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USSR AND EASTERN EUROPE SCIENTIFIC ABSTRACTS

BIOMEDICAL AND BEHAVIORAL SCIENCES

No. 73

This serial publication contains abstracts of articles and news items from USSR and Eastern Europe scientific and technical journals on the specific subjects reflected in the table of contents.

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II. BEHAVIORAL SCIENCES

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I. BIOMEDICAL SCIENCES

Agrotechnology

USSR

UDC 631.811:631.582

SOIL FERTILITY, YIELD AND NUTRIENT BALANCE IN RELATION TO FERTILIZER SATURATION OF CROP ROTATION

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 22 Mar 76 pp 30-36

SHAGAYEV, V. YA., and MIKHAYLINA, N. V., Ul'yanovsk Agricultural Test Station

[Abstract] Systematic use of mineral fertilizers in crop rotation on leached chernozem in the forest-steppe Volga region gives high yields: overall saturation of fertilizers for each crop rotation crop of 82 kg/hectare, the grain yield rose by an average of 3.2 quintals/hectare and the corn green mass--by 65.2 quintals/hectare; a fertilizer saturation of 144 kg/hectare--5.1 and 74.7 quintals/hectare; and a 208 kg/hectare saturation--4.7 and 94.6 quintals/hectare. Manure in an application rate of 25 tons/hectare, placed once in clean fallow, raised the average yield of each grain crop by 1.6 quintals/hectare and the corn green mass--by 77.0 quintals/hectare. Combined application of manure and mineral fertilizer increased the grain yield by 4.5-6.1 quintals/hectare and the corn green mass--by 104.1-120.6 quintals/hectare. As crop rotation crops are saturated with mineral fertilizers humus losses in soil are reduced. Tables 4; References: 17 Russian.

USSR

UDC 631.458:633.11

NUTRIENT SUPPLY AND REMOVAL IN WINTER WHEAT AND ITS PRODUCTIVITY

Moscow AGROCHEMIYA in Russian No 2, 1977 signed to press 22 Mar 76 pp 47-50

TURCHIN, V. V., and GLADYSH, O. T., All-Union Scientific Research Corn Institute, Dnepropetrosvk

[Abstract] The effect of mineral fertilizers applied to winter wheat, the second crop after clean fallow, on the supply and total removal of nitrogen, phosphorus and potassium with winter wheat plants was studied. The field experiments were held in 1970-1972 in the crop rotation scheme of the fertilizer laboratory in the experimental farm of the All-Union Scientific Research Corn Institute (Dnepropetrovskaya Oblast). Crop rotation was of the six-field type with this crop rotation: clean fallow, winter wheat, winter wheat, corn for grain, barley and Sudan grass. The soil was ordinary chernozem, low-humus, heavy-loam on loess. Of the six fertilizer combinations applied, N45P60 and N45P60K50 showed the highest plant productivity. Investigation showed also that fertilizers applied after previous manuring (15 tons/hectare) increased the levels of nutrient supply by the winter wheat plants

as follows: nitrogen--by 1.7-2.1, phosphorus--by 2.0-3.7 and potassium--by 1.7-2.7 times, depending on fertilizer makeup. Tables 5.

USSR UDC 631.811:633.15

FERTILIZING CORN ON IRRIGATED DARK-CHESTNUT SOILS

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 23 Mar 76 pp 51-57

POPOVA, I. M., KRISHTOPA, V. I., and ATROSHCHENKO, S. D., Kherson Zonal Agrochemical Laboratory

[Abstract] Fertilizing irrigated corn plots was studied on dark-chestnut, medium-loam soils of Khersonskaya Oblast in field crop rotation; the preceding crop was usually winter wheat with after-harvest plantings. The corn hybrid in all experiments was the VIR 156 hybrid. The optimal nitrogen application for spring-season corn was 120-150 kg/hectare and for after-harvest corn--90-120 kg/hectare. The effectiveness of phosphorus fertilizer on newly irrigated soils began appearing when the content of labile P_2O_5 was not more than 15-16 mg/kg soil and in relatively long-irrigated soils, when the P_2O_5 content was not more than 25-30 mg/kg. The optimal annual amount of phosphorus for spring corn was 60 kg/hectare and for after-harvest corn--30-60 kg/hectare. However, to retain a positive phosphate balance, its content in the soil for spring corn must be raised to 90 kg/hectare. In producing 1 ton of corn, 20-25 kg nitrogen and 10-11 kg of phosphorus (P_2O_5) was applied and in producting 1 ton of green mass in the milky-wax maturity stage--2.5-3.5 kg nitrogen and 1.1-1.5 kg phosphorus. Tables 6; References: 16 Russian.

USSR UDC 631.811:635.21

EFFECT OF LONG-TERM FERTILIZER USE ON POTATO QUALITY

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 12 Mar 76 pp 63-70

KORSHUNOV, A. V. and POPOV, V. I., Scientific Research Institute of Potato-growing, Kraskovo, Moscow Oblast

[Abstract] The effect of fertilizer on potato quality was studied in a stationary field experiment set up in 1959 in the Il'inskoye test farm, Domodedovskiy Rayon, Moscow Oblast. The soil was sod-podzolic, medium-loamy. Extended use of moderate amounts of fertilizers showed that phosphorus

favorably affected starch content, its quality and other qualitative indicators of the tubers; they were adversely affected when N + K combinations of fertilizers were applied. The favorable role of phosphorus was shown through the higher intake of assimilating agents ($C^{14}O_2$-labeled) from leaves to tuber; by their higher biosynthetic ability, characterized by higher indicators of starch: sugar ratios and higher synthetic activity of the enzyme alpha-glucanphosphorylase, with simultaneous decreases in the saccharose-monosaccharide ratios and in the cleaving ability of amylase. Potassium and nitrogen, in particular their combinations, acted conversely. Tables 5; References 10:8 Russian, 2 Western.

USSR UDC 631.811:582.951.4

EFFECT OF FERTILIZERS ON NUTRITIVE REGIME OF MEADOW-SOD SOIL AND SWEET PEPPER YIELD

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 12 Mar 76 pp 71-75

BELKIN, V. A., BOZHKO, V. G., and GOROVAYA, L. V., Volgograd Agricultural Institute

[Abstract] Mineral and organic fertilizers affecting changes in the nutritive regime of soil and sweet pepper yield were studied. The studies were done in 1973-1974 in the fields of the Komsomolets Vegetable Sovkhoz in the northern part of the Volga-Akhtubinsk floodplain on meadow-sod soil. The crop preceding sweet pepper in 1973 was cabbage and in 1974--tomato. Analysis of sweet pepper yield showed that the best gain in yield (90 quintals/hectare) came from using N90P90K60, over a 2-year period. When N90P90 was applied (in the double-element fertilizer variants), the best sweet pepper yield was recorded--77 quintals/hectare. Manure was found poorer than the mineral fertilizers. Tables 3, References: 3 Russian.

USSR UDC 631.82:631.445.1

EFFECT OF MINERAL FERTILIZERS AND HYDROTHERMAL CONDITIONS ON THE NUTRIENT REGIME OF NEWLY DEVELOPED LOWLAND PEAT SOIL. REPORT 2. SOIL POTASSIUM REGIME

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 12 Apr 76 pp 76-85

MEL'NICHUK, V. P., PROZOROVA, I. N., and FEDOROVA, L. D., All-Union Scientific Research Institute of Feeds, Lugavaya, Moscow Oblast

[Abstract] Dynamics of labile potassium in new developed peat soil was studied on differently fertilized sections planted to cereal grasses or left unplanted, along with the effect of amounts of potassium fertilizer on the soil content of forms of potassium and potassium migration in the soil profile. Growing for 3 years perennial cereal grasses on unfertilized, newly developed peat soil with an average yield of 26 quintals/hectare dry mass did not affect the regime of labile potassium forms. Annual top-dressing of grasses with N180P60, by increasing the harvest and K_2O removal by 1.7-1.8 times, lowered the soil content of water-soluble and exchange potassium by 1.3 and 1.6 times. This meant potassium hunger for the plants. Applying 60 kg/hectare K_2O, when the mean grass yield was 60 quintals/hectare dry mass, did not eliminate the potassium deficiency in the soil. Figure 1; Tables 5; References: 23 Russian.

USSR UDC 631.862.1:631.582

EFFECT OF NONMATTED MANURE ON PRODUCTIVITY OF CROP ROTATION LINKS IN CHERNOZEM ZONE OF OMSK OBLAST

Moscow AGROKHIMIYA in Russian No 2, 1977 signed to press 22 Mar 73 pp 102-104

GAVAR, S. P., Siberian Scientific Research Agricultural Institute, Omsk

[Abstract] The effect of nonmatted cattle and hog manure on crop yields in links of grain, fallow-grain and grain-plowed crop rotations was studied in the "Omskoye" experimental-model farm of the Siberian Scientific Research Agricultural Institute, in the forest-steppe zone of Omsk Oblast. Applying cattle and hog manure was found best in the grain-plowed crop rotation scheme. The gain over an unfertilized plot was 25.9 quintals/hectare when 50 m^3/hectare liquid manure was applied, and 40.9 quintals/hectare, when 100 m^3/hectare liquid manure was used. Though liquid organic fertilizer can be applied in winter, it is economically best to apply the year around. Tables 2.

USSR

CARBAMIDE-CONTAINING MIXED FEED FOR RUMINANTS

Minsk SEL'SKOYE KHOZYAYTSVO BELORUSSII in Russian No 2, 1977 p 32

SHPADARUK, V. P., Senior zootechnician of the Main Administration of the Mixed Feed Industry, Ministry of Procurements Belorussian SSR

[Abstract] Process lines adding carbamide to mixed feed were set up at enterprises of the system of the Belorussian SSR Ministry of Procurements. Last year a similar line was set up by rationalizers of the Polotsk Bread Products Combine, supervised by chief technologist Vladimir Alekseyevich Marushevskiy. Carbamide is brought to the enterprises in 35-50 kg sacks. Portions of carbamide (2 percent of mixed feed mass) are blended with other mixed feed ingredients. In 9 months of the past year the enterprise produced 18,400 tons of mixed feed containing carbamide for cattle--nearly a thousand tons more than the goal. Scientific theory and field experience showed that best results from mixed feed given to cattle come when the carbamide concentrate is 40-80 percent protein. The concentrate is made by extruding a mixture of ground barley, corn, wheat and other cereals with carbamide and bentonite powder. In the Five-Year Plan it is projected to build seven shops making carbamide concentrate in Pinsk, Orsha, Kalinkovichi and other cities. In 1980 150,000 tons of carbamide concentrate is to be produced. Also underway is the installation of second granulation lines at the Bobruysk and Kalinkovichi bread products combines and at the Kletsk and Vileyka mixed feed plants. This will mean bringing the output to 170,000 tons of carbamide-containing mixed feed this year.

USSR

EFFECTIVE BARLEY AND OAT VARIETIES ON THE PRINEMANSKIY TEACHING FARM

Minsk SEL'SKOYE KHOZYAYSTVO BELORUSSII in Russian No 2, 1977 p 18

MIKONOVICH, I. I., head of the plant-breeding nursery of the Prinemanskiy Sovkhoz

[Abstract] The Prinemanskiy Teaching Farm, Grodnyy Agricultural Institute, cultivates cereal grain seeds. Of the barley varieties raised (Mami, El'gina, Moskovskiy 121 and Nadya), for sandy loams, the French variety Mami is the most productive. In 1976, its yield was 49.8 quintals/hectare in a plot of 605 hectares. Its yield can be higher: in a 14-hectare plot it yielded 79 quintals/hectare. Kondor oat grows best on this farm, better than the Nadezhnyy variety. Its yield was 31.9 quintals/hectare, equivalent to a net income per hectare of 473 rubles, compared to the per-hectare income of

Nadezhnyy oat of 170 rubles, for a yield of 17.0 quintals/hectare. As for barley yield: Mami seed yielded a per-hectare return of 821 rubles, compared to Moskovskiy 121 seed providing a per-hectare income of 556 hectare (its yield was 36.1 quintals/hectare). Figure 1.

USSR

COORDINATING CONFERENCE ON THE PROBLEM OF RAISING SOIL FERTILITY

Moscow AGROKHIMIYA in Russian No 2, 1977 pp 155-157

LEBEDEVA, L. S., and GORSHKOVA, M. A.

[Abstract] On 5-9 Apr 76 in Moscow a coordinating conference was held in the Soils Institute imeni V. V. Dokuchayev on working out scientific bases for raising fertility of soils and making rational use of soils. Five sections of the problem were treated: 1) agrochemical characteristics of USSR soils and the soil-agrochemical regionalizing of the USSR; 2) developing integrated procedures for raising the fertility of soils of the nonchernozem zones and other regions of the country; 3) turnover and balance of nutrients in agriculture and methods of accomplishing it in different soil-climatic zones; 4) developing methods of agrochemical mapping and soil analysis; and 5) improving methods of plant diagnosis and determining soil levels of nutrients from plant analysis.

Biochemistry

USSR UDC 615.332(Actidionum)).015.44:576.858.25.098.396.332

EFFECT OF CYCLOHEXIMIDE ON SYNTHESIS OF RNA AND FORMATION OF STRUCTURES OF VENEZUELA EQUINE ENCEPHALITIS VIRUS

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 13 Sep 76 pp 252-258

SOKOLOVA, T. M., TAZULAKHOVA, E. B., and YERSHOV, F. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

[Abstract] The authors noted earlier that cycloheximide belongs to the glutarimide group of anitbiotics; it is widely used as an effective inhibitor of protein synthesis in animal cells and inhibits transfer by the ribosome along mRNA, but does not lower RNA synthesis in the cells during their short incubation with the drug. This action of cycloheximide was used by the authors to study its effect on reproduction of a typical alphavirus, viz. Venezuelan Equine Encephalitis (VEE). V. M. Zhdanov (1973) has already studied the basic patterns of biosynthesis of the components of VEE. The virus was obtained from the museum of viruses of the authors' institute. Cycloheximide was obtained from Calbiochem, and actinomycin D from the Reanal company. Studies showed that the effect of cycloheximide on reproduction of VEE depended on the time of the antibiotic administration. When the antibiotic was added 3-5 hours after the inoculation (after formation of the virus RNA-polymerase), accumulation of virus RNA and 60-100 S virus structures was observed in the cells, while virus nucleotides and infection virus practically did not form. The 60-100 S structures included the cell proteins. They were resistant to EDTA and their buoyant density in cesium chloride was 1.3-1.4 gm/cm^3, characteristic of RNA of a non-ribosomic nature. According to these properties 60-100 S structures may be classified as belonging to the "hybrid" RNA analogous to the RNA complexes of VEE virus with the cell proteins. Probably, addition of cycloheximide provided conditions in the infected cells for increase of the "hybrid" structural pool since the synthesis of the structural virus proteins was suppressed. Figures 7; table 1; references 11: 6 Russian, 5 Western.

USSR UDC 577.15.04.002.237.66

METHOD OF IMMOBILIZING ENZYMES

Moscow OTKRYTIYA IZO. PROM. OBRAZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 92 (11) 545648 (21) 2113303/04 (22) 10.03.75 2 (51) C 07 G 7/02// A 61 K 37/48

VALUYEV, L. I., AL'-NURI, M. A., BARANOVA, N. A., YEGOROV, N. S., and PLATE, N. A., Moscow Order of Lenin and Order of Labor Red Banner State University imeni M. V. Lomonosov

[Text] 1. A method of immobilizing enzymes by covalent bonding of the enzyme molecules with a polymeric carrier, is distinguished by the fact that, for greater enzyme stability and activity, the enzyme is first acylated with an acid chloride of an unsaturated acid at pH 6.0-9.0, then the acylated enzyme is copolymerized with the unsaturated polymerizing monomer.

