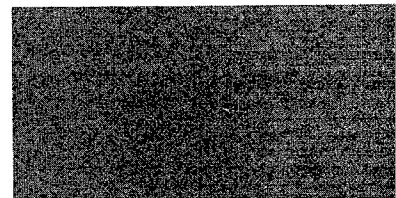


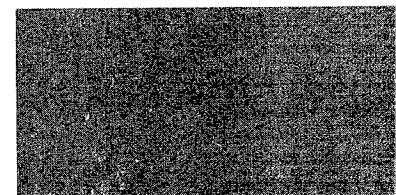
JPRS 71714

21 August 1978

USSR AND EASTERN EUROPE SCIENTIFIC ABSTRACTS
BIOMEDICAL AND BEHAVIORAL SCIENCES
No. 93



U S S R



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21 August 1978

USSR AND EASTERN EUROPE SCIENTIFIC ABSTRACTS
 BIOMEDICAL AND BEHAVIORAL SCIENCES

No. 93

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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I. BIOMEDICAL SCIENCES

Agrotechnology

USSR

UDC 631.452(571.1)

RAISING THE ECONOMIC PRODUCTIVITY OF AGRICULTURAL CROPS OF WESTERN SIBERIA

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 6,
Nov/Dec 77 pp 84-91

BULYCHEV, M. I. and KHUSAINOV, B. V., candidates of economic sciences, Siberian Scientific Research Institute of the Economics of Agriculture

[Abstract] The need for improvement of agricultural productivity in Western Siberia will require a combination of measures directed to raising the fertility of the land. The pace of growth of soil productivity has been very slow in the last 15 years. A detailed analysis is presented of the structure of use of the land and of the kinds of soils involved (percentages on plowed fields, hay fields and pastures) to give some idea of the quality of the soil and the problem of transformation of soil use or the need for reclamation or drainage. Factors also considered are percentages to be devoted to fallow land, use of herbicides, mineral fertilizers, exploitation of the climate, improvement in fodder yields, improvement of handling processes and water management. In 1971-1975, 107 thousand hectares of irrigated lands were brought into use, and this is to be raised to 270 thousand in 1976-1980. The accelerated industrial development of the rayons of Siberia demands doubling the agricultural product of the kolkhoses and goskhozes of the Western Siberian Economic Rayon; in fact, delivery of agricultural output is 8 million t less than that (61 mil t food units vs. an actual 53 mil t). The deficit could be met in part by increased yield from irrigation, fertilization, improved technology of fodder production. Capital outlay required is 4-4.5 billion rubles. Data cited in this extended report are largely in terms of percentages. No references.

USSR

UDC 633.15:631.5

RESERVES OF CORN FIELDS

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 6, Nov/Dec 77 pp 36-39

GOF, G. N., candidate of agricultural sciences, Siberian Scientific Research Institute of Agriculture

[Abstract] Ensilage crops in Omsk Oblast occupy ca 500,000 hectares; half are corn and, in the southern forest steppe and steppe area of the oblast, over 90% are corn. Harvest, due to weather uncertainties, is about 100 cwt/h. Winter erosion of soil has been found--by the author's institute--to be avoided when corn is cultivated on a flat-cut, prior wheat crop because of residual stubble. Planting corn on stubble fields protects the soil from wind erosion and improves maintenance of the plant. When mineral and organic fertilizers are used, (work directed by A. Ye. Kochergin, author's institute) corn yields improved. Simazin or atrazin herbicide application helped to control weeds and, thus, to improve yields. Hybrid use (e.g., Bukovinskiy 3, Dneprovskiy 247MB, Omskiy 22 and Sterlin) improves yields. Omskiy 22 especially deserves preferential exploitation. References 4 (Russian).

USSR

UDC 633.11:631.86

EFFECTIVENESS OF APPLICATION OF LIQUID SWINE MANURE UNDER WHEAT AND CORN

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No. 6, Nov/Dec 77 pp 13-17

KUZNETSOV, P. I., candidate of agricultural sciences

[Abstract] This study was undertaken in 1973-1976 at the "Kargapol'skiy" sovkhos in the forest steppe area of Kurganskaya Oblast; wheat was Saratovskaya 36, hybrid corn, Dneprovskiy 267; soil, leached, average-thick, average-humus, average-loam chernozem (in 1973. The soil contained 4.6-5.0% dry substance, 0.20-0.25 total nitrogen, with 0.09-0.12 ammonia, 0.22-0.25 P₂O₅, 0.33-0.40 K₂O; pH 7.0-8.0). Weather, for 1973, 1974 and 1976, was typical for northern K. Oblast; in 1975 it was dry, with very low autumn moisture (65% of the normal) and April-August precipitation was 124 mm (57% of the normal). Liquid swine manure (20,40,80 and 120 t/ha) was applied in the summer on a fallow field; in spring under presown ground, in fall before fall plowing and in winter before snow. Amounts used are tabulated. The

manure contained substantial amounts of mineralized N and water-soluble P and K and proved to be a useful organic fertilizer for spring wheat and corn. The 40 to 80 t/ha was the amount most economically effective. One ruble outlay yielded 2.2 to 2.5 rubles return. References 6 (Russian).

USSR

UDC 636.085.57:631.363

PHYSICAL NATURE OF THE PROCESS OF PREPARING HIGHLY-GELATINIZED FODDER AND CARBAMIDE CONCENTRATE BY THE EXTRUSION METHOD

Moscow DOKLADY VASKhNIL in Russian No 5, May 78 pp 36-37 manuscript received 27 Jun 77

MAKAROV, YE. S., ALL-UNION SCIENTIFIC Research Institute of Electification of Agriculture

[Abstract] Highly-gelatinized starch of grain is a good, assimilable, cattle fodder. The development by Bartley et al. (USA, 1975) of a method of high-gelatinization of the starch of grain--with the use of small amounts of water--is cited. The USSR, in turn, developed a carbamide concentrate with the use of Soviet-made extruders. The apparent viscosity of the grain being processed is an important property in the design of an extruder. Rheological studies of the fodder on an original capillary viscosimeter have been carried out in this work. Data on extruder deformation of the starch, on the frequency of rotation of the extruder screw, on frictional temperature and on pressures are discussed in support of design of an ideal extruder. The KMZ-2 extruder has been developed as an efficient gelatinizing instrument. Carbamide is used to promote the gelatinization. References 10: 4 Russian, 6 Western.

USSR

UDC 631.82:633.11"324":(477)

COMPARATIVE EFFECTIVENESS OF COMPOUND AND SIMPLE MINERAL FERTILIZERS EMPLOYED PRIOR TO WINTER WHEAT SOWING IN THE SOUTHEASTERN REGIONS OF THE UKRAINIAN STEPPES

Moscow AGROKHIMIYA in Russian No 3, Mar 78 pp 51-53 manuscript received 10 Mar 77

LYUTYY, N. G., KIZYAKOV, V. YE. and STULIN, A. F., All-Union Scientific Research Corn Institute, Dnepropetrovsk

[Abstract] Studies conducted on the chernozem experimental tract of the Rozovskaya Experimental Station in the southeastern Ukrainian steppe demonstrated that pre-planting administration of nutritionally equivalent compound mineral fertilizers (ammophos, nitrophos, nitrophoska, or nitroammophoska) were as effective as simple mineral fertilizers. During 1974-1976 nitrophos (nitrogen-phosphorus) and equivalent mixtures of simple fertilizers resulted in an additional harvest of 13.6-14.1 quintals/hectare of wheat grain possessing high protein content (13.2-13.5%). The studies were conducted with Odessa-51 winter wheat planted after silage corn crop. References 6 (Russian).

USSR

UDC 63.816.2.633

OPTIMUM NUTRIENT CONDITIONS FOR HARDY WINTER WHEAT AND THE PROGRAMMING OF HIGH QUALITY GRAIN

Moscow AGROKHIMIYA in Russian No 3, Mar 78 pp 63-66

GLUKHOVSKIY, A. B., POLYAKOVA, G. D. and SHOKOV, N. R., Kuban Agricultural Institute and the Gorkiy Agricultural Institute

[Abstract] Four year trials conducted on calcareous and leached chernozem soils demonstrated that optimum nutritional conditions are created by fertilizers in instances in which nitrogen uptake by winter wheat grain attains 35 kg/ton, and that for each unit of phosphorus taken up by the plants no less than three units of nitrogen be utilized. On leached chernozem soil maximum harvests of Bezostaya-1 winter wheat reached 48 quintals/hectare with full mineral fertilization and N:P = 2:1; the grain protein content was 13.5%. Paired mineral studies showed that NP was decisive in assuring high harvests, and NK high protein content of the grain; PK did not favor high harvests or high protein levels of grain. On calcareous chernozem, maximum harvests of ca. 37 quintals/hectare were obtained for Bezostaya-1 and Krasnodarskaya-39 winter wheats; NK favored grain protein content of 14.8%. References 3 (Russian).

USSR

UDC 631.816.1:633.11"324":631.445.24

EFFECTS OF INCREASED IMPLEMENTATION OF MINERAL FERTILIZERS ON THE HARVEST AND GRAIN QUALITY OF WINTER WHEAT ON DERNOVO-PODZOLIC MODERATELY LOAMY SOIL

Moscow AGROKHIMIYA in Russian No 3, Mar 78 pp 73-77 manuscript received 30 Mar 77

VINOGRADOVA, R. I., Agricultural Scientific Research Institute of the Central Rayons of the Nonchernozem Zone, Moscow Oblast

[Abstract] Studies conducted on the moderately loamy nonchernozem soil (Nemchinovka, Moscow oblast) showed that in a relatively dry year (1975) use of phosphorus-potassium fertilizer resulted in winter wheat grain harvest of 40.1 quintals/hectare, with an increment of 3-6 quintals/hectare when supplemented with nitrogen. During a year with high precipitation (1976) the yield obtained with phosphorus-potassium was 44.7 quintals/hectare; a nitrogen supplement depressed the harvest by 6-10 quintals/hectare. However, in both years supplementary addition of nitrogen fertilizer served to improve the quality of grain. References 7 (Russian).

USSR

UDC 631.82:633.11"324":631.5/.9:547.454

EFFECTS OF FERTILIZERS ON CARBOHYDRATE LEVELS IN WINTER WHEAT IN RELATION TO WINTERING AND HARVEST YIELDS

Moscow AGROKHIMIYA in Russian No 3, Mar 78 pp 78-82 manuscript received 14 Mar 77

PRESNYAKOV, N. A. and KOSILOVA, A. N., Voronezh Agricultural Institute

[Abstract] During 1974 and 1975 studies were conducted on the effects of various levels of mineral fertilizers on the carbohydrate content and composition of winter wheat grown on loamy chernozem. The results showed that the fertilizers, with preponderance of phosphorus and potassium, increased the overall carbohydrate content of Mironovskaya-808 and Bezostaya-1 wheat during fall and after wintering; the increase was largely due to increased levels of fructose and sucrose. Further, winter survival was markedly improved for both varieties; use of N30-P60K60 fertilizers yielded a survival rate of 81.3% for Mironovskaya-808 wheat and 66.1% for Bezostaya-1, which was correlated with higher fructose and sucrose concentration in the former (48.4-57.7% of total carbohydrate in Mironovskaya-808 vs. 38.1-43.2% in Bezostaya-1). N30-P60K60 also increased the harvest of Mironovskaya-808 by 9.2 quintals/hectare and of Bezostaya-1 by 8.8 quintals/hectares. References 7 (Russian).

USSR

UDC 633.31/37.631.584.4+599.332

INCREASING PROTEIN PRODUCTION

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 4, Apr 78 pp 65-70

PROSKURA, I. P., doctor of agricultural sciences, KVIKTO, G. P., candidate of agricultural sciences, BELICHENKO, D. P., BOYKO, N. P., VASYURA, S. A., NAZAROV, S. G. and SIKORA, F. V., Ukrainian Fodder Scientific Research Institute

[Abstract] Studies at the "Kommunist" Experimental Farm, Ukrainian Fodder Scientific Research Institute, from 1974 to 1976, demonstrated that production of agricultural protein depends on the soil, crops, climatic conditions, fertilizer, and harvesting time. Harvesting of peas, fodder beans, and soybeans at the yellowing phase of lower beans increased protein productivity by 24%, while protein productivity of white lupine was increased by 50-60%. Multiple reaping of red clover and alfalfa during button formation increased protein yields by 2.5 quintals/hectare (q/ha) in comparison with harvesting at flowering stage. Protein productivity of the fields was also improved by the use of intermediate winter crops (Zarechenskaya rice, Mironovskaya 808 wheat, etc.) which contributed another 2.36/6.75 q/ha.

USSR

UDC 632.9:633.11

WHEAT PROTECTION DURING IRRIGATION

Moscow ZASHCHITA RASTENIY in Russian No 6, Jun 78 p 35

LEBEDEV, V. B., candidate of agricultural sciences, Saratov Agricultural Institute

[Abstract] Significant losses of wheat crops in the Saratov oblast to brown rust led to trial aircraft sprayings utilizing several combinations of pesticides and tur [sic]. Use of chlorophos (1.5 kg per hectare (kg/ha)) + tsineb [sic] resulted in 2-fold decrease in infectivity of Saratovskaya-36 wheat with the stink bug and destroyed 90-95% of its larva, while tur (4 kg/ha) + tsineb (5%) reduced infectivity with the agent of brown rust from 48% to 18%. The use of these trial combinations did not have an adverse effect on the grain but did lead to a 27% increase in the yield.

USSR

UDC 577.156

IMMOBILIZED FORM OF A COMPLEX OF PROTEASES OF STREPTOMYCES GRISEUS

Kiev UKRAINSKIY BIOKHMICHESKIY ZHURNAL in Russian Vol 50 No 3, May/June 78
pp 317-321 manuscript received 14 Jul 76

TSYPEROVICH, A. S. (deceased), LOSEVA, A. L., IVANENKO, T. I. and SOKOL, S. V., Institute of Biochemistry imeni A. V. Palladin, Academy of Sciences UkrSSR, Kiev

[Abstract] The few studies of immobilized proteolytic enzyme systems and the absence of any known studies of an immobilized complex from *Streptomyces griseus* prompted this work. A crystalline complex of proteases, isolated from the *Str. griseus* medium, was prepared by a method described by Masson (1975) and Tsyperovich (1967). The complex was fixed covalently to aminoethylcellulose with glutaric aldehyde (Habeeb, 1967; Glassmeyer and Ogle, 1971). Various substrates were used to test the enzyme action of the immobilized proteases. These demonstrated that the peptide hydrolase system is immobilized and contains trypsin and chymotrypsin proteinases, aminopeptidasic, carboxypeptidasic and some dipeptidasic activities. These activities vary, from those of the original crystalline, non-immobilized *Str. griseus* proteases but the pH and temperature optimums are not changed. No essential stabilization by immobilization was observed. Figures 1; references 22: 7 Russian, 16 Western.

USSR

UDC 577.158.54:535.379

USE OF IMMOBILIZED FIREFLY LUCIFERASE FOR QUANTITATIVE ASSAY OF ATP AND ENZYMES WHICH SYNTHESIZE AND DESTROY ATP

Moscow BIOKHIMIYA in Russian Vol 43 No 5, May 78 pp 798-805 manuscript received 27 Jul 77

BROVKO, L. YU., UGAROVA, N. N., VASIL'YEVA, DOMBROVSKIY, V. A. and BERFZIN, I. V., Department of Chemical Enzymology, Chemistry Faculty, Moscow State University imeni M. V. Lomonosov

[Abstract] Luciferase, from the firefly *Luciola mingrelica*, was immobilized in the form of a suspension in a tris-acetate buffer, and maintained at 4°. The enzyme catalyzes the luminescence-accompanied oxidation of luciferin, in presence of ATP and magnesium salts, in a reaction which is absolutely specific with respect to the luciferin and ATP, and which could be used to assay ATP in different biological systems. Further, it could determine the activity of enzymes which synthesize and destroy ATP. Immobilization of the enzyme provides a highly-active and stable reagent. The report demonstrates the feasibility of the assay; luminescence is shown to be a function

of the ATP concentration and enzyme concentration. Luminescence measurements were made in an apparatus available in the authors' laboratory, and whose design is illustrated. Experimental conditions for the reactions are determined and the reaction kinetics are suggested. Figures 6; references 20: 3 Russian, 17 Western.

