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14 AUGUST 1986

USSR REPORT
LIFE SCIENCES
BIOMEDICAL AND BEHAVIORAL SCIENCES

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NATURE OF PINK STAINING OF GRAIN

Moscow IZVESTIYA AKADEMII NAUK SSSR: SERIYA BIOLOGICHESKAYA in Russian
No 2, Mar-Apr 85 (manuscript received 19 Jul 82) pp 313-315

[Article by A. P. Ordin, All-Union Scientific Research Institute of Grain and Grain Products, Moscow]

[Abstract] Microscopic and culture techniques were employed to identify the causes of pink coloration of maturing wheat and rye seeds. The findings showed that in addition to the fungus Fusarium another agent also bore responsibility for the discoloration, which was subsequently identified as Mycelia sterilia Odin. Failure to recognize the latter was in part based on previous assumption that all such discoloration was due to Fusarium sp. and the fact that M. sterilia is much more difficult to cultivate and identify, as well as to the fact that it is frequently suppressed by the presence of other fungal agents. These facts, in combination with a low index of suspicion, led to the delay in the identification of M. sterilia as being responsible for pink discoloration of wheat and, in particular, of rye. References 5 (Russian).

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CSO: 1840/2166

UDC 614.7:648.18]-07:[612.017.1+612.397

EFFECTS OF SYNTHETIC DETERGENT POWDERS ON IMMUNITY AND LIPID METABOLISM IN EXPERIMENTAL ANIMALS

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85 (manuscript received 12 Sep 84) pp 79-80

[Article by Yu. N. Talakin, M. V. Savchenko, M. Z. Nizharadze and L. A. Ivanova, Medical Institute imeni M. Gorky, Donetsk]

[Abstract] In view of their extensive use, trials were conducted with Lotos and Era synthetic detergents (18 and 8% alkylbenzene sulfate, respectively) on guinea pigs to determine their allergenicity and metabolic effects. Exposure of the animals via various routes (topical, respiratory, subcutaneous) in various dosages demonstrated that both detergents possess allergenic properties. The threshold concentration via the respiratory route for sensitization was established at 25 mg/m^3 for both detergents. In addition, respiratory exposure of the guinea pigs to a concentration of 50 mg/m^3 (4 h/day, 5 days/week) for 4 weeks of either detergent resulted in depression of phagocytic activity and inhibition of serum lysozyme, as well as in marked elevation of blood cholesterol and moderate elevation of triglycerides and phospholipids. The effects on lipid metabolism, however, were noted only in the sensitized animals. Development of hypersensitivity to Era was also accompanied by marked elevation in N-acetylneuraminic acid. References 11 (Russian).

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GAS CHROMATOGRAPHIC DETERMINATION OF AIR CONCENTRATIONS OF AROMATIC AMINES

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 19 Mar 84) pp 57-59

[Article by M. T. Dmitriyev, T. S. Ulanova and A. V. Mikhaylov, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow]

[Abstract] A gas chromatography approach was taken to the analysis of air concentrations of aromatic amines, in order to devise a method for environmental monitoring that is both sensitive and specific. Optimal results were obtained by concentration of the amines on silica gel columns, followed by gas chromatography on N-AW-DMCS (0.250-0.313 mm fraction) column and the use of a flame ionization detector. The relative error rate ranged from $\pm 4.78\%$ for aniline to $\pm 14.80\%$ for N-ethyl-toluidine. With 90-liter air samples the following detection limits were obtained: 0.05 mg/m^3 for aniline, 0.02 mg/m^3 for N-methylaniline, 0.006 mg/m^3 for N,N-dimethylaniline, and 0.01 mg/m^3 for N-ethylaniline, N-ethyl-toluidine and N,N-diethylaniline. Figures 3; tables 1; references 6: 5 Russian, 1 Western.

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UDC 615.285.7.099.015.44:612.014.24:576.316.74

EFFECTS OF 1-PHENYL-4-AMINO-5-CHLOROPYRIDAZONE-6 ON X-CHROMOSOME MORPHOLOGY AND FUNCTION

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 23 Apr 84) pp 80-82

[Article by T. V. Pastushenko, Ternopol Medical Institute]

[Abstract] Female albino rats were employed to test the effects of the herbicide 1-phenyl-4-amino-5-chloropyridazone-6 on the helical structure and functional activity of the X-chromosome in acute and chronic studies. The herbicide was administered intragastrically in a dose of 2650 mg/kg (= LD₅₀ for female rats), via the respiratory route for 4 h in a dose range of 5-100 mg/m³, or chronically (4 months) as an inhalant in a dose of 0.5-10 mg/m³. Cytochemical studies on various tissues and determination of glucose-6-phosphate dehydrogenase activity (reflecting the functional status of the X-chromosome) demonstrated that the herbicide was without a specific effect on the X-chromosome. As a result, the maximum permissible concentration can be set at the CE_{50ch} value of the chronic experiment determined through probability determinations, equivalent to 0.5 mg/m in the inhalation study. Tables 2; references 6: 1 Ukrainian, 4 Russian, 1 Western.

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EXTRAPOLATION OF ELECTROSTATIC FIELD DATA FROM EXPERIMENTAL ANIMALS TO MAN

Moscow GIGIYENA I SANITARIYA In Russian No 1, Jan 85
(manuscript received 21 May 84) p 89

[Article by A. P. Iyerusalimskiy, A. I. Livshits, F. G. Portnov and
A. B. Shmidt]

[Abstract] One of the most important factors in electrostatic field data extrapolation from experimental animals to man deals with the geometric parameters of the animal model and the resultant distortions in the field, designated by α . The latter can be estimated from the equation $\alpha = E_m/E_o$, where E_m is the maximum intensity at the surface of the biological object and E_o is the intensity of the undistorted electrostatic field in the cage. Computer-based calculations of α showed that for extrapolating data from rats (E_r) to man (E_h) the following equation is obtained: $E_h = (\sqrt{A_h}/\sqrt{A_r}) E_r \approx (5) E_r$. Figures 1; references 5: 4 Russian, 1 Western.

