik E.I.1, Pashina L.L.1, Gribanova S.L.1  1Far Eastern State Agrarian University, Blagoveshchensk, Politekhnicheskaya Str. 86.  2Amur State University, Blagoveshchensk, Ignatievskoe Shosse 21.  In this paper, we present results of the biochemical analysis of fresh garden strawberries cultivated under conditions of the south Amur region. The largest weight of 100 berries was found in the varieties Rumba, Mara de Bois and Elvira. The maximum acid content was registered in varieties Elvira and Mara de Bois. The highest content of ascorbic acid was found in varieties Deroyal, Festivalnaya, and Mara de Bois. The varieties Rumba, Elvira and Ostara hadthe highest accumulation of sugars. The berries of varieties Rumba, Ostara, and Florence, which showed the highest sugar-acid ratio (57.3; 17.31; 61.8, respectively), had a harmonious taste. Based on dry matter content, varieties Florence and Elvira can be selected, and based on ash content, varieties Florence and Elegance can be selected. The highest content of anthocyanins was found in berries of varieties Deroyal and Elvira. For cultivation in the south Amur region, we proposeto consider the short-day varieties Rumba and Elvira as the most promising.  **Key words:** anthocyanins, ascorbic acid, strawberry, ash content, sugars, dry matter. |
| Original article  УДК 574.34 (571.66) DOI: 10.17217/2079-0333-2024-68-98-105  **EXPERIENCE AND PECULIARITIES OF APPLYING CHRONOBIOLOGICAL ANALYSIS METHOD TO ASSESS THE CONDITION OF SOME ANIMAL  AND PLANT SPECIES FROM KAMCHATKA**  Pinigin V.E.1, Kornev S.I.2, 3  1Kamchatka Branch of the Russian Geographical Society, Petropavlovsk-Kamchatskу, Partizanskaya Str. 6.  2Kamchatka Branch of Pacific Geographyсal Institute of Far Eastern Branch of the Russian Academy of Sciences, Petropavlovsk-Kamchatskу, Partizanskaya Str. 6.  3Kamchatka Branch of the Russian Federal Research Institute of Fisheries and Oceanography, Petropavlovsk-Kamchatsky, Naberezhnaya Str. 18.  Based on an analysis of research works using the chronobiological analysis method (CBA), we summarized the peculiarities of its application for different groups of plants and animals, clearly demonstrating this using the example of sea lions wintering within the city of Petropavlovsk-Kamchatsky. Our study confirmed the recommendations by M.A. Proskuryakov [Proskuryakov, 2012] regarding application of this method to living objects with curvilinear dynamic connections. Considering the relative novelty and the associated limited use of this method, its further improvement, we proposed to use it as an “ecological passport” for a certain species of animals or plants.  **Key words:** animals, method of chronobiological analysis, plants, northern fur seal, sea lion. |