2. The method in 1. is distinguished by the fact that copolymerization is done in the presence of a crosslinking agent.

3. The method of 1. is distinguished by the fact that polymerization is done at 0-60° C.

USSR/GDR UDC 616-074:061.3(430.2)"1975"

ELEVENTH NATIONAL CONGRESS ON CLINICAL CHEMISTRY AND LABORATORY DIAGNOSIS (GDR)

Moscow LABORATORNOYE DELO in Russian No 3, 1977 pp 188-190

MEN'SHIKOV, V. V., and MOROZOVA, V. T.

[Abstract] About 500 persons (from Czechoslovakia, Poland, Hungary, Yugoslavia, and West Germany) participated in the congress, held in Goerlitz in October 1975. The main problems discussed at it were in the following areas: pathobiochemistry and diagnostic aspects of diseases of the cardiovascular system (3 sessions, 20 reports), pathochemistry and diagnostic aspects of liver diseases (3 sessions, 18 reports), pathochemistry and diagnostic aspects of kidney diseases (3 sessions, 19 reports), pathobiochemical aspects of gerontology (1 session, 1 report), methods of investigation of hormones (3 sessions, 20 reports), analytical and electronic data processing and the organization of laboratories (2 reports, 27 reports), standardization and quality control (2 sessions, 12 reports) and methods of investigation (29 reports). A newly-created Research Institute of Medical

Diagnosis (Director: Thiele) is devising new diagnostic methods and measures, ways to process diagnostic information, etc. The Institute coordinates the activity of 1500 scientific workers and physicians, in Dresden and its environs, who are working in the general research program. The Institute is emerging as a medical co-executor in development, in the GDR and USSR, of a 4-channel biochemical auto-analyzer. This institution, in time, will be converted into a large scientific research organization for development of medical diagnostic procedures.

USSR UDC 575.1:599.9

ETHNOGEOGRAPHIC ASPECTS OF THE DISTRIBUTION OF THE G6PD DEFICIT IN THE USSR

Moscow XXIII MEZHDUNARODNYY GEOGRAFICHESKIY KONGRESS. MEDITSINSKAYA GEOGRAFIYA. TEZISY DOKLADOV [Twenty-third International Geographical Congress. Medical Geography. Summaries of Reports. Collection of Works] in Russian 1976 pp 95-107

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12,(I) 1976 Abstract No 12T402 by V. A. Spitsyn]

LYSENKO, A. Ya., and VORONOV, A. A.

[Text] Summary results of various authors obtained in study of insufficiency of the enzyme G6PD among the population of the Soviet Union are presented. The greatest distribution of the gene of G6PD deficit is found among the population of the Transcaucasian republics, especially in Azerbaydzhan. The results are illustrated in a summary table. Possible reasons for heterogeneity in the distribution of G6PD insufficiency over various regions of the USSR are discussed. References: 30.

USSR UDC 616.073.65-073.756.4

STATISTICAL MODEL OF THERMOGRAPHICAL IMAGES OF MEDICO-BIOLOGICAL OBJECTS

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian Vol 22, No 3, Mar 77 signed to press 10 Jun 76 pp 38-49

STERLIN, YU. G., and MIRKIN, L. I., All-Union Scientific Research Institute of Medical Instrument Construction; Institute of Problems of Information Transmission, Academy of Sciences USSR, Moscow

[Text - English language abstract supplied by authors] For the effective use of thermographical methods of investigation in medicine and biology it is necessary to find objective quantitative indices which characterize the structure, properties and diagnostic signs of the heating fields for medico-biological objects. In this connection it is necessary to be able to describe the images of these fields. Due to complex organization of biological systems, to describe the heating fields images it is necessary to apply probability methods. With such an approach the distribution of skin temperature (thermogram) is considered as an accidental field, which, within the definite classes--mammary glands, face, abdominal cavity, etc., is permissible to consider as arogodic and isotopic and within the fragments, taken from one or several images which relate to the given class--a homogeneous one. The study of probability characteristics and plotting a statical model have been conducted with the help of a computer. Measurement of statistical characteristics (correlation coefficients, dispersions, supreme central moments, etc.) shows that thermograms present a statically independent class. Coming from the specific peculiarities of the heating fields an assessment has been made that their statistic properties can be well described by the Gaussian model. As an agreement criterion the authors use the proximity to zero of the assessment of 4 semiinvariants (on the example of unidementional and 25-dimensional vectors). The greatest value of the ratio of 4 semiinvariants assessment to their dispersion shows that the images of the heating fields of medico-biological objects is satisfactorily described by the Gaussian model. This gives ground to expect positive results with statistically optimal linear methods of thermogram treatment (filtration, restoration, predicting, etc.). Figures 5; tables 2; references 14: 11 Russian, 3 Western.

USSR UDC 57.034

RELATIVE MEASURE OF ASYNCHRONISM AND EXPERIENCE IN ITS APPLICATION FOR QUANTITATIVE DESCRIPTION OF DESYNCHRONIZATION OF CELL DIVISIONS IN EARLY EMBRYOGENESIS OF SOME VERTEBRATES

Kaliningrad TEZISY DOKLADOV I KONFERENTSII "MATEMATICHESKAYA TEORIYA BIOLOGICHESKIKH PROTSESSOV" 1976 [Summaries of Reports, First Conference on Mathematical Theory of Biological Processes," Collection of Works] in Russian 1976 pp 36-38

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12A24 by N. P. Kaymachnikov]

DONDUA, A. K., DONDUA, G. K., ROTT, N. N., and GORODILOV, YU. N., Institute of the Biology of Development, Academy of Sciences USSR, Moscow

[Text] A formula is proposed which permits quantitatively estimating the degree of asynchronism of cell divisions of individual embryos. On the assumption of the existence of a monotonic and constantly acting factor of desynchronization, similarity of the character of the desynchronization in the embryo of the salmon with the theoretical variant was obtained. An explanation is provided for the two-step kind of curves of change of the relative measure of asynchronism of the axolotl and loach. References 2.

USSR UDC 57.08:681.39

APPLICATION OF LASERS IN BIOLOGY AND MEDICINE

Kiev PRIMENENIYE RADIOELECTRONNYKH PRIBOROV V BIOLOGII I MEDITSINE [Application of Radioelectronic Instruments in Biology and Medicine, Collection of Works] in Russian, Izd-vo Naukova Dumka 1976 pp 310-338

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12S278 by V.S.S.]

GAMALEYA, N. F. and SHISHKO, YE. D.

[Text] In Part I a survey is presented of the development of lasers and their use in biology and medicine. The history of the creation, the working principle of the laser, specific features of the radiation, types of lasers, types of pumping, working conditions and design are analyzed in detail. Examined, in particular, is the very widespread ruby laser, and also lasers of neodymium and carbon dioxide gas. The main characteristics of six types of lasers used in medical and biological investigations are presented. Additional equipment such as waveguides, energy meters, etc., is examined.

Some diagrams of installations based on lasers are presented and the main directions of their application in phase-contrast microscopy, ophthalmology, oncology and surgery are enumerated. A large portion of the article is devoted to a description of the effect of laser radiation on the tissues and organs of animals and man, which is necessary for preparation for the clinical application of lasers. The conducting of such investigations is also important for the development of effective measures of protection against radiation and the creation of a scientifically substantiated system of safety precautions in work with lasers. Most investigations of that kind have been devoted to damage of the eyes and skin under the effect of radiation of different wavelength, and much less to the influence of laser radiation on the internal organs. In the last section safety precautions during medical and biological investigation of lasers are described.

USSR UDC 57.08:681.39

APPLICATION OF ELECTRON PARAMAGNETIC RESONANCE TO STUDY DIFFUSIVE PROCESSES IN BONE TISSUE

Yerevan ANASTANI GENSAPANAKAN ANZHES, BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 29, No 6, 1976 pp 79-83

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12S279 (Resume)]

AVAKYAN, A. KH., GRIGORYAN, G. L., and ROZANTSEV, E. G., Institute of Chemical Physics, Academy of Sciences USSR

[Text] It is shown that the cyacrinic fusion forming during ultrasonic connection of bones is a barrier to the penetration of low-molecular compounds in the bone. The coefficients of forward and rotary diffusion of the troxyl radical in the bone are determined. References: 8.

USSR UDC 57.08:681.39

DYNAMIC RADIOTELEMETRY OF ARTERIAL PRESSURE IN MAN

Sverdlovsk BIORADIOTELEMETRIYA [Bioradiotelemetry, Collection of Works] in Russian 1976 pp 142-145

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12S337 by A.H.M.]

ROZENBLAT, V. V., Sverdlovsk Scientific Research Institute of Labor Hygiene and Occupational Diseases, Sverdlovsk

[Text] Various methods of telemetry of arterial pressure in freely moving man (direct, compression and non-compression methods) are discussed. Two variations of the compression method, approved in the registration of arterial pressure under conditions of motor activity of the investigated person, are examined: on the brachial artery with indication of arterial pressure on the basis of Korotkov effects--in a technical section by means of special microphone sensors (transducers) which separate certain components of the Korotkov signals, and on digital arteries with indications of the mean arterial pressure by using a tracking system. The determination of arterial pressure in the first case is periodic, corresponding to the cycles of compression and decompression, and in the second case is a continuous tracking of each cardiac cycle. The requirements for brachial radiosphygmomanometry developed by the author and his co-workers for arterial pressure telemetry are presented. References: 13.

USSR UDC 536.12:612.741.5

THEORETICAL PREREQUISITES IN DEVELOPMENT OF CLOTHES WITH ARTIFICIAL HEATING

Kiev DOPOVIDI AKADEMIYI NAUK UKRAYINS'KOYI RSR. SERIYA B. GEOLOGICHNI, KHIMICHNI TA BIOLOGICHNI NAUKY in Ukrainian No 2, Feb 77 signed to press 26 Jul 76 pp 164-168

NAUMENKO, I. M., Institute of Problems of the Science of Materials, Academy of Sciences Ukrainian SSR

[Abstract] A cylinder measuring $D \approx 0.3$ m, $L \approx 1.7$ m, $S \approx 2.0$ m, at $t_b = 32^\circ C$ was used as a model to calculate theoretical requirements that could be used for designing clothes with artificial heating capable of providing comfort at -10, -40 and -80°C. In order to maintain the body temperature, at 32°C, for a man wearing thermally insulated clothes, 0.62 degree·m^2/W of energy is required. This energy increases to 117, 200 and 310 W to maintain the same body temperature at -10, -40 and -80°C, respectively. If the convective and radiative heat losses of a human body amount to 70-80% of the total heat losses, it would be sufficient to use only 50% of the total heat produced by a human body as a basis for designing clothes with artificial heating. Taking as a basis the amount of metabolic heat produced by a human body at rest (58 W/m^2), light work (100 W/m^2), and work of average difficulty (175 W/m^2), curves are plotted for the clothes' heating capacity at -10, -20, -40, -60 and -80°C. These curves are plotted according to formula $Q_{cl} = Q_{ar.cl} + Q_m$ where $Q_{ar.cl}$ is the energy produced by artificial clothes and Q_m is the body metabolic heat which amounts to about 20-30% of the total body heat and which is independent of external factors and individual features of a man. A distribution of heating elements on the human body at places having the highest temperature will provide the fullest use of the body metabolic heat. Under these conditions, the physiological heat losses will take place at those body surfaces not covered by heating elements. Since the torso loses the largest amount of heat, clothes with artificial heating must cover first of all this part of the human body. This would provide a uniform heating not only of places with heating elements but also of those not protected by them. Figures 3, references: 3 Russian.

USSR UDC 546.36

CESIUM-137 AGROCHEMISTRY AND ACCUMULATION IN AGRICULTURAL PLANTS

Moscow AGROKHIMIYA in Russian No 2, 1977 pp 129-142

ALEKSAKHIN, R. M., MOISEYEV, I. T., and TIKHOMIROV, F. A.

[Abstract] Plants with well developed foliage covered with hairs trap more cesium-137 radioactive particles. Relatively large particles (to 180 microns) are retained, while 88-175 micron particles are 2.5 times less well retained than 44-88 micron particles. In experiments where plants were sprayed with radioactive solution simulating wet precipitation, sizable variations in plant retaining ability were shown related to the physicochemical properties of radionuclides, volume of solution used, relative humidity and amount of atmospheric precipitation in the period before spraying. As to the soil chemistry of Cs^{137}, plant accumulation of this radionuclide depends first on its accessibility to the root systems of plants, determined by the physicochemical features of Cs^{137} interaction with soils, Cs^{137} distribution in soil profile and various soil factors (such as, the water regime in soils). References 98: 61 Russian, 37 Western.

USSR UDC 576.858

SUSCEPTIBILITY OF CALVES AND LAMBS TO THE VIRUS OF CRIMEAN HEMORRHAGIC FEVER

Omsk PRIRODNOOCHAGOVOSTI ANTROPOZOONOZY. TEZISY DOKLADOV K IX VSESOYUZNOY KONFERENTSII PO PRIRODNOY OCHAGOVOSTI BOLEZNNEY CHELOVEKA I ZHIVOTNYKH [Natural Foci of Anthropozoonoses. Summaries of Reports to Ninth All-Union Conference on the Natural Foci of Diseases of Man and Animals. Collection of Works] in Russian 1976 pp 130-131

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B165]

ZARUBINSKIY, V. YA., KONDRATENKO, V. F., BLAGOVESHCHENSKAYA, N. M., ZARUBINA, L. V., and KUCHIN, V. V.

USSR UDC 591.51:597

ALARM PHEROMONE AND WHAT IT MEANS IN FISH BEHAVIOR

Moscow ZHURNAL OBSHCHEY BIOLOGII in Russian Vol 38, No 1, Jan/Feb 76 signed to press 4 Jun 76 pp 123-132

MALYUKINA, G. A., KASUMYAN, A. O., MARUSOV, YE. A., and PASHCHENKO, Moscow State University imeni M. V. Lomonosov, Biology Faculty, Moscow

[Abstract] Defensive behavior in response to the alarm pheromone secreted from damaged skin of fish was studied. In experiments with 10 species of carp, species features of protective reactions closely linked to ecology were discovered. Thresholds were found and behaviorally active concentrations of the alarm pheromone were established for both schools of minnows and isolated individuals. Biotic and abiotic environmental factors decisive in the defensive response behavior to the pheromone were found. Change in the physiological state of fishes during starvation and disease was shown to markedly lower the response intensity; during spawning, differences appeared in the pheromone content in the skin of individuals of the different sex, while the sensitivity and strength of reaction remained at former levels. Formation of defensive behavior and the dynamics of alarm pheromone accumulation in the skin of the minnow during ontogenesis were traced. The signaling importance of the pheromone in a solitary individual fish for schools of single-age fish in different developmental stages was determined, along with the role of individuals of advanced age in the organization of defensive behavior of varied-aged schools. Figures 5; References 9: 4 Russian, 5 Western.

USSR UDC 576.858.095.383.098.396.332

SUPERINDUCTION OF INTERFERON AND STUDY OF ITS MESSENGER RNA

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 10 Sep 76 pp 247-252

YERSHOV, F. I., SOKOLOVA, T. M., and KADYROVA, A. A., Institute of Virology imeni D. I. Ivanovsky, Academy of Medical Sciences USSR, Moscow

[Text-English language abstract supplied by authors] Combined use of interferon inductor poly·IC and antibiotics (cycloheximide and actinomycin D) provided a significant increase (up to 1000 times) in interferon production by chick, mouse, monkey and human cells. Messenger RNA with matrix activity for interferon (mRNA-IF) was isolated from superinduced cells. On translation of mRNA-IF in homogenous and heterogenous cells the specificity of interferons produced was determined by the type of the cells from which mRNA-IF was isolated. Sedimentation analysis of various mRNA-IF revealed 2 peaks of activity: major (5-15S) and minor (25-30S). Figure 1; Tables 3; References 11: 5 Russian, 6 Western.