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CSO: 1840/2171

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CARTOGRAPHIC APPROACH TO AIR POLLUTION

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 10 Apr 84) pp 55-57

[Article by I. I. Datsenko, M. N. Kolodko and G. A. Bachinskiy, Lvov Medical Institute; Institute of Applied Mechanics and Mathematics, Ukrainian SSR Academy of Sciences, Lvov]

[Abstract] A socioecological collective at the Computer Center of the Institute of Applied Mechanics and Mathematics is currently at work on the creation of an air pollution atlas of the Lvov region. The atlas is planned on a 1:100,000 scale, with preliminary studies showing that coverage of 20 representative pollutants will give a reasonable cartographic representation of the problem. Pollutant density will be expressed by a volume indicator Q , which will reflect the volume of air (km^3/d) required to dilute a pollutant to the maximum permissible concentration level. Tabulated data on Q values are presented for some common pollutants in the region (cement dust, soot, carbon monoxide, carbon disulfide, etc.) emitted by some of the local industries. The method also allows for the estimation of the percentage of pollution due to a single source, such as vehicular traffic which accounts for 70-75% of the total air pollution in Lvov. Figures 1; tables 1; references 10: 3 Ukrainian, 7 Russian.

12172/12955

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EVALUATION OF EMISSION POLLUTANTS FROM CIVIL AVIATION AIRPLANES IN AIRPORT VICINITY

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 15 Mar 84) pp 19-21

[Article by D. I. Smelyanskaya, A. I. Zaporozhets and V. I. Tokarev, Kiev Scientific Research Institute of General and Communal Hygiene imeni A. N. Marzeyev]

[Abstract] Nomograms were derived for the estimation of emission pollutants produced by civil aviation aircraft during landings and takeoffs at two Kiev airports. The calculations took into account the types of airplanes at the two airports, and the fact that 60-70% of the emission was produced either during landings or takeoffs. At the class I airport, at which 80% of the landings and takeoffs are by Tu-154 and Tu-134 airplanes, the annual emissions of Co, CH and No_x were calculated at 520, 135 and 150 tons, respectively. At the class II airport, where 70% of the activity is due to An-24 airplane, the corresponding emission figures were 440, 135 and 25 tons, respectively. In view of the climatic conditions in the Kiev region and prevailing wind patterns, essentially equivalent degrees of pollution from aircraft can be expected in summer and winter. References 1 (Ukrainian).

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UDC 579.842.14.083.12(47+57) "1980-1982"

ETIOLOGIC STRUCTURE OF SALMONELLOSES AND SEROTYPE COMPOSITION OF SALMONELLAE
ISOLATED FROM SELECTED USSR TERRITORIES IN 1980-1982

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No
11, Nov 85 (manuscript received 13 Mar 85) pp 60-64

[Article by S. Sh. Rozhnova, V. A. Kileso and N. Z. Aleksandrova, Central
Scientific Research Institute of Epidemiology, USSR Ministry of Health, Moscow]

[Abstract] The goal of the study was to determine the relationship between
ecology and biological properties of pathogens on one side and development
of the epidemic salmonellosis process on the other. It was shown that the
number of annually detected salmonella serovars increased gradually: in
1980 -- 103; in 1981 -- 97; in 1982 -- 119. Twelve of the leading serovars
gave more than 70% of all salmonellae isolated from various environmental
objects; 83.1% from human and 99% from animals. S. Typhimurium was the leading
agent responsible for more than 50% of salmonella infections. Salmonella
isolated from fodder showed significant relationship to those found in animals.
Those found in open water reservoirs and effluents resembled the pattern
in humans. Thus, there was a definite connection identified between the
epidemic and epizootic processes of salmonellosis. References 4 (Russian).

7813/12955
CSO: 1840/1200

UDC 615.371:579.841.93].015.4.07

COMPARATIVE STUDY OF SAFETY AND REACTIVITY OF VARIOUS DOSES OF CHEMICAL
BRUCELLOSIS VACCINE DURING REVACCINATION OF HUMANS

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No 11,
Nov 85 (manuscript received 4 Dec 84) pp 56-60

[Article by P. A. Vershilova, G. A. Yelshina, Ye. A. Dranovskaya, A. A. Suma-
rokov, K. D. Dzhalilov, V. Ye. Malikov, M. A. Mirzayeva, I. A. Gadelshin,
V. N. Ikoyev and N. G. Kharazyan, Scientific Research Institute of Epidemiology
and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences;
State Scientific Research Institute of Standardization and Control of Medical
Biological Preparations imeni L. A. Tarasevich, Moscow]

[Abstract] Safety, reactivity and antigenic activity of chemical brucellosis
vaccine (CBV) was studied upon revaccination of individuals previously vaccin-
ated with live brucellosis vaccine (LBV) or CBV. Because repeated exposure
to LBV is accompanied by allergic reactions, the use of CBV with weak sensitiz-
ing activity was expected to be adequate for continued protection. Previously
vaccinated individuals with negative serologic or allergic reactions were
revaccinated at 4-6 or 11-12 months after initial vaccination. The 11-12
months period appeared to be optimal for revaccination. Side effects (re-
gardless of the dose) included transient temperature elevation, headache,
sweating, sleeplessness and local pains, all of which disappeared after 24-
48 hrs. No significant changes were noted in circulating blood. References
8 (Russian).