USSR

UDC 582.281.25:635.21

PRODUCTION OF PHYTOALEXINS IN POTATOES AS INDUCED BY THE CANCER AGENT
SYNCHYTRIUM ENDOBIOTICUM (SCHILB.) PERC.

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 116-118 manuscript received 10 Mar 77

DEREVENKO, A. S. and GOLIK, I. V., All-Union Scientific Research Potato Cancer and Colorado Beetle Station, Boyany Village, Novoseletskiy Rayon

[Abstract] The intent of this work was to establish the induction, in principle, of phytoalexin (PA) cancer agents in the system inductor-producer. The method used was, first, that of Mueller (1956) an early worker on the role of PA in the mechanism of plant immunity, and, then, a modification of Metlitskiy's procedure (1973). Potato sorts, which are either resistant, or stable, to cancer, differ from each other in the character of PA formation of their intact tissue. In the resistant sorts, the diffusates manifest small amounts of rishitin and lubimin; the susceptible sorts do not. When winter sporangiae of the cancer agent are employed (the Dahlem race of cancer agent was used) as the inductor of PA, shifts in biosynthesis of the PA are more pronounced than in the controls: diffusates of the resistant sorts (Temp and Mira) have higher concentrations of rishitin and lubimin than do the susceptible sorts (Vale and Alma). The zoosporangiae can induce PA biosynthesis but not as actively as can zoospores from fresh cancer tissue. The capability of the highly-obligate parasite *S. endobioticum* to induce biosynthesis of PA in potatoes, as well as the different response reactions of sorts with different susceptibility to cancer, have been shown. References 10: 6 Russian, 4 Western.

USSR

UDC 577.158.52.02

CHEMICAL MODIFICATION OF EPSILON-NH₂-GROUPS OF LYSINE RESIDUES IN HORSE-RADISH PEROXIDASE. ACCESSIBILITY OF THESE GROUPS TO VARIOUS MODIFYING AGENTS

Moscow BIOKHIMIYA in Russian Vol 43 No 5, May 78 pp 793-797 manuscript received 27 Jul 77

UGAROVA, N. N., ROZHKOVA, G. D., VASIL'YEVA, T. EY. and BEREZIN, I. V., Department of Chemical Enzymology, Moscow State University imeni M. V. Lomonosov

[Abstract] Horseradish peroxidase has 6 lysine residues; the alpha-NH₂ group is blocked in the form of a pyrrolidonecarboxyl residue. The present article reports a study of the reactive capacity and accessibility of the enzyme's epsilon amino groups. For modification of latter groups, anhydrides of mono- and dibasic carboxylic acids and, also, trinitrobenzenesulfonic acid (TNBS), were used. Acetic, propionic, butyric, valeric and succinic anhydrides were the reagents; TNBS was reacted at various temperatures. At 0° all of the anhydrides modified 4 of the 6 epsilon amino groups; TNBS modified 3. At 40°C, TNBS modified all 6 epsilon amino groups. The conformational structure of the peroxidase molecule appears to be changed with rise in temperature from 0° to 40°. References 18: 6 Russian, 12 Western.

USSR

UDC 581.174.1:581.19

INTRACELLULAR TRANSPORT OF NUCLEAR RNA IN REGENERATING ACETABULARIA

Dushanbe DOKLADY AKADEMII NAUK TADZHIKSKOY SSR in Russian Vol 21 No 2, 1978 pp 59-62 manuscript received 28 Dec 77

KHOLMATOVA, M. D., MAKHMADBEKOVA, L. M., ALIYEV, K. A. and NASYROV, YU. S., corresponding member, Academy of Sciences Tadzhik SSR, Institute of Physiology and Biophysics of Plants, AS TSSR

[Abstract] C-14-uridine labeling studies were conducted with regenerating *Acetabularia crenulata* rhizoids which indicated that during regeneration the radioactive label is actively incorporated into nuclear RNA, and that such labeled RNA molecules are also found in the cytoplasm, including the chloroplasts. Subsequent electrophoretic analysis on polyacrylamide gel columns revealed that in the nucleus the label is largely found in the 25-30S RNA, whereas in the cytoplasm the radioactivity was equally distributed among the 26S, 20S, 17-18S, and 9-13S RNA fractions; the patterns of chloroplast radioactivity were identical with that of the total cytoplasmic preparation. The data were interpreted to demonstrate that, in regenerating

acetabularia cells, RNA is actively transported from the nucleus to the cytoplasm and that certain species of RNA enter the chloroplasts. Figures 3; references 12: 2 Russian, 10 Western.

USSR

UDC 615.361.36.099

TOXIC FACTOR IN LIVER EXTRACTS

Moscow VOPROSY MEDITSINSKIY KHMII in Russian Vol 24 No 3, May/Jun 78 pp 341-345 manuscript received 13 May 77

GABRIELIAN, N. I. and MOGIREVA, I. A., Department of Clinical and Experimental Hepatic Surgery, Institute of Organ and Tissue Transplantation, Ministry of Health USSR, Moscow

[Abstract] Investigations on the mitochondrial fraction of canine ischemic livers led to the identification of a toxic factor which elicited disorientation or death in mice. Further studies revealed that solubilization of the mitochondrial fraction with 0.5% sodium dodecylsulfate (SDS), removal of SDS by dialysis or by means of an ion-exchanger, and gel filtration (Sephadex G-75) yielded 2 protein peaks that retained toxicity. The major peak corresponded to a gamma-globulin marker in terms of M.W., while the minor peak corresponded to cytochrome c. Figures 2; references 6: 3 Russian, 3 Western.

USSR

UDC 615.849.19.015.44:612.822

EFFECTS OF LASER IRRADIATION ON MITOCHONDRIA AND NUCLEAR CHROMATIN IN
CORTICAL NEURONS OF THE RAT

Moscow VOPROSY MEDITSINSKOY KHIMII in Russian Vol 24 No 3, May/Jun 78 pp
326-330 manuscript received 7 Jan 77

ZUBKOVA, S. M. and SOKOLOVA, Z. A., Central Scientific Research Institute
of Health Resort Treatment and Physical Therapy, Moscow

[Abstract] Biochemical and histochemical studies were conducted on the effects of laser irradiation (helium-neon, 6 mW/cm²) to the parietal region of 160-180 g albino male rats on cortical neurons. Evaluation of mitochondrial function demonstrated that laser irradiation affected primarily phosphorylation: O₂ consumption fell by 25% (P < 0.05) and phosphorylation time decreased by 19% (P < 0.05), while ADP/O and the rate of phosphorylation (ADP/t) increased by 34% and 24%, respectively (P < 0.01). Uptake of acridine orange--and resultant fluorescence--by pyramidal and stellate cells increased by 106.7% (P < 0.02) and 52% (P < 0.05), respectively. The latter data point to changes in the chromatin complex which favor increased binding of the dye by DNA under the influence of laser irradiation. The nuclear changes may have been due to increased production of high energy moieties. References 19: 1 Hungarian, 5 Western, 13 Russian.

Environmental and Ecological Problems

EAST GERMANY

RAMIFICATIONS OF THE USE OF PESTICIDES IN AGRICULTURE

Jena MONATSHEFTE FUER VETERINAERMEDIZIN in German Vol 33 No 12, 15 Jun 78
pp 465-469 manuscript received 23 May 77

KUEHNERT, M., professor, doctor of veterinary medical sciences, graduate chemist, Animal Production and Veterinary Medicine Section, Karl Marx University; Pharmacology, Toxicology, and Pharmacy Subsection (head: BENTZ, H., professor, Dr)

[Abstract] This article is the text of the author's lecture delivered at the 23 Mar 77 conference held in Leipzig of the Toxicology Working Committee of the East German Pharmacological and Toxicological Association. It reviews the economic-political fundamentals and social significance of the use of pesticides, the effects of pesticide use on the environment, the toxicology of the pesticides in use, and future trends characterizing the use of pesticides in agriculture. The economic benefits of pesticide use are significant and contribute to the intensification of agricultural production, which is a major goal of the SED [Social Unity Party]. The same applies to various herbicides, plant-growth regulators, fertilizers, feed additives, and the like. Uncritical and inexperienced use of all these chemicals contaminates the environment; thus, every effort must be exercised to ensure that they are used only where needed and in the minimum amounts. Studies must also be carried out to understand better their teratogenic, mutagenic, embryotoxic, and carcinogenic effects, so as to be able to develop methods for counteracting them. The trend is toward the development of less toxic agents with equal or even increased effectiveness. Figures 6; references 13: 1 Russian, 12 German.

USSR

UDC 614.72:621.43.013.19):374

ATTITUDE OF PHYSICIANS OF SANEPID STATIONS TO PROPAGANDA FOR PROTECTION OF THE ATMOSPHERE FROM POLLUTION BY MOTOR TRAFFIC

Moscow GIGIYENA I SANITARIYA in Russian No 6, Jun 78 pp 52-54 manuscript received 7 Feb 77

LORANSKIY, D. N., candidate of medical sciences, and SANDLER, M. V., Central Scientific Research Institute of Sanitary Education, Ministry of Health USSR, Moscow

[Abstract] The effectiveness of measures to protect the environment of Soviet cities from motor transport pollution in the years 1968 to 1995 will depend on strict use of motor vehicles according to established standards and on improvement of servicing the vehicles. Improper habits and faulty behavior of drivers, mechanics and associated personnel are a problem, but specialists in hygienic aspects of use and repair of motor vehicles also may not have the level of qualifications needed to educate the motor personnel. A state standard, GOST 16544-70, "Automobiles with gasoline engines. Norms and determination of CO content in exhaust gases" points out sanitary control needs. Insight into the educative role of sanepid physicians was gained from a questionnaire distributed to them, and answered on an anonymous basis. Two aspects are considered in this report, viz., their social attitude concerning the pollution problem, and the actual status of their propaganda for protection of the environment from motor vehicle pollution. Considerable lack of attention by the physicians to limiting pollution, absence of measuring equipment in the majority of the sanepid stations, and absence of competence to use the equipment where it is available, were revealed. Most of the physicians felt that hygiene education could help motor personnel to control exhaust pollution. When the physicians did not participate in hygiene education, they had not been prepared to do so. Most of them expressed the view that very rapid development of a system of propaganda to protect against pollution by cars was necessary. References 1 (Russian).

POLLUTION OF NATURAL WATERS BY NITROGENOUS COMPOUNDS

Moscow AGROKHIMIYA in Russian No 3, Mar 78 pp 19-27 manuscript received 24 Feb 77

KUDEYAROV, V. N. and BASHKIN, V. N., Institute of Agrochemistry and Soil Science, Academy of Sciences USSR, Pushchino, Moscow Oblast

[Abstract] Evaluations were conducted on the extent of pollution of the upper reaches of the Oka river basin with nitrogenous compounds during the period 1973-1976. The results showed that the degree of pollution was determined by the nature of the draining land masses with an increase in pollutants during the fall-winter-spring period and a decrease during summer months. Changes in $N-NO_3$ were within the range of 0 to 2.22 mg/liter, and for $N-NH_4$ 0 to 0.68 mg/liter in waters draining nonindustrial areas with a high level of agricultural activity. The $N-NO_3$ levels in ground waters of the agricultural left-bank areas of the Oka ranged from 0.11 to 17.0 mg/liter. Waters supplied by forested land massifs (Tadenka River) were virtually nitrate and ammonia free. References 13: 5 Russian, 8 Western.

Epidemiology

CZECHOSLOVAKIA

SOME PROBLEMS OF CONTEMPORARY EPIDEMIOLOGY

Prague CESKOSLOVENSKA EPIDEMIOLOGIE MIKROBIOLOGIE IMUNOLOGIE in Czech Vol 26 No 6, Dec 77 pp 321-328 manuscript received 23 Jun 77

TICHACEK, B., Military Institute for Hygiene, Epidemiology and Microbiology, Prague

[Abstract] The subjects covered in the article are: infectious pathology, epidemiological aspects of the use of antibiotics, immunological and epidemiological aspects of the development of pathogenic organisms in man, and the occurrence of conditionally pathogenic organisms. Generally some 60 percent of people die of infectious diseases, and 40 percent from other causes. The occurrence of anthroozoonoses in developed countries is extremely rare. Dangers are due to household pets of which some 10 to 15 percent suffer from salmonella infections. Mass uses of antibiotics are dangerous and their use must be controlled by authorities. Among the aspects of immunology problems are mass specific prophylaxis, post-vaccination reactions and the specific features of live vaccines which are evaluated. The basic problem of epidemiology is the identification and the control of mass pathological processes. The problems of the common cold, hepatitis, some respiratory and intestinal infections have not yet been solved. References 14: 6 Czech, 2 Russian, 1 Bulgarian, 5 Western.

CZECHOSLOVAKIA

UDC 616.921.5-036.22:330.1:614

ECONOMIC LOSSES DURING INFLUENZA EPIDEMICS

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 2, 13 Jan 78 pp 53-57

PLESNIK, V., HEINZ, F., MATUSKA, J., PITRIKOVA, A., BERAN, J., BINDAS, B., CECHOVA, D., GALETKOVA, A., HOFTA, J., MALIS, J., SAJDAK, E., SEDLACEK, V., SEKEROVA, Z., UVIZL, O. and WALDEROVA, O., Krayska Station of Hygiene, Ostrava; Okres Station of Hygiene of North Moravia Kraj

[Abstract] In the spring of 1977 there was a heavy influenza epidemic in the region of Northern Moravia. To evaluate the economic losses due to this epidemic 2,000,000 inhabitants were interviewed and examined. The influenza type was Victoria/75; 275,702 persons contracted the disease. 7,710 patients developed complications, 26 died during the eight weeks of epidemic. A total of 88,364 workers lost some productive time during this epidemic. The total losses amounted to 519.1 million of Czech Crowns; of

this only 17.2 million was needed for medical expenses. Losses due to lost production were 501.8 million Czech Crowns. Prevention of respiratory diseases is very important from the aspect of economics; even a one percent cut in morbidity would save 5.2 million Crowns. References 14: 11 Czech, 1 Russian, 2 Western.

BULGARIA

PROPERTIES OF R-PLASMIDS IN DOMESTIC *S. FLEXNERI* STRAINS AND ATTEMPTS TO SUBDIVIDE THEM BY INCOMPATIBILITY GROUPS

Sofia EPIDEMIOLOGIYA, MIKROBIOLOGIYA I INFEKTSIOZNI BOLESTI in Bulgarian No 2, 1978 pp 101-108 manuscript received Nov 77

BRATOEVA, M. and TRIFONOVA, A., Medical Academy--Sofia, and Institute of Infectious and Parasitic Diseases (director: Professor L. Shindarov)

[Abstract] The drug resistance of 3237 *S. flexneri* strains isolated in Bulgaria during the period 1972-1976 was studied. The antibacterial agents included chloramphenicol, streptomycin, tetracycline, kanamycin, ampicillin, gentamycin, and sulfamethoxazole. It was found that 50.72% of the strains were resistant to one or a combination of several drugs, with a predominance of multiple drug resistance (usually three or five drugs). Conjugation experiments with 97 resistant strains showed that 95.88% owe their resistance to the presence of transferable R-plasmids. A study of the property of R-plasmids to determine the synthesis of conjugative pili showed that 95.6% of the R-plasmids isolated from *S. flexneri* belong to the incompatibility groups F, I and N. This indicates that the method of donor-specific phages is preferable to the classical (Datta) method for determining the incompatibility group of plasmids isolated from *S. flexneri*. It helps explain questions involving the ecology and epidemiology of the R-plasmids in the *Shigella*. The results show the growing spread of R-plasmid-carrying *Shigella* and indicate the need for measures to control microbial resistance. Existing methods of dysentery treatment must be reevaluated and a further study made of the spread and genetic properties of R-plasmids isolated from different sources. References 30: 5 Russian, 25 Western.

