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| УДК 664.6:634.74 DOI: 10.17217/2079-0333-2021-56-6-18**APPLICATION OF FREEZE-DRIED SEA BUCKTHORN POWDER IN A BAKERY RECIPE**Alekseeva S.S.1, Solomakha S.V.2, Naumova N.L.11South Ural State University (National Research University), Chelyabinsk, Lenin Avenue 76.2South Ural State Agrarian University, Chelyabinsk Region, Troitsk, Gagarin Str. 13.Sea buckthorn (Hippophae rhamnoides L.) fruits processed products are excellent functional fillers in the production of various food systems enriched with essential nutrients. The study results of freeze-dried sea buckthorn possible usage in the recipe of bakery products to increase their nutritional value were represented in the article. When replacing 7% of premium flour with a similar amount of powder from non-traditional raw materials in the recipe of “Wheat with Spelt” products, it became possible to increase the nutritional value of the finished product, namely, the content of vitamin E (by 7.7%), lipids (by 6.3%), mineral elements – Cu2+ (by 9.5%), Fe2+ (by 8.7%), K+ (by 6.9%), Zn2+ (by 4.8%), Ca2+ (by 4.5%), as well as the presence of carotenoids (16.9 ± 0.5 mg/kg) and vitamin A (0.32 ± 0.03 mg/kg) without reducing organoleptic properties and quality indicators.**Key words:** nutritional value, freeze-dried sea buckthorn fruits, bakery. |
| УДК 664.951 DOI: 10.17217/2079-0333-2021-56-19-27**JUSTIFICATION OF PARAMETERS FOR DRYING Giant grenadier (*Albatrossia pectoralis*) DURING PRODUCTION OF DRIED-cured PRODUCTS** Bogdanov V.D., Pankina A.V.Far Eastern State Technical Fisheries University, Vladivostok, Lugovaya Str. 52B.Giant grenadier(*Albatrossia pectoralis*) is an underused commercial object, and improvement of its processing technology presents an urgent scientific and industrial problem. The solution to this problem, to a certain extent, is associated with the development of an effective technology for production of dried-cured products from this raw material. The study results of drying giant grenadier dynamics under various conditions, degree of proteins denaturation, organoleptic characteristics of dried products proved the rational modes for its processing in convective dryers. A three-stage drying was used at a temperature of 20ºC in the production of dried fillets, the duration of the first stage was 6 hours and leveling for 4 hours, the second stage was 6 hours and leveling for 4 hours and, finally, drying for 4 hours. During production of dried-cured products in the form of flakes, the fillet (i.e. decapitated fish) was divided into pieces (flakes) after the second drying. Then they were soaked in a flavored filling and dried for 4 hours.**Key words:** moisture, denaturation, quality, dehydration, organoleptic properties, fillet. |
| УДК 582.272.46(265.53) DOI: 10.17217/2079-0333-2021-56-28-41**OBTAINING ALGINATE-CONTAINING GEL FROM THE BROWN KELP SEAWEED** ***EUALARIA FISTULOSA* FROM KAMCHATKA**Kamchatka State Technical University, Petropavlovsk-Kamchatskу, Klyuchevskaya Str. 35.Klochkova T.A. The giant kelp *Eualaria fistulosa* forms underwater forests in different regions of the Northern Pacifics including Kamchatka, but still is not an object of commercial gathering. In this paper, we present data on its anatomical structure and results of experiments aimed at developing technology for preparing algal gel. The rate and condition of tissue and cell wall degradation occurring during thermal-alkaline treatment of different parts of *E. fistulosa* thallus was checked using microscope. Because of different histological organization, pigmentation, and density of *E. fistulosa* blade and midrib, the gels obtained from them had different organoleptic characteristics and required different amount of chemical reagents and different times of thermal-alkaline treatment for production at the same temperature and hydromodule (60оС and 1 : 10, respectively). The midrib macerated longer, and more sodium bicarbonate (NaHCO₃) was required for its maceration. In general, it was shown that the algal gel obtained from *E. fistulosa* was characterized by a high viscosity. In different experiments, being measured on a viscometer with a nozzle «5», the viscosity made 75–85 mm2/s for a gel prepared from blades and 79–85 mm2/s for a gel prepared from midrib.**Key words:** *Eualaria fistulosa*, alginate-containing algal gel, algae treatment. |
| УДК 664.6:634.5 DOI: 10.17217/2079-0333-2021-56-42-53**USE OF BRAZIL NUT KERNELS IN THE STUFFED MEAT PRODUCTS TECHNOLOGY**Lukin A.A., Betz Ju.A., Naumova N.L.South Ural State University (National Research University), Chelyabinsk, Lenin Avenue 76.The results of Brazil nut kernels use in the technology of stuffed meat products are presented. The composition and physical and chemical parameters of plant and meat raw materials have been studied. It has been determined that the content of lipids and mineral elements in the nut kernels exceeds their amounts established in chilled broiler chicken shins. The addition of plant material at a dosage of 10% improves the taste and aroma properties and increases the content of Ca2+ (2.2 times), Se2+ (2 times), Fe2+ (1.7 times), Mg2+ (1.6 times), P5+ and Zn2+ (by 26%) in the finished product and at the same time it decreases the amount of butter by 8% in the recipe. The Brazil nuts use also adds microelements (Cu2+, Mn2+, Mо4+, Ag+, Au3+, Co3+) and dietary fiber to the composition of meat product.**Key words:** broiler chicken shin, Brazil nut, stuffed meat products. |