7813/12955
CSO: 1840/1200

UDC 616.831-002.022:578.833.26]-092.9:599.82

PRIMATES AS LABORATORY MODEL OF VIRAL PERSISTENCE AND CHRONIC COURSE OF VIRAL ENCEPHALITIDES

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 86
(manuscript received 11 May 85) pp 72-74

[Article by G. I. Fokina, V. V. Pogodina and G. V. Malenko, Institute of Poliomyelitis and Viral Encephalitides, USSR Academy of Medical Sciences, Moscow]

[Abstract] Primates are widely used in studies of acute forms of infectious diseases. In recent years this model found ever wider application in studies of etiology, pathogenesis, differential diagnosis, therapy and prophylaxis of chronic viral infections. Chemotherapeutic methods are being developed on primates; primates are excellent models for studying viral encephalitides, although they are not the most sensitive ones, following white mice, Syrian hamsters, piglets and lambs. Advantages of this model are recited especially in respect to tick-borne encephalitis and West Nile virus infection. Other models may be used for screening purposes but development of methods and reagents for elimination of virus can only be done in primates. In the near future, many theoretical and applied aspects of viral persistence and prophylaxis of chronic viral encephalitides can be expected to be resolved, using the primates as laboratory models.

7813/12955
CSO: 1840/1198

UDC 616.831.82-002.3

SCLEROMA IN CENTRAL AFRICA

Kiev ZHURNAL USHNYKH, NOSOVYKH I GORLOVYKH BOLEZNEY in Russian No 1, Jan-Feb 86
(manuscript received 20 Oct 85) p 84

[Article by R. A. Abyzov and A. A. Belousova, Department of Otolaryngology, headed by Professor Ye. A. Yevdoshchenko, Kiev Institute of Advanced Training of Physicians; Medical-Biological Department, headed by Doctor of Medical Sciences, B. M. Klebanov, Institute of Organic Chemistry, Ukrainian SSR Academy of Sciences]

[Abstract] During two years spent in the Republic of Burunda in 1982-1984, the authors observed twelve patients (from three nations of Central Africa) with scleroma, a chronic infectious disease in which severe injury to the respiratory tract is observed. The immunobiologic reaction of the patients was reduced as a result of chronic protein undernourishment and poor living conditions. The diagnosis of scleroma was confirmed by serologic reaction, cytologic and histologic studies. Combined treatment of the patients included removal of infiltrates from the nasal cavity, bougie treatment of the throat and streptomycin therapy, allowing nine of the twelve patients to return to work. References 9: 8 Russian, 1 Western.

6508/12955
CSO: 1840/2130

UDC 614.31:546.175]-074:543.544

GAS CHROMATOGRAPHIC ANALYSIS OF NITRATES IN FOOD PRODUCTS

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 3 Sep 84) pp 51-52

[Article by M. T. Dmitriyev, G. P. Zarubin, V. A. Mishchikhin, Ye. I. Prikhodko and N. P. Kochkina, Moscow]

[Abstract] A gas chromatographic method has been developed for the analysis of nitrates in food products, using a Tsvet-40 chromatograph with a constant recombination rate detector. The food extract is mixed with benzene and concentrated sulfuric acid, mixed for 10 min, and the benzene extract recovered after phase separation. Analysis of the benzene phase showed a nitrobenzene yield on the order of 85-90% under the conditions employed. Chromatography under selected conditions on 5% SE-30 /N-AW-HMDS (0.16-0.25 mm) columns yielded a working range for nitrate determination of 0.001-10 mg/kg, with a sensitivity of 0.1 ng and an analytical error within 5-8%. References 7: 5 Russian, 2 Western.

12172/12955
CSO: 1840/2172

UDC 616.9-092:612.111/.112.017.1]07

Vi-ANTIGEN AND MICROORGANISM ADHESION FACTORS. DETECTION OF ADHESINS IN
COMMERCIAL Vi-ANTIGEN PREPARATIONS

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No
11, Nov 85 (manuscript received 9 Jan 85) pp 33-37

[Article by E. G. Kravtsov, N. G. Fish, L. I. Kulinich, A. P. Alliluyev and
O. V. Kotelnikova, Moscow Scientific Research Institute of Epidemiology and
Microbiology imeni G. N. Gabrichevskiy]

[Abstract] A hypothesis is proposed that adhesins may be present in preparations of Vi-antigen. The basis for this hypothesis was the discovery of two determinants in Vi-antigen, one of which was found not only in *Salmonella typhi* but in Vi-negative strains of coliform bacteria. The goal of this study was to verify this hypothesis using commercially prepared Vi-antigen and specially prepared Vi-antigens from a number of intestinal representatives. Agglutinating reaction of coliform bacteria with erythrocytes from various sources was used as the test system for adhesion-receptor. The data obtained showed that a commercial preparation of Vi-antigen does indeed contain adhesins, one of which resembles type-I adhesin widely spread among enterobacteria. The adhesin found in Vi-antigen is retained through all isolation and purification steps. Its quantity may be determined by the degree of inhibition of coliform bacteria adhesion on guinea pig erythrocytes. References 11 (Western).