USSR UDC 612.017.1.014.46:615.372:576.851.55

IMMUNE RESPONSE OF MICE OF VARYING INBRED STRAINS TO CL. OEDEMATIENS TOXOID

Moscow BYULLETIN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINI in Russian No 2, 1977 signed to press 15 Mar 76 pp 198-200

PETROV, R. V., corresponding member of the Academy of Medical Sciences, USSR, PANTELEYEV, E. I., MOSHIASHVILI, I. YA., SHEMANOVA, G. F., and VLASOVA, YE. V, Institute of Biophysics of the USSR Ministry of Health, Moscow

[Russian abstract provided by the source]

[Text] Mice belonging to a number of inbred strains were immunized intradermally with Cl. oedematiens α-toxoid. After 30 days the immunization was repeated. The level of antibodies against the toxoid in the blood of the mice was determined by the passive hemagglutination test, 20 and 30 days after the first immunization, and 10 days after the second. The maximum response to the first immunization was recorded in mice of the C3H strain, and the minimum--in the DBA/2, with variations of over 30-fold. The rest of the strains of mice tested (A, CBA, BALB/c, AKR, C57BR) occupied an intermediate level. After the second immunization the differences diminished. It is assumed that there is genetic control of the immune response to the given antigen in mice. Figure 1; table 1; references 6: 5 Russian, 1 Western.

USSR UDC 576.858.098

MATERIALS ON STUDY OF THE IMMUNOGENIC PROPERTIES OF THE KAZAKH SCIENTIFIC RESEARCH VETERINARY INSTITUTE (KazNIVI) RABIES VACCINE

Alma Ata SBORNIK NAUCHNYKH TRUD KAZAKHSKOGO NAUCHNO-ISSLEDOVATEL'SKOGO VETERINARNOGO INSTITUTA [Collection of Scientific Works of the Kazakh Scientific Research Veterinary Institute] in Russian No 16, 1976 pp 222-225

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B593]

TRET'YAKOV, Yu. K., KINDYAKOV, V. I., and MALINOVSKIY, I. G.

USSR UDC 612.648.014.46:[615.285.7]-017.2

ADAPTATION TO THE ACTION OF CERTAIN TERATOGENS RESULTING FROM PRELIMINARY ADMINISTRATION OF PESTICIDES TO FEMALE RATS

Moscow BYULLETIN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINI in Russian No 2, 1977 signed to press 3 May 76 pp 227-228

SHTENBERG, A. I., and TORCHINSKIY, A. M., Laboratory of Pesticide Toxicology, Institute of Nutrition of the Academy of Medical Sciences, USSR, Moscow

[Russian abstract provided by the source]

[Text] A study was made of the effect on Wistar rats of the pesticides DDT and the γ-isomer of hexachlorocyclohexane, administered to female rats at the onset of pregnancy, on the intensity of the teratogenic action of sodium acetylsalicylate (SA) and benlate, of the carbamate group of pesticides. These preparations were administered on the 10th and 12th day of pregnancy respectively. It was established that the preliminary administration of the pesticides lessened the teratogenic and embryotoxic action of benlate administered in a dose of 250 mg/kg, and SA in a dose of 400 mg/kg. With the action of SA in a dose of 600 mg/kg, the preliminary administration of the pesticides reduced the postimplantation mortality of the embryos, but the number of fetuses with developmental anomalies was the same as with the isolated action of the preparation in this dose. Table 1; References 8: 5 Russian, 3 Western.

USSR UDC 616.233-002-003.669.181-057-036

CLINICAL PATTERN OF DUST BRONCHITES AMONG MINE WORKERS OF THE KRIVOY ROG BASIN IRON ORE MINES

Moscow TERAPEVITICHESKIY ARKHIV in Russian No 3, 1977 signed to press 29 Mar 76 pp 48-50

VOLKOVA, V. M., CHUGAY, A. A., BRODSKIY, O. B., TOPCHIY, R. V., LITVINENKO, L. M., MYAKOTINA, T. N., and ONUSHKO, L. YA., Krivoy Rog Institute of Labor Hygiene and Occupational Diseases

[Abstract] Discussion of the clinical pattern of bronchitis caused by the action of iron-ore dust is almost totally absent in the literature. A total of 194 patients, referred for consultation and therapy to the clinic if they had been working in the presence of iron-ore dust in the absence of any other etiology of illness, were examined under hospital conditions. Their ages varied from 30 to 50, and 69% of them had previously been or were still working at the place. Stage I (initial) bronchitis was ascertained among 78

of these patients, stage II (moderately expressed) was ascertained among 94 of them, and stage III (considerably expressed) was ascertained among 24. Among the examined patients, features of bronchitis actuated by iron-ore dust include an imperceptible initiation and slow development of the disease, a small quantity and a slimy nature of the secreted mucus, the absence or nonacute manifestation of intoxication, and frequent complication by the asthmoidal syndrome with lung emphysema. References: 6 Russian.

USSR UDC 614.1:313.13-057:666.982

INCIDENCE OF DISEASE WITH TEMPORARY INCAPACITATION AMONG WORKERS AT PRECAST REINFORCED CONCRETE PLANTS

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 25 Jun 76 pp 46-49

LITVINOVA, YU. A., candidate of medical sciences, Kiev Medical Institute imeni Academician A. A. Bogomol'yets

[Text] [English abstract provided by the source] The incidence of disease involving temporary incapacitation and dependent on occupational activities and working conditions was studied in workers of 15 precast reinforced concrete plants. A total of 32,000 sick-slips covering a period of 3 years was studied. It was found that the level of incidence of disease with individual nosological forms depended on the type of occupation and working conditions. Among all the occupational groups (concrete molding workers, reinforcing wire fitters and welders, crane operators, and other workers) the rate was highest in molders because of the adverse effects of vibration and noise. References: 12 Russian.

USSR UDC 614.1:616.-036.86"742":621.8

INFLUENCE OF SOME INDUSTRIAL OCCUPATIONAL FACTORS ON THE INCIDENCE OF DISEASE WITH TEMPORARY INCAPACITATION OF MACHINE-TOOL OPERATORS

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 7 Jul 76 pp 42-45

LUTOV, V. A., docent, SLADKOVA, P. O., and FAYTEL'SON, S. L., Department of General Hygiene (head Docent I. I. Filatov), Vitebsk Medical Institute

[Text] [English abstract provided by the source] Data on diseases involving temporary incapacitation among machine-tool operators and assemblers at three

plants in 1972-1974 indicated that the incidence of disease was much higher among the former than among the latter, especially of respiratory diseases (by as many as 24% of the cases and 27% in terms of days). The proportion of diseased and repeatedly diseased was much greater in the group of machine-tool operators than in that of assemblers. The higher sick rate among the former is to be ascribed to the effect of the lubricating oil aerosol, hydrocarbons and carbon monoxide. Table 1; References: 4 Russian.

USSR UDC 575.591

CYTOGENETIC ACITIVITY OF THE PESTICIDES IMIDAN, DIPTERES AND GARDONA IN CULTURED HUMAN LYMPHOCYTES

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 15 Dec 75 pp 337-339

KURINNYY, A. I., and PILINSKAYA, M. A., All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers and Plastics, Ministry of Health USSR, Kiev

[Text] [English abstract provided by the source] The cytogenetic action of three organophosphorus pesticides, imidan--ftalofos--, dipterex--klorofos-- and gardona, in cultured human lymphocytes was studied and it was found that all the substances induce a significant increase in the frequency of metaphases with chromosome aberrations as compared with the control level. Maximal effects in vitro were 6.0, 4.8, and 4.0% of aberrant cells for imidan, dipterex, and gardona respectively. All the investigated substances had weak mutagenic activity in the human lymphocyte culture. Tables 2; References: 4 Russian.

USSR UDC 615.475

A METHOD OF DETERMINING TIME INTERVALS OF IMPULSES DURING ELECTRICAL STIMULATION OF THE HEART

Moscow OTKRYTIYA IZO. PROM. OBRAZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 13 (11) 545328 (21) 1993837/13 (22) 07.02.74 2(51) A 61 B 5/04

DUBROVSKIY, I. A., and GRIGOROV, S. S., Moscow Order of Labor Red Banner Engineering Physics Institute

[Text] A method of determining time intervals of impulses during electrical stimulation of the heart by recording and calculating the electrocardiogram intervals before stimulation, establishing the calculated time ratios on the cardiostimulator, making a trial stimulation of the heart with a monopolar electrode with simultaneous recording of the electrocardiogram and subsequent correction of the time intervals of the cardiostimulator impulses is distinguished by the fact that, to prevent the danger of cardiac arrhythmia and to eliminate distortions in the electrocardiogram, the trial stimulation is conducted with pulses of positive-polarity subthreshold amplitude.

USSR UDC 615.471:615.844

ULTRASONIC IRRADIATOR IN TREATING DISORDERS IN TUBULAR BODY CAVITIES

Moscow OTKRYTIYA IZO. PROM. OBRAZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 21 (11) 545361 (21) 2041404/13 (22) 05.07.74 2(51) A 61 N 1/04 //A 61 H 23/00

USENKO, VI., and MOROZOV, YU. S.

[Text] An ultrasonic irradiator used in treating disorders in tubular body cavities, containing a handle and a piezoelement with a holder, is distinguished by the fact that for local and uniform irradiation of the prostate gland region with ultrasonic vibrations, it has a hollow handle, one end of which is covered with an ultrasonic-vibration reflector, and on the side surface of the rod opposite the reflecting surface of the reflector there is an oval opening covered with an elastic membrane and the cavity of the rod is connected by the other end with a cavity formed by an additionally installed cylinder with connectors and placed ahead of the working surface of the piezo-element, forming with it a common cavity, the hollow rod lies coaxially with the piezoelement and is made of material reflecting ultrasonic vibrations. Figure 1.

USSR UDC 361.352.92

(54) A DEVICE FOR PURIFYING RESERVOIR WATER FROM MICROSCOPIC ALGAE

Mosocw OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 6 (11) 532358 (21) 2087261/30-15 (22) 25.12.74 2(51) A 01 D 44/00//C 12 B 1/26

(72)ALMAYEV, R. A., PROKOPOV, O. I., and AYUPOV, KH. V. (71) Bashkir Agricultural Institute

[Text] 1. A device for purifying reservoir water from microscopic algae, containing two communicating casings, one entering into the other, and a worm situated within the inner casing, distinguished by the fact that with the aim of increasing the efficiency of water purification, the device is connected with a source of electricity, its outer casing being connected to the positive charge of the electricity source, while the inner casing is connected to the negative charge of the aforesaid source, has on the outer surface a spiral vane of an electrically nonconductive material, and is equipped with a drive mechanism.

2. A device according to paragraph 1, distinguished by the fact that the cavities of the casings in the lower part have a perforated partition. Figures 1.

USSR UDC 621.565.4

(54) A DEVICE FOR THE LOCAL FREEZING OF TISSUE

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 10, (11) 532375 (21) 2087608/28-13 (22) 24.12.74 2(51) A 61 B 17/36

(72) FILIPPOV, YU. P., ZYUKIN, N. A., and PTUKHA, T. P. (71) All-Union Scientific Research and Testing Institute of Medical Technology

[Text] A device for the local freezing of tissue, containing a heat-insulated container for the refrigerant, a probe with a feeder channel and an offtake channel, an intake tube, a filling valve and a safety valve, distinguished by the fact that with the aim of multiple utilization of the liquid refrigerant with one filling and decreasing the probability of traumatization by the liquid refrigerant, the container for the refrigerant is separated by a partititon into a principal chamber and an auxiliary chamber and contains two distributing valves, connected with the principal chamber of the container, and two tubes, one of which connects the offtake channel of the probe with

the auxiliary chamber, and the other connects the auxiliary chamber with the atmosphere via the distributing valves and by the safety valve, both tubes being mounted in the partition.

USSR UDC 616-089.28

(54) AN ARTIFICIAL HEART

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 10 (11) 532376 (21) 1941519/28-13 (22) 13.07.73 2(51) A 61 F 1/00

(72) SHUMAKOV, V. I., KROL. A. D., KOSYMOV, A. KH., ZUBAREV, V. A., and SPIRIDONOV, V. A. (71) All-Union Scientific Research Institute of Clinical and Experimental Surgery

[Text] 1. An artifical heart, containing a housing, ventricles, auricles, valves, a rotatable vane, and a drive, distinguished by the fact that with the aim of improving the venous inflow, decreasing trauma of regular blood components, and lowering the weight, the housing contains apertures for communication with the intrapleural cavity, the rotatable vane is produced in the form of a partition between the auricles and the ventricles and is provided with valves, the drive is produced in the form of a hermetic sylphon bellows with connecting branches for pneumatic supply.

2. A heart according to paragraph 1, distinguished by the fact that with the aim of constant monitoring over shock ejection, the rotatable vane is provided with an angular-shift sensing element. Figures 1.

USSR UDC 616-089.28

(54) AN ARTIFICIAL HEART

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 11, (11) 532378 (21) 1878052/28-13 (22) 29.12.72 2(51) A 61 F 1/22

(72) SHUMAKOV, V. I., KROL, A. D., KASYMOV, A. KH., RASTORGUYEV, B. P. and SPIRIDONOV, V. A. (71) All-Union Scientific Research Institute of Clinical and Experimental Surgery

[Text] 1. An artificial heart, containing a housing, elastic chambers, intake and outlet fittings, a pneumatic drive, distinguished by the fact that with the aim of approximating the parameters of an unidirectional flow

of blood to the natural ones, a four-sectioned rotor is installed in the housing, and elastic chambers are placed in the sections of the rotor and by means of a flat gate valve are connected with the intake and outlet fittings, while the rotor sections are connected with the pneumatic drive by means of another flat gate valve.

2. A heart according to paragraph 1, distinguished by the fact that the rotor is equipped with a pneumatic torque drive.

3. A heart according to paragraph 1, distinguished by the fact that the apertures of the gate valves are situated pairwise in different radial coordinates. Figures 1.

USSR UDC 617-089:615.477.24:611.126

(54) AN ARTIFICIAL HEART VALVE

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 11 (11) 532379 (21) 1917872/28-13 (22) 26.04.73 2(51) A 61 F 1/22

(72) PERIMOV, YU. A., DOBROVA, N. B., POPOV, L. M., TERESHCHENKO, V. YA., and KUZ'MINA, N. B.

[Text] An artificial heart valve, containing an annular frame, a disk locking element with flat surfaces, a means for retaining the disk, distinguished by the fact that with the aim of decreasing thrombosis formation, the means for retaining the disk is produced in the form of two pairwise symmetrical wire limiters, mounted on the intake of the valve, and two on the outlet. Figures 1.

USSR/BULGARIA UDC 576.8:577.15

SEPARATION AND PURIFICATION OF FIBRINOLYTIC ENZYME FROM THE CULTURAL FLUID OF Actinomyces sp B_{64} OF THE SERIES Griseus

Belgrade NAUCH TR VISSH IN-T KHRANIT I VKUS PROM-ST--PLOVDIV in Bulgarian Vol 21, No 1, 1974(1975) pp 219-225

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) Abstract No 12L536 (Resume)]

BESHKOV, M., ANGELOV, T., and TONKOVA, A.

