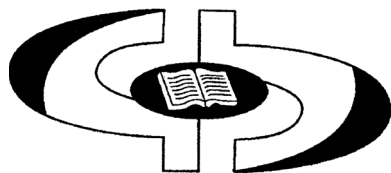


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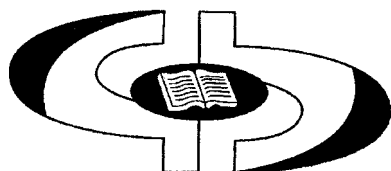
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T. P. SHARPIO, S. A. ZABREIKO

**COMPONENTS OF PROTEINASE-INHIBITOR SYSTEM IN WILD SPECIES
OF ASTERATSEAE FAMILY FROM MONGOLIAN AND BELARUSIAN FLORA:
THE PHYSICO-CHEMICAL AND BIOLOGICAL PROPERTIES**

Summary

Data about the diversity of activity of the proteinase inhibitors, one of the components of proteinase-inhibitor system, are given for wild species of Asteratseae family from Mongolian and Belarusian flora. From the leaves of perspective plants (*Taraxacum mongolicum*, *Echinaceae purpurea*) using chromatographic techniques were obtained preparations of proteinase inhibitors, identified their physico-chemical and biological (anticoagulant, cardioprotective, cytotoxic and fungistatic) properties. This opens up the possibility of using these drugs in medicine and agriculture.

T. F. KUZNETSOVA, A. I. IVANETS

**THE SYNTHESIS OF MESOPOROUS XEROGELS AND MEMBRANES IN CONDITIONS OF
SOL-GEL-TRANSITION OF TITANIUM (IV) AND SILICON (IV) ALCOXIDE MIXTURE**

Summary

Using sol-gel-approach and deep coating quartz substratum by cohydrolysis of titanium (IV) and silicon (IV) alcoxides in acid media the mesoporous titania-silica membranes are received. They are differed from the titania and silica membranes in the adsorptive properties, and are superficial duplicates of the volume material in the mesopore size distribution. Isotherms of low-temperature nitrogen adsorption-desorption on titanium (IV) oxide, silicon (IV) oxide, titania-silica xerogels and the membranes made at various molar ratio of Ti/Si are measured. It is shown that the sorption isotherms on silica belong to the Type I and testify to formation of micropores, on titania, titania-silica double oxides and membrane composites – to the Type IV, characteristic for mesoporous adsorbents.

S. G. PASHKEVICH, G. S. CHAILYAN, Yu. P. STUKACH, E. O. VOLOKITIN, L. S. KHANILO,
H. A. AGANYANTS, S. G. CHAILYAN, V. A. KULCHITSKY

**ANALYSIS OF COGNITIVE PROCESSES IN RATS AFTER INTRANASAL OR
INTRAMUSCULAR APPLICATION OF PROLINE RICH PEPTIDE (PRP-1)**

Summary

In experiments on 40 rats the comparative analysis of orientation-explorative conditioned reflexes and motor activity in condition of a free behavior by using the system «Plus-Maze» after intranasal or intramuscular injection neuropeptide of hypothalamic PRP-1 (concentration of 1000 µg/ml, 100 µg/ml, 10 mg/ml) has been carried out. Through the 45 minutes after intranasal or intramuscular injection, only in concentrations of 10 µg/ml PRP-1 accompanied by reduction of orientation-explorative and motor activity of the experimental animals. Therefore, low concentrations of neuropeptide PRP-1 has a positive influence on the processes of remembering, which constitute the basis of the stereotypically organization of motor activity.

ELDAR ZEYNALOV, MATANAT MAGERRAMOVA

OXIDATION OF ISOPROPYLBENZENE

Summary

The short review on oxidation of cumene by molecular dioxygen has been compiled. There has been deduced that the investigator's efforts are steered in the essence by selection of effective initiators and catalytic systems providing selective oxidation of cumene to the respective hydroperoxide. Preferable catalysts are those of suppressing a ramification of kinetic chains and blocking the inhibitory action of the reaction products.

G. D. ALEXEEV, M. A. BATOURITSKI, A. I. BELOUS, O. A. BOZHATKIN, O. V. DVORNIKOV,
V. A. MIKHAILOV, A. A. PISKUN, S. V. SHVEDOV, A. A. SOLIN, A. V. SOLIN, V. A. SOLODUKHA,
G. S. TEREKHOV, V. V. TOKMENINH

THE MUON SYSTEM PROJECT FOR NEW PARTICLE AND HIGH ENERGY PHYSICS EXPERIMENTS

Summary

The 8-channel low impedance amplifier integrated circuit (IC) Ampl-8.20 has been designed for Front-End Electronics of mini-Drift Tubes (MDTs) with «open cathode» geometry designed in JINR for the Muon System of the PANDA project (GSI, Darmstadt, Germany). The amplifier has input impedance $R_{in} = 12 \text{ Ohm}$, gain $K = 140 \text{ mV}/\mu\text{A}$ at voltage supply $\pm 3 \text{ V}$. These ICs may have been used in future project NICA (Nuclotron-based Ion Collider fAcility, JINR, Dubna, Russia) and ILC (International Linear Collider, Japan). The Branch «Belmicrosystems» of the Joint Stock Company «Integral» has been especially designed new UHF complementary bipolar technology with boundary frequency of pnp- and npn-transistors $F_T = 1.5$ and 2.5 GHz , respectively. Using this technology two versions of an 8-channel single-stage Rush amplifier have been produced as a test structure of the new technology. They may be used to pick-up signals from Si-PMTs. The electronics designed is planned to be tested in the fool-size prototype of the Muon System Prototype of the PANDA experiment.

V. V. VEZHNAVETS, ARTŪRS ŠKUTE

THE NATURAL RECOVERY POSSIBILITIES OF THE RELICT CRUSTACEAN LOST POPULATIONS IN THE CASE OF THE FORMER COOLER RESERVOIR AT NUCLEAR POWER PLANT

Summary

The natural recovery perspective of the relicts lost populations in a cooler reservoir of the Ignalina Nuclear Power Plant – the lake Drisvjaty which had been exposing to thermal pollution within 25 years (since 1984 to 2009) is considered. Findings of relict species in the lake and in the one of its inflows are established. The restoration basic possibility of relict fauna by means of their receipt with river water from the donor reservoir (the lake Richi) is shown. The studying of population of the most probable migrant from relict Crustacea – *Limnocalanus macrurus* – has shown the possibility of this phenomenon at the temperature lowering in these lakes and in the river connecting its to $10 \text{ }^\circ\text{C}$. Terms of the migrations (March–April) coinciding with the intensive mass receipt of new generation juveniles are defined. The younger stages of *Limnocalanus* undergo migrations by means of the river flow in a compound of drift. The established mechanism of the natural renaturalization is possible also for other relict species and for other aquatic ecosystems of Belarus which were inhabited by relicts earlier.

A. N. NESTSIAROVICH

DISORGANIZATION SYNDROME IN SCHIZOPHRENIA: THE CONTRIBUTION OF ENVIRONMENTAL AND GENETIC FACTORS

Summary

The article provides the results of the clinical-genetic study in which the role of genetic factors (polymorphic gene variants related to neurotransmission, cell detoxification, inflammatory response and DNA methylation) and environmental factors (urbanicity, childhood psychotrauma, one parent family, etc.) was analyzed in formation of disorganization syndrome in schizophrenia which implies disturbances of behavior and thinking. Important role of epigenetic factors has been shown in disorganization development, in particular – genetically determined DNA hypomethylation, which should be taken into account when developing differential approach for treatment of patients with severe behavioral and thinking disturbances.