USSR

UDC 576.858.75.095.38:598.412).083.1(47+57)

STUDY OF INFLUENZA VIRUS A/ANAS ACUTA/PRIMOR'YE 695/76, ISOLATED FROM WILD DUCKS IN THE USSR

Moscow VOPROSY VIRUSOLOGII in Russian No 3, May/Jun 78 pp 300-304 manuscript received 19 Jul 77

PYSINA, T. V., L'VOV, D. K., BRAUDE, N. A., SOROCHENKO, S. A., MYASNIKOVA, I. A., BLINOVA, V. K., PODCHERNYAYEVA, R. YA., KLIMENKO, S. M. and RONINA, M. V., Scientific Research Institute of Epidemiology and Microbiology, Ministry of Health RSFSR, Vladivostok; Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

[Abstract] The original material was collected in the spring of 1976 in the Khazanskiy Rayon of the Primorskiy Kray from a short-down wild duck, *Anas acuta*. The virus was isolated in the Vladivostok laboratory, in which no other influenza viruses were present. Purification and identification of the virus are described in detail. Reactions of the title virus strain with reference sera to influenza virus and of antisera to the strain are tabulated. The strain has hemagglutinin H2, identical to the hemagglutinin of strain A/Singapore/1/57 and neuraminidase of the second avian subtype (Nov 2). Figure 1; references 9: 3 Russian, 6 Western.

USSR

UDC 616.916.1-097.3(575.3)

SEROEPIDEMIOLOGICAL STUDY OF IMMUNITY TO RUBELLA IN THE HUMAN POPULATION OF TADZHIKISTAN

Moscow VOPROSY VIRUSOLOGII in Russian No 3, May/Jun 78 pp 329-332 manuscript received 27 Jul 77

UMAROVA, A. A., DESYATKOVA, R. G., ANDZHAPARIDZE, O. G., SATTAROVA, M. KH. and AKHMEDOV, M. D., TADZHIK Scientific Research Institute of Epidemiology and Hygiene; Moscow Scientific Research Institute of Viral Preparations, Ministry of Health USSR

[Abstract] Reliable data have been obtained for the first time on distribution of rubella, in TSSR, by a serology study of the population. Sera were collected from children and adolescents in creches, kindergartens, polyclinics and hospitals; from adults, at donor points and maternity homes. Antibodies to rubella virus were assayed in 2514 males and females, aged 1 to 50. Findings were grouped by age: 1-3, 4-5, 6-7, 8-9, 10-11, 12-13, 14-15, 16-17, 18-22, 23-29, 30-35, 36 and older. The majority (82%) had antibodies. Incidence by age is tabulated. In 496 women, aged 16 to 35,

some were found (8 to 15%) without antibodies to rubella. This latter situation, and a high incidence of rubella in children, can expose child-bearing women to the teratogenic danger of rubella infection. Figure 1; references 15: 13 Russian, 2 Western.

USSR

UDC 576.858(POWASSAN)095.57.086.3

ELECTRON MICROSCOPE STUDY OF STRAIN An-750 OF POWASSAN VIRUS ISOLATED IN THE SOVIET UNION

Moscow VOPROSY VIRUSOLOGII in Russian No 3, May/Jun 78 pp 359-366 manuscript received 5 Sep 77

SOBOLEV, S. G., SHESTOPALOVA, N. M., LINEV, M. B. and RUBIN, S. G., Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR, Moscow

[Abstract] Reports on Soviet studies of Powassan virus are cited from 1974, and a preliminary report on the morphology of the title strain, by Sobolev, et al, appeared in 1976. This article is a more detailed report of the findings. The strain studied had been isolated in 1975 from *Anopheles hyrcanus* at the eastern end of the Baykal-Amur railroad building project (BAM); the virus strain (inoculated in white mice brain) was examined in parallel with the LB prototype Powassan virus, in the JEM-100B electron microscope. The structure, form and sizes of the viral particles of the two strains correspond to the literature description for other members of the tick encephalitis complex. Distribution and effect of the strain on neural tissue are pictured. Figures 4; references 18: 9 Russian, 9 Western (one from the author's institute).

STUDY OF Aedes CASPIUS MOSQUITO LARVAE AFFECTED WITH VIRAL IRIDESCENCE

Moscow VOPROSY VIRUSOLOGII in Russian No 3, May/June 78 pp 366-369 manuscript received 1 Dec 77

BUCHATSKIY, L. P. and RAYKOVA, A. P., Laboratory of Ecology and Toxicology of the Kiev State University

[Abstract] The *Aedes caspius* mosquito occurs in steppe zones and dry steppes with brackish water bodies where it is a threat to man and domestic animals. *A. c. caspius* is found in nature where West Nile and Tyagin viruses, and tularemia are found. This article reports the finding, in the mosquito, in the southern Ukraine, of an entomopathogenic virus of iridescence (VRK), and electron microscopic studies of larvae affected with that agent. A tabulation is given of the localities in Golopristanskiy Rayon, Kherson Oblast--a rayon supported by the Krasnoznamenskaya sprinkler system--where the VRK was found. Prepared sections of larvae were studied in the JEM-100B electron microscope. The cytoplasm of the affected larvae displays virions of hexagonal form, about 210 nm in diameter, and tubular structures 1 to 3.2 μ m long, 110-115 nm in diameter. Enzootics were observed in August and September in temporary standing water near rice fields and semi-permanent water bodies of the rayon. Figure 1; references 8: 6 Russian, 2 Western.

USSR

UDC 574.5

HYDROBIOLOGY AS AN ECOLOGICAL SCIENCE

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 5-15

VINBERG, G. G.

[Abstract] The science of hydrobiology is called upon to study the regularities of biological phenomena in oceanic and continental waters and to create a basis for control of these phenomena in the service of man. Hydrobiology achieves this by studying the biological structure of the world ocean, the biological resources of the continental shelf, the biological productivity of internal seas, by development of scientific principles for the control of biological productivity, by studying biological processes of self-purification of water and by determining means for utilization or prevention of anthropogenic eutrophication of natural waters. The history of development of hydrobiology and conditions necessary for further development of hydrobiological research are noted. Hydrobiology, as the ecology of the hydrosphere, must play an important role in the solution of the most pressing problems of modern natural science.

USSR

UDC 574.5(26)

MARINE HYDROBIOLOGY IN THE USSR AND ITS CURRENT PROBLEMS

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 15-24

GREZE, V. N.

[Abstract] The history of marine hydrobiology in the USSR is traced from the early taxonomic prerevolutionary studies through the many branches of marine pharmacology, sanitation, radiobiology, optics, hydrobionics and acoustics studied today. The organizational structure of marine hydrobiology in the Soviet Union is broadly traced. As we approach the 1980's, hydrobiology is a complex, multifaceted science, studying the control of the life of the colossal ecological systems of the sea, protection of biological resources from global pollution factors and the development of the underwater world for the benefit of mankind.

USSR

UDC 574.5

DEVELOPMENT OF BIOGENOTIC CONCEPTS IN DOMESTIC HYDROBIOLOGY OVER SIXTY YEARS

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 24-36

SHKORBATOV, G. L.

[Abstract] During the years of Soviet power, the biocenotic trend in domestic hydrobiology has developed rapidly, and at the present time occupies a central position as the conception of aquatic biogeocenoses and ecosystems. The development of the basic concepts, trends and methodological approaches in this area in Soviet hydrobiology are discussed. Biogeocenoses can be considered living systems based on the broadest interpretation of the essence of life as the functioning of complex organizations of self-developing systems, based on biological elements. This means that the study of biogeocenoses is the most complex and integrating division of ecology, dealing with organisms, systems and entire populations of organisms. References 61 (Russian).

USSR

UDC 574.5:597

DEVELOPMENT OF THE HYDROBIOLOGY OF THE FISHING INDUSTRY OVER SIXTY YEARS

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 36-47

PIROZHNIKOV, P. L.

[Abstract] The broad outlines are presented of an organizational and scientific history of hydrobiology as applied to the fishing industry in the Soviet Union since the 1917 Revolution. The continuous expansion of the topics and waters studies by hydrobiologists to assist the fishing industry in maintaining its valuable natural resources is traced. References 144 (Russian).

USSR

UDC 574.64

DEVELOPMENT AND SUCCESSES IN THE AREA OF WATER TOXICOLOGY IN THE USSR

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 47-57

STROGANOV, N. S.

[Abstract] Along with the rapid development of industry in the USSR since the revolution, there has been an accompanying development of concern for the toxicology of water resulting, in part, from industrial development. This article traces the development of Soviet water toxicology, criteria of toxicity, norms and pathology, and practical problems such as the setting of maximum permissible concentrations of elements and compounds, study of the toxicosis of fish and technological testing of waters. (Five Russian references given in footnotes)

USSR

UDC 574.5(26):577.34

DEVELOPMENT OF MARINE RADIATION HYDROBIOLOGY

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 57-66

POLIKARPOV, G. G.

[Abstract] The study of radioactive processes occurring in the sea is a relatively recent development, although studies in the area of marine radioecology have been widely developed in many nations, coordinated by the International Atomic Energy Agency. This article defines the position of radiation hydrobiology as a division of marine hydrobiology, and its relationships with scientific and practical areas of knowledge. Current limits of the concentrations of radionuclides in sea water are presented for 28 radioactive isotopes. Prospects for future studies in the area are noted. References 46: 28 Russian, 18 Western.

USSR

UDC 574.63

PHENOMENON OF THERMAL EUTROPHICATION OF BODIES OF WATER

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 98-105

VERIGIN, B. V.

[Abstract] The author suggests that anthropogenic eutrophication be defined as an increase in the biological productivity of a body of water under the influence of human economic activity in the territory surrounding the body of water and the changes in the quality of the water in the process of its economic use. Economic use is to be interpreted widely, including communal use, construction of hydraulic structures and ordinary industrial use. The author points out that the changes in water resulting from its economic use include not only changes in chemical composition, but also changes in the temperature of the water. This area has been extensively studied in recent years, and requirements have been developed as to the maximum degree of temperature increase permissible following industrial use of water. This has resulted in the construction of cooling ponds, among other measures, to cool water to its original temperature before returning it to the mainstream of a body of water. However, little attention has been given to the possibility of economic use of these cooling ponds, for example, to raise fish which cannot live in the colder surrounding "natural" waters. References 22 (Russian).

USSR

UDC 574.5(26)

HISTORY OF HYDROBIOLOGICAL STUDIES IN THE BLACK SEA DURING THE SIXTY YEARS OF SOVIET POWER

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 13 No 5, Sep/Oct 77 pp 66-76

VINOGRADOV, K. A.

[Abstract] A history is presented of the organization and content of Soviet biological and fishing-industry studies in the Black Sea. Brief outlines are presented of the first Soviet expeditions on research vessels, as well as the research tasks undertaken by shoreline scientific stations. With the creation of large marine scientific research institutes, studies in recent years have become qualitatively different from the early, scattered studies undertaken in this body of water. Prospects for further development of hydrobiology in the Black Sea are briefly outlined. (Six Russian references in footnotes)

USSR UDC 616.988.23-085.371-039.71-053.2-07:616.15-097.5-078.7

DYNAMICS OF SECRETORY AND SERUM IMMUNOGLOBULINS IN CHILDREN IN THE PROCESS OF VACCINATIONS WITH LIVE POLIOMYELITIS MONOVACCINES

Moscow VOPROSY VIRUSOLOGII in Russian No 3, May/June 78 pp 332-336 manuscript received 15 Jul 77

SHMEL'KOV, YU. A., ZHEVANDROVA, V. I. and DROZDOV, S. G., Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR, Moscow

[Abstract] Secretory immunoglobulins (Ig), especially IgA, are important inhibitors of poliomyelitis infection. This article reports study of the dynamics of formation of the different classes of Ig in the blood and in mouth cavity secretions, and the survival of poliomyelitis virus of the three immunological types, in vaccinations with monovaccines in the order I-III-II. A very high increase in IgA in the mouth secretions was seen after the first vaccination, with I; this polio virus type was found, in 40% of those vaccinated, in pharyngeal samples. After vaccination with types III and II, the oral cavity content of IgA did not increase appreciably; these two polio virus types were not found in pharyngeal samples. A correlation existed between IgA content in the secretions and in their neutralizing activity to polio virus types I, II and III. The blood serum showed a marked rise in IgC and IgM and an unappreciable rise in IgA after vaccination with I, II and III. The increase in Ig correlated to a rise in neutralization activity of the blood serum to types I and III. Although type I was found in pharyngeal samples, no II or III were found in these samples. Figures 2; references 17: 7 Russian, 1 Polish, 9 Western.

USSR UDC 632.938.2:582.288.42:033.511

BIOLOGICAL IMMUNIZATION OF COTTON PLANTS BY AVIRULENT STRAINS OF THE VERTICILLIUM WILT AGENT

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 136-141 manuscript received 28 Apr 77

SIDOROVA, S. F., All-Union Institute of Plant Protection, Leningrad

[Abstract] Non-Soviet use of cross protection is described. Popov has been studying this immunizing effect in the interaction of *Verticillium dahliae*. That work was done (1975) at the Andizhan Branch of the Union Scientific Research Cotton Institute. Those experiments have been extended in order to inquire into the dependency between sort resistance and immunization manifestation. The cotton sorts were 108-F and 159-F both susceptible

to the two races and Tashkent-1 and 167-F (resistant to race 1 and susceptible to race 2). Strains of the fungus also included race 0 (weakly virulent to all cotton sorts used). Infection was introduced in the stem. Weakening of the disease occurred on all sorts of cotton when race 0 was used, whereas race 1 was an immunizing factor only for sorts Tashkent-1 and 167-F which are stable to it. All tested infective trials of race 2 caused a substantial development of disease in Tashkent-1; immunization here by race 1 required an inoculation containing at least as much of the latter as was used of race 2. An important factor in developing immunity was the time at which the weakly virulent race was administered; administration of the weakly-virulent and the virulent races was carried out with Tashkent-1, race 1 before race 2, both simultaneously and race 2 before race 1. Maximum immunization was achieved when race 1 was administered earlier. References 28: 8 Russian, 20 Western.

USSR

UDC 616.988.75-097.3+576.858.75.095.383

EFFECTS OF A NONANTIGENIC INTERFERON INDUCER ON LYMPHO-MACROPHAGE REACTIVITY AND INFLUENZA RESISTANCE IN MICE

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in Russian No 2, 1978 pp 12-16 manuscript received 2 Jan 77

IL'XIN, G. I., AKSENOV, O. A. and FOMINA, T. I., Laboratory of Pathogenesis and Pathomorphology and the Laboratory of Natural Immunity, All-Union Scientific Research Institute of Influenza, Ministry of Health USSR, Leningrad

[Abstract] Studies were conducted on 10-12 g albino mice to determine the effects of intranasally administered interferon inducer polyguacil (polyG:-polyC) on the cellular exudate subsequently induced by intraperitoneally injected starch and the survival rate following intranasal instillation of 100 LD₅₀ influenza A/Hong Kong 1/68. Control data were obtained with 10-12 g mice treated with starch alone or with the influenza virus. The results showed that administration of 6, 12, 25, or 50 ug of polyguacil favored a predominantly lymphocytic/macrophagic exudate which showed positive correlation with the respective survival figures of 16%, 26%*, 42%*, and 52%* (*= statistically significant vs. control data). Polyguacil untreated mice responded with a predominantly macrophage/neutrophil exudate. The findings indicate that evaluation of the peritoneal exudate may be used in evaluating the responsiveness of mice to interferon inducers. The levels of interferon 24 hr after injection of the four doses of polyguacil were, respectively, 73, 92, 172, and 266 units/ml. References 17: 7 Russian, 10 Western.