7813/12955

CSO: 1840/1200

UDC 616.993.192.1-055.2-07:616.153.96-097

CIRCULATING IMMUNE COMPLEXES IN BLOOD SERUM OF INDIVIDUALS INFECTED WITH TOXO-
PLASMA

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No
11, Nov 85 (manuscript received 4 Feb 85) pp 113-114

[Article by A. A. Krasilnikov, V. N. Nikiforov, N. A. Noyeva and T. I.
Makolina, TsOLIUV (Central Order of Lenin Institute for the Advanced Training
of Physicians), Moscow]

[Abstract] Results were reported of the determination of general level of
circulating immune complexes (CIC) in blood serum in which the presence (group
A) or absence (group B) of antibodies of toxoplasma was previously established.
The sera were collected randomly from 3.5 to 14 year old children undergoing
psychiatric therapy. No statistically significant differences were found
in CIC content between A and B groups. Evidently, carrying of parasites
during toxoplasma infections had no effect on the general level of CIC in
children's sera. An assumption was expressed that during infection with
IC toxoplasma, toxoplasma cysts are formed in tissues and thus--retained
in the infected organism--predetermined the support of nonsterile immunity
towards toxoplasma. The level of IC "freely" circulating in the blood system
can be quite insignificant.

7813/12955
CSO: 1840/1200

UDC 615.371:579.841.93].065:616-056.43

COMPARATIVE EVALUATION OF BODILY ANTIGENIC ACTIVITY AND ALLERGIC TRANSFORMATION AFTER REVACCINATION OF HUMANS WITH VARIOUS DOSES OF CHEMICAL BRUCELLOSIS VACCINE

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No 11, Nov 85 (manuscript received 4 Dec 84) pp 88-93

[Article by Ye. A. Dranovskaya, P. A. Vershilova, G. A. Yelshina, A. A. Sumarokov, M. A. Mirzayeva, K. D. Dzhalilov, I. A. Gadelshin, V. Ye. Malikov and I. S. Grinberg, Scientific Research Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences; State Institute of Standardization and Control of Biological Medical Preparations imeni L. A. Tarasevich, Moscow]

[Abstract] Antigenic activity and allergic transformation in man were studied during revaccination of individuals (who had been previously vaccinated with either live or chemical vaccines) with various doses of chemical brucellosis vaccine (CBV). The data obtained showed that dosage had no effect on antigenic activity: any of the 0.5, 0.75 or 1.0 mg doses gave the same results. Individuals originally vaccinated with live vaccine had slightly higher titers of specific antibodies and higher frequency of positive seroconversion. Also, these individuals exhibited slight allergenic reaction to CBV. Overall, the analysis led to a recommendation that a 1 mg dose of CBV should be used in massive revaccination of public health students and workers. Figures 2; references 7 (Russian).

7813/12955
CSO: 1840/1200

UDC 615.373:579.843.94]:616-078

TEST RESULTS OF PLAGUE ANTIBODY MONOCLONAL ERYTHROCYTE DIAGNOSTIC KIT

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No 11, Nov 85 (manuscript received 11 Mar 85) pp 82-87

[Article by V. P. Sergiyev, Yu. M. Fedorov, M. I. Levi and Yu. V. Kanatov, Main Administration of Quarantine Infections, USSR Ministry of Health]

[Abstract] Recently, monoclonal antibodies to capsule antigen of plague pathogen became available, leading to development of a plague antibody erythrocytic diagnostic kit. This kit was compared with a commercial antibody test kit prepared from polyclonal antibodies. Typical and atypical strains of plague microorganisms were used along with related and heterologous bacteria in this evaluation. It was shown that this new monoclonal test kit was just as good as the commercially produced one by the frequency of positive results and by the activity of the material studied. In respect to specificity, the monoclonal kit was better than the commercial one, as its reactivity was strictly against *Yersinia pestis* capsular antigen, while the commercial kit gave false positive results with pseudotuberculosis pathogens. References 8 (Russian).

7813/12955
CSO: 1840/1200

UDC 615.371:579.842.14].015.46.076

USE OF IMMUNOFLOUORESCENCE REACTION TO EVALUATE IMMUNE TRANSFORMATION IN
INDIVIDUALS IMMUNIZED WITH CHEMICAL TYPHUS VACCINE

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No 11,
Nov 85 (manuscript received 10 Sep 84) pp 78-82

[Article by Ye. B. Rydkina, Ye. M. Shirokova, N. M. Balayeva, I. N. Kokorin,
V. N. Nikolskaya and O. G. Imamaliyev, Scientific Research Institute of Epide-
miology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical
Sciences; Scientific Research Institute of Standardization and Control of
Biological Medical Preparations imeni L. A. Tarasevich, Moscow]

[Abstract] The goal of this work was to study specificity and sensitivity of
immunofluorescence reaction (IFR) in evaluating immune transformation in
individuals immunized with chemical typhus vaccine (CTV) and to correlate
IFR results with data from other serologic tests. The study group included
sera from 61 individuals vaccinated with CTV, 22 health controls and 8 bank
serum specimens from survivors of 1955 typhus period. The data showed that
IFR is a highly specific and sensitive test which detects antibodies to
Proxazeki rickettsiae for a much longer period than complement fixation test
(CFT), toxin neutralization test (TNT) or passive hemagglutination test (PHT);
it detects positive titers in CTV vaccinated individuals indicating immune
transformation after immunization. When the individuals vaccinated with
CTV showed positive titers of complement fixation, toxin neutralization and
hemagglutination, the fluorescent antibodies correlated highly with the titers
of complement fixing antibodies. References 11: 8 Russian, 3 Western.