[Text] Experiments were conducted on the extraction of fibrinolytic enzyme from the cultural fluid of Actinomyces sp B_{64} by means of isopropyl alcohol, acetone and ethyl alcohol. The yield was highest (90%) upon precipitation of the enzyme by two volumes of ethyl alcohol, that is, there was almost complete extraction of the enzyme without its denaturation. Further purification was carried out in columns with Sefadex G-50 and G-75. Gel filtration is suitable for the separation of the fibrinolytic enzyme from the inert substances corresponding to it, and the specific activity of the enzyme increases to 16,727 units/mg of protein.

USSR/BULGARIA UDC 576.8:663.12

USE OF ACETIC ACID AND ACETATES BY YEASTS. II. INVESTIGATION OF SOME CONDITIONS DETERMINING THE ACCUMULATION OF YEAST BIOMASS ON THE BASIS OF ACETATES

Belgrade NAUCH TR VISSH IN-T KHRANIT I VKUS PROM-ST--PLOVDIV in Bulgarian Vol 21, No 1, 1974(1975) pp 113-120

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L564 (Resume)]

RANKOVA, Zl and BESHKOV, M.

[Text] The influence of the kind and concentration of acetate carbon sources, the quantity of the sown culture and the active acidity of the medium on the yield of yeast biomass during cultivation of Candida sp 2672 was investigated. The following optimal conditions were established for obtaining yeast biomass: 1. Optimal acetate carbon sources are potassium and calcium acetate, applied in quantities of 0.6 and 0.8% respectively; 2. The optimal quantity of sown culture is 30% (at a moisture content of 75%) of the applied carbon source, and the optimal pH value is in the range of 5.2-6.0.

USSR UDC 663.11

(54) STRAIN OM-534-6-2 OF THE TRICHODERMA LIGNORUM FUNGUS A PRODUCER OF CELLULOLYTIC ENZYMES

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976 p 63 (11) 532620 (2147006/28-13 (22) 23.06.75 2(51) C 12 K 1/00

(72) LOBANOK, A. G., BEKER, M. YE., ZELTYNYA, R. P., KARKLIN', R. YA. EDZHIN'SH, I. M., SMETANIN, V. V., and BOGOMAZOVA, L. T. (71) Microbiology Department, AS Belorussian SSR

[Text] Stored in the laboratory of enzyme biosynthesis regulation of the Microbiology Department, Academy of Sciences, Belorussian SSR. Morphological characteristics. The mycelium is septated on must-agar, is not differentiated, in the cells there are some nuclei, the dimensions of the mycelium cells are 3 - 5 x 15-20 microns, the conidia-bearers become formed by 32-34 hours as lateral offshoots of the hyphae; are di- or trichotomously branched, are colorless, the sterigmata are bottle-shaped, thickened in the middle, supportive or verticillate, the dimensions are 3 - 5 x 6 - 10 microns, the conidia become finally formed by 42-46 hours, are round or ellipsoidal, dimensions 2.5-3.5 microns and 2.5-2.9 x 3.7 - 3.9 microns respectively, with one nucleus in a mass of green color.

Culture criteria. Must-agar. For 4 days at 29°C, colony diameter 6-7 cm, aerial mycelium, white, uniformly elevated along the colony edge, conidia in the center, the center is solid, compressed, green in color, drawn in, does not grow into the agar, the growth is concentrical.

Capek medium with sucrose. In 4 days the colony fills the entire cup, the mycelium is white, spreading, fast-growing, the conidia are in the form of separate dense formations without tufts, dark-green in color, situated along a concentric periphery at some distance from the center.

A synthetic medium with corn extract and cellulose. The growth is active, in 3-4 days the colony fills the entire cup, the aerial mycenium is tomenose, is white or grayish, is elevated around the edge of the colony, conidia formation is abundant, the conidia are in the center, the center of the colony is compressed, is solid, dark-green in color, is bounded concentrically.

Potato-dextrose agar. In 4 days the colonies attain 9-10 cm in diameter. The edge is even, the aerial mycenium is fluffy, white, the conidia in the center are united into densely situated pads, the medium is not pigmented.

Biochemical criteria. Actively hydrolyzes starch, curdles milk in 4-5 days (pH 5.8-6.0), pentonizes [Translator's note: misprint for peptonizes?] it slowly by 20-25 days (pH 7.8-7.9), does not liquefy gelatin, utilizes the ammonium, the nitrate, and protein forms of nitrogen, assimilates glucose,

mannitol, rhamnose, sorbitol, particularly actively assimilates lactose, sucrose, arabinose.

The strain possesses a high level of cellulose synthesis, actively produces an enzyme during growth on a waste product of the milk industry--dilute milk whey (lactose), has a contracted fermentation period of 60-64 hours.

USSR UDC 576.8.093.1

(54) A NUTRITIVE MEDIUM FOR THE INCUBATION OF MICROORGANISMS

Moscow OTKRYTIYA, IZOBRETENIYA, PROMYSHLENNYYE OBRAZTSY, TOVARNYYE ZNAKI in Russian No 39, 1976, p 64 (11) 532621 (21) 2075034/30-15 (22) 25.10.74 2(51) C 12 K 1/06 (53)

(71) SIRENKO, L. A., FAYBICH, M. M., SHIRSHOV, V. A., MOTORNAYA, V. P., ALENCHIKOVA, T. F., KOSTENKO, T. F., and LARIONOVA, V. A. (71) All-Union Scientific Research Institute of Microbiological Plant Protection Media and Bacterial Preparations and the Institute of Hydrobiology, AS Ukrainian SSR

[Text] A nutritive medium for the incubation of microorganisms, including corn flour, distinguished by the fact that with the aim of improving the quality of the culture, stimulating the growth of the microorganisms, and decreasing the production cost of the preparations, dry blue-green algae and (or) their paste, autolyzates, and (or) hydrolyzates are introduced into the medium in the amount of 1.0-3.0 g per 100 ml of tap water.

USSR UDC 576.858.095

STUDY OF REPLICATIVE FORMS OF RNA OF VIRUSES OF GROUP A/WSN/33 AND A/Singapore/57

Moscow TRUDY VNIIgrippa [Works of the All-Union Scientific Research Institute of Influenza. Collection of Works] in Russian No 31, 1976 pp 417-427

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B87 by L.L.]

ZAZIMKO, L. A. and FURAYEVA, V. A.

[Text] Results of a comparative investigation of the electrophoretic mobility of replicative forms of the RNA of A/WSN/33 (HON1) and A-Singapore/57

(H2N2) viruses, which participate directly in the transcription of their genetic information, are presented.

USSR UDC 576.8.095

DEAMINATION OF NITROGEN-CONTAINING SUBSTRATES OF YEASTS OF THE GENUS Candida

Yerevan AYASTANI GENSAPANAKAN ANTES., BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 29, No 4, 1976 pp 9-13

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L171 (Resume)]

LACHINYAN, L. YE., TSATURYAN, S. S. and DAVTYAN, M. A.

[Text] Deaminating activity in suspensions of intact cells of Candida guilliermondii and C. tropicalis was determined in relation to a number of amino acids and glucosamine. Yeast homogenates do not manifest that activity. The stimulating influence of starvation of the yeast culture on the intensity of deamination of alanine and glutaminic acid in a suspension of intact cells was demonstrated.

USSR UDC 576.8

EQUIPMENT FOR CULTIVATION OF MICROORGANISMS

USSR Author's Certificate No 495,351 Class C 12 k 1/10, Application No 2,034,903 dated 2 Jul 74, published 27 Mar 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L517P by A.R.]

ESSEL', A. YE., VASILENKO, G. YE., and VASILENKO, T. YU., Rostov Medical Institute and Rostov Scientific Research Institute of Epidemiology, Microbiology and Hygiene

[Text] To increase the informativeness of various microbe populations and assure single-moment mass investigations the equipment includes a similar supplementary disk installed under the main one with displacement of the vertical axes of the chambers, and between the disks is a semipermeable membrane, for example, of cellophane. The invention relates to the microbiological and medical industries.

USSR UDC 576.8

EQUIPMENT FOR CULTIVATION OF MICROORGANISMS

USSR Author's Certificate No 492,537, Class C 12 b 1/10, Application No 2,022,546 dated 12 May 74, published 10 Mar 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L518P by A. R.]

ORLOV, L. A., ZADNEPRYANYY, V. A., and BAYDA, V. M., Kiev Technological Institute of Food Industry

[Text] To intensify the process of cultivation of microorganisms the apparatus is equipped with a container installed with clearance coaxially to the main one with the formation in its lower part of a circular nozzle, a controlling shaped cone at the bottom of the container, an overflow fastened on the upper part of the circulation pipe, and a coupling to feed air is connected to the upper part of the space. The proposed apparatus is depicted on a diagram.

USSR UDC 576.8

FERMENTATION PROCESS QUALITY CONTROL SYSTEM

USSR Author's Certificate No 489,788, Class C 12 k 1/00, Application No 1,988,419 dated 16 Jan 74, published 18 Feb 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L519P by A.R.]

ZAKHARCHENKO, N. YE., GRISHCHENKO, A. Z., NATSILEVICH, L. A., and LOZNEVOY, A. F., Institute of Automation

[Text] To accelerate the interrogation cycle when several apparatus are switched off the control system is equipped with additional pulsators connected in parallel by means of controlled switches with a pulsator of the equipment for matching the beats and a valve-equipped delay unit, with the delay unit inlets connected to the corresponding outlets of the equipment for determining the conclusion of the process and the group control equipment, and the outlets to the inlets of the group control equipment. The delay unit has a second group of outlets connected through OR elements to the control elements of the controlled switches.

USSR UDC 576.8:577.15

STRAIN Mucor racemosus 15157a--PRODUCER OF P-DIPHENOLOXIDASE

USSR Author's Certificate No 440,405, Class C 12 k 3/00, Application No 1,818,924 dated 4 Aug 72, published 29 Sep 75

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L521P by A. R.]

ANTROPOVA, O. N., Ukrainian Scientific Research Institute of Pulp and Paper Industry

[Text] The invention relates to the microbiological industry and deals with obtaining a new strain used to obtain the enzyme p-diphenoloxidase. The proposed strain M. racemosus 15157a can be also used in the purification of waste waters from lignin, and its derivatives and to produce lignin monomers, for example, vanillic, p-hydroxybenzoic, protocatechoic, syringic and other acids and monomers. The activity of p-diphenoloxidase is 0.02-0.06 mg/ml of culture fluid. A characterization of the strain is presented.

USSR UDC 576.8:577.15

STRAINS OF MOLD FUNGUS Aspergillus awamori 22/12--A PRODUCER OF A CARBONIC HYDRASE COMPLEX OF ENZYMES

USSR Author's Certificate No 489,787, Class C 12 d 13/10 and C12k 2/00, Application No 1,963,157 dated 2 Jan 74, published 24 Feb 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L530P by A.R.]

GENDINA, S. B., GREBESHOVA, R. N., KALUNYANTS, K. A., RYSHKOVA, T. M., LOSYAKOVA, L. S., and RUMYANTSEV, V. M., All-Union Scientific Research Institute of Biosynthesis of Protein Substances

[Text] The proposed strain Asp. awamori 22/12 produces a complex of carbonic hydrase enzymes containing besides amylolytic enzymes also hyaluronidase (I). The new highly active and complex enzyme preparation has an advantage which is expressed in the joint action of maltase and I, where the activity of maltase is 0.7-1.0 units/g and I has 300-500 units/g. Also included in the complex of produced enzymes are glucoamylase and alpha-amylase. The activity of the former is 150-170 units/g and of the latter is 100-120 units/g of dry culture. The application of carbonic hydrase enzymes with high hyaluronidase activity in the fur industry for the enzymatic processing of fur raw material makes it possible to improve the technology of

obtaining soft and plastic fur and increase its area by 1.5-2.0% while considerably improving the fur quality. A detailed morphological and biochemical characterization of the strain is presented.

USSR UDC 576.8

METHOD OF STIMULATING THE FORMATION OF delta-ENDOTOXIN

USSR Author's Certificate No 471,009, Class A 01 n 15/00 and C 12 d 7/00, Application No 1,882,392 dated 9 Feb 73 published 27 Dec 75

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L568P by A. R.]

IVANOV, G. M., Krasnoyarsk University

[Text] The proposed method is characterized by the fact that in order to increase the dimensions of delta-endotoxin crystals and their titer, acridine derivatives in a concentration of 5-100 mg/ml are additionally introduced into the nutrient medium. The invention can be used to increase the titer of delta-endotoxin crystals in bacterial preparations made from bacteria of the group Bacillus thuringiensis.

USSR UDC 576.8:663.12

YEAST STRAIN Candida pelliculosa 507

USSR Author's Certificate No 479,806, Class C 12 k 3/00, Application No 1,893,163 dated 12 Mar 73, published 9 Apr 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L562P by A.R.]

SARUKHANYAN, F. G., AKHINYAN, R. M., SEVOYAN, A. G., KARIMYAN, R. S., STEPANYAN, M. L., and PETROSYAN, L. G., Institute of Microbiology, Academy of Sciences Armenian SSR

[Text] Presented are characteristics of a new strain of nutrient yeast Candida pelliculosa 507, obtained by its purposeful adaptation from media prepared from a mixture of industrial wastes.

USSR UDC 576.8:663.12

STRAIN Torulopsis pinus nov spec, 1935, Lagerberg, L-30

USSR Author's Certificate No 512,238, Class C 12 K 3/00 and C 12 C 11/18 Application No 2,106,142 dated 30 Dec 74, published 30 Jun 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L563P by A.R.]

IL'INA, L. D., YEVNITSKAYA, G. S., SITNIK, N. G., POLYANSKAYA, YE. A., PODGURSKAYA, YE. I., PEREKOS, O. N., and BRATCHENKO, L. I., Ukrainian Scientific Research Institute of the Alcohol and Vodka-Liqueur Industry

[Text] Proposed is the strain T. pinus nov spec, 1935, Lagerberg, L-30, used to obtain nutrient yeasts from alcohol production wastes. Morphological and biochemical characterizations of the strain are presented.

USSR UDC 576.8:663

TECHNOLOGY FOR OBTAINING UNPURIFIED ENZYMATIC PREPARATION OF HEMICELLULASE

Moscow MIKROBIOLOGICHESKAYA PROMYSHLENNOST'. NAUCHNO-TEKHNICHESKIY REFERATIVNYY SBORNIK [Microbiological Industry. Scientific-Technical Abstract Collection] in Russian No 2 (133) 1976 pp 22-24

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L577 by A.R.]

PLATONOV, A. V., and DOROKHOV, V. V.

[Text] The main stages of the technological process for obtaining unpurified hemicellulase preparation are presented: preparation of the sown material of a culture of the fungus Aspergillus awamori 16-4E, preparation of the nutrient medium, the conditions of cultivation, filtration of the culture fluid, its concentration and drying by spraying. The technical preparation hemicellulasexylavamorin GZx has high enough enzymatic activity and can be introduced into the ration of agricultural animals to increase the assimilability of fodder.

USSR UDC 576.8:663

INTENSIFICATION OF ALCOHOLIC FERMENTATION OF STARCHY MEDIA

Moscow PRIKLADNAYA BIOKHIMIYA I MIKROBIOLOGIYA in Russian Vol 12, No 4, 1976 pp 509-514

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L578 (Resume)]

YAROVENKO, V. L., NAKHMANOVICH, B. M., YAROVENKO, V. V., and ORLOVA, L. A.

[Text] An investigation was made of continuous alcoholic fermentation on starchy media during feeding of the fermentation battery in two flows directed into the first and second fermenters. For saccharification of the media of the first flow three times as much of the enzyme preparations was dosed as of the second flow, while preserving their standard flow rate. With movement of the medium later into the first, second, third, etc., fermenters an averaging of the dose of fermenters of up to the standard is achieved, with its simultaneous maintenance in the first at a level of 150%. Under those conditions, intensification of fermentation by the yeasts Saccharomyces cerevisiae in the fermentation battery to the rate of the first main fermenter is observed, with acceleration of the process by 30% or more, that is, 130% as compared with the control.