USSR

UDC 576.809.53

SOME QUESTIONS ON REGULATION OF SYNTHESIS OF GLUCOAMYLASE IN ENDOMYCOPSIS FIBULIGERA 21

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 333-340 manuscript received 11 May 77

VOLKOVA, O. D., YEGOROV, N. S. and YAROVENKO, V. L., All-Union Scientific Research Institute of Fermentation Products, Moscow

[Abstract] This is a study of the influence of various sources of carbon on the biosynthesis of glucoamylase by the title yeast. The yeast is grown on a starch medium developed by the authors, with the starch replaced by the carbon sources used for growth; the latter are various carbohydrates, glycerine, ethanol, and several carboxylic acids, replacing the starch in each case. Capacity of the yeast to use various carbon sources for growth and synthesis of the enzyme is tabulated. It was found that carbon sources lactic acid, glycerine, mannite--which are not breakdown products of starch--exceed starch, dextrans and maltose in ability to evoke synthesis of glucoamylase. Greatest enzyme productivity occurred in growth on lactic acid, which suggested constitutive enzyme synthesis. Active formation of the enzyme occurs after exhaustion of the carbon sources; it did not then require presence of specific substrates in the medium. Accumulation of high enzyme activity could be seen in washed cells of the yeast placed in water. Glucoamylase synthesis may involve catabolite repression. Figures 3; references 21: 9 Russian, 12 Western.

USSR

UDC 576.809.51

INFLUENCE OF TEMPERATURE AND pH OF CULTIVATION ON BIOSYNTHESIS OF EXTRACELLULAR PHOSPHOHYDROLASES BY A CULTURE OF PENICILLIUM BREVI-COMPACTUM

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 354-360 manuscript received 3 May 77

YEZHOV, V. A., Institute of Biochemistry and Physiology of Microorganisms, Academy of Sciences USSR, Pushchino

[Abstract] The culture of *Penicillium brevi-compactum* used in this work was IBFM F-399 (from the author's institute); the fermenter, AK-10, which has automatic regulation of temperature and pH. The phosphohydrolases studied were acid and alkaline RNAases and PMEase. The influence of the two title factors on growth and on extracellular enzyme biosynthesis are tabulated. Maximum growth occurred at 30° and pH 7; growth decreased with

temperature rise to 35°. Rate of growth was highest at 27-30°, exceeding, by a factor of 2, that at 18°. The optimum conditions for enzyme biosynthesis (24° and pH 3) did not coincide with optimum conditions for growth. A relation was seen between enzyme biosynthesis and consumption of oxygen by the culture which agrees with literature reports of the influence of aeration intensity on biosynthesis of acid RNAase. Figures 3; references 20: 16 Russian, 4 Western.

USSR

UDC 576.809.54

STUDY OF THE EFFECTIVENESS OF GROWTH AND OF THE SPECIFIC RATE OF GROWTH OF HANSENULA POLYMORPHA YEAST ON METHANOL IN CONTINUOUS CULTIVATION

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 366-372 manuscript received 3 May 77

KUVSHINNIKOV, V. D., VOROB'YEV, A. V., YEROSHIN, V. K. and MINKEVICH, I. G., Institute of Biochemistry and Physiology of Microorganisms, Academy of Sciences USSR, Pushchino

[Abstract] *Hansenula polymorpha* DL-1 (which was isolated and described by Levine and Cooney, 1973) can grow on methanol, is thermotolerant and offers industrial applications. This article reports the relation of its biomass to specific growth rate, and the relation of the latter to concentration of methanol as a substrate in a hemostat and turbidostat. Strain IBFM U-815 (from the authors' institute) was used in the studies reported. Studies were carried out in an ANKUM-2 apparatus (Kuvshinnikov, 1975, 1977). The economic coefficient Y_s increases with a rise in specific rate of growth. Based on graphing values of $1/Y_s$ as a function of the inverse of the specific growth rate, the value of the constant $Y_s^{\max} = 0.425$ and the value of m_s (coefficient of maintenance, the quantity of substrate consumed per unit of time for maintenance of 1 g existing biomass) = 0.023 hr^{-1} . Y_s as a function of the specific rate of growth is also presented in graphic form. The kinetics of the reactions are calculated and a discussion, based on available literature, is presented on the kinetic characteristics of various yeasts which grown on methanol. Figures 3; references 30: 6 Russian, 24 Western.

USSR

UDC 577.158.1+577.15-02

KINETICS AND STABILITY OF GLUCOSOOXIDASE FROM *PENICILLIUM VITALE*

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 377-382 manuscript received 4 Mar 77

AKULOVA, V. F., VAYTKYAVICHYUS, KURTINAYTENE, B. S. and KULIS, YU. YU., Institute of Biochemistry, Academy of Sciences LithSSR, Vil'nyus

[Abstract] This is a report of study of the kinetics, thermal stability, and resistance to ultrasonic action, of the glucosooxidase from *Penicillium vitale*. The enzyme used in this study was a purified material from an active industrial source. Findings are compared with the constants on glucosooxidases from *Aspergillus niger* (Weibel and Bright, 1971) and *Pen. amagasakiense* (Hayashi and Nakamura, 1976). Parameters determined were the oxidative constant, the catalytic constant and the reductive constant of the enzyme. A mathematical expression is developed to evaluate the logarithm of the constant of thermal inactivation, $k_i \text{ min}^{-1}$ as a function of pH in the pH range 5.8-8.0 (at low concentrations of enzyme). Inactivation of glucosooxidase under the action of ultrasound proceeds (as with thermal inactivation) as a first order reaction. This inactivation is more rapid in the alkaline pH region; this is shown graphically, up to $\text{pH} \sim 8.5$. The mechanism of inactivation of the glucosooxidase is discussed. Figures 2; references 18: 8 Russian, 10 Western.

USSR

UDC 577.150.7

SEPARATION AND PURIFICATION OF ISOENZYMES OF *CLOSTRIDIUM PERFRINGENS* PHOSPHOLIPASE C

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 399-404 manuscript received 29 Mar 77

SHEMANOVA, G. F., DMITRIYEVA, L. N., LITVINKO, N. M., TIRSAJEVA, T. M. and BUYANOVA, V. N., Moscow Scientific Research Institute of Vaccines and Sera, Ministry of Health USSR

[Abstract] This is a report of a procedure to separate and purify the title isoenzymes. Phospholipase C (PhLC) was isolated from the filtrate of the culture liquid of *Cl. perfringens* type A strain BP6K No 28 prepared according to "Rule for production of adsorbed toxoids *perfringens* and *edematiens*" No 141-69. The culture liquid proteins are concentrated (salting out, dialysis) and the isoenzymes separated on DEAE-cellulose under conditions of negative adsorption of the basic isoenzyme (which is present in the

filtrate. The isoenzyme is further purified with $(\text{NH}_4)_2\text{SO}_4$ salting and dialysis; the filtrate proteins were then rechromatographed on DEAE-cellulose, as before. The again salted and dissolved material was adsorbed on sephadex G-100 and subjected to isoelectric focussing (saccharose density gradient, LKB ampholine ampholite). Preparations of alpha one-Ph1C were homogenized during electrophoresis in polyacrylamide gel and in precipitation in agar with hyperimmune antiperfringens serum. Coefficients of sedimentation and isoelectric point are given. The minor isoenzyme alpha two-Ph1C has the same coefficient and isoelectric point. Figures 3; references 9: 2 Russian, 7 Western.

USSR

UDC 577.156+577.150.7

OPTIMIZATION OF CONDITIONS OF IMMOBILIZING ACID PROTEINASE FROM ASPERGILLUS AWAMORI

Moscow PRIKLADNAYA BIOKIMIYA I MIKROBIOLOGIYA in Russian Vol 14 No 3, May/Jun 78 pp 410-413 manuscript received 19 Jul 77

MOTINA, L. I., SAMOSHINA, N. M., ERIN, A. E., KESTNER, A. I. and NAKHAPET-YNA, L. A., All-Union Scientific Research Bio-engineering Institute, Moscow

[Abstract] Studies of protease immobilization have dealt with the enzymes from animal and plants. Since immobilized acid proteinases of microbial origin have potentially broad practical application, and, since the immobilization process is complicated, this present work appeared desirable, viz., preparation of an immobilized acid proteinase from *Asp. awamori*, by covalent binding on silochrome with glutaric aldehyde. Conditions for optimizing the immobilization used the method of Wilson-Box (in Adler, et al, 1976). This procedure involves a series of successive small trials with variation of factors in each trial. Assessment of the course of the procedure was followed by determination of the parameters A (absolute activity), gamma (coefficient of retention of activity) and the product of A times gamma. Conditions for immobilization are recommended on the basis of empirical results: glutaraldehyde concentration, 50-60 mg/g; enzyme concentration, not less than 40 mg/g; period of aldehyde treatment, 2-2.5 hr, immobilization time, 2 hr, pH 4.0 and temperature 35-40°. Under these conditions A = 200-230 units/g; gamma = 23-24% and the product A x gamma = 5000-6000. References 12: 5 Russian, 7 Western.

USSR

UDC 547.963.3

PLASMID "KILLER" IN NATURAL STRAINS OF SACCHAROMYCES

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 240 No 3, May 78 pp 729-732 manuscript received 28 Nov 77

NESTEROVA, G. F., MILOVATSKIY, V. S., SIZOVA, N. I. and SEMYKINA, L. V.

[Abstract] Certain saccharomycetes secrete a toxin which destroys yeast strains of the same or related families, the killing power being determined by the cytoplasmic content of a two-spiral RNA plasmid killer. The presence of the killing activity in Oxford genetic lines of *Saccharomyces cerevisiae* and in natural strains used in wine making suggested the possible existence of two different cytoplasmic determinants of the killing activity, k_1 and k_2 . The present work studies the properties of the plasmid in Oxford strains of *S. cerevisiae* and in certain natural strains from Moldavia, e. g., several furnished by the Sci-Res Institute of Grape Culture and Wine Making, MSSR. Media and method of assay of killing activity have already been described (Nesterova, et al, 1976). The RNA was extracted by the Vodkin method (Vodkin, Katlerman and Fink, 1974) and subjected to electrophoresis in 5% polyacrylamide gel. Data revealed the presence, in the strains studied, of 4 different cytoplasmic determinants of the killing activity: k_1 in the Oxford strains, k_2 in M 437, and k_3 and k_4 in the other natural strains. Two fractions of the RNA (M and L) were found in all strains, the M fraction varying in mobility, the L fraction unvarying in mobility, in all strains. The relation of function to L invariance and M variation in the various killers is discussed. Figures 2; references 10: 3 Russian, 7 Western.

USSR

UDC 676.16.022.082:634.0.863.5

INCREASING THE PRODUCTION OF FEED YEASTS

Moscow GIDROLIZNAYA I LESOKHIMICHESKAYA PROMYSHLENNOST' in Russian No 3, 1978 p 29

MUZUROVA, YE. A., Engineer-Microbiologist, Balakhninskiy Cellulose-Paper Plant imeni F. E. Dzerzhinskiy

[Abstract] The industrial yeast section of the Balakhninskiy Plant went into production in 1966, utilizing initially sulfite-alcohol malt (and to a lesser extent sulfite liquor) for the production of feed yeasts. In 1976 sulfite liquor began to be used exclusively for the production of K-41 and

Tal-1 yeast strains, resulting in the production of an additional 490 tons of feed yeasts. Other improvements have resulted in a marked increase in the shop's productivity and in 1978 the set quotas have thus far been exceeded.

USSR

UDC 634.0.863.5.002.5:663.033

A YEAST MILL

Moscow GIDROLIZNAYA I LESOKHIMICHESKAYA PROMYSHLENNOST' in Russian No 3, 1978 pp 29-30

IKKONEN, B. P., Mechanic, Kondopozhskiy Cellulose-Paper Plant

[Abstract] A schematic description is provided for a mill designed to process 650 kg/h of yeasts with a moisture content of 10% or less, which has been put into operation at the Kondopozhskiy Cellulose-Paper Plant.

USSR

UDC 634.0.863.004.68

RATIONALIZATION AT THE RECHITSKIY HYDROLYSIS-YEAST PLANT

Moscow GIDROLIZNAYA I LESOKHIMICHESKAYA PROMYSHLENNOST' in Russian No 3, 1978 pp 30-31

NOVIK, O. V., Engineer

[Abstract] Brief details are provided for the rationalization efforts implemented at the Rechitskiy Hydrolysis-Yeast Plant which have increased productivity and efficiency of the plant. Among the topics covered is the design of a mechanism to be used for automatic lysine supply to yeast suspension, an electric control mechanism for cover lids of hydrolysis apparatus, improvements in filtering devices, and improved delivery of antifoaming agents to target areas of the plant.

Industrial Toxicology

USSR

UDC 614.71/73:613.16

PROGNOSTICATION OF UNFAVORABLE METEOROLOGICAL CONDITIONS AS A WAY TO LIQUIDATE INCREASED CONTAMINATION OF THE ATMOSPHERE IN THE AREA OF A LARGE INDUSTRIAL COMPLEX

Moscow GIGIYENA I SANITARIYA in Russian No 6, Jun 78 pp 16-19 manuscript received 30 Aug 76

PRUSAKOV, V. M., candidate of medical sciences, and CHEBANENKO, B. B., Irkutsk Administration of the Hydrometeorological Service

[Abstract] Approach to control of industrial pollution of the air has involved three paths: determination of meteorological parameters and combinations which promote increased air contamination; creation of a system to forecast these unfavorable meteorological conditions; working out and introduction of an effective combination of measures to cut down harmful discharges into the air during periods of unfavorable meteorological conditions. Major sources of contamination are found to be discharges from petrochemical enterprises and thermoelectric centers; substances include hydrocarbons, H₂S, sulfur and nitrogen oxides, dust, CO, NH₃, phenol and others. Model pollutant mixtures were studied (1968-1972) along with meteorological situations in order to identify associations conducive to serious contamination and to identify appropriate counter measures. Forecasts of anticipated unfavorable meteorological conditions demand curtailing levels of discharge of pollutants. Major attention has to be given to measures which maintain maximum permissible levels of contaminants. Prognostication of unfavorable weather conditions and combined efforts to decrease levels of discharge are believed to have potential to eliminate atmospheric pollution. Figure 1; references 5: 4 Russian, 1 Western.

USSR

UDC 613.2-074:546.49.06

RADIOCHEMICAL METHOD OF ANALYSIS FOR STUDIES ON TRACE QUANTITIES OF MERCURY IN FOOD PRODUCTS

Moscow VOPROSY PITANIYA in Russian No 3, 1978 pp 64-69 manuscript received 20 May 76

ZIMAKOV, I. YE., Radiobiology Laboratory, All-Union Scientific Research Institute of Veterinary Sanitation, Moscow

[Abstract] A radioisotope dilution method--utilizing ²⁰³Hg+--is described for use in monitoring Hg contamination of food products of plant and animal origin. Recovery studies substantiated the effectiveness of this approach and showed that in various rayons of the USSR the background levels of

mercury did not exceed WHO findings: grain--0.007-0.026 mg/kg Hg, root crops--0.006-0.030 mg/kg Hg, fish--0.014-0.052 mg/kg Hg, and meat--0.018-0.050 mg/kg Hg. The dilution method should be particularly useful in monitoring environmental pollution with mercury in the vicinities of industrial enterprises discharging various forms of mercury as one of the waste products. References 18: 4 Czech, 12 Russian, 2 Western.