7813/12955

CSO: 1840/1200

UDC 615.918:582.282].015.4:616-055.5/.7-092.9:599.82

GENOTOXIC AND PATHOGENIC EFFECTS OF AFLATOXIN B₁ IN EXPERIMENTS ON MONKEYS

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 86
(manuscript received 11 May 85) pp 48-51

[Article by F. I. Adzhigitov, I. Barta, D. A. Gubeladze, V. N. Fomenko, T. N. Markova and N. A. Voskanyan, Institute of Experimental Pathology and Therapy, USSR Academy of Medical Sciences, Sukhumi; Faculty of Medical Hygiene, Charles University, Prague, Czechoslovakia]

[Abstract] The goal of this investigation was to evaluate the dynamics of genetic pathogenic effects of small doses of aflatoxin B (AFB) on monkeys. Male and female Rhesus monkeys were used in these experiments. AFB was administered in single doses and in chronic exposures. Both caused a prolonged persistence of chromosomal aberrations in bone marrow of experimental animals and in the offspring of females given the drug in the third trimester of their pregnancy. These changes were related to affected hematostasis system, to immunity, and decreased nonspecific resistance factors (plasma factors, decreased B-cells in the spleen and lymph nodes and decreased activity of lysosomal cation proteins in blood granulocytes, respectively). Thus it was shown that these primates could be used as adequate models for humans in evaluating the maximum permissible dosage of mycotoxins. References 13: 6 Russian, 7 Western.

7813/12955
CSO: 1840/1198

UDC 612.21.72

DEVICE FOR FIXATION OF LASER USED TO TREAT ENT DISEASES

Kiev ZHURNAL USHNYKH, NOSOVYKH I GORLOVYKH BOLEZNEY in Russian No 5,
Sep-Oct 85 (manuscript received 12 Nov 84) pp 78-79

[Article by V. P. Sitnikov and L. L. Medvedeva, Clinical Department of
Adaptation of ENT Organs, Headed by Candidate of Medical Sciences, V. P.
Sitnikov, Scientific Research Institute of Medical Problems of the North,
Siberian Department, USSR Academy of Medical Sciences]

[Abstract] A device has been suggested by the authors to hold a type 'LG-75-
1' laser radiator. The device consists of an upright rod and supporting plate
beneath the rod. The rod is attached to the supporting plate by means of
a metal bushing and retaining bolt. A nonmoving bracket is attached to
the bottom of the rod to hold a metal plate on which the pumping source
for the laser is mounted. The device allows rapid movement of the laser
to the required height and angle of rotation relative to the object being
irradiated, while holding the laser power supply firm and steady. Figures 2.

6508/12955

CSO: 1840/2133

UDC 616.211-006.03:615.849.19

TREATMENT OF RHINOPHYMA PATIENTS WITH LASER RADIATION

Kiev ZHURNAL USHNYKH, NOSOVYKH I GORLOVYKH BOLEZNEY in Russian, No 1,
Jan-Feb 86 (manuscript received 5 May 85) pp 17-19

[Article by G. E. Timen and P. V. Vinnichuk, Department of Inflammatory Diseases of the ENT Organs, Kiev Scientific Research Institute of Otolaryngology imeni A. I. Kolomiychenko]

[Abstract] Rhinophyma most frequently affects mature males. The etiology of the disease is unclear, though predisposing factors may include chronic gastrointestinal disease, food allergy, endocrine disorders as well as unfavorable environmental conditions such as dust, high humidity and rapid temperature changes. The treatment of rhinophyma is surgical, by deep decortication down to the cartilage and plastic surgery with skin flaps or by layer-by-layer decortication, which is shallower. A number of authors have observed good cosmetic effect by the use of a carbon dioxide laser, which stimulated the authors to use this method on five patients, 53 to 74 years of age, including one woman. The carbon dioxide laser was used to coagulate or remove the rhinophymatous tissue. A surgical microscope was used in some cases to allow more precise determination of the boundaries of the affected tissues, allowing improved postoperative results. Photographs of one patient are presented to illustrate the results of the procedure, which was determined to be effective. Figures 3; references 15: 10 Russian, 5 Western.

6508/12955
CSO: 1840/2130

UDC 576.72:599.745.3

ECOLOGICAL AND PHYSIOLOGICAL ASPECTS OF MYOGLOBIN DISTRIBUTION IN TISSUES OF
BAIKAL SEAL (PHOCA (PUSA) SIBIRICA)

Moscow ZHURNAL OBSHCHEY BIOLOGII in Russian Vol 47, No 1, Jan-Feb 86
(manuscript received 21 Jul 83) pp 119-124

[Article by T. V. Neshumova, Ye. A. Petrov and V. A. Cherepanova, Institute
of Physiology, Novosibirsk, and Institute of Limnology, Irkutsk, Siberian
Department, USSR Academy of Sciences]

[Abstract] Studies were conducted on the seasonal and functional dynamics
of myoglobin distribution in the muscles of Baikal seals, captured in the
fall and spring of the 1981-1982 season. The concentration of myoglobin
in the different muscles was found to range from a low of 10.6 mg/g fresh
tissue for the adult myocardium in the spring, to a maximal concentration
of 68.8 mg/g in the longissimus dorsi in an adult in the fall. The general
pattern was an increase in the concentration of myoglobin in the following
sequence: myocardium < neck muscles < limb muscles < diaphragm < abdominal
muscles < intercostals < back muscles. There was an age-related increase
in the concentration of myoglobin, which was particularly evident in muscles
responsible for locomotion and respiration. Furthermore, myoglobin concen-
trations were highest in the fall and lowest in the spring. Maximal oxygen
reserves bound by myoglobin in the skeletal muscles were on the order of
1080 ml for a total muscle mass of 12.5 kg. Utilization of oxygen at the
rate of 10 ml O₂/min·kg by an adult seal assured an adequate oxygen supply
to the muscles for 7.5 min. Figures 1; references 16: 12 Russian, 4 Western.

