11. Петров В.Г. Золото в опорных разрезах верхнего докембрия западной окраины Сибирской платформы// Новосибирск, Наука, 1976.

12. Русинкова О.В., Русинков В.Л. Метасоматический процесс в рудном поле Мурунтау (Западный Узбекистан)// Геол. рудных м-ний, 2003, т.45, №1, с. 75-96.

13. Parnell I. Bitumen in ore deposits. Introduction. Berl.-Heidelberg: Springer-Verlag, 1993, p. 1-7.

14. Jacob H. Nomenclature, classification, characterization and genesis of Natural Solid Bitumens (migrabitumen) // Bitumens in ore deposits. Berl.-Heidelberg: Springer-Verlag, 1993. P. 11-27.

15. Simoneit B.R.T. Hydrothermal activity and its Effects on sedimentary organic matter // Bitumens in ore deposits. Berl.-Heidelberg: Springer-Verlag, 1993, p. 61-95.

16. Turner C.E. et al. Nature and role of organic matter in sandstone uranium deposits, Grant Uranium Region, New Mexico, USA // Bitumens in ore deposits. Berlin-Heidelberg: Springer-Verlag, 1993, p. 239-275.

17. Nagy B. Kerogens and bitumens in Precambrian uraniferous ore deposits: Witwatersrand, South Africa, Elliot Lake, Canada, and the Natural fission reactors, Oklo, Gabon// Bitumens in ore deposits. Berlin-Heidelberg: Springer-Verlag, 1993, p.287-333.

Экология и рациональное природопользование

Problems of biochemical indication of status of fishes of north basin

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The actual contemporary problem is the question of keeping of biological diversity of sea and freshwater ecosystems of North Basin. Biological diversity is the foundation for the existence of north living nature, especially in the conditions of the water ecosystems. Loss of biological diversity influences the natural development processes within the water ecosystems of Cola North. Loss of biological diversity is about to undermine the foundation for sustainable development of water north ecosystems. Biochemical monitoring is the part of contemporary biological monitoring of ecosystems of Cola North. Hydrobionts such as fishes are the important components of these ecosystems.

We research the dynamics of content of main bioorganic and unorganic compounds in different tissues of fishes such as the content of water, proteins, lipids, vitamins, mineral substances, enzymes, carbohydrates, hormones, cholesterol and different products of metabolism. One of main direction of our scientific work is the installation of intercommunication of hydrochemical characteristics of the water and biochemical properties of the fishes in the conditions of pollution.

The creation of Biochemical system of bioindication and testing of the water ecosystems of North Basin is necessive factor for the estimation of ecobiochemical status of north fishes (cod, herring, trout, salmon and others). Number of scientists suggest different biochemical markers for determination of state of fiches – the content of different biological active substances (tokoferols, retinol, glutation, carotine and others). Advantages and limitations of the biochemical monitoring methods, using these biochemical indices, are discussed.

We propose such biochemical effective indices as the content of the macroergic compounds (ATP), tokoferols, retinols, activity of proteases, content of enzymes, possessing activity of ATP-ase. These molecular tests allow to determine the degree of antropogenuos pollution in the water north ecosystems, to estimate the influence of this pollution on the biochemical properties of the fishes of North Basin. Our results show the dependence of these indicators from the different factors such as the stage of the cycle of life, the age, the sex and others.

We research the biochemical processes, taking place in the tissues of fishes during the period of keeping in low temperatures. The another important direction of our scientific work is the study of biochemical properties of fishes, rearing in the conditions of artificial reproduction.

These investigations help to dissolve the problem of the keeping of the biological diversity which is an insurance fund for living nature in North sea and freshwater ecosystems and to estimate the harmful environmental pollution level.

Эколого-ценотическая приуроченность и жизненное состояние орляка *Pteridium aquilinum (L.) Kuhn* на южной экологической границе ареала в Ишимской степи

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Pteridium aquilinum (L.) Kuhn папоротник с космополитным ареалом. Он встречается в различных флористических областях и климатических зонах за исключением тундр, аридных и семиаридных областей. На юге Западной Сибири в Ишимской степи проходит южная экологическая граница его распространения (Шорина, Ершова, 1990). Интересно выявить эколого-ценотическую приуроченность и специфику его морфологии в связи с монографией R.M. Tryon (1941), которая относит орляк Западной Сибири к разновидности *Pteridium aquilinum var. latiusculum (Desv.)*, а C. N. Page (1995) в более поздних публикациях переводит ее в отдельный вид *Pteridium pinetorum C.N. Page et R.R. Mill.*

Ценопопуляции орляка изучали в первой декаде сентября 2002 года в подзоне северно-разнотравной степи степной зоны в пределах юга Западной Сибири. Леса образуют здесь небольшие массивы, называемые колки, разбросанные среди участков пашен, болотной и луговой растительности. Были заложены 5 пробных