Microbiology

CZECHOSLOVAKIA

UDC 576.85.097.22:615.7:615.779.93

PRESENT KNOWLEDGE CONCERNING SENSITIVITY OF SOME BACTERIAL SPECIES TO ANTI-BIOTICS AND CHEMOTHERAPEUTIC AGENTS IN CZECHOSLOVAKIA

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 6, 10 Feb 78 pp 164-169

ZAHRADNICKY, J., VYMOLA, F. and JELINEK, J., Antibiotic Center of the Faculty Clinic and Polyclinic, Kraj Institute of National Health, Plzen; Institute for Microbiology and Epidemiology, Medical Faculty, Charles University, Plzen; Institute of Hygiene and Epidemiology, Prague

[Abstract] In the first half of 1976 an investigation of the sensitivity of 11,673 bacterial strains selected at random was conducted in 21 laboratories and medical centers working with antibiotics in Czechoslovakia. The strains included the following nine bacterial species: 1. Staphylococcus aureus; 2. Streptococcus agalactiae; 3. Streptococcus faecalis; 4. Escherichia coli; 5. Enterobacter sp. 6. Klebsiella sp. 7. Proteus mirabilis. 8. Citrobacter sp. 9. Pseudomonas aeruginosa. The results were used to develop tables showing the degree of sensitivity in various regions of Czechoslovakia. These tables may help in the determination of the best products for therapy in the different locations. 27 various antibiotics and drugs were used in the tests.

USSR

UDC 632.4:582.282:634.1/7

GEOGRAPHIC SPECIES FORMATION IN PLANT PATHOGENIC ASCOMYCETES ON FRUITS IN THE USSR

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 154-163 manuscript received 30 May 77

KHOKHRYAKOVA, T. M., All-Union Institute of Plant Growing imeni N. I. Vavilov, Leningrad

[Abstract] This is a review. Among citations of earlier surveys (e.g., Yachevskiy, 1927; M. K. Khokhryakov, 1951 to 1972) special reference is made to that of M. V. Gorlenko, 1975, which gave experimental data on the heterogeneous structure of species in fungi, and discussed, for the first time in national literature, the concepts of N. I. Vavilov on species as a mobile morphological system applicable to this group of organisms. Extensive tabulation is devoted to comparative analysis of basic species traits in three populations (European, Central Asian and Far Eastern) of the major infective agents in fruit diseases in the USSR for 1961 to 1977. References 63: 60 Russian, 3 Western.

USSR

UDC 581.14:582.288.42

INFLUENCE OF TEMPERATURE ON GERMINATING SPORES OF AFLATOXIN-PRODUCING MOLD FUNGI

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 97-102 manuscript received 4 Mar 77

BOLTYANSKAYA, E. V., Institute of Nutrition, Moscow

[Abstract] A study has been made of the action of temperature on germination of spores of three strains of fungi, *A. flavus* (strain NRRL 2999), *A. flavus* (strain NRRL 3145) and *A. parasiticus* cultured and subsequently grown, at different temperatures on Chapek's medium and potato agar. Temperatures of 28 and 37° were favorable for germination of the strains studied; individual strains germinated in greater quantity at 37 than at 28°. At 43° and in the refrigerator the spores did not germinate at all. Spores of *A. flavus* maintained at 43° for 2 weeks lose their ability to germinate on Chapek's medium; however, some retain vitality and can then germinate on potato agar medium. References 18: 3 Russian, 15 Western.

USSR

UDC 547.963

SYNTHESIS OF RNA IN VITRO ON IMMOBILIZED DNA MATRICES

Moscow BIOKHIMIYA in Russian Vol 43 No 5, May 78 pp 789-792 manuscript received 14 Feb 77

AKHUNDOVA, A. A., PERESLENI, T. YI. and DVORKIN, G. A., Institute of General Genetics, Academy of Sciences USSR, Moscow

[Abstract] RNA synthesis, using RNA-polymerase, with denatured immobilized DNA was attempted. Denatured DNA of mouse liver was planted on nitrocellulose filters by a modification of the method of Gillespie et al. (1965). The filters were of pre-treated Synpor (CSSR); pores 0.3 μ m, diameter 34 mm. RNA-polymerase of E-coli MRE 600 (M. F. Shemyakin, Institute of Bioorganic Chemistry, AS USSR) was employed. Details of the procedure are given. The RNA synthesized on the immobilized DNA template has \sim 30 nucleotides. In addition to denatured DNA, hybrid molecules of DNA were prepared and, in turn, reacted as a primer, with the RNA-polymerase; the DNA primer was not included into the synthesized RNA under the same conditions of the reaction, hence no DNA primer is required for the RNA synthesis. Figures 2; references 10: 1 Russian, 9 Western.

USSR

UDC 577.157.6

PRESENCE OF TWO DNA CYTOSINE METHYLASES IN ESCHERICHIA COLI SK

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 240 No 6, 78 pp 1475-1477 manuscript received 27 Feb 78

LOPATINA, N. G., NIKOL'SKAYA, I. I., BUR'YANOV, YA. I. and DEBOV, S. S., (full member, Academy of Medical Sciences USSR), Enzymology Laboratory, Academy of Medical Sciences USSR, Moscow, and the Institute of Biochemistry and Physiology of Microorganisms, Academy of Sciences USSR, Pushchino, Moscow Oblast

[Abstract] Further studies were conducted on elucidating the enzymatic characteristics of 2 methylases, N_I and G_{II} [sic], previously isolated by fractionation of E. coli SK extract on a CM-70 column (Nikol'skaya et al, BIOKHIMIYA, 42(4):598, 1977). Phage S_d [sic] DNA was methylated in the presence of 3H -S-adenosyl-L-methionine and subsequent hydrolysis of modified DNA by alkaline phosphatase and phosphodiesterases (splenic and snake toxin) demonstrated that N_I methylates cytosine located on the 3'- end of a substrate nucleotide sequence, while G_{II} methylates the 5'- end cytosine. References 9: 2 Russian, 7 Western.

USSR

UDC [577.112.855:57.033]:575.224.5

REPAIR OF DNA-PROTEIN CROSSLINKS IN CULTURED CHINESE HAMSTER CELLS

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 240 No 6, 1978 pp 1472-1474 manuscript received 21 Mar 78

LOMOVA, T. YU., SHAKHOVA, I. K. and ANTOSHECHKIN, A. G., Institute of Medical Genetics, Academy of Medical Sciences USSR, Moscow

[Abstract] Experiments in which fibroblast-like cells (strain 327, line B11d-ii-FAF28) of Chinese hamsters were cultured in the presence of nitrogen mustard gas (Eagle's medium + 10% BSA; 10^5 cells/ml; 0.12 micromole mustard gas/ml) showed a 4.2-8.7 fold greater incidence of DNA-protein crosslinks than did control incubates sans nitrogen mustard. Further incubation in fresh medium lacking nitrogen mustard demonstrated that, after 22 hr, 44-91% of the crosslinks were eliminated. As yet it remains unclear whether repair was due to an enzymatic process or was strictly physicochemical (spontaneous crosslink breakdown). However, these preliminary findings indicate that DNA-protein crosslinks represent a form of genetic damage that is subject to repair in eukaryotic cells. Figures 1; references 13 (Western).

USSR

UDC 617-001.17-07:616.831-091.8-07

THERMAL TRAUMA-INDUCED ULTRASTRUCTURAL CHANGES IN THE CENTRAL NERVOUS SYSTEM

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in Russian No 2, 1978 pp 72-76 manuscript received 15 Dec 76

SAKKOV, B. A. and BARDAKHCH'YAN, E. A., Department of Pathologic Physiology and the Central Research Laboratory, Rostov Medical Institute

[Abstract] Electron micrographs were obtained of the cerebral hemispheres of dogs subjected to thermal trauma in order to elucidate the major morphopathologic changes. Over the 6 day period of observation major changes included swelling of mitochondria, an increase in the number of vacuoles and vesicles in Golgi complexes, an increase in the number of lysosomes, complete disappearance of synaptic vesicles in the contact regions of axosomatic and axo-dendritic synapses, edematous appearance of endothelial cells, thickening of the vascular basal membrane, hypertrophy of endothelial cells, endothelial pinocytosis, and breakdown of the blood-brain barrier. Although similar changes in the microcirculation are noted in other organs and tissues, in the brain such alterations carry particular importance in that they affect the primary nervous center responsible for heostasis. Figures 3; references 22: 21 Russian, 1 Western.

USSR

UDC 635.21:632.3

ANTHRACNOSE IN POTATOES--COLLETOTRICHUM ATRAMENTARIUM (BERK. ET BR.) TAUB.--
IN BELORUSSIA

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 164-
166 manuscript received 23 Nov 76

DOROZHKIN, N. A., BELSKAYA, S. I. and POPOV, F. A., Institute of Experi-
mental Botany imeni V. F. Kuprevich, Academy of Sciences BSSR, Minsk; Belo-
russian Scientific Research Institute of Potato Farming and Fruit and Vege-
table Gardening, Samokhvalovichi, Minsk Oblast

[Abstract] The title disease which was found in BSSR in 1975 had appeared
in the USSR in 1965, in the Northwest. It has occurred in Minskaya, Grod-
nenskaya and Vitebskaya Oblasts on Belorusskiy ranniy, Ogonek, Zor'ka and
Detskosel'skiy varieties of potatoes. In 1976 it was less severe. The
properties of anthracnose are described in detail as is a study of its bio-
logical requirements. Control will require phytosanitary measures used to
control other root rot agents. Figures 3; references 4 (Russian).

USSR

UDC 632.4:635.116:58.09

INFLUENCE OF ENVIRONMENTAL CONDITIONS ON THE PATHOGENICITY OF SUGAR BEET
ROOT ROT AGENT

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 167-
171 manuscript received 18 May 76

ZAGURSKIY, A. V., AL'KHOVSKAYA, T. F. and KIRPICHENKO, L. A., Kirgiz Sugar
Beet Experimental Selection Station, Pervomayskoye Village, Sukulukskiy
Rayon

[Abstract] The influence of temperature (10,15,21,28,37°C), pH (3 to 10)
and various sources of nutritional nitrogen [NaNO_3 , KNO_3 , NH_4NO_3 , NH_4Cl ,
 $(\text{NH}_4)_2\text{SO}_4$, $\text{NH}_4\text{H}_2\text{PO}_4$, $(\text{NH}_2)_2\text{CO}$ and peptone] on the growth and pathogenicity
of *Fusarium oxysporum* Schlecht, *Rhizoctonia aderholdii* Ruhl and *Crinipellis*
sp. which cause root rot in sugar beets in Kirgizia was investigated. Data
indicate that the agents show greatest pathogenicity at temperatures which
are close to optimal for agent growth (in summer); maximum growth of and
greatest virulence of *Rh. aderholdii* and *Crinipellis* sp. occur at pH 8-9,
and of *F. oxysporum* at pH 7.8. While the various sources of nitrogen vary-
ingly affect intensity of growth and pathogenicity, the highest virulence
of the fungi are manifested on media with ammonia nitrogen. Figures 2;
references 11: 8 Russian, 3 Western.

HARMFULNESS OF POWDERY MILDEW ON WHEAT

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 12 No 2, 1978 pp 171-173 manuscript received 22 Apr 77

ZAKHAROVA, T. I., All-Union Institute of Plant Protection, Leningrad

[Abstract] The title disease is universally distributed in the USSR and, in some regions, has been a problem in 7 years in 10. Yield harvest losses has fluctuated between 10 and 60%. The agent settles on the plant leaves, leaf area and spikes; it disturbs metabolism and water balance and inhibits the root system. Losses are related to time of appearance of the disease, its course and its degree of manifestation. Irrigation is known to increase its appearance but the effect of irrigation on the agent is not definitely known. The present study involved experimental examination of the harmfulness of the disease on winter and spring wheat on fields naturally affected by powdery mildew and by use of other sources of infection. Winter wheat from Kuybyshev Oblast was additionally infected with powdery mildew cultivated in laboratories of Leningrad Oblast. The winter wheats tested were Bezostaya 1 and Mironovskaya 1. A scale was developed to estimate the intensity of affection, and consisted in expressing, in terms of percent of affected surface, the covering of the leaves by spots of fungus. A correlation was seen in the percent of affection, in autumn, and the losses after the wintering period. The spring wheats tested were Saratovskaya 36 and Kinel'skaya 30; study helped to establish equations of regression for calculation of losses with 5-6% development of the disease on unirrigated land, and of 10-75% on irrigated land. Harvest loss as a function of extent of powdery mildew infection is graphically shown. Figures 2; references 6 (Russian).

PRODUCTION OF INITIAL MATERIAL IN SELECTION OF WHEAT BY THE METHOD OF EXPERIMENTAL MUTAGENESIS

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 6, Nov/Dec 77 pp 32-35

PASTUKHOV, G. P. and SIDOROVA, K. K., doctor of biological sciences, Altay Scientific Research Institute of Farming and Selection of Agricultural Plants; Institute of Cytology and Genetics, Siberian Department of the Academy of Sciences USSR

[Abstract] The title method has already produced highly-productive sorts of agricultural plants, e.g., Novosibirskaya 67 spring wheat, which was created in the Institute of Cytology and Genetics, SD of AS USSR in cooperation with the Siberian Sci-Res Institute of Plant Breeding and Selection. This sort has been widely acclimated in Western Siberia. The method has been used in this report to produce mutants, to identify those mutants most effective from an agricultural economic point of view, and to use the latter in wheat selection. The plantings were made in 1971 to 1976, by the (authors') Altay Sci-Res Institute, in the forest steppe area of the Altay Kray. Wheats used were Saratovskaya 29, Scala and Red River 68. Mutagens were ethylmethanesulfonate (EMS), N-nitrozomethylurea (NMU) and hydroxylamine (HA) and, also, radiation with gamma rays. Based on frequency of seeds with mutants in all the wheat sorts, the most effective mutagens were NMU and EMS (results are graphically displayed). Least effective was HA. The greatest mutability was shown by Scala and Saratovskaya 29 sorts; least by Red River 68. Economically-feasible mutants were isolated and are being used in selection of wheat. Some of their properties (grain wheat, protein content) are discussed. Figure 1; references 5 (Russian).

USSR

UDC 633.11:631.5(571.15)

INFLUENCE OF CULTIVATION CONDITIONS ON QUALITY OF SPRING WHEAT GRAIN ON
LEACHED CHERNOZEM IN THE ALTAY KRAY

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 6,
Nov/Dec 77 pp 27-31

OLIFER, V. A., candidate of biological sciences, ZAKHAROVA, V. V. and
STAROSTENKO, V. P., Altay Scientific Research Institute of Farming and
Selection

[Abstract] The authors' institute has been examining the effect of mineral and organic fertilizers on grain quality of Saratovskaya 29 spring wheat grown after various preceding crops. This report concerns the years 1973-1974 which were exceptionally dry--in the vegetation period precipitation was only 112 and 123 mm. In the preceding year, 1972, moisture had been exceptionally good hence the soil did have protective reserves. Altay Kray crops require moisture in the first half of the summer, and the dryness in 1974 had a negative effect on yields; the wheat crop was smaller than in 1973 although the physical properties of the flour were superior. Plowing of predecessor perennial grasses, lucerne + brome, had a favorable effect on the quality of that wheat grain which enjoyed favorably moist conditions of growth. The most useful preceding situation in the dry years was land left fallow. Effectiveness of fertilizers depended to a significant degree on meteorological conditions of the preceding year. Tabulations are given to show effect of variants of NPK mineral fertilizers on the alveograms and farinograms of wheat grown; best results were obtained with variants of $N_{90}P_{90}K_{60}$ with or without manure. Also plotted is the influence of crop predecessor working of the soil--e.g., fallowed ground, grass, furrowing, wheat, permanent wheat, corn--on yield. Figure 1; no references.