12172/12955
CSO: 1840/2157

MEDICINE

UDC 617-089.5+615.816]-7:616.23-018.7

INFLUENCE OF ARTIFICIAL PULMONARY VENTILATION ON MUCOCILIARY APPARATUS AND LOCAL IMMUNITY OF RESPIRATORY SYSTEM DURING GENERAL ANESTHESIA

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 4, Jul-Aug 85
(manuscript received 31 Oct 83) pp 52-55

[Article by G. A. Mozhayev and V. V. Nosov, Department of Anesthesiology and Resuscitation, headed by Professor G. A. Mozhayev, Voroshilovgrad Medical Institute]

[Abstract] A study is presented of the influence of various methods of artificial pulmonary ventilation on the status of the mucociliary apparatus, cellular and humoral local immunity factors of the respiratory system during anesthesiology for surgery. Studies were performed on seventy patients, 20 to 40 years of age, who had undergone hysterectomies. Premedication included 20-40 mg promedol, 25-50 mg hypolfen and 0.5-1 mg atropine sulfate. A psychosedative effect was achieved in patients with hypertension by administration of 5 mg droperidol and 5-10 mg seduxen. Induction was by administration of 200-250 mg sodium thiopental or hexenal, in some patients 50-100 mg/kg sodium hydroxybutyrate or 10 mg/kg viadryl, followed by 0.15-0.3 mg/kg droperidol and 0.003-0.005 mg/kg fentanyl. General anesthesia was maintained by N₂O with O₂ (2:1) in combination with preparations for neuroleptanalgesia. The mean dose of fentanyl per hour of surgery was 0.003-0.007 mg/kg, droperidol, 0.05-0.07 mg/kg. Muscle relaxation was achieved with tubocurarine. The greatest stress on cellular and humoral local immunity factors in the respiratory system was observed when frequency-derived respirators were used. The respirators should be considered most unfavorable from the standpoint of development of postoperative inflammatory processes in the trachea, bronchi and the lungs. References 19: 14 Russian, 5 Western.

6508/12955
CSO: 1840/2129

UDC 617-089.5:615.212.7:547.57]-031.81-07:616.24-008.4-07

COMBINED GENERAL ANESTHESIA WITH KETAMINE WHILE PRESERVING INDEPENDENT
RESPIRATION OF AIR IN SURGERY OUTSIDE THORAX AND ABDOMEN AT REDUCED ATMOSPHERIC
PRESSURE

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 1, Jan-Feb 86, pp 57-59

[Article by G. A. Orakhelashvili, Central Provincial Hospital imeni A. A. Neto,
Director: Doctor Matuba Kikeba Miyezi Domkaditu Filipe, Lubango, Angola]

[Abstract] A study is presented of the possibility of using intravenous combined anesthesia with ketamine while preserving independent respiration by the patient of air at atmospheric pressure 590-600 mmHg, the natural pressure of Lubango, which is located at an altitude of 2,000 m above sea level. Increasing the dose of ketamine causes suppression of the patient's respiration. To combat this, the authors have developed a method of intravenous combined anesthesia using ketamine as the major narcotic substance in combination with valium (diazepam), a substance which inhibits the limbic and reticular system of the brain, and a central action analgesic which does not suppress respiration, lexir (pentazocime). The method of intravenous combined anesthesia as described is simple, allows narcosis while preserving independent respiration of air even under high altitude conditions and does not require the use of narcosis apparatus or oxygen. The method can be used under primitive conditions with rapid arrival of victims in the mountains both in peace time and in war time.

6508/12955

CSO: 1840/2128

UDC 616-022-02:616-001.17]-036.1

RECENT DATA ON SEPTICEMIA IN BURN PATIENTS

Leningrad VESTNIK KHIRURGII in Russian No 12, Dec 85
(manuscript received 7 Feb 85) pp 66-69

[Article by I. R. Vazina, Yu. I. Bushuyev and Ye. Yu. Sosin, Gorky Scientific Research Institute of Traumatology and Orthopedics]

[Abstract] An analysis was conducted on all fatal cases of burns with septicemia for the last 8 years (1976-1983) in order to delineate those parameters of septicemia that might bear on future trends. Examination of the 83 cases demonstrated that septicemia was an increasing factor in the case fatality rate and occurred earlier in conjunction with shock and acute toxemia. Burns covering 40% or more of the body surface were a significant factor in predisposition to septicemia, as well as catheterization of major blood vessels, and predominance of a Gram-negative bacterial flora. References 20: 18 Russian, 2 Western.