USSR UDC 576.8:631.46

TRACE ELEMENTS AND BIOLOGICAL FIXATION OF ATMOSPHERIC MOLECULAR NITROGEN

Riga FIZIOLOGICHESKAYA ROL' I PRAKTICHESKOYE PRIMENENIYE MIKROELEMENTOV [Physiological Role and Practical Application of Trace Elements. Collection of Works] in Russian, Izd-vo Zinatne, 1976 pp 83-100

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L614 Author's Abstract]

YAGODIN, B. A. and SAVICH, M. S., Institute of Plant Physiology, Academy of Sciences USSR, Moscow

[Text] Information is presented about the molecular mechanisms of the participation of metallic trace elements in the biological fixation of nitrogen by free-moving and symbiotic microorganisms. The Me-Fe-containing complex of nitrogenase of the nitrogen-fixing organisms is characterized. Experimental data are presented on the characteristics of tubercles of lupine during inoculation by "effective" and "ineffective" strains of rhizobium. References: 119.

USSR UDC 576.8:577.15

STRAIN Aspergillus niger 12/355--PRODUCER OF PECTOLYTIC ENZYMES

USSR Author's Certificate No 488,850 Class C 12 d 13/10 and C 12 k 3/00, Application No 1,962,089 dated 28 Sep 73, published 27 Feb 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L524P by A.R.]

DIANOVA, O. P. and MARTAKOV, A. A., Institute of Microbiology and Virology, Academy of Sciences Kazakh SSR

[Text] The proposed strain Asp niger 12/355 is a producer of pectolytic enzymes active in relation to skin tissue. The composition of the enzyme preparation includes polygalacturonase, pectinesterase, amylase and protease. The activity of the preparation in determination by the copper volume method is 4500-5000 units/gram. A detailed morphological, physiological and biochemical characterization of the strain is presented.

USSR UDC 576.8:664.932.4:547.963.3:547.466

WOOD-ATTACKING FUNGI BASIDIOMYCETES AS PROSPECTIVE PROTEIN PRODUCERS

Unpublished in Russian, Deposit No 2380-76 in VINITI 28 Jun 76, 1976, 7 pp

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L541Dep Author's Abstract]

MUKHIN, V. A., Institute of Ecology of Plants and Animals, Urals Scientific Center, Academy of Sciences USSR, Sverdlovsk

[Text] The prospectiveness of the fungi as protein producers, which was determined calorimetrically, was evaluated by the protein content in the mycelium and the yield and growth rate of the mycelium. The strains of fungi were cultivated on a medium containing sapwood and NH_4NO_3 as a nitrogen source. The most promising producers are fungi with a high protein content in the mycelium and a high yield of biomass.

USSR UDC 576.8:664.932.4:547.963.3:547.466

BIOCHEMICAL COMPOSITION OF A CONTINUOUS CULTURE OF HYDROGEN BACTERIA

Yakutsk FIZIOLOGICHESKIYE I BIOKHIMICHESKIYE OSNOVY ADAPTATSII RASTENIY K USLOVIYAM SEVERA [Physiological and Biochemical Principles of the Adaptation of Plants to Conditions of the North. Collection of Works] in Russian 1976 pp 60-66

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12L543 (Resume)]

TRUBACHEV, I. N., BARASHKOV, V. A., and KALACHEVA, G. S.

[Text] Studied in the work was the biochemical composition of hydrogen bacteria Hydrogenomonas eutropha. The protein content was 70% of the dry weight of the biomass, fats were 5-7%, hemicellulose and cellulose 25-30%, riboflavin 4.7 mg-%, thiamine 0.6 mg-%, folic acid 3.3 mg-%, ascorbic acid 17.0%, and nucleic acids 10-15%.

USSR UDC 614.48:615.28+546.33

USE OF AN ELECTROLYZED SODIUM CHLORIDE SOLUTION AS A DISINFECTING AGENT

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 135-137

NIKULIN, V. A. and SHURA-BURA, B. L., professor, Department of Epidemiology of Ryazan Medical Institute

[Abstract] The authors note that disinfection for various infectious diseases is adequately presented in Soviet literature, and the Soviet chemical industry has synthesized familiar agents. Chlorine-containing preparations are preferred because of their high biological effectiveness and broad spectrum of action, but their supply does not always correspond to demand. Hence search for new agents is critical. The authors report their many years of use of electrolyzed NaCl solution in disinfection in therapeutic-prophylactic institutions. The lack of wide use of this agent in the USSR is attributed to absence of appropriate electrolysis apparatus. Their apparatus is a 24-liter electrolyzer; the body is made of vinyl plastic, the anode, graphite, the cathode is titanium alloy VT-1. Power is supplied by direct current from a selenium rectifier, type VSA-6k or VSA-5A. Electrolysis is performed on a 5% tapwater solution of table salt with current density at the anode of 750 a/m^2. Hypochlorite formed is assayed iodometrically in acetic acid. Hypochlorite concentration in one hour is 1.5 g/l; in two hr. 2.8 g/l; in three hr. 4.3 g/l; in five hours 5.5 g/l. Three hour electrolysis

is most practical, yielding 69.3% of hypochlorite (five hour yield is lowered to 65.5%). Data on the adequacy of this disinfectant are presented.

USSR UDC 615.332(Oxytetracyclinum+Lincomycinum).012.6

COMPARATIVE STUDY OF THE EFFECT OF AERATION CONDITIONS ON BIOSYNTHESIS OF OXYTETRACYCLIN BY A CULTURE OF ACTINOMYCES RIMOSUS AND OF LINCOMYCIN BY A CULTURE OF ACTINOMYCES ROSEOLUS

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 28 Sep 76 pp 195-199

OBLOZHKO, L. S. and ORLOVA, N. V., All-Union Scientific Research Institute of Antibiotics, Moscow

[Abstract] Aeration conditions are important in antibiotic production since their biosynthesis is accomplished under deep fermentation conditions while their producers are aerobic microorganisms. Strains examined in this work were Act. rimosus LS-T-416 (for oxytetracyclin) and Act. roseolus 981 (for lincomycin). Fermentation was carried out in 750 ml flasks on a rotating table, 230 rev/min, at 27 ± 10. Oxytetracyclin was assayed colorimetrically, lincomycin, bioassay. Changes in aeration conditions were produced by variation of the amounts (50 to 200 ml) of medium in the flasks. Three to six trials are generalized. Results indicated that maximum level of accumulation of the antibiotics is seen when supplying the microorganisms a definite quantity of oxygen which, expressed as the maximum speed of solution of oxygen in a sulfite system, amounted--in the flasks for the oxytetracyclin--to 24-31 mg/l per min, and--for lincomycin--to 31-37 mg/l per min. The lincomycin producer needed a larger amount of oxygen; worsening of aeration conditions more seriously affects biosynthesis of this antibiotic than that of oxytetracyclin. Respiration is greatest in the young mycelium in the growth stage; in the period of intensive biosynthesis of the antibiotics the oxygen requirement level is somewhat decreased but is still quite high. Decrease in mycelium production at the end of the process is accompanied by a drop in respiratory intensity. Act. roseolus respires more intensely than Act. rimosus. Insufficient oxygen decreases more seriously the antibiotic productivity of the mycelia than rate of growth of the culture. The limitation of biosynthesis by oxygen insufficiency is accompanied by metabolic changes in the culture, expressed by formation of organic acids (volatile and keto acids in Act. rimosus, volatile and lactic acids in Act. roseolus). Figures 3; table 1; references 24: 20 Russian, 4 Western.

USSR UDC 615.334:615.453.6.011.1:576.8

CERTAIN FEATURES OF THE DETERMINATION OF MICROBIAL CONTAMINATION OF POWDERS AND TABLETS OF ANTIBIOTICS OF THE PENICILLIN SERIES

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 6 Aug 76 pp 208-211

BRAGINSKAYA, P. S., SHILOVA, S. V., and CHAYKOVSKAYA, S. M., Laboratory of Microbiological Methods of Control, All-Union Scientific Research Institute of Antibiotics, Moscow

[Abstract] This study examined optimal conditions for exposure of microbial contamination of antibiotics used in preparation of non-injectible products, and of tablets. Antibiotics studied were phenoxymethylpenicillin, ampicillin trihydrate, oxacillin and dikloxacillin, artificially contaminated by sensitive and resistant cultures of Staph. aureus 209P, and Bac. subtilis ATSS 6633, and E. coli 675. Membrane filtration (filters obtained from the Czech firm Synpor) was the best for assay of microbial contamination of the powders. It was not possible to completely wash out the antibiotic from the filter, hence penicillinase was added to the nutrient medium onto which the filter was placed for providing microbial growth. For assay of microbial contamination of tablets, direct plating of a 3 percent suspension of the tablet mass onto the surface of the nutrient medium with penicillinase was best. Tables 2; References 6: 2 Russian, 4 Western.

USSR UDC 616.006-085:616.001.4.008.87:615.281

SENSITIVITY OF MICROFLORA OF WOUNDS OF ONCOLOGY PATIENTS TO SOME NEW ANTIBIOTICS

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 4 Oct 76 pp 219-222

GANUL, V. L., TYDEL'SKAYA, I. L., ABALYAYEVA, N. A., and BELOUS, ZH. V., Kiev Scientific Research Roentgeno-Radiological and Oncological Institute

[Abstract] The authors have previously shown that the microflora of wounds of oncological patients are resistant or slightly sensitive to many antibiotics used in surgical practice. Pathogenic staphylococci secreted from the wounds were resistant to benzylpenicillin in 82.8% of cases, and to streptomycin in 41.4% of cases. In this work they have sought to establish a sufficiently active antibiotic therapy for infected foci of defined localization, and have tested antibiotics against microflora of oncological wounds. Sensitivity of the microflora to antibiotics such as gentamicin, kanamycin, oxacillin, ampicillin and lincomycin was studied with the help of

the disc method. Discs with the above antibiotics were prepared under laboratory conditions in accordance with the respective instructions of the WHO. Sensitivity of 429 bacterial cultures, including 98 cultures of pathogenic staphylococci, 45 cultures of Enterococci, 43 hemolytic streptococci, 143 cultures of Escherichia, 50 cultures of Ps. aeruginosa and 50 cultures of Proteus was determined. Gentamicin was the most active antibiotic against all the microbial species isolated from surgical and other wounds of oncological patients. It may be used in treatment of the infections caused by associations of the microbes belonging to different species, as well as in treatment of purulent processes before elucidating their etiology, 16.7 percent of the Enterococcal isolates were resistant to gentamicin. Monomycin, kanamycin, osacillin, lincomycin and macrolide antibiotics at present are sufficiently active against pathogenic staphylococci and hemolytic streptococci. Tables 2; References 10: 8 Russian, 2 Western.

USSR

UDC 576.8.093.1

METHOD OF ISOLATING PURE CULTURES OF CHOLERA VIBRIONS

Moscow OTKRYTIYA IZO. PROM. OBRATZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 97 (11) 545671 (22) 1854202/13 (22) 06.12.72 2 (51) C 12 K 1/06

LITINSKIY, YU. I., and IBRAGIMOV, F. KH., Central Scientific Research Institute of Epidemiology

[Text] A method of isolating pure cultures of cholera vibrions from different materials, including the inoculation of starting material on a nutrient medium that is elective for cholera vibrions and incubating microorganisms on this medium, is distinguished by the fact that to shorten the isolation times of cholera vibrions and simplify the method, inoculation is done on a semiliquid medium localized relative to the surface on which cholera vibrion growth is possible, or localized relative to the volume of the medium in which cholera vibrion growth is possible.

USSR

UDC 663.13

APPARATUS FOR GROWING MICROORGANISMS

Moscow OTKRYTIYA IZO. PROM. OBRATZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 97 (11) 545672 (21) 2164938/13 (22) 29.07.75 2(51) C 12 K 1/10; C 12 B 1/10

MEL'NIKOV, I. A., and DOROSINSKIY, L. B.

[Text] 1. An apparatus for growing microorganisms, consisting of a vessel in which circulating tubes with sleeves are located, along with an air guide and

aerating devices, is distinguished by the fact that to break down gas bubbles along the height of the apparatus and multiple renewal of the phase contact surface, inside each tube is a device for dispersion made up of a rod fitted with the option of vertical shifting, and packing placed tierwise along it; one of the packings is in the top part of the vessel.

2. The apparatus as in 1. is distinguished by the fact that each packing consists of concentrically arranged flat and corrugated perforated strips placed around the rod with the formation of vertical continuous openings and gripped between cross arms. Figure 1.

USSR UDC 663.13

APPARATUS FOR GROWING MICROORGANISMS

Moscow OTKRYTIYA IZO. PROM. OBRAZTSY--TOVARNYYE ZNAKI in Russian No 5, 1977 p 97 (11) 545673 (21) 2301982/13 (22) 23.12/75 2(51) C 12 K 1/10; C 12 B 1/10

MATVEYENKO, P. S., PISARENKO, V. L., RUBAN, A. A., BOYKO, V. I., NIKOLENKO, N. P., and KONONEKO, V. G., Kiev Technological Institute of the Food Industry

[Text] An apparatus for growing microorganisms, containing a vessel, ejectors, diffusors and a circulation system including a pump and a pipeline, to which nozzle holders are connected; the nozzle holders house nozzles arranged over the intake sockets of the ejectors, is distinguished by the fact that to ensure that the microorganisms can be grown in anaerobic conditions, over the nozzles, disks are secured on the nozzle holders, and the nozzle holders are connected to the pipeline with the option of vertical shifting.

USSR UDC 575.576.8

IDENTIFICATION OF THREE GENES IN F-PLASMID OF Escherichia Coli K-12

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 31 Mar 76 pp 272-285

CHERNIN, L. S., OVADIS, M. I., and GOL'DFARB, D. M., Institute of General Genetics, Academy of Sciences USSR, Moscow

[Text] [English abstract provided by the source] The F'argG plasmid and its two transfer-deficient (tra$^-$) analogs were used to analyze the pleiotropic effect of a mutation in the integrated F-factor of the HfrC strain. That mutation has been shown to disturb the functioning of at least three

plasmid genes constituting probably a single regulon: the rsf gene determining the production of the recombination-stimulating factor via conjugation (RSF), the prt gene responsible for the protective effect of the plasmid against N-methyl-N'-nitro-N-nitrosoguanidine, methyl methanesulfonate and ultraviolet radiation, and the rep gene, the product of which can be involved in control of Hfr-chromosome replication. The possible location and sequence of the genes in the F-plasmid are discussed. Figures 5; Tables 5; References 32: 9 Russian, 23 Western.

USSR

UDC 575.1:576.851.45

ISOLATION AND PROPERTIES OF MERODIPLOID STRAINS WITH F-FACTOR, INCLUDING THE pts REGION OF THE Escherichia Coli K-12 CHROMOSOME

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 17 Mar 76 pp 300-308

UMYAROV, A. M., BOL'SHAKOVA, T. N., KHAYKINSON, M. YA., BURD, G. I., and GERSHANOVICH, V. N., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

[Text] [English abstract provided by the source] The F-factor, including the pts region of the Escherichia coli K-12 chromosome was isolated and the isogenic pts^+/ptsl, H and pts^+/pts^+ merodiploids were constructed. Studies of the merodiploid properties showed that the plasmid pts^+ allele restores the functions of the phosphoenolpyrovate-dependent phosphotransferase system (PTS). The increased quantity of pts genes does not lead to elevation of the mannitol transport in vivo. However, in vitro an increase in the enzyme I and Hpr activities is observed. Comparison of the rates of the inducible beta-galactosidase synthesis on the ptsI, H, pts^+ and pts^+/ptsI, H models indicates the immediate participation of the pts products in the regulation of the biosynthesis of the catabolic-sensitive enzymes. Figure 1; Tables 4; References 21: 5 Russian, 16 Western.