USSR

UDC 632.9/.4

RUST AND ROOT ROT OF IRRIGATED SPRING WHEAT

Moscow ZASHCHITA RASTENIY in Russian No 6, Jun 78 p 41

PRASOLOV, P. I., Chief, Laboratory of Plant Protection, Kuybyshev Scientific Research Agricultural Research Institute

[Abstract] Irrigated spring wheat (Kinel'skaya-30, Saratovskaya-36, Bezenchukskaya-98, Kharkovskaya-46, etc.) in the Kuybyshev Oblast is particularly subjected to attack by the highly virulent race 77 agent of brown rust, as well as races 20, 102, 12, and 52, as well as stem rust due to races 11, 17, and 34 (most virulent). During the different years and depending on wheat

variety, brown leaf rust causes losses of 5-10% of the yield, and stem rust losses are on the order of 3-4% of the yield. Losses due to root rot run on the average of 4-6% of the harvest, with the most important agents identified as *Fusarium culmorum*, *F. gibbosum*, *F. oxysporum*, *F. graminearum*, *F. solani*, and *Helminthosporium sativum*.

USSR

UDC 632.9/.4

DELETERIOUS EFFECTS OF BLACK ROOT ROT

Moscow ZASHCHITA RASTENIY in Russian No 6, Jun 78 p 42

DZHAMALOV, A., Senior Scientist, All-Union Scientific Research Institute of Cotton Growing

[Abstract] *Thielaviopsis basicola* has been identified as the most widespread cause of black root rot of fine-fibrous cotton in the Surkhandar'yinskaya Oblast in Uzbekistan, causing significant losses every year. Field inspections conducted in 1971-1973 revealed the following plant morbidities in the different rayons: 3-9% Termezkiy Rayon, 5-26% Sherabadskiy Rayon, 5-20% Dzharkurganskiy Rayon, and 4-15% in Denauskiy Rayon.

USSR

UDC 575

PARASEXUAL CYTOPLASMIC HYBRIDS (CYBRIDS) OF *NICOTIANA TABACUM* + *N. DEBNEYI* PRODUCED BY FUSION OF PROTOPLASTS

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 240 No 5, 1978 pp 1223-1226 manuscript received 26 Jan 78

GLEBA, YU. YU., PIVEN', N. M., KOMARNITSKII, I. K. and SYTNIK, K. M., academician, Academy of Sciences UkrSSR, Institute of Botany imeni N. G. Kholodnyi, Academy of Sciences Ukrainian SSR, Kiev

[Abstract] In earlier works, the authors proved intraspecies parasexual hybridization of tobacco by fusion of mesophilic protoplasts. They proved the possibility of two-parent heredity of cytoplasmic determinants upon hybridization of somatic cells. This article extends this conclusion to the interspecies level, and biochemical analysis is used to confirm the hybrid nature of the plant forms produced. The production of heterozygote cells and plants opens the possibility of genetic analysis of the cytoplasmic gene systems of higher plants. If the cybrid plants can be made to

bloom, it will also be possible to study cosegregation of the plasma genes producing chlorophyll defects and determining the polypeptide structure and the genes determining male sterility. It is already possible to predict that the phenomenon of cosegregation is a powerful tool in genetic analysis of the cytoplasmic gene systems of higher plants. Figure 1; references 8: 3 Russian, 5 Western.

USSR

UDC 547.963.3

GENETIC MODIFICATION OF THE "WAVY" TRAIT IN BARLEY UNDER THE INFLUENCE OF EXOGENOUS WILD TYPE DNA. ANALYSIS OF THE STARCH COMPONENTS AND OF THE ELECTROPHORETIC SPECTRUM OF HORDEIN OF THE GRAIN OF THE MODIFIED PLANTS AND PERSISTENCE OF THE CHANGES INTO THE FOURTH GENERATION

Moscow MOLEKULYARNAYA BIOLOGIYA in Russian Vol 12 No 3, May/June 78 pp 637-645 manuscript received 13 Jul 77

SOYFER, V. N., BOGDANOV, V. P., MOROZKIN, A. D. and TITOV, YU. B., All-Union Scientific Research Institute of Applied Molecular Biology and Genetics VASKhNIL (All-Union Academy of Agricultural Sciences imeni V. I. Lenin), Moscow

[Abstract] This is a continuation of earlier work (1973,1975) of Soyfer's group which induced change in the waxy trait of barley following injection of wild type DNA into the grain. They had also tested whether the amylose synthesis depressed by the change would return to its earlier status in later generations and found some evidence of return, in the first generation, and, in the second generation, of modification of the type of spikes and of hordein synthesis. In the present work the wild type barley was the Yuzhniy sort; purified DNA of the latter was injected into grains of mutant barley. Disc electrophoretic studies were made of hordein of the wild type barley; of the waxy mutant--which is defective in synthesis of high quality starch--; of the barley transformed by the wild type barley DNA; and of plants which had reverted to the mutant type. Variations in the protein spectrum among the donor, recipient and transformant plants appeared. Starch synthesis recovered, in the second generation, to that of the recipient mutant sort; hordein composition also reverted to that of the initial mutant sort; the two-row spikes became six-row. Genetic analyses of a typical plant are tabulated for four generations with respect to type of spike, iodine coloration, and pollen content, to show relative maintenance or loss of traits. Figures 2; references 29: 7 Russian, 22 Western (2 of these by Soyfer, et al.)

USSR

UDC 633.15:632.7

LABORATORY EVALUATION OF THE PREFERABILITY OF GRAIN OF DIFFERENT HYBRIDS,
SORTS AND LINES OF CORN FOR DEVELOPMENT OF THE GRANARY WEEVIL SITOPHILIS
GRANARIUS L.

Moscow DOKLADY VASKhNIL in Russian No 5, May 78 pp 17-18 manuscript re-
ceived 16 Dec 77

LEVCHENKO, YE. A., candidate of biological sciences, and BALAYAN, V. M.,
All-Union Order of Lenin and Order of Labor's Red Banner Selection-Genetic
Institute

[Abstract] The harmfulness of insect pests in agriculture is documented
and the importance of development of crops that are not just productive but
resistant to pests is emphasized; illustrations of this are cited from the
foreign press (USA, India, England and FRG). Work is reported on research
for new forms of hybrids and lines of corn whose grain is resistant to the
granary weevil. Twenty-five different corns (tabulated) were examined for
resistance, by the method of Sinha (1971) as modified by the authors. Data
were processed on a Mir-2 computer. Reliable differences in susceptibility
of the grains to the weevil were noted. Biochemical properties of the corns
are tabulated, but are not always an index of preferability of the grains
for weevil development. Findings are of potential value in a program for
developing resistant corns. References 9: 3 Russian, 6 Western.

USSR

UDC 633.11+577.1

PROTEIN FRACTION COMPOSITION OF THE GRAIN OF HIGH- AND LOW-PROTEIN WHEAT
VARIETIES

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 4, Apr 78 pp
39-42

PAVLOV, A. N., doctor of biological sciences, All-Union Scientific Research
Institute of Fertilizers and Soil Science imeni D. N. Pryanishnikov, and
KOLESNIK, T. I., candidate of biological sciences, Institute of Plant
Physiology imeni K. A. Timiryazev, Academy of Sciences USSR

[Abstract] Comparative studies on the protein fractions of grain obtained
from high-protein wheats (Canada 3059-A and India NP-165) and low-protein
wheat (Saratovskaya-39) showed that the protein content of the former was
17% of dry grain weight, whereas that of the latter 13%. Furthermore, dif-
ferences in total protein content were due to the protein fraction soluble
in 0.05 N acetic acid (gliadin and some glutenin) and the insoluble frac-
tion. Since the increased protein content of the high-protein varieties

is due largely to gliadin which is lysine poor, and since additional nitrogen fertilizer promotes further gliadin accumulation, it appears that the net decrement in lysine due to increased gliadin content at the cost of proteins possessing lysine compromises the biological value of high-protein wheats. Figures 1; references 7: 3 Western, 4 Russian.

USSR

UDC 633.12

BUCKWHEAT BREEDING FOR INCREASED NECTAR PRODUCTIVITY AND IMPROVED HARVESTS

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 4, Apr 78 pp 43-48

KOPEL'KIYEVSKIY, G. V., doctor of agricultural sciences, RUSAKOVA, T. M., candidate of agricultural sciences and CHEPIK, YE. G., Scientific Research Institute of Bee Culture

[Abstract] Studies conducted over the period 1971-1975 in the central regions of the USSR with Shatilovskaya-4 buckwheat demonstrated a direct statistically-supported correlation between nectar productivity, grain yields, foliage area, flower number, fruit number per plant, and attractiveness to bees. Important factors in buckwheat breeding include selection of frost-stable plants (3 day shoots resistant to -4°C for 2 h) and a well developed root system. Continuous selection for these factors over a period of years leads to highly productive buckwheat varieties which show a marked improvement over the original parental strain. References 10 (Russian).

CZECHOSLOVAKIA

DEPARTMENTS OF METHODS OF ORGANIZATION AT KRAJ INSTITUTES OF PUBLIC HEALTH AND THE IMPROVEMENTS IN MANAGEMENT OF THE KRAJ PUBLIC HEALTH SYSTEM

Prague CESKOSLOVENSKE ZDRAVOTNICTVI in Czech Vol 26 No 4, Apr 78 pp 174-176
manuscript received 24 Sep 77

DLOUHY, V., MUDr, NYKODYM, P., PhDr., Department of Method of Organization, Kraj Institute of Public Health, Usti n.L.

[Abstract] The article presents results of the first investigation of the information systems of kraj institutes of public health. Departments of methods of organization are responsible for the collection of medical information and for its transmission to higher authorities. The present day communications system needs substantial improvements so that sufficient medical information would be transmitted to the officials who control the activities of the Kraj Institutes of Public Health. The Departments of Organization are responsible for the development of the necessary computer programs needed for the control of operations of the kraj medical services. Computer programs are helpful in proper control of the medical personnel.

CZECHOSLOVAKIA

UDC 061.3:061.24:354.53:61.001.5

DEPARTMENTAL PLAN FOR RESEARCH AND DEVELOPMENT IN MEDICAL AND PHARMACEUTICAL SCIENCES AND IN MEDICAL TECHNOLOGY

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 1, 6 Jan 78 pp 3-4

HOUSTEK, J., academician, vice-president of the Scientific Council of the Ministry of Health CSSR

[Abstract] The Departmental Plan for the period 1976 to 1980 was approved by the Ministries of Health and of Education. It was published in April of 1975. The J. E. Purkyne Czechoslovak Medical Society participated in its development. Within the Plan there are 50 Commissions dealing with the tasks for individual problems. The present article reviews achievements obtained during 1976. In the section of pharmacology, cooperation with Comecon countries was established. Method of testing for mescaline in biological materials, a method of preparation of L-Aspartic acid, and a method of preparation of L-phenylalanine by fermentation were developed. In pediatrics, occurrence of varices was studied. In gastroenterology, the drug Pancreolan compositum was developed. In sexuology, legal aspects of some problems were studied. In dermatology, the use of luminescent diodes and of photodiodes in recording of diseases of skin due to circulation were developed. In neurology, occurrence of fatty acids in cholesterol

esters was investigated. In pneumonology bronchial diseases were studied. In the tuberculosis sector, good results in the treatment of patients with isoniazid were obtained. In clinical biochemistry, assay of cholesterol, glucose, glycopeptides and of neutral lipids was studied and new analytical methods developed. In radiology, new methods of clinical examinations were developed. In neurosurgery, a method for diagnosis of damage to dorsal stems was developed. In plastic surgery, new methods for treatment of hand damages were developed. In pediatric surgery, domestically-produced, steel prostheses were developed. In ophthalmology, microsurgical methods of glaucoma treatment were studied. In otolaryngology, a new method for examination of the outer ear was developed. In stomatology, better methods for preparation of inlays were discovered. In microbiology, epidemiology and in the treatment of infectious diseases, progress was made in the preparation of inoculum for the treatment of chicken pox. In social medicine the number of hospital beds needed was investigated. In the economics of the national health services, the costs of these services were analyzed. A detailed report covering these results will be published later. New plans for the problem tasks, vis. "Transplantations of Bone Marrow," "Special Materials for Use in Blood Transfusions," and "Health Problems in Planning of Residential Buildings" were prepared for the Departmental Plan.

CZECHOSLOVAKIA

MEETING THE RESEARCH TASKS OF THE P 17 PROGRAM WITHIN THE STATE PLAN FOR SCIENTIFIC DEVELOPMENT

Prague CASOPOS LEKARU CESKYCH in Czech Vol 117 No 1, 6 Jan 78 pp 4-8

DIENSTBIER, Z., professor, MUDr., Vice-president of the Scientific Council of the Ministry of Health of Czechoslovakia

[Abstract] The P 17 program deals with public health problems in the sixth five year plan. 15 research tasks were included in this plan which was approved by the Central Committee of the Czechoslovak Communist Party in 1974. The article covers achievements obtained at five centers where the P 17 program is being realized. The first center "IKEM" deals with diagnosis, treatment and prevention of cardiovascular diseases. Among the most important achievements are surgical treatment of ischemic heart diseases, the technique of reconstruction of veins, and resection of the left heart chamber. An extended investigation of factors contributing to ischemic heart diseases and to acute brain vein failures is conducted. A new instrument was developed for the transmission of data from implanted cardio-stimulators. Problems of heart and liver transplants are being studied. Some studies in bone marrow transplants and pancreas transplants were completed. During 1976, 52 kidney transplant operations were conducted. The

second center, "IHE," solves problems connected with air pollution. Other subjects dealt with at this center are: water pollution, noise pollution, optimum food supply in the changing technical surroundings, the effect of working place conditions on humans, protection from ionizing radiation, epidemiology and prevention of selected infections, and health problems connected with mass construction of living quarters. The third center deals with psychiatric problems and factors affecting mental health in socialist society. The fourth center, "VHJ SPOFA," is concerned with pharmaceutical developments. Veterinary drugs are also studied in this center. The fifth center is designated as "USOL" and is concerned with the problems of immunization and of clinical immunology. A successful vaccine for prevention of colds was developed. Higher quality gammaglobulines were developed and are clinically available.

CZECHOSLOVAKIA

RESULTS OF THE CZECHOSLOVAK CARDIOVASCULAR PROGRAM

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 1, 6 Jan 78 pp 20-23

HEJHAL, L., professor, MUDr., doctor of sciences

[Abstract] Research in this subject is conducted by 124 senior researchers working in 141 different centers. The task is subdivided into 11 specialized fields which are: atherosclerosis, ischemic heart diseases, hypertension, rheumatic heart diseases, inherited heart faults, diseases of peripheral blood arteries, diseases of brain arteries, cardiopulmonary diseases, heart support devices and transplants, medical electronics in cardiovascular problems, and complex care for patients suffering from or endangered by cardiovascular diseases. IKEM is the main research center where five of the 11 specialized fields are studied. In 1977 the progress which was achieved corresponded to the planned advancements. Research in etiopathogenesis of heart diseases was directed by Dr B. Mosinger; diagnostics of myocardial ischemia and of the coronary channels were supervised by Dr J. Fabian. Dr Fabian also supervised the research activities concerned with the evaluation of the functioning of the left heart chamber. Developments in the surgical treatment of ischemic heart diseases were coordinated by Dr L. Hejhal. Progress in pharmacological treatment of ischemic heart diseases was directed by Dr. J. Widimsky. Electrocardiostimulation therapy developments were coordinated by Dr Z. Naprstek. Research and developments in the fields of therapy by substances accumulating in the ischemic myocardium and in pathological, diagnostic and therapeutic problems were guided by Dr P. Malek. Research in the prevention and epidemiology of ischemic heart diseases was supervised by Dr. J. Widimsky.

There is close cooperation between all of the Comecon countries in the field of medical research. Comecon assigned three special tasks in the field of heart diseases research to Czechoslovakia: 1. Study of hypertension and of regional hemodynamics in various courses of hypertonic diseases. 2. Development of improvements in conservative and surgical treatment of ischemic heart diseases. 3. Study of pathology of blood microcirculation and regulation of regional blood circulation systems. The IKEM institute was charged with the coordination of the entire cardiovascular disease research in Czechoslovakia.