| УДК 626:556 DOI: 10.17217/2079-0333-2021-56**-**54-63**HYDRO POWER PLANT “KRAPIVINSKY”: CURRENT STATE AND POSSIBLE RISKS**Prosekov A.Yu.Kemerovo State University, Kemerovo, Krasnaya 6.Rational nature management is a priority in the development of science and technology based on environmental monitoring. Natural ecosystems located in industrial areas are under significant anthropogenic pressure, as a result of which the negative impact on the environment and biodiversity has increased. Various archival documents and other sources of scientific and technical information on the construction and current state of the Krapivsky reservoir were analyzed. The study results allowed to justify theoretically the need for a comprehensive ecological monitoring of the reservoir’s zone of influence and its current condition. The importance of its practical implementation on a systematic methodological basis using the earth remote sensing and geoinformation mapping was detected.**Key words:** biological resources, regional water resources, rational nature management, Kuzbass, Krapivinsky reservoir. |
| УДК [635.74+58.002:58.08](571.64) DOI: 10.17217/2079-0333-2021-56-64-73**YIELD, ECONOMICALLY VALUABLE INDICATORS AND CHEMICAL COMPOSITION OF BLUE honeysuckle under CONDITIONS OF SAKHALIN trade-wind littoral climate**Yefanov V.N., Mitusova E.V. Sakhalin State University, Yuzhno-Sakhalinsk, Pogranichnaya Str. 68The blue honeysuckle is the earliest ripening berry, which ripens 7–10 days earlier than the garden strawberries under the conditions of Sakhalin's climate. It is resistant to lower fungi and parasites and can be cultivated without pesticides. Currently, many honeysuckle varieties with fruits of different morphologies and chemical composition have been bred. We analyzed values of economically valuable indicators and chemical composition in 14 varieties of honeysuckle, which grow in the monsoon climate of Sakhalin. To assess the most productive variety, the values of each character were presented as percentage of the maximum for each indicator. Knowing the total values of characters under investigation made it possible to choose the best varieties, from authors` point of view, to grow in the household gardens in the monsoon climate of Sakhalin: from the Pavlovsk Experimental Station of Vavilov Institute of Plant Industry – Leningradsky giant (506.4%), Berel (432.9%) and Viola (423.4%).**Key words:** anthocyanins, dry matter content, honeysuckle, pectins, yield, flavonoids. |
| УДК 597.553.2 DOI: 10.17217/2079-0333-2021-56-74-87**LENGTH-WEIGHT STRUCTURES AND FECUNDITY ЯOF ANADROMOUS MASU SALMON (*ONCORHYNCHUS MASOU*) from WESTern KAMCHATKA**Zakharova O.A., Zudina S.M.Kamchatka State Technical University, Petropavlovsk-Kamchatskу, Klyuchevskaya Str. 35.Masu salmon *Oncorhynchus masou* is the most thermophilic species among the Pacific salmon, and Kamchatka peninsula is the northern border of its distribution. Due to small abundance, the biology of this species on the peninsula is poorly studied. Regular scientific researches of Masu salmon in Kamchatka have been conducted since 2009. The length-weight structures and fecundity of mature Masu salmon have been analyzed in several streams on western Kamchatka over a 10-year period (from 2009 to 2018) and present time. It has been established that the length, weight and fecundity of mature fish are different in the rivers of the peninsula. A tendency of increasing the biological characteristic of the species in recent years has been noted.**Key words:** Western Kamchatka, Pacific salmon, Masu salmon, female, male, length, weight, fecundity. |
| УДК 631.4:502.5(470.1/.6) DOI: 10.17217/2079-0333-2021-56-88-98**ANALYSIS OF DYNAMICS OF LAND USE STRUCTURE AND SOIL FERTILITY INDICATORS OVER THE KLYAZMA RIVER BASIN**Kurochkin I.N., Kulagina E.Yu., Chugay N.V.Vladimir State University named after A.G. and N.G. Stoletov, Vladimir, Gorkogo Str. 87.The main trends in changing the land use structure in the territory of the Klyazma River basin were described in the article. Using GIS technologies and remote sensing data the areas of land with different land use regimes in the studied territory were determined in the period from 2001 to 2019. The indices of LAI and FPAR phytoproductivity for the territory of the Klyazma basin as a whole, and for each basin included in it were determined. The analysis of the dynamics of changes occurring in the structure of land use is carried out. For the territory of Vladimir region, which is a part of the Klyazma River basin, an assessment of soil types distribution over occupied area was carried out. An integral indicator of soil fertility was calculated on the basis of statistical data of agrochemical indicators. The fraction of fallow lands decreased by 2019 and it amounts 33.76% of the total area of the studied territory. The fraction of mixed forests increased from 38.48% in 2001 to 44.50% in 2019 due to the formation of fast-growing tree species shoots on fallow lands. The area of meadow vegetation for the period from 2015 to 2019 decreased by 3.5%, from 4 276 to 3 121 km2, due to agriculture degradation and a significant decrease in livestock grazing. The indicator of soil fertility for the Klyazma basin was 0.74, which is a high indicator. It is established that the most active decrease in the agricultural land area occurs in the central, north-western and western parts of the river basin.**Key words:** land use, soil degradation, remote sensing, fertility, GIS technologies, agricultural land. |