USSR UDC 575.1:582.282.23

GENETIC STUDY OF ALKANE UTILIZATION IN YEAST Pichia guilliermondii Wickerham. REPORT I. IDENTIFICATION OF HAPLOID CULTURES BY MATING TYPE AND OBTAINING THEIR HYBRIDS

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 8 Apr 76
pp 309-313

ZHAROVA, V. P., SHCHELOKOVA, I. F., and KVASNIKOV, YE. I., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR, Kiev

[Text] [English abstract provided by the source] Pichia guillermondii Wickerham (118 museum strains) were divided into two groups by their mating type: 77 strains belonged to MAT^+ and 41 strains to MAT^- mating types. A new modification of the hybridization method is developed which makes it possible to obtain a considerable number of zygotes (about 10%) after 72 hours of incubation. The hybrid cultures exceeded the parental strains in cell size and volume and in the accumulation of biomass. Figures 5; Tables 3; References 14: 4 Russian, 10 Western.

USSR UDC 575.24:582.282.23

HYBRIDIZATION AND MEIOTIC SEGREGATION IN THE PARAFFIN-UTILIZING YEAST Pichia guilliermondii Wickerham

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 8 Dec 75
pp 314-321

SIBIRNYY, A. A., SHAVLOVSKIY, G. M., KSHANOVSKAYA, B. V., and NAUMOV, G. I., Institute of Biochemistry imeni A. V. Palladin, Academy of Sciences Ukrainian SSR, L'vov, and All-Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms, Moscow

[Text] [English abstract provided by the source] A simple method is worked out for hybridization of auxotrophic mutants of Pichia guilliermondii with complementary nutritional requirements in an acetate medium. F. guilliermondii hybrids have a low frequency of sporulation. Two diploids are obtained which produce up to 40% of asci on medium containing sodium acetate. Sporulation does not occur or occurs very rarely on other media tested. Asci of diploids contain two spores preferentially. A method is proposed for random spore analysis to eliminate vegetative cells. A study of meiotic segregation with this method with the diploid strain D19 (mat^+/mat^-, $+/ade_2$, $+/rib_1$, $his_x/+$) showed the segregation 1:1 for the loci $ade_2/+$ and $his_x/+$. Rib_1 survivors segregated more seldom than riboflavin prototrophs. Another

diploid, AR, segregated 1:1 for mating locus among auxotrophic survivors. Tables 3; References 16: 4 Russian, 12 Western.

USSR UDC 575.12:582.282.23

HYBRIDIZATION AND GENETIC ANALYSIS OF METHANOL-UTILIZING YEAST Pichia pinus

Moscow GENETIKA in Russian Vol 13, No 2, 1977 signed to press 12 Feb 76 pp 322-329

TOLSTORUKOV, I. I., DUTOVA, T. A., BENEVOLENSKIY, S. V., and SOOM, YA. O., All-Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms, Moscow

[Text] [English abstract provided by the source] A technique of hybridization of haploid methanol-utilizing yeast Pichia pinus MH4 was worked out with the use of ultraviolet and N-nitrosoguanidine-induced auxotrophic mutants. Vegetative diploid cultures were isolated. Tetrad analysis and random spore analysis revealed a meiotic nature of the spores, recombination of genetic material in the process of sporulation and the chromosomal nature of some mutations. A possibility of constructing a genetic map of the yeast Pichia pinus MH4 is demonstrated on the basis of tetrad analysis. Three linkage groups are revealed. The life cycle in a homothalic haploid yeast, Pichia pinus, is demonstrated. They are capable of forming zygotes and meiotic spores under conditions preventing vegetative growth. Figure 1; Tables 8; References 14: 2 Russian; 12 Western.

USSR UDC 575.316

MUTAGENIC EFFECTS OF ALLERGIC REACTIONS

Novosibirsk VOPROSY TEORETICHESKOY I PRIKLADNOY GENETIKI [Questions of Theoretical and Applied Genetics. Collection of Works] in Russian 1976 p 111

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12T442 by O.P.Z.]

SKOROVA, S. V. and KERKIS, YU. YA.

[Text] The frequency of chromosome aberrations in lymphocytes of the peripheral blood of patients with neurodermitis was investigated. In 12 of 14 patients before the start of treatment the frequency of A chromosomes was 2-5 times as large and after a month it diminished and in some patients reached the control values. Thus the conclusion of the mutagenic character of immunological conflicts in mammals was confirmed. In vitro, on embryonal fibroblasts of mice and man, and on lymphocytes of man, a mutagenic character of histamine was shown which causes increase of 2-5 times in the frequency of complex structural rearrangements of chromosomes.

USSR UDC 616.981.542-092.9-085.334(Benzlpenicillinum)-036.86-02

DEACYLATING ACTIVITY OF SERA AS A CAUSE OF INEFFECTIVE BENZYLPENICILLIN TREATMENT OF EXPERIMENTAL PLAGUE IN ALBINO MICE

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 19 Oct 76 pp 229-233

MISHAN'KIN, B. N., SHIMANYUK, N. YA., and RYZHKO, I. V., Rostov-on-Don Scientific Research Plague Control Institute

[Abstract] The authors have previously suggested that the cause of the high sensitivity of the plague agent to benzylpenicillin under in vitro conditions, and of the inadequate effectiveness of this antibiotic during treatment of plague of experimental animals involves the features of the enzyme systems of this agent or of the macro-organism that block the biological activity of penicillin. This work was extended on white mice infected with Yersinia pestis EV or a virulent strain 773. The authors noted a sharp increase in the penicillinacylase activity of the blood serum of white mice infected with plague cells. The sera of the mice display an inactivating action upon benzylpenicillin and ampicillin by deacylation, which explains the non-effectiveness of use of relatively low doses of these drugs in treatment of the experimental plague. Figure 1; Tables 4; References 9: 6 Russian, 3 Western.

USSR UDC 615.332(Gentamycinum)):615.451.35.07

EXPERIMENTAL STUDY OF GENTAMICIN AEROSOL

Moscow ANTIBIOTIKI in Russian Vol 22, No 3, Mar 77 signed to press 8 Sep 76 pp 244-247

PROKHOROVA, I. I., BEREZINA, YE. K., and EYDEL'SHTEYN, S. I., All-Union Scientific Research Institute of Antibiotics, Moscow

[Text-English language abstract supplied by authors] Study of gentamicin has shown its relative inocuousness: it did not inhibit the growth and development of young animals, did not induce pathological changes in the upper respiratory tract, kidneys, liver, heart and spleen on its prolonged use. Pathohistological examination revealed slight irritating effect of the gentamicin aerosol in the lungs after its use in a dose of 8 or 25 mg/kg for 6 weeks. A procedure for investigating the effect of the aerosol on the activity of the trachea ciliated epithelium of warm blooded animals was developed. The gentamicin aerosols prepared from solutions of different concentrations (1 to 50 mg/ml) induced inhibition of the ciliated epithelium function at an average from 15 to 35 percent, which was associated with the solution acidity (pH 4.54 to 4.82). Such a decrease in the function of the

ciliated epithelium due to the antibiotic aerosol use was a factor prolonging the antibiotic retention time in the respiratory organs. It was found that aqueous solutions of drugs used for inhalation, such as ephedrin, duphelin, dimedrol, N-acetyl-L-dysteine and others had no effect on the activity of gentamicin and may be used with it in a form of aerosols. Tables 2; References 12: 6 Russian, 6 Western.

USSR UDC 612.823.5.014.46:[576.851.551.097.29+547.944.6

ACTION OF TETANUS TOXIN AND COLCHICINE ON THE SYNAPTIC MEMBRANES OF THE CEREBRAL CORTEX OF RATS

Moscow BYULLETIN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINI in Russian No 2, 1977 signed to press 19 Jul 76 pp 139-142

KRYZHANOVSKIY, G. N., Corresponding member of the Academy of Medical Sciences, SANDALOV, YU. G., RODINA, V. I., ROZHANETS, V. V., and GLEBOV, R. N., Institute of General Pathology and Pathological Physiology of the Academy of Medical Sciences, USSR Moscow

[Russian abstract provided by the source]

[Text] It was shown that purified tetanus toxin (ST) in experiments in vitro does not affect the activity of the Na, K-ATP-ase fractions of the synaptic membranes of the cerebral cortex of rats, nor the effect of inhibiting activity of the Na, K-ATP-ase with electrostimulation of a suspension of the synaptic membranes, nor the binding of GABA-^{3}H by the synaptosomes. ST and colchicine (1 mM) cause a reduction in the osmotic sensitivity of the nerve endings. Colchicine in low concentrations (10^{-5}-10^{-3} M) does not affect the Mg- and Na, K-ATP-ase, but at higher concentrations (10^{-2} M) considerably inhibits the activity of both ATP-ases. Figure 1; Table 1; References 23: 15 Russian, 8 Western.

USSR UDC 576.311.34

DISTINCTIVE FEATURES OF THE ULTRASTRUCTURE OF THE MYOCARDIAL CELLS OF YAKS LIVING IN HIGH MOUNTAINS

Moscow BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY in Russian Vol 81, No 6, 1976 pp 729-732

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12T38 (Resume)]

ZHAPAROV, B., and MIRRAKHIMOV, M. M.

[Text] An investigation was made of the ultrastructure of the myocardial cells of the left and right ventricles and the interventricular septum of Altay and Pamir yaks constantly living at a height of 3000-3600 meters above sea level. In the myocardial cells, along with the ordinary, mitochondria were detected with cristae in the form of polyhedral wavy membranes or polyhedral grid structures. A large accumulation of granules of glycogen was found under the sarcolemma, in the perinuclear zone of the cytoplasm and between the myofibrils. The definite structural ordering of the mitochondrial cristae leads to increase of their quantity and useful area and assures effectiveness of the work of the mitochondria. The large accumulation of glycogen in most myocardial cells evidently contributes to maintenance of the energy potential of the myocardium, preventing the development of hypoxia.

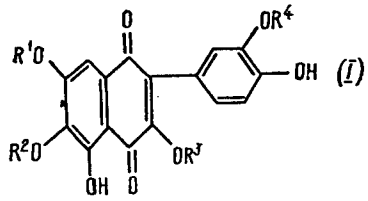
USSR UDC 581.132

NATIVE INHIBITOR OF LIGHT-DEPENDENT TRANSFER OF PROTONS ISOLATED FROM CORN CHLOROPLASTS

Kiev DOPOVIKI AKADEMIYI NAUK UKRAYINS'KOYI RSR. SERIYA B. GEOLOGICHNI, KHIMICHNI TA BIOLOGICHNI NAUKY in Ukrainian No 2, Feb 77 signed to press 21 Oct 76 pp 171-174

YASNIKOV, A. A., corresponding member, Academy of Sciences UkrSSR, VOLKOVA, N. V., VASILENOK, L. I., KANIVETS, N. P., MUSHKETIK, L. S., ZAYTSEVA, N. A., OSTROVSKAYA, L. K. and REYNGARD, T. O., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

[Abstract] Native inhibitor of proton transfer was separated by paper chromatography from one of the fractions of corn chloroplast suspension. The compound is identified as quercetin type glycoside. Its structure as well as of two other identified compounds, is



$R^1, R_2 - CH_2 -$ is cross link	$R^3 = CH_3$, $R^4 = H$
$R^1 = R^2 = R^3 = R^4 = H$	quercetin
$R^2 = CH_3$, $R^1 = R^3 = R^4 = H$	patuletin
$R^2 = R^4 = CH_3$, $R^1 = R^3 = H$	spinacetin

Blocking plastoquinone transfer of protons into chloroplasts is the possible inhibiting mechanism of the isolated compound. At the same time, motion of protons from chloroplasts into a surrounding medium is not influenced by this inhibitor. The possibility exists that this glycoside regulates two types of light-dependent transfer of protons. Figures 2; Tables 2; References 5: 1 Russian, 4 Western.

USSR UDC 633.11+582.265.2

SYSTEMS OF DEFENSE AND AGGRESSIVENESS OF WHEAT AND ORANGE LEAF RUST WHICH DO NOT CORRESPOND TO FLOR'S THEORY

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 3, Mar 77 pp 25-30

BERLYAND-KOZHEVNIKOV, V. M., DMITRIYEV, A. P. and MIKHAYLOVA, L. A., candidates of biological sciences, All-Union Scientific Research Institute of Plants imeni N. I. Vavilov (VIR)

[Abstract] Dispersion analysis of the cloning effectiveness of three strains of orange leaf rust (1-151, 2 - 77 and 3 - 77) on three varieties of wheat (T, durum, T. aestivum and T. compactum) treated with various concentration of the leaf rust spore suspension has showed that cloning of different rust strains on susceptible wheat varieties does not depend on genotype of the parasite virulence. The genotype of the wheat susceptible variety influences noticeably (1.2%) the cloning effectiveness of different virulent orange leaf rust strains. The extent of leaf rust cloning effectiveness on certain wheat varieties showed a definite dependence on the number of spores attacking the wheat. In interactions between a host (wheat) and parasite (leaf rust), other mechanisms are involved, in addition to Flor's gene per gene system, which are responsible for nonspecific stability of the wheat and the rust's aggressiveness. Compounds secreted by the rust microorganisms induce the host's resistance and remove certain genotype control mechanisms. And this changes the repression at the cell level. Since the reaction dynamics to the orange leaf rust infestation depends on the repression state of the host's genotype, presence of a definite concentration of corresponding microbic products is needed for an effective defense, as well as a potential ability of host cells to produce the necessary repression level. A reciprocal action of clone - variety - spore concentration factors was proven in this work. Their mutual effect amounts to 8.8%. The orange leaf rust spore concentration of different parasite strains varies for different wheat varieties. Figures 1, tables 1, references 15: 9 Russian, 6 Western.

USSR UDC 575.01:599.9

STUDY OF THE GENETIC NATURE OF SOME QUALITY CHARACTERISTICS OF THE WINTER WHEAT MUTANT NOVOSIBIRSKAYA 67 AND ITS INITIAL FORM NOVOSIBIRSKAYA 7

Novosibirsk VOPROSY TEORETICHESKOY I PRIKLADNOY GENETIKI [Questions of Theoretical and Applied Genetics, Collection of Works] in Russian 1976 p 76

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12T163 by O. P. Z.]

LBOVA, M. I.

[Text] The characteristics of grain coloration and the presence or absence of awn were studied by the method of monosomic analysis. Novosibirskaya 7 is a red-grained variety (C) and the mutant is grainless. Two series of hybrids obtained from the crossing of monosomes of each line of Chinese Spring with C Novosibirskaya 67 and Novosibirskaya 7 were compared. There were no differences between C on the basis of the second characteristic. All C were without awn. However, in F_2 of the monosomes there was splitting with respect to the characteristic of presence of awn A. Analysis of deviations from the splitting permitted the assumption that the studied C have the dominant inhibitor $A(B_1^B)$ in the chromosome 5A and the recessive inhibitor A in the chromosome 4B. The genes modifying A are in chromosomes 3D and 7D.

USSR UDC 575.01:599.9

INVESTIGATION OF SELECTIVE FERTILIZATION OF DIPLOID RYE

Novosibirsk VOPROSY TEORETICHESKOY I PRIKLADNOY GENETIKI (Questions of Theoretical and Applied Genetics, Collection of Works) in Russian 1976 pp 56-58

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12T166 by O.P.Z.]