CZECHOSLOVAKIA

UDC 616.12-07:354.53(437)

PRESENT CONDITIONS IN THE PROGRAM OF HEART DISEASES CONTROL IN THE CZECH SOCIALIST REPUBLIC

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 1, 6 Jan 78 pp 24-25

HURYCH, J., MUDr., candidate of sciences

[Abstract] The purpose of the program is to prevent development of heart diseases, reduce morbidity of such diseases and help people who recovered from such diseases to resume their normal life activities. Primary and secondary prevention, rapid diagnosis, treatment of the diseases and rehabilitation of the patients are covered by the program. The most serious heart diseases in Czechoslovakia are: ischemic heart diseases with heart infarct, hypertension and brain affections. The most important improvement achieved within the program was to reduce the time period between a heart attack and hospitalization from an average of seven hours to an average of two. Average period of hospitalization was reduced from five to six weeks to three to four. Death rate of hospitalized patients was reduced from 32 to 18 percent. Rehabilitation is achieved in 70 percent, and complete return to previous life style in over 50 percent of the patients. A regular control of blood pressure in the population was instituted; it is hindered by a shortage of qualified physicians. A book dealing with cardiological developments in medical practice was published and distributed to the concerned medical personnel. All of the activities are conducted in coordination with the other countries participating in the Comecon agreements. References 11 (Czech).

CZECHOSLOVAKIA

UDC 616.832-004.2-036.2(437)

GEOGRAPHICAL DISTRIBUTION OF SCLEROSIS MULTIPLEX IN CZECHOSLOVAKIA

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 2, 13 Jan 78 pp 36-39

LENSKY, P., Czechoslovak State Spas, Sanitarium Vraz near Pisek

[Abstract] The geographical distribution of multiple sclerosis in Czechoslovakia was evaluated on the basis of the history of the patients suffering from this disease and treated at the sanitarium at Vraz during the period 1970 to 1976 when a total of 2,760 patients was treated. Highest incidence of the disease appeared to be in Northern Bohemia in the districts of Teplice, Most, Chomoutov, Litomerice and Louny. Incidence in the districts of Beroun, Kladno and Rokycany was somewhat lower. It was not possible to find any specific factors which might have caused this local distribution of the disease. Lowest incidence of the disease appeared to be in the regions of Southern Moravia and Western Slovakia. Generally it can be stated that the incidence of the disease in Czechoslovakia decreases following the direction from North West to South East. 55.2 percent of the patients contracted the disease during the winter; hereditary factors were found in 1.7 percent of the cases. Highest incidence was 45 cases per 100,000 inhabitants. Figure 1; references 13: 3 Czech, 2 Russian, 8 Western.

CZECHOSLOVAKIA

PROBLEMS IN STERILIZATION OF MEDICAL PRODUCTS AND PREPARATIONS IN INDUSTRIAL PRACTICE

Prague CESKOSLOVENSKA EPIDEMIOLOGIE MIKROBIOLOGIE IMUNOLOGIE in Czech Vol. 26 No 5, May 78 pp 308-316 manuscript received 7 Feb 77

CHYLKOVA-HORAKOVA, V., State Research Institute for Textiles, Branch for Research and Utilization of Ionizing Radiation, Brno-Veverska Bityska

[Abstract] Two methods for sterilization of medical tools and products were investigated. One based on ionizing radiation, the other on ethylene oxide. The common feature of both processes is that they are operated at room temperature. Co 60 was used in ionizing radiation with energy quantum of 1.17 and 1.33 MeV; another radiation source was an electron accelerator with an energy supply of five MeV. This method is highly successful in sterilization of medical tools, and less suitable for treatment of organic materials. Even some drugs may be damaged by the radiation. For ethylene sterilization a gas with 88 percent concentration of freon and 12 percent of ethylene oxide was used at a pressure of one to three kp/cm². Ethylene oxide concentration

was 550 mg/l. Alternatively a gas mixture of 90 percent CO₂ and 10 percent ethylene oxide was used, at a pressure of 6.3 kp/cm² and a concentration of 1200 mg/l. After ethylene oxide sterilization the materials should be left for two weeks before they are used. Good results are obtained in the sterilization of medical tools. Figures 5; references 16: 2 Czech, 1 Russian, 13 Western.

CZECHOSLOVAKIA/EAST GERMANY

COOPERATION BETWEEN THE INSTITUTIONS OF SOCIAL HYGIENE AND THOSE OF CLINICAL MEDICINE IN THE REPUBLIC OF EAST GERMANY

Prague CESKOSLOVENSKE ZDRAVOTNICTVI in Czech Vol 26 No 4, Apr 78 pp 151-154 manuscript received 15 Nov 77

ROTHE, J., Professor, Chairman of the Society for Social Hygiene, German Democratic Republic

[Abstract] The realization that there is a relationship between the social surroundings and the state of health of an individual has been accepted for a long time. In clinical medicine this truth was not accepted at first. Only with the arrival of an advanced socialist society was this correlation recognized. Any medical examination must include also an investigation of the social environment of the patient. Only a Marxist methodology can deal with these problems. This aspect is of the greatest importance in the maintenance of the health of an individual. This approach was decreed by the Ninth Congress of the Social Unity Party of Germany [Communist Party of East Germany]. A Socialist society will improve the general level of health protection. The correlation between the social environment and clinical medicine should be considered in planning of medical research.

CZECHOSLOVAKIA

HEALTH CONDITIONS OF THE LEADING OFFICIALS OF THE REGION OF CENTRAL BOHEMIA
IN RESPECT TO SELECTED CIVILIZATION DISEASES

Prague CESKOSLOVENSKE ZDRAVOTNICTVI in Czech Vol 26 No 4, Apr 78 pp 168-
173 manuscript received 3 Jun 77

SPALE, V., MUDr., FORST, J., MUDr., HANAK, R., MUDr. (deceased), LUNDOIVA,
A., MUDr., PROSEK, I., MUDr. and NEVOSADOVA, K., engineer, Kraj Institute
of Public Health, Kraj of Central Bohemia

[Abstract] Officials in leading administrative positions were investigated to determine whether their morbidity differed from that of the average population. The diseases investigated were hypertension, ischemic heart diseases, neuroses, ulcers and their combination. The administrators showed approximately twice as high incidence of these diseases as the control group with the exception of ulcers where the incidence was identical. Combination of these diseases (more than one of them) showed a three times higher incidence among the officials than in the control group. On the other hand only one half as many officials claimed occupational disability, which indicates that they were really four times as anxious to continue working as the common people. Figures 3.

CZECHOSLOVAKIA/WEST GERMANY

UDC 061.6:340.6(430.1)(079.3)

TWO FORENSIC MEDICINE INSTITUTES IN WEST GERMANY

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 7, 17 Feb 78 pp 215-216

KLIR, P., MUDr., Prague

[Abstract] The author visited the Institute of Forensic Medicine at Bonn on the 24 to 30 October and that at Heidelberg on the 30 October to 5 November 1977. In the Heidelberg Institute 600 autopsies are conducted each year; at Bonn only 200. X-ray pictures are taken before each autopsy to provide guidance to the physicians. Special incision techniques are used, and the progress of the autopsy is recorded photographically. In addition to an assistant, two physicians are present, one of whom constantly dictates the progress into a dictaphone. General findings of the condition of the deceased and of the condition of their clothing are also recorded. The Institutes also devote a large amount of their time to traffic accidents which are studied on special equipment with models of human bodies. Drivers involved in accidents are also examined, using EEG and EKG. Well equipped ballistic laboratories are also available at both Institutes.

The Bonn Institute also has a chromosomal laboratory dealing with genetics. In the departments of serology not only diseases are studied, but also paternity suits investigated. Methods of blood analysis are developed extensively.

CZECHOSLOVAKIA

UDC 616-097.5:576.858.5(437.1-17)

ANTIBODIES AGAINST ADENOVIRI OF TYPES 29 AND 8 IN ADULTS OF SEVEN SELECTED OKRESES OF NORTHERN BOHEMIA

Prague CASOPIS LEKARU CESKYCH in Czech Vol 117 No 6, 10 Feb 78 pp 175-179

KASOVA, V., BULICEK, V., PETRICKOVA, D., SMOLIKOVA, M., STURMA, B., VESELA, E. and ZIMA, Z., Kraj Station of Hygiene, Usti nad Labem; Okres Station of Hygiene, Most; Okres Station of Hygiene, Louny; Okres Station of Hygiene, Teplice; Okres Station of Hygiene, Chomutov; Okres Station of Hygiene, Decin; Okres Station of Hygiene, Litomerice

[Abstract] 630 serum samples were collected from adults aged 16 to 93. Presence of antibodies against adenovirus (Ad) 29 and Ad 8 was studied using the hematoagglutination-inhibition titration micromethod. The highest rate of morbidity was found in the district of Most where a year and a half earlier an epidemic of keratoconjunctivitis C occurred; it was due to both types of the adenovirus. Antibodies against Ad 29 with a titre exceeding eight were found in 25 percent of the population in equal numbers of men and women. However, titres exceeding 32 were found four times as frequently in men than women. 15 percent of the sera contained also antibodies against Ad 8. Antibodies against Ad 29 were found 1-1/2 times as frequently in adults than in children. The highest numbers of positive findings were between the ages of 21 and 25 and over 50. The results indicate that the Ad 29 infection is endemic in the region. Antibodies against Ad 8 with a titre above eight were found in only three percent of adults and 7-1/2 percent of children. Most of these antibodies were present in persons who also had antibodies against Ad 29. Ad 8 antibodies were not found in people between the ages of 21 and 30; in those over 50 they never exceeded the value of seven percent. The population of the region of Northern Bohemia is sensitive to the Ad 8 infection. Figures 2; references 12: 3 Czech, 9 Western.

CONDITIONS OF CONCENTRATION OF ENTEROVIRUSES AND PHAGES IN WATER BY ADSORPTION ON MEMBRANE FILTERS

Moscow GIGIYENA I SANITARIYA in Russian No 6, Jun 78 pp 71-72 manuscript received 28 Nov 77

AYZEN, M. S. and KAZANTSEVA, V. A., Moscow Scientific Research Institute of Hygiene imeni F. F. Erisman; Institute of Poliomyelitis and Viral Encephalitis, Academy of Medical Sciences USSR, Moscow

[Abstract] This is a continuation of earlier study of concentration of the title organisms in the water supply system by adsorption on Soviet-made membranes. These membranes (GOST 8985-59) are put out by the Ultrafilter Plant of the Ministry of Communal Economy RSFSR and by the Leningrad Branch of the All-Union Scientific Research Institute of Artificial Fiber. The filters are 35 mm in diameter; pores 0.3, 0.45 and 0.8 μm , which does not affect the effectiveness of virus concentration. Waters filtered included: distilled, water supply, water supply plus 10% sewage water, water supply plus 50% sewage water, water inoculated with poliomyelitis Type III, strain Leon 12 a₁b or with phage T₁ E. coli (coliphage). Conditions of adsorption on the filters were varied with respect to concentration of salt (Na_2HPO_4), additive, pH, degree of contamination, and subsequent removal from filters. The greater the water purity, the greater the effect of salt on adsorption; a pH of 3 was more effective in promotion of adsorption of virus, and a neutral solution more effective for phage adsorption. Mechanical agitation was found to promote elution of the virus from the filter. The results are said to be useful in developing concentration of viruses and phages from natural and drinking waters. Reference 1 (Russian).

USSR

UDC 613.31-078

FEATURES OF SANITARY BACTERIOLOGICAL CONTROL OF THE QUALITY OF DRINKING WATER CORRESPONDING TO GOST 18963-73 "DRINKING WATER. METHODS OF SANITARY BACTERIOLOGICAL ANALYSIS"

Moscow GIGIYENA I SANITARIYA in Russian No 6, Jun 78 pp 72-76 manuscript received 28 Nov 77

ARTEMOVA, T. Z., candidate of biological sciences, and KORSH, L. YF., doctor of medical sciences, Institute of General and Communal Hygiene imeni A. N. Sysin, Academy of Medical Sciences USSR, Moscow

[Abstract] The title GOST was worked out by the authors' institute, by the Department of Communal Hygiene of the First Moscow Medical Institute, by the Moscow Institute of Hygiene imeni F. F. Erisman, with the participation of bacteriological laboratories of the Moscow City and Oblast Sanepid Stations, and of bacteriological laboratories of the water supply stations and Central Network Laboratory of Moscow. The GOST is a supplement to GOST 2874-73 "Drinking Water," laying down basic positions needed for proper execution of control of water quality. It is said to promote unification of sanitary bacteriological methods of water quality control in the CEMA countries. It was created to achieve unification with international standards (1973) but has substantial advantages over those standards; it is said to exceed UN recommendations in sensitivity, accuracy, simplicity and speed of producing answers. References 6 (Russian).

USSR

UDC 614.78/.79:628.4

REFUSE DISPOSAL BY POPULATION CENTERS IN THE UkrSSR

Moscow GIGIYENA I SANITARIYA in Russian No 6, Jun 78 pp 76-80 manuscript received 30 May 77

GONCHARUK, YE. I., professor, BORIMSKIY, V. K., candidate of medical sciences, TSIPRIYAN, V. I. and SHEVCHENKO, YU. L., Kiev Medical Institute imeni Academician A. A. Bogomolets; Kiev City Sanepid Station

[Abstract] A historical development of refuse disposal programs is given, from the essentially-absent efforts before the revolution, to the effective efforts in the Soviet period. In 1976, the UkrSSR was using specialized transport to remove 30,000,000 M³ of refuse from its cities; this figure does not include industrial and construction wastes. Variations in the composition of garbage over the years (1935 to 1973) are tabulated. Changes in bacterial contamination of garbage are also shown. Basic problems alluded to include use of machines to get rid of garbage--with the view to automation of the heavy work--, use of containers, problems of infection of garbage personnel and injuries, introduction of standard garbage disposal.

equipment, burial of garbage, mineralization of active sludge and disposal of liquid wastes. The hygienic condition of cities depends on the united forces of the sanitary and communal services, on the support from the Executive Committee of the Council of Deputies of the Workers and on the active participation of the population. References 5 (Russian).

USSR

UDC 614.27:65(430.2)

ORGANIZATION OF THE PHARMACY SERVICE IN THE GDR

Moscow FARMATSIYA in Russian No 3, May/Jun 78 pp 41-47 manuscript received 22 Aug 77

PANCHENKO, YE. I., GRIBOYEDOVA, A. V. and SOSINA, N. I., All-Union Scientific Research Institute of Pharmacy, Main Pharmacy Administration, Ministry of Health USSR, Moscow

[Abstract] A brief report is presented of the findings of a Soviet delegation to the German Democratic Republic (GDR) in 1977 on a fact finding mission regarding pharmacy services. Pharmacy service in the GDR consists of 15 regional pharmaceutical centers and one in Berlin under the supervision of the Ministry of Health and Social Security of the GDR. Each regional center is responsible for maintaining adequate services for the regional population and at present the population of the GDR is served by 2000 pharmacies, i.e., one pharmacy per 8.5 thousand individuals. An outline is provided of pharmaceutical education, as well as opportunities for post-graduate training. A detailed description is provided of one pharmacy in Berlin ("Germania") as an example of the typical physical layout of pharmacies in the GDR. Figures 4.

USSR

UDC 614.27.003.3:681.3

DEVELOPMENT AND IMPLEMENTATION OF COMPUTERIZED MONITORING OF DRUG SUPPLY
IN THE KUYBYSHEV OBLAST

Moscow FARMATSIYA in Russian No 3, May/Jun 78 pp 49-52 manuscript received
11 Apr 77

KUROCHKIN, YE. I., Pharmacy Administration, Kuybyshev Oblast Executive
Committee

[Abstract] Beginning with March 1977 the pharmacy service in Kuybyshev
oblast has employed computerized monitoring of the flow of drugs between
storage depots, pharmacies, and consumers. This has served to increase the
efficiency of the service 4-5 fold in stocking high demand items and in
elimination of diminishing inventories of items for which there is little
demand. Automation of drug "book-keeping" has also freed pharmacists from
this task and enabled them to devote more time to their professional duties.