12172/12955
CSO: 1840/2167

UDC 579.852.13.083.12

USE OF EXPERIMENTAL ANALYTICAL METHODS FOR BALANCING LIQUID CULTURE MEDIA
FOR GROWTH AND TOXIN FORMATION OF CLOSTRIDIUM PERFRINGENS TYPE A

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOLOGII in Russian No 11,
Nov 85 (manuscript received 20 Mar 85) pp 34-41

[Article by V. D. Artemenko, L. G. Ivanova, V. P. Nenashev, G. I. Kuznetsova,
and N. I. Ochkina, Central Scientific Research Institute of Vaccines and Sera
imeni I. I. Mechnikov, Moscow]

[Abstract] Excellent, relatively inexpensive culture media prepared on the
basis of physiological and cultural properties of microorganisms serve as
the starting point for mathematical modelling of the growth of microorganisms
and for control of biosynthetic and toxin-forming processes. Balancing the
composition of culture media by mathematical models makes it possible to get
the best composition by testing only the most appropriate variants. A mathe-
matical model for calculating the necessary concentrations of components
were based on a known model of cell growth reflecting the changes in media
composition as a function of the rate of cell growth. This model was tested
on the example of growth and toxin formation of type A. C. perfringens (strain
28VRGK). The medium consists of peptic serum albumin hydrolysate, pancreatic
casein hydrolysate and yeast extract (a 4:2:1 ratio) with 0.1% of Na_2HPO_4
and KH_2PO_4 . This method made it possible to rapidly come up with optimal
composition of the medium for a given predetermined yield of the final product.
Starting with the above medium consisting of a 4:2:1 ratio of principal com-
ponents, two other variants were obtained with the respective ratios of 2:4:1
and 3:4:2 for high growth rate and adequate activity of C. perfringens.
References 6 (Russian).

7813/12955

CSO: 1840/1200

UDC 614.777:578.835.111-078

RECOVERY OF ENTEROVIRUSES FROM VARIOUS WATER SAMPLES BY MEANS OF NATURAL ADSORBENTS

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 4 Jun 84) pp 47-49

[Article by L. A. Myshlyayeva, Ts. B. Veselinova-Stoyanova and G. A. Bogdasaryan, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow]

[Abstract] A method has been developed for the efficient recovery of enteroviruses from various water samples, which relies on their adsorption to aluminum silicates, such as bentonite, kaolin, or clinoptilolite. For optimal results, the PH of the water sample is adjusted to 4.0-4.5, followed by addition of the powdered silicate to a level of 250 mg/liter for drinking water or 500 mg/liter for river water. Following intensive mixing for 5 min the treated samples are incubated at 18-20°C for 30 min, with subsequent recovery of the virus-containing supernatant and separation from the silicate. The virus-containing supernatants are treated with 1000 U of penicillin and of streptomycin, and stored at -20°C until tissue culture testing. The efficiency of enteroviral recovery from drinking, natural and waste waters was on the order of 89.8, 86.3 and 96.1%, respectively. In addition to high recovery, the method offers the advantage of speed (3 h) over adsorption to synthetic adsorbents (more than 24 h) or precipitation with aluminum sulfate (48 h). References 3 (Russian).

12172/12955
CSO: 1840/2172

UDC 614.777:574.57](261)

SANITARY MICROBIOLOGIC CHARACTERISTICS OF SOUTHERN ATLANTIC WATERS

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 25 May 84) pp 16-18

[Article by Yu. I. Grigoryev and Yu. S. Korostelev, Pacific Ocean Scientific Research Institute of Fisheries and Oceanography, Vladivostok]

[Abstract] Water samples were subjected to bacteriologic studies as a continuation of the studies commenced in 1978-1979 in the Southern Atlantic, covering both crustacean bed areas and the open seas. The studies conducted in the period 1982-1983 showed that potentially pathogenic bacteria (and yeasts) were most frequently isolated in the summer. In general, the proportion of psychrophilic to mesophilic bacteria was 3.4 at various depths and surface water, with lowest counts obtained in March and April when the water temperature ranged from -1.5 to 0°C in the fishing areas. While the fluctuations in bacterial counts from coastal areas to the open seas indicated, and the low counts in the latter reflected, the effectiveness of natural purifying mechanisms, *Proteus* was isolated from 50% of the 10 m samples obtained in March. The latter observation suggests that *Proteus* should be considered as a bioindicator of pollution in cold water crustacean beds. References 6 (Russian).

12172/12955
CSO: 1840/2172

UDC 616.98:579.852.13]-07:[616.155.34-008.9-092.18+616.155.34-008.1

CYTOCHEMICAL INDICATORS OF NEUTROPHIL ACTIVITY IN PATIENTS WITH BOTULISM

Moscow KLINICHESKAYA MEDITSINA in Russian No 7, Jul 85 (manuscript received 12 Nov 84) pp 60-64

[Article by B. S. Nagoyev, Infectious Disease Clinic and Chair of Microbiology and Immunology, Medical Faculty, Kabardino-Balkarsk University, Nalchik]

[Abstract] Cytochemical studies were conducted on neutrophil leukocytes obtained from 40 patients with botulism, in order to correlate intraleukocytic bactericidal activity with the clinical manifestations. The cohort included males and females, 16 to 64 years of age, who came down with clinical botulism after ingestion of home-made canned mushroom products. The cytochemical and cytofluorometric investigations showed that there was a direct correlation between metabolic derangements in the neutrophilic leukocytes and the severity of clinical botulism. At the height of clinical deterioration, the extent to which the levels of cationic proteins and glycogen were depressed and the activity of myeloperoxidase inhibited showed their maximal downward deviation from baseline levels. Concomitantly, the activities of alkaline and acid phosphatases and reduction of nitrotetrazolium blue were at their maxima. With improvement in the clinical status, the biochemical indicators of depressed leukocytic bactericidal activity returned to normal values. However, no evidence of biochemical improvement was obtained in one case with a fatal outcome. These findings indicate that biochemical monitoring of leukocytes, of the type indicated here, can serve as a valuable adjunct to patient monitoring in botulism. References 22: 14 Russian, 8 Western.