GUN'KOV, YU. P.

[Text] A comparative study was made of the selective action of mutant alleles of self-fertility (S_t) and normal alleles (S_n) of genes of incompatibility in male and female gametes of diploid rye during fertilization. The hybrid plants (P) obtained from direct ($\underset{+}{o}S_{x.y}$ x $\overset{\nearrow}{o}S_{f.n}$) and reciprocal crossings were isolated before blooming with cellophane insulators. After the P matured the number of self-pollinated flowers and set caryopses was counted. In the absence of selective action the offspring must consist of self-fertile and self-sterile P in a 1:1 ratio. Obtained were 98 self-fertile and 65 self-sterile P ($\chi^2 = 6.68$; $0.01 > p > 0.05$), that is, there

is reliable deviation from the theoretically expected 1:1 splitting. Thus a selective advantage of male gametes with the S_t allele over male gametes with the S_n allele has been discovered. Observed among 200 offspring from reciprocal crossings was the theoretically expected 1:1 ratio in the absence of selective action on the part of female gametes ($\chi^2 = 0.18$; $0.7 > p > 0.6$). In an analogous experiment on the Vyatka variety of winter wheat selective advantage of pollinated grains with the S_t allele was not detected. These data permit the assumption that fertilization on the part of male gametes is determined by the variety specificity of the maternal P.

USSR UDC 616.127-005.8:616.13-004.6:616.12-008.331.1

FREQUENCY OF MYOCARDIAL INFARCTION IN MEN AND WOMEN WITH ATHEROSCLEROSIS AND HYPERTENSION (BASED ON PATHOLOGICAL ANATOMY DATA)

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 10-14

GRITSYUK, A. I., Department of Hospital Therapy, Kiev Medical Institute

[Abstract] The author has analyzed 1007 autopsy reports which revealed the presence of atherosclerosis (637) and hypertension, stages II and III (370). Myocardial infarction (MI) as the cause of death was found in 452 cases (45%). Age groups were 20-44, 45-59, 60-74, 75-89. Atherosis in the development of mortality from MI is of greater significance in men than in women, in all age groups, tending to decrease in men in old age, and in women, in maturity. Hypertension promotes occurrence of deaths from MI in women, basically in maturity and advanced age. Despite the increase in frequency, with hypertension, of deaths from MI with rise in age of the women, their number continues to be greater in men. Prevalence of deaths from MI, in a comparison of men and women, is more expressed with atherosclerosis, especially in the young and mature ages, and lower, with hypertension in mature and young age with an equalization in old age and the prevalence of women in old age. In men, the greatest growth in deaths from MI with atherosclerosis and hypertension is seen after 44 years of age, in women after 60 years of age, with a significant decrease in men and women in the 75-89 year bracket. Tables 3; References: 12 Russian.

USSR UDC 616.2-002.582

SARCOIDOSIS OF THE RESPIRATORY ORGANS--ONE OF THE PROBLEMS OF MODERN PNEUMOLOGY

Moscow TERAPEVTICHESKIY ARKHIV in Russian No 3, 1977 signed to press 9 Nov 76 pp 3-9

RABUKHIN, A. YE., professor, Central Clinical Hospital No 1 (chief physician A. G. Kozhemyakin), Ministry of Communications USSR, Moscow

[Abstract] An editorial dealing with sarcoidosis of the respiratory organs--one of the problems of modern pneumology--asserts that some aspects of this problem, particularly the etiology of the disease, are still controversial and unsolved. Most of the researchers, including the author, consider the genesis of sacroidosis to be as yet not established. Statistical data on the prevalence of the disease are contradictory and incomplete in the USSR and abroad. The symptoms and diagnostic procedures are discussed. The course of the disease in three stages is analyzed. Therapy is conducted according to

the pathogenetic principle, with the use, primarily, of corticosteroid hormones. Therapy of the disease is discussed. Figures 3; Tables 4; References 18: 9 Russian, 1 Czech, 8 Western.

USSR GUINEA-BISSAU UDC 614.2(665.7)

PUBLIC HEALTH OF THE REPUBLIC OF GUINEA-BISSAU

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 30 Aug 76 pp 61-62

SHMYGLO, M. P., candidate of medical sciences

[Abstract] Founding of the republic of Guinea-Bissau was proclaimed on 3 September 1973; it has an area of 36,125 square kilometers and a population of 800,000. About 60% of the population belong to traditional cults, 30% are Moslems and the rest are Christians. The registration of births and deaths is not organized everywhere, but in one area the birth rate was 44.1/1000 and the death rate 13.2/1000 in 1975. Child mortality is high. About 19% of the newborn die in the first year and 31% do not reach the fifth year of age. Infectious diseases represent the main mass of diseases. Medical personnel are trained in two secondary schools by informaires (physician assistants), and four Cuban physicians. There are nine native physicians in the country, six of whom obtained their training in the USSR and four in other socialist countries. The sanitary service is represented by one Cuban physician and several assistants. The Soviet Union renders much help to the country in supplying medical personnel. In 1975 a group of Soviet specialists was sent there (consisting of a surgeon, anesthesiologist, therapist, dermatologist-venerologist, stomatologist, oculist, roentgenologist and laboratory assistant with a secondary education). There is a 90-bed hospital with a staff which includes a hygienic physician who is in charge, 16 assistants, 10 servants and a cook. There are also two pharmacists and a laboratory assistant.

USSR/CHAD UDC 614.2(674.3)

PUBLIC HEALTH OF THE REPUBLIC OF CHAD

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 7 Oct 76 pp 58-61

SHABEL'NIK, V. I., candidate of medical sciences, Dnepropetrovsk Medical Institute

[Abstract] The public health service of Chad is under the Department of Public Health and Social Insurance, which in the last 5 years has had a budget of 4-7% of the total state budget. There are four hospitals, 16 medical centers, 21 aid stations with beds and 104 outpatient aid stations. There are 100 physicians in the country, two-thirds of them foreigners. In the last 3 years four or five new physicians and 500 other medical personnel have been added. In 1973 the polyclinic received 30,615 patients, of whom 13,562 were hospitalized. Most of the patients (25,065, or 81.8%) suffered from infectious and parasitic diseases, and 10,672 of them were hospitalized (78.7% of all those hospitalized). The sharp disproportion between infectious and other diseases is reflected in the work of the hospital--practically all the departments handle infectious diseases or their aftereffects, but anti-epidemic measures have reduced to a minimum or led to the complete disappearance of especially dangerous infections. Children up to 15 years of age numbering 10,273 were received, or 30.2% of all patients. Mortality in the hospital was 7.8%. In the class of infections and parasitic diseases the greatest lethality was noted for amoebic dysentery--28.8%, epidemic cerebrospinal meningitis--10.6%, measles--10.2% and malaria--4.9%. Several medical centers and aid stations are now being built or rebuilt. Two new hospitals and one polyclinic have recently been organized. The number of students attending the local medical school and studying medicine abroad has been increased. A group of Soviet physicians has been working in the country since 1967 and more than 100 students are receiving an education in the Soviet Union. The state and social organizations of the USSR have contributed medicines and vaccines many times to the young state. Table 1.

USSR UDC 614(574.51-22)

SOME FORMS OF THE WORK OF RURAL MEDICAL INSTITUTIONS OF ALMA-ATA OBLAST

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 20 Jul 76 pp 17-21

ISABEKOV, A. I., candidate of medical sciences, head of the Public Health Section, Executive Committee of the Alma-Ata Oblast Council of Workers' Deputies

[Text] [Russian abstract provided by the source] Reorganization of the treatment and prophylactic institutions of Alma-Ata Oblast made it possible to enlarge their material base and elevate specialized medical aid to a still higher degree. The average capacity of central rayon hospitals increased from 164 to 214 and of uchastok hospitals from 40.5 to 50.0. The proper selection and placement of executives and their timely training and retraining were foremost in the policy of securing proper staff pursued by the oblast health department. Much attention has been given to enlarging the material base of surgical and obstetrical points and spreading the progressive experience of their work. One effective form of leadership of preservation of the population's health has been the medical council of the oblast department of health. The medical care of cattle-breeders has been foremost in the activity of treatment and prophylactic institutions of the oblast.

USSR UDC 617-084.88:362.121

MODEL OF ORGANIZATION OF RENDERING EMERGENCY HOSPITAL SURGICAL AID

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 14 Jun 76 pp 9-13

PERKIN, E. M., KARPOV, R. D., and ARAMZANOV, L. I., Problem Laboratory, Siberian Branch of the Academy of Medical Sciences USSR (V. V. Bessonenko, head), Department of Surgery (Professor E. M. Perkin, head), Novokuznetsk Institute for the Advanced Training of Physicians

[Text] [Russian abstract provided by the source] The construction of complex systems of multiphase intensive treatment requires investigation of flows of patients examined in various medical and diagnostic subdivisions of a hospital forming a single network. In the paper a new approach is proposed for the analysis and planning of systems of emergency hospital servicing dependent on the patient's condition, based on use of the methods of network queueing theory. The introduction of a number of assumptions idealizing to a certain degree the real process of rendering emergency surgical aid made it possible to substantially simplify the analysis and obtain true final

correlations. The proposed model can be used as a tool of analysis of possible variants for achieving the specified result and selecting the optimal of them on the basis of a certain criterion (time, resources, etc). Figure 1; References: 3 Russian.

USSR UDC 616.441-036.24-07:616-008.921.5-073:916(571.54)

RADIOISOTOPE INDICES OF IODINE METABOLISM IN PERSONS RESIDING IN THE BURYAT AUTONOMOUS SOVIET SOCIALIST REPUBLIC

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian Vol 22, No 3, Mar 77 signed to press 28 Sep 76 pp 17-21

SPASOV, S. A., Buryat Republic Oncological Prophylactic Dispensary; Buryat Republic Endocrinological Prophylactic Dispensary

[Text - English language abstract supplied by author] The author examined 489 persons: 301 with euthyroid state, 111 with a mild form of diffuse toxic goiter, 47 with a moderate form and 30--with hypothyrosis. The thyroid gland function was evaluated by means of indices of ^{131}I accumulation in the thyroid gland in 2,24 and 72 hours and of protein-bound ^{131}I in the blood plasma in 72 hours. The indices of ^{131}I accumulation in the thyroid gland in 2, 24 and 72 hours and of protein-bound ^{131}I in the euthyroid condition of patients residing in the Buryat Autonomous Republic do not differ from those determined in nonendemic regions of the USSR. The use of the method of the thyroid status evaluation by regression relationship between the maximal accumulation of ^{131}I in the thyroid gland and proteinbound ^{131}I in the blood plasma made it possible to establish a correct diagnosis in 93$\pm$ 3% of patients with diffuse-toxic goiter, in 76$\pm$ 8% of patients with hypothyrosis and in 89$\pm$ 2%--with an euthyroid condition. Figure 1; Tables 5; References 16: 11 Russian, 5 Western.

USSR UDC 615.849.1:061.3(47+57)"1976"

JOINT PLENARY SESSION OF THE ALL-UNION SCIENTIFIC SOCIETY OF ROENTGENOLOGISTS AND RADIOLOGISTS AND OF THE SCIENTIFIC COUNCIL ON ROENTGENOLOGY AND RADIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES USSR

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian Vol 22, No 3, Mar 77 pp 91-94

YELASHOV, YU. G.

[Abstract] The session, convened 2-3 Nov 76 in Obninsk, dealt with the following: X-ray diagnosis of injuries of the internal organs involving closed trauma of the chest; radiation diagnosis of cardiovascular diseases; planning of scientific research, and improvement in the introduction into practice of scientific achievements in the field of roentgenology and radiology. Prominent among the 200 participants were academicians, AMS USSR, G. A. Zedgenidze (Moscow) and A. S. Pavlov (Moscow), corresponding members, AMS, N. N. Aleksandrov (Minsk), P. N. Mazayeva (Moscow), G. S. Strelin (Leningrad), professors I. S. Amosov (Obninsk), G. D. Baysogolov (Obninsk),

G. I. Volodina (Kazan), R. I. Gabuniya (Moscow), Ye. A. Zherbin (Obninsk), G. A. Zubovskiy (Moscow), A. V. Kozlova (Moscow), A. N. Kishkovskiy (Leningrad), I. G. Lagunova (Moscow), L. D. Lindenbraten (Moscow), I. A. Pereslegin (Moscow), A. I. Pozmogov (Kiev), L. S. Rozenshtraykh (Moscow), Yu. N. Soklov (Moscow), M. N. Fateyeva (Obninsk), F. A. Kherobyan (Yerevan), and V. I. Shtantyr' (Kharkov). The session was opened by Zedgenidze, who is chairman of the Scientific Council of the Society of Roentgenologists and Radiologists. A number of the reports dealt with radioisotope diagnosis of cardiovascular disorders. Mazayeva described measures needed to improve organization of X-ray service for the people, and to raise the technological level of X-ray offices. The attendees noted that modern possibilities in their field are not always met. Needed are development of organizational procedures, and creation of apparatus and instruments; X-ray studies of chest injuries must be sequential, over a 3-day period, to help establish nature of injury. Diagnosis of CV diseases is in need of improvement in speed and availability. Achievements and discoveries must be rapidly and broadly applied. The Scientific Council will give thought to naming the Moscow Scientific Research Roentgenological Institute of the Ministry of Health RSFSR as the Head Organization in the nation for development of the scientific thematics involving creation of new roentgenoradiological technology and improvement of X-ray and radiological service for the people. Generalization of results of inventive, innovative activity is to be undertaken.

USSR UDC 616.12-008.331.1-08

REHABILITATION OF HYPERTENSION PATIENTS UNDER CONDITIONS OF A CENTRAL RAYON HOSPITAL

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 20-23

KURLYANDCHIKOV, V. N., Kazatin Central Rayon Hospital of Vinnitsa Oblast

[Abstract] The author has observed (1970-1975) 100 patients, aged 40 to 60, with a cerebral form of hypertension; these included patients in stages IB--4--, IIA--81--, IIB--19. Forty-nine were men, 55 women; 60 were employed in mental work, 44 in physical. The duration of the disease was from two to dozens of years and more. He has achieved rehabilitation of 104 patients with cerebral hypertension by using the vitamin complexes decamevit and unithiol in combination with mild hypotensive therapy (papaverin, raunatin, dibasol, valeriana, leonurus, crataegus, adonis, viburnum preparations). An analysis of clinical, electrocardiographic and biochemical data indicates that the above treatment produces a hypotensive effect, improves the functional state of the central nervous and cardio-vascular systems, liver, has a positive effect on the metabolic processes and thus promotes rehabilitation of patients with cerebral form of hypertensive disease. The mechanism of positive effects of the combination of decamevit and unithiol with mild hypotensive therapy is discussed. The author recommends this treatment of prophylaxis, therapy and rehabilitation of patients with cerebral hypertension, in particular, the I-B and II-A stages. References: 3 Russian.

USSR UDC 616.127-008.46-057

FUNCTIONAL CONDITION OF THE CARDIAC MUSCLE IN COAL MINERS

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 34-37

SHELYGINA, N. M. and PETRENYUK, L. M., Department of Hospital Therapy of the Voroshilovgrad Medical Institute

[Abstract] Since pneumonoconiasis occupies one of the first places among the occupational diseases, lowering the morbidity of coal miners is a serious task of Soviet public health. The involvement of the cardiovascular system in the pathological process complicates diagnosis of the disease. A. M. Aleksanova (1965), V. Ye. Lyubomudrov (1965) and others have identified a change in the myocardium of coal miners, based on EKG findings. The authors present a typical EKG to demonstrate this situation. They feel that carrying out EKG examination and phase analysis of cardiac activity of the miners is of definite practical value since it permits, at early, preclinical stages, the exposure of functional disturbances of cardiac activity. Application of appropriate prophylactic procedures should include measures to improve

metabolic processes in the cardiac muscles and increase its contractile capacity. Figure 1; Table 1; References 14 Russian.