USSR

UDC 615.214.03:65.012.2

IMPROVEMENTS IN MONITORING REQUIREMENTS FOR PSYCHOTROPIC AGENTS

Moscow FARMATSIYA in Russian No 3, May/Jun 78 pp 53-54 manuscript received
3 May 77

KHODAKOV, N. B., ZAGOROVSKAYA, L. T. and YANISHEVSKAYA, N. A., Kiev Insti-
tute for the Advanced Training of Physicians, and the Kiev Scientific Re-
search Institute of Pharmacology and Toxicology

[Abstract] Although the danger of drug addiction in the USSR does not ex-
ist in view of the measures taken by Soviet authorities at the national and
international level, certain problems may arise as a result of improper
clinical utilization of psychotropic agents. Studies conducted by the Main
Pharmacy Administration of the Ministry of Health Ukrainian SSR have shown
that during 1966-1974 prescriptions for such agents during some years have
exceeded 2-3 fold the number of prescription written during years of mini-
mal usage. At times inadequate methods of drug distribution resulted in
excess inventories (2-3 fold) of psychotropic agents at certain pharmacies.
These findings indicate that improvements in the monitoring of the distri-
bution and prescription of psychotropic agents are called for in order to
diminish even further the threat of drug misuse.

USSR

UDC 614.27:658.818.2

AUTOMATED TELEPHONE INFORMATION SERVICE AND PHARMACY INFORMATION

Moscow FARMATSIYA in Russian No 3, May/June 78 pp 59-60 manuscript received 2 Feb 77

SERGEYEVA, T. D. and KUSHNIRENKO, YU. S., Central Municipal Pharmacy No 36, Sevastopol'

[Abstract] In 1962 a reference bureau on drug availability was formed at the Central Municipal Pharmacy No 36, which provided pharmacists and consumers with information as to the availability of a given drug at the various pharmacies in Sevastopol'. The system was further perfected in October of 1976 by the installation of an automated telephone system with five incoming lines to improve the delivery of drug supply information to interested parties. The service was set up at the municipal telephone station and is manned by the three pharmacists who had earlier worked at the No 36 pharmacy reference bureau.

USSR

UDC 361.9:[614.88:614.27

RESPONSIBILITIES OF THE PHARMACY SECTION OF FIRST AID MEDICAL SERVICE IN FOCI OF MASS CASUALTIES AND IN NATURAL DISASTER-PRONE REGIONS

Moscow FARMATSIYA in Russian No 3, May/June 78 pp 62-66 manuscript received 19 Jul 77

LADYGIN, S. I., All-Union Scientific Research Institute of Social Hygiene and Organization of Public Health imeni N. A. Semashko, Moscow

[Abstract] Consideration is given to the organization, administration, responsibilities, and effectiveness of the pharmacy section (PS) within the framework of civil defense medical service. The basic PS consists of 6 staff members, including the chief pharmacist and two assistant pharmacists, two "sanitars" (medical orderlies), and a driver. The primary function of the PS in a situation involving mass casualties or a natural disaster is to assure timely and uninterrupted supply of drugs and other therapeutic agents to the various units of the civil defense medical service, and to render such other assistance as is within the competence and responsibility of the PS. Consideration is also given to equipment and supplies, scope of work, training and selection of personnel, and priorities that must be met by the PS.

USSR

UDC 62-501.72(21):614.881

MODELING OF AN OPERATIVE SERVICE EXEMPLIFIED BY THE SKORAYA MEDITSINSKAYA POMOSHCH

Moscow AVTOMATIKA I TELEMEXHANIKA in Russian No 6, 1978 pp 126-135 manuscript received 25 May 77

BESKROVNIY, I. M., Moscow

[Abstract] This article examines operation of a municipal service, e.g., the emergency medical aid service--the Skoraya Pomoshch (SP)--, the police, fire department, or malfunction service of the gas industry and suggests modeling an operative service in the form of an automated system of control using the SP as an example. Incoming calls to the SP must be differentiated with respect to degree of risk to the patient or accident subject. A three-dimensional "territory-priority" space can be constructed whose elements involve location of the emergency site, the time of the call, the actual state of the subject and the nature (and timeliness) of the service to be dispatched. The latter might be no dispatching--where the subject is able to go unassisted, as directed by the SP, to a polyclinic--or dispatching, in decreasing order of need, of a specialized brigade, a physician's brigade or a feldsher's brigade. A block-diagram of the SP task (viz., provision of emergency medical care in the pre-hospital stage), is portrayed. Three basic contours can be separated in the system, viz., a contour of operative control (reception of information, center of operative control, transmission of data, duty brigade, optimum resolution of problems of timeliness, priority, tasking of the appropriate SP substation, appropriateness of available medical care, readjustment of decisions via feedback), a contour of operative planning and a contour of pre-hospital planning and development (which apply the experience of the first contour). The block-diagram used in the construction of a systematic model permits preparation of a mathematical model. Estimation of the effectiveness of introduction of computer technology can be assisted with the help of decision tables (tabulated in "yes"--"no" response form to questions like "priority call?", "specialized brigade available?", "brigade on the way?", etc.). The methodology is said to be applicable to any other municipal service, e.g., fire fighting, which has its discrete elements of priority and similar needs for tracking of on-going measures.

BULGARIA

DETERMINATION OF IRRADIATION OF HUMAN SKIN EXPOSED TO CONTAMINATION WITH RADIOACTIVE NUCLEAR EXPLOSION PRODUCTS

Sofia RENTGENOLOGIYA I RADIOLOGIYA in Bulgarian Vol 17 No 2, 1978 pp 90-92 manuscript received Feb 78

VASILEV, G. and MIKHAYLOV, M. G., Scientific Institute of Roentgenology and Radiobiology (director: Professor Iv. Nikolov) of the Medical Academy

[Abstract] The authors' own research and data in the literature show that during contamination of human skin in vivo with liquid radioactive materials the penetration and spread of activity in the skin are of an exponential character, while in the case of solid powdery materials the contamination is primarily of a surface character. Equations are suggested for determining the irradiation of human skin exposed to contamination with radioactive nuclear explosion products, including equations for calculating irradiation doses for the basal layer of the skin and for calculating surface activity. The practical application of the equations is demonstrated by the case of the radioactive contamination of Japanese seamen from the fishing schooner Fukuru Maru on 1 March 1954 as a result of the explosion of an American thermonuclear device. The calculations confirm the fact that the irradiation dose received by the skin following a nuclear explosion may be much greater than the dose received by the whole body. References 11: 10 Russian, 1 Bulgarian.

USSR

UDC 631.41:546.42

EFFECTS OF AGROCHEMICAL SOIL PROPERTIES ON STRONTIUM-90 UPTAKE BY AGRICULTURAL PLANTS

Moscow AGROKHIMIYA in Russian No 3, 1978 pp 118-123 manuscript received 17 Mar 77

SHIRSHOVA, R. A. and SHCHERBAKOVA, V. A., Soil Institute imeni V. V. Dokuchayev, Moscow

[Abstract] Experimental studies were conducted with peas grown on 10 different types of soil to determine the factors influencing Sr-90 uptake by food crops. The findings were in concert with the generally accepted relationship that Sr-90 uptake is depressed as soil level of mobile Ca^{++} is increased. However, it was also established that a more definitive evaluation of uptake and predictive judgements must take into consideration other soil factors, i.e., mechanical properties of the soil, acidity, levels of mobile potassium, and humus, among others. In addition, the form of Sr-90 in the soil itself bears considerable influence on plant uptake, e.g., the high mobility of Sr-90 in sandy dernovo-podzolic soil is due primarily to the fact that it is present in a water-soluble form. Figures 1; references 12: 1 Western, 11 Russian.

CZECHOSLOVAKIA

PHARMACOTHERAPY OF ACUTE INFARCTIONS AND OF CEREBROVASCULAR ATTACKS AS PRACTICED IN TWELVE VARIOUS HOSPITALS

Prague CESKOSLOVENSKE ZDRAVOTNICTVI in Czech Vol 26 No 3, Mar 78 pp 134-139 manuscript received 21 Nov 77

LOVY, O., MUDr., RICHTER, M., Ph. Mr., ELIS, J., docent, MUDr., and STIKA, L., doctor of sciences, MUDr., Hospital at Motol; Pharmacological Institute, Czechoslovak Academy of Sciences; Okres Institute of Public Health, Prague

[Abstract] The survey was conducted in 12 hospitals in which 152 patients were hospitalized with an acute myocardial infarct, and 122 patients with a diagnosis of cerebrovascular attacks. The greatest differences were found in the amounts of the prescribed cardiotonics and anticoagulants. In some hospitals anticoagulants are not used at all in the treatment of infarctions. Infusion therapy was used only rarely in the treatment of the patients suffering from acute infarctions or from cerebrovascular attacks. The following is the overall list of drugs used in the 12 hospitals: vasodilatants, psychopharmaceutics, cardiotonics, diuretics, analgesics, antibiotics, and anticoagulants. Figures 5.

USSR

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616.16-031:611.24

EFFECTS OF PROTEASE INHIBITORS ON ACUTE EXPERIMENTAL INFLUENZA

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in Russian
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PARUSOV, V. N., LOZITSKIY, V. P., MAZHINSKAYA, V. P. and GARMASHOVA, L. M.,
Clinic of Experimental Pathology and Therapy of Acute Respiratory Infec-
tions, All-Union Scientific Research Institute of Influenza, Ministry of
Health USSR, Leningrad

[Abstract] Experimental influenza infections in 10-12 g mice (A0/32 or
A/England; 10^3 LD₅₀ intranasally) led to the development of a hemorrhagic
syndrome affecting the microcirculation of the lungs and other organs re-
sulting in 100% mortality. The viral titer in the lungs reached 5.0 lg by
the 6th to 7th day during which bacterial (staphylococcal) infection set
in. Morphologic studies demonstrated marked dystrophic changes in the
lungs and clinical chemistries revealed pronounced elevations of serum pro-
tease activity. Various schemes of treatment with protease inhibitors
(Trasylol, YE-AKK [sic], kontrikal [sic], or gordoks [sic]) led to abate-
ment of histopathology and produced a 20-25% survival rate. It is expected
that a further reduction in mortality would result from combination of the
protease inhibitors with specific antibiotic chemotherapy to counteract the
onset of bacterial complications. Figures 1; references 16: 13 Russian,
2 Western.

CZECHOSLOVAKIA

ANALYSIS OF FATTENING OF PIGS UNDER LARGE SCALE CONDITIONS,

Prague ZIVOCISNA VYROBA in Czech Vol 23 No 1, Jan 78 pp 43-54 manuscript received 19 May 77

PODEBRADSKY, Z., TOSOVSKY, J., Research Institute for Animal Production, Prague-Uhrineves, Poultry Section Xaverov

[Abstract] Data obtained in 150 pig fattening stations in Czechoslovakia during basic operations were analyzed by modern multi-dimensional mathematical and statistical methods. The average number of pigs per station was 5,355 in 1975 and 6,056 in 1976. The influence of methods of feeding, of the average weight of the pigs introduced to the fattening diet, and the influence of the location of the fattening station on the daily increase in weight and on the use of the amount of feed needed for a weight increase of one kg were studied. At the same time the influence of the new standards used in the production of pigs used for meat accepted in the Joint Agricultural Enterprises was investigated. In the units of the Joint Agricultural Enterprises, the increase of body weight per animal was 0.02 kg higher, and the daily consumption of feed per an increase of one kg body weight was lower by 0.09 kg than in the other Czechoslovak agricultural centers. The most successful techniques used mechanized distribution of the fodder which was supplied in a wet form to the animals with an admixture of whey. According to local conditions, some adjustments should be made. The Czechoslovak animal feeding systems Agra and Bios were also very successful. Great success was obtained in the feeding of whey which resulted in a considerable increase in food intake; this equalled 0.11 kg per one kg of body weight and a simultaneous increase in daily gain in weight of 0.02 kg. The savings in the consumption of foods corresponds to an increase of 2.9 percent in the weight of the pigs. Number of pigs held in a unit of space did not seem to affect the amount of body weight increase or the amount of needed fodder. References 12: 6 Czech, 6 Western.

USSR

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STUDY OF AEROSOL SANITATION OF AIR IN STATION ROOMS USED IN ARTIFICIAL INSEMINATION

Novosibirsk SIBIRSKIY VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 6, Nov/Dec 77 pp 77-80

ZYUBIN, I. N., candidate of veterinary sciences and ZYUBINA, M. I., Chita Branch of the Institute of Experimental Veterinary Science of Siberia and the Far East

[Abstract] Use of bactericidal lamps PRK-7, BUV-30 and BUV-60 in station rooms for artificial insemination work for 30 min prior to initiating work has been found not to suffice to lower microbial contamination of the premises; multiple 3 to 4 hr radiation with the lamps is sometimes required and some microorganisms (*B. pyocyaneum*, molds *Candida*, *Fusarium*, *Aspergillus* and *Mucor*) are resistant. Therefore, trial tests were carried out using thermochemical aerosols at the Chita branch of the institute. The aerosols were prepared from 10 and 20% hydrogen peroxide solutions, using an (illustrated) electric vaporizer (27x28x35 cm) which is portable. It needs only single use, in a work room, with 50 ml of hydroxide per 1 m³ of air. The rooms become sterile in 3 hr, with corresponding efficiencies of the aerosolization at shorter periods of exposure. The procedure is recommended for microbial and mildew contaminated rooms. Figures 1; references 12: 11 Russian, 1 Western.

USSR

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VACCINES FOR PREVENTING FOOT-AND-MOUTH DISEASE

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 4, Apr 78 pp 87-92

ONUFRIYEV, V. P., corresponding member, All-Union Academy of Agricultural Sciences imeni Lenin, MURAV'YEV, V. K. and PRONIN, I. A., candidate of veterinary sciences, All-Union Foot-and-Mouth Disease Scientific Research Institute

[Abstract] Serologic findings are presented for lapinized strains of foot-and-mouth disease (FMD) virus used in the preparation of hydroxy-aluminum, formolvaccine and emulsion vaccines with or without saponin for eventual use in sheep and cattle. Preliminary studies led to the establishment of a 50% mouse protective vaccine dose (MPVD₅₀) which was subsequently evaluated in sheep and cattle. Correlation between titers of virus neutralizing antibodies and vaccine dose showed that for monovalent or bivalent

vaccines (virus strain A₂₂ and O₁) the optimum immunizing dose for cattle was 10 MPVD₅₀ and for sheep 5 MPVD₅₀; antibody formation was seen within 7 days reaching maximum titers of ca. 7-8+ lg₂ at 21-30 days. After 150-180 days titers of ca. 2-3 lg₂ were detected. The findings for calves and mature cattle were essentially identical.

USSR

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COMPUTER-BASED MONITORING OF THE AGE PROFILE OF A MATERNAL HERD

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 4, Apr 78 pp 134-139

OGANESYAN, S. V., candidate of technical sciences, SIDOROVA, K. T. and BELENCHUK, V. I., candidates of agricultural sciences, and NOZHEVNIKOV, S. A., All-Union Cybernetics Scientific Research Institute, Ministry of Agriculture USSR

[Abstract] In order to promote the efficiency of swine farms in meeting their productivity requirements, a computer-based information retrieval system is outlined as a bloc scheme for providing information on the availability and history of sows. The key element is information on the age profile of the maternal herd and factors which affect farrowing which are used in an algorithm for solving breeding problems. Figures 2; references 2 (Russian).

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