USSR UDC 616.37-002.2-085.838.97(477.83)

TREATMENT OF CHRONIC PANCREATITIS WITH THE TRUSKAVETS MINERAL WATER "NAFTUSYA"

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 89-93

VAKALYUK, P. M., SEREDYUK, N. N., NEYKO, YE. M., and DENISYUK, V. G., Clinics of Hospital and Faculty Therapy of Ivano-Frankovsk Medical Institute

[Abstract] Use of mineral waters in the therapy of digestive disturbances is highly regarded by Soviet physicians. "Naftusya" from a Truskavets spring is said to occupy a notable position among the mineral waters of the nation, and to possess unique properties. The authors have tested its efficacy under clinical conditions in the treatment of pancreatitis, in combination with spasmolytics and antihistamines. Examined were its stimulation of pancreatic secretion, its effect on induced biosynthesis of the hormone of the duodenum, cholecystokininpancreozymin, and its effect on acid-base equilibrium and oxidation-reduction condition of the blood (with the help of a micro-analyzer type OP-210/1 of the Hungarian firm "Radel'kis" and the nomogram of Singaard-Andersen). Seventy-three patients were studied. The authors believe that the use of mineral water "Naftusia" favorably affects the clinical course of the disease. Mineral water "Naftusia" increases the hydrokinetic activity of the pancreas. The mechanism of the positive effect of "Naftusia" is largely attributed to its normalizing effect on the acid-base balance and oxidation-reduction state of the blood. No analysis of Naftusya is given. Figure 1; References: 19 Russian.

USSR UDC 616.127-005.8-08:362.11]:657.47

EXPERIENCE IN DETERMINATION OF THE COST OF TREATMENT IN A SPECIAL CARE UNIT FOR PATIENTS WITH MYOCARDIAL INFARCTION

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, 1977 signed to press 6 Jul 76 pp 29-32

GOLOVCHINER, I. YE. and NILOV, A. S., Department of Social Hygiene and Organization of Public Health (head, Professor S. Ya. Freydlin) of the First Leningrad Medical Institute imeni I. P. Pavlov, and Hospital No 21 imeni Konyashin (chief physician, A. S. Nilov)

[Abstract] A study was made of the cost of special care units for patients with myocardial infarction in the 710-bed Municipal Hospital imeni Konyashin with a 60-bed cardiac unit and a 6-bed reanimation ward (selected because it was not combined with a polyclinic, so that the costs could be calculated precisely without considering polyclinical expenses). The cost of maintaining a hospital bed in a section for treatment of patients with myocardial infarction (without considering expenditures on the acquisition of equipment during its organization) was 2532 rubles 12 kopecks per year at a bed occupany rate of 364 days. Many patients sent to special MI sections had coronary insufficiency, atherosclerosis of coronary arteries, pneumonia, cholecystitis and other diseases. In view of the high cost of treating patients with MI there is a need for more rigorous and careful screening of patients sent to such special MI units. Tables 3; References: 5 Russian.

USSR UDC 616.346.2-002.1

REDUCING MORTALITY IN ACUTE APPENDICITIS

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 77, pp 1-8

MATYASHIN, I. M., chief surgeon of the Ministry of Health, Ukrainian SSR and BALTAYTIS, YU. V., docent

[Abstract] Reports of surgical treatment of 496,963 patients for actue appendicitis in the Ukrainian SSR in 1970-1974 were analyzed. Of these 1146 died (0.23 percent mortality). More men than women died of acute appendicitis (63 percent men) even though 62 percent of the patients were women. Mortality rates for women and men were: 0.14 percent and 0.38 percent. The pathological process among appendicitis patients succumbing was markedly (92 percent) acute appendicitis in its degradative forms. Causes of late hospitalization and operations included 50 percent of patients seeking help late. Among patients admitted in time, 9 percent were not diagnosed by qualified persons before hospitalization; diagnostic mistakes in surgical wards were made in 25 percent of the admissions, resulting in 133 patients,

of the 1146 succumbing altogether, being operated on only a day or more after hospitalization. Most patients, however, were operated on in good time (relative to admission). Analysis of operative interventions showed that, first, tactical and technical errors hampered the choice of method of anesthesia. The second key cause of higher mortality are technical errors in execution of operations and the ensuing complications: insufficiency of stump of the vermiform process (62 patients out of 1146) and intra-abdominal hemorrhaging (27 patients). Diffuse peritonitis led to secondary complications in 704 of the 801 patients showing secondary complications. An extremely grave and relatively frequent complication was adhesive ileus (in 104 of the 801 patients). Figures 2; Tables 5; References 6: 5 Russian, 1 Western.

USSR UDC 616-089.584:615.814.1

INITIAL EXPERIENCE IN ELECTROACUPUNCTURE AS THE MAIN ELEMENT IN ANESTHESIA

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 77, pp 16-21

TRESHCHINSKIY, A. I., and BASMANOV, S. N., Department of Anesthesiology and Preanimation Science (director: Professor A. I. Treshchinskiy), Kiev Institute for the Advanced Training of Physicians

[Abstract] Two groups of patients were selected in the first use of electroacupuncture at the Kiev Institute for the Advanced Training of Physicians. The first group was made up of 37 patients with acute appendicitis and strangulated hernia (3); the second group included 12 patients operated transversely (thyroidectomy). Electroacupuncture anesthesia was used first 22 Mar 75. Conventional acupuncture equipment was employed: I-107 stainless steel needles; from the three oscillator leads the acupuncture points were stimulated with needle-shaped impulses with amplitude to 160 V and duration of 20 microseconds at one-half amplitude; impulse rate was varied from 2 to 13 Hz. Pulse amplitude and frequency were gradually raised for 25-30 min before the operation, for "induction" into anesthesia. During the operation arterial pressure and pulse rate were monitored. Analysis of findings from the first patient group showed that skin incisions without novocaine were not possible. In general, patients in the second group were given more novocaine than the first group. The study showed that it is best to combine electroacupuncture and local anesthesia in appendectomies and herniotomy. Figure 1; References 22: 1 Russian, 21 Western.

USSR UDC 616.12-001.4

HEART WOUNDS IN PEACETIME

Leningrad VESTNIK KHIRURGII in Russian No 1, 1977 pp 77-80

MAGOMEDOV, A. Z., professor, and KULIKOV, YU. YA., ABDULLAYEV, M. M., VEZIROV, D. M., OMAROV, KH. M., and MIRZOYEV, D. M., candidates of medical sciences, Surgical Diseases Clinic (director: Professor A. Z. Magomedov) of the Pediatrics Faculty of Dagestan Medical Institute

[Abstract] In 1954-1974, 58 patients with heart wounds were treated in the surgical wards of cities and rayons of the Dagestan ASSR; 28 were operated on by the article's authors. During this period, 112 cadavers (65.7 percent of all heart wound patients) dying outside the hospital from penetrating heart wounds underwent forensic-medical autopsies. Heart wound cases totaled 170. The time factor was seen to be decisive in these cases; operative intervention should proceed along with reanimation measures. Endotracheal narcosis is the optimal kind of anesthesia. The highest mortality was seen in combination and penetrating heart wounds, particularly in gunshot wounds of the heart. Total mortality of heart wound cases was 73 percent and postoperative mortality was 20 percent. Sequelae in cases of penetrating heart wounds after operative treatment must be rated as wholly satisfactory. Dispensary observation and proper work assignment in the first year after the operation improve the outcome. References: 6 Russian.

USSR UDC 616-018.6-001.4-002.3-08:615.84]-06:617-022+616-002.3+616-003.93

COURSE OF SURGICAL INFECTION, INFLAMMATION AND REGENERATION IN TREATMENT OF PURULENT WOUNDS OF SOFT TISSUES WITH DIADYNAMIC CURRENT

Leningrad VESTNIK KHIRURGII in Russian Vol 118, No 1, Jan 77 pp 68-71

VERT'YANOV, V. A., KHANIN, A. G., DOBROVA, A. M., STRUCHKOV, YU. V., and SOLOV'YEVA, YE. F., Candidates of medical sciences, Department of General Surgery of the Therapeutic Faculty of the First Moscow Medical Institute imeni I. M. Sechenov and the Academy Group of Academician V. I. Struchkov, Academy of Medical Sciences USSR.

[Text] Diadynamic current treatment of purulent wounds with good drainage of wound discharge was conducted on 232 patients (105 women and 127 men). Predominant were patients with phlegmons and abscesses of the gluteal region (94 persons), developing after injections of 25 percent magnesium sulfate in 52 patients, Dibasol and papaverine--in 6, calcium gluconate--in 10, Analgin --in 15, vitamins B_1 and B_{12}--in 7 and cocarboxylase--in 4 patients. Current strength was regulated by the patient's responses to electrode vibrations. The procedures were 10 min (5 min in the forward and 5 min in the reverse

direction). The course of therapy totaled 10-14 procedures. Diadynamic therapy began on the third or fourth day after lancing of the phlegmon or abscess. Examinations showed that diadynamic current has an anti-inflammatory and anti-edemal action when used in treating purulent wounds with good drainage. Also noted was overall anti-infectional action with lysis and phagocytosis of microflora and weakening of its pathogenic properties against a background of heightened local and general immunobiological reactivity. Diadynamic current treatment helped shorten the phases of the wound process and patient recovery. Tables 3.

USSR UDC 576.858.093.3

PROTEOLYTIC ACTIVITY OF CATHEPSINS OF TISSUES OF RABBITS INFECTED WITH FOOT AND MOUTH DISEASE VIRUS

Moscow TRUDY VSESOYUZNOGO NAUCHNO-KONTROL'NOGO INSTITUTA VETERINARNYKH PREPARATOV [Works of the All-Union Scientific Control Institute of Veterinary Preparations. Collection of Works] in Russian No 21, 1975 pp 113-119

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12,(I) 1976 Abstract No 12B263]

MEDVEDEVA, L. T., SKALINSKIY, YE. I., and ANTONYUK, V. P.

USSR UDC 576.858.097

INTENSITY OF IMMUNITY IN ANIMALS INOCULATED WITH RABIES VACCINE

Taylyak TEZISY DOKLADOV YUBILEYNOY KONFERENTSII POSVYASHCHENNOY 50-LETIYU SO DNYA OSNOVANIYA UzNIVI. Ch I [Summaries of Reports of Jubilee Conference Dedicated to the 50th Anniversary of the Uzbek Scientific Research Veterinary Institute. Part I. Collection of Works] in Russian 1976 pp 176-179

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B326]

MAMATOV, N. M.

USSR UDC 576.858.098

EXPERIENCE IN USE OF CONCENTRATED RABIES VIRUS TO MAKE EXPERIMENTAL SERIES OF VACCINE

Moscow TRUDY VSESOYUZNOGO NAUCHNO-KONTROL'NOGO INSTITUTA VETERINARNYKH PREPARATOV [Works of the All-Union Scientific Control Institute of Veterinary Preparations. Collection] in Russian No 21, 1975 pp 31-34

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B594]

KUZNETSOVA, S. V., PEREDEREYEV, N. I., KUZNETSOV, P. P. PROSTYAKOV, A. P., and BELOUSOVA, R. V.

USSR UDC 576.858.098

SPECIFIC PROPHYLAXIS OF RABIES. I. CONTEMPORARY CONCEPTS OF RABIES VIRUS AND ITS VARIANT ANALOGS

Moscow TRUDY VSESOYUZNOGO NAUCHNO-KONTROL'NOGO INSTITUTA VETERINARNYKH PREPARATOV [Works of the All-Union Scientific Control Institute of Veterinary Preparations. Collection] in Russian No 21, 1975 pp 35-40

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B595]

PAVLOVSKIY, V. V., SEMENOVA, L. P., and IVANOVSKIY, E. V.

USSR UDC 576.858.098

SPECIFIC PROPHYLAXIS OF RABIES. II. CLASSIFICATION AND DISTINCTIVE FEATURES OF CONTEMPORARY RABIES VACCINES

Moscow TRUDY VSESOYUZNOGO NAUCHNO-KONTROL'NOGO INSTITUTA VETERINARNYKH PREPARATOV [Works of the All-Union Scientific Control Institute of Veterinary Preparations. Collection] in Russian No 21, 1975 pp 41-48

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12B596]

PAVLOVSKIY, V. V., SEMENOVA, L. P. and IVANOVSKIY, E. V.

USSR UDC 575.01:599.9

GENETIC AND EVOLUTIONARY ASPECTS OF REACTIVITY TO STRESS

Novosibirsk VOPROSY TEORETICHESKOY I PRIKLADNOY GENETIKI (Questions of Theoretical and Applied Genetics, Collection of Works) in Russian 1976 pp 3-4

[From REFERATIVNYY ZHURNAL, BIOLOGIYA No 12 (I) 1976 Abstract No 12T172 (Resume)]

BELYAYEV, D. K., BORODIN, P. M., MARKEL', A. L., OS'KINA, I. A., PLOTNIKOV, V. V., SMIRNOVA, I. S., and SHYULER, L., Novosibirsk Institute of Genetics and Selection, Siberian Department, Academy of Sciences USSR

[Text] An interlinear comparison and diallele analysis was made of the characteristics of reactivity to stress of rats and mice. Comparison of eight lines of mice and 5 lines of rats permitted establishing that the genotype exerts a substantial influence on the behavior of the animals in a stress situation, the weight of the endocrine glands, the concentration of corticosteroids in the blood, the functional activity of the adrenal glands and their reactivity to ACTH and also to change of those characteristics as a result of stress. Genotypical differences of stress reactions are caused to a great extent by the state of the central regulatory mechanisms. The character of inheritance was established by diallele analysis. Sexual dimorphism was detected in the genetic control. Stress stimulation contributes to the revelation of genetic difference in a number of characteristics in models. Genetic correlations have been established between different characteristic of reactivity to stress, and also the connection of those characteristics with predisposition to cancer of the mammary gland and the rate of sexual maturation in mice. In an experiment on mice simulating the conditions of maintenance of the animals in industrial animal-growing complexes the selective influence (depending on the genotype) of stress during pregnancy on embryonic mortality was shown.

USSR UDC 616.85+616.831.29:616.8-022.06

NEUROTIC AND PSYCHOPATHIC CHANGES OF PERSONALITY FOLLOWING NEUROINFECTIONS

Kiev VRACHEBNOYE DELO in Russian No 2, Feb 77 pp 148-152

GRABOVSKIY, YA. A., Kamenets-Podolsk City Hospital imeni V. I. Lenin

[Abstract] The authors have examined clinical-psychopathological disturbances in 94 patients with neurosis-like (85) and psychopathic (9) disturbances, developing as sequelae of various viral infection damage to the central nervous system, and 46 patients with neuroses and psychopathias. Patients of the basic group made up 29.1% of the total number of patients with somatogenic mental disturbances of a non-psychotoxic character (323 people) and 19 19.4% of all peripheral patients who received therapy in the psychiatric office for the last seven years (484 people). The patients were divided into two subgroups: i) those suffering neuroinfection damage primarily of membrane localization (26 patients); ii) those with neural infection damage primarily of deep structures of the brain (68). Statistically valid differences were established for several clinical and paraclinical parameters in both groups which may, in combination with the revealed clinico-psychopathological characteristics of the neurosis-like and psychopathic states of neuroinfectious genesis, be used in differential diagnosis. Table 1; References: 8 Russian.

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