12172/12955

CSO: 1840/2161

UDC 614.777:[578.835.11:578.284]:628.344:622.367

AFFINITY OF ENTEROVIRUSES AND PHAGES FOR NATURAL ALUMINUM SILICATE ADSORBENTS

Moscow GIGIYENA I SANITARIYA in Russian No 3, Mar 85
(manuscript received 4 Jun 84) pp 86-87

[Article by L. A. Myshlyayeva, Ts. B. Veselinova-Stoyanova and G. A. Bagdasaryan, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow]

[Abstract]. A study was conducted on the efficiency of Bulgarian aluminum silicates (bentonite, kaolin, clinoptilolite) in binding various enteroviruses and bacteriophages, in order to assess the potential use of such adsorbents for monitoring waste waters. Essentially equivalent binding of type I poliovirus, Cocksackie B3 and phages T₁ and MS₂ was obtained at pH 4.0-8.0. However, with ECHO 7 virus optimal binding was obtained at pH 4.0-4.5. In addition, in the case of all the virus and adsorbent combination binding was essentially equivalent at temperatures of 4°C and at 18-20°C. On the basis of these observations optimal adsorption conditions for the viruses in question to bentonite, kaolin or clinoptilolite were defined as pH 4.0-4.5 and 18-20°C. High elution from the adsorbents -- on the order of 95% or better -- were obtained either with 0.05 M Tris buffer or with 3% meat extract at pH 9.6. These findings indicate that the natural aluminum silicates can be employed in environmental monitoring as adsorbents for enteroviruses and bacteriophages. References: 5 (Russian).

12172/12955

CSO: 1840/2175

UDC 616.21:615.849.11

CHARACTERISTICS OF THE THERAPEUTIC EFFECT OF LOW-FREQUENCY MAGNETIC FIELD
IN SOME ENT DISEASES

Kiev ZHURNAL USHNYKH, NOSOVYKH I GORLOVYKH BOLEZNEY in Russian No 5, Sep-Oct 85
(manuscript received 17 May 85) pp 45-48

[Article by V. V. Ozinkovskiy, Biophysics Laboratory, Headed by Candidate of
Biological Sciences A. F. Karas, Kiev Scientific Research Institute of Oto-
laryngology imeni A. I. Kolomiychenko]

[Abstract] The purpose of this investigation was to study by infrared thermo-
graphy the influence of a pulsating magnetic field on the superficial cap-
illaries of the soft tissues of ENT organs and the temperature of tissues
in certain ENT diseases. Studies were performed on thirty-six patients, 19
to 68 years of age, including 26 women and 10 men. The patients were sub-
divided into three groups: those with chronic catarrhal and hyperplastic
laryngitis, those with chronic subatrophic pharyngitis, and those with
neuro-vegetative vasomotor rhinitis. The patients were treated with
a 'Polyus-1' Soviet magnetotherapeutic apparatus using a pulsating mag-
netic field with a frequency of 50 Hz in continuous mode at four different
intensities in ten daily sessions of fifteen minutes each. Clinical observa-
tions and thermographic studies indicated that immediately after completion
of the course of magnetotherapy there was clinical improvement and equaliza-
tion of thermoasymmetry, by an increase or decrease in ENT organs exposed
to the magnetic field. The method of thermography therefore allows an ob-
jective evaluation of the results of magnetotherapy in patients with ENT
pathology. Figures 2; references 6 (Russian)

6508/12955

CSO: 1840/2133

PHARMACOLOGY AND TOXICOLOGY

RIGHTS TO PRIORITY SUPPLY OF MEDICATION

Leningrad VECHERNIY LENINGRAD in Russian 29 Mar 86 p 1

[Article under "Reader-Newspaper" rubric: "Preferential Benefits for Medicine"]

[Text] "I heard that the number of people who are entitled to be provided with medicine on a preferential basis has increased recently. Tell us, please, who can take advantage of these benefits and under which conditions they are available?"

V. Lipans, labor veteran

"As is generally known, medicine is dispensed free of charge to those of us disabled in the Great Patriotic War. Can I use my allotted benefit to obtain a first aid kit for a car since it is also made up of priority need medicine?"

L. Shatalov

T. A. Novikov, head of the Information Department of the Pharmacy Administration of the Ispolkom Leningrad Council, answers our readers' questions.

First of all, I would like to provide an explanation for L. Shatalov. The distribution, free of charge, of auxiliary first aid kits for motor vehicles to disabled veterans is not envisioned by current legislation since they are not regarded as medicinal preparations needed for restoring health. Only drugs prescribed by a physician on a special, standardized prescription form for out-patient treatment are distributed free of charge to disabled veterans of the Great Patriotic War. It should be noted that the availability of a reserve of medicine in the city's pharmacies is stipulated to reliably provide necessary medication for people in this category.

Last year, precisely such preferential benefits were introduced for those who took part in the war who are recognized as disabled as a consequence of a common illness, work disability and other causes with the exception of cases where the onset of disability was after improper activities. The dispensing of medications in this case is implemented by a special prescription with an indication of the certification number of the participant in the Great Patriotic War and the type (group) of illness or other causes which led to the disability.

The rest of those who took part in the war are provided with medicines for 50 percent of their cost; the appropriate notation about this must be on the prescription form which the physician at a medical clinic or other institution writes out.

In May of last year, a 50 percent discount on medication was granted to citizens who worked at enterprises, institutions and city organizations which were awarded the medal, "For the Defense of Leningrad", in the period of the Leningrad blockade. The basis for the preferential dispensing of medication to people in this category is a standardized prescription filled out for those who took part in the war based on their having the certification which confirms this right. Blockade survivors who are recognized as disabled as a consequence of a common illness, work disability and other causes are on an equal status regarding benefits as disabled veterans.

Since 1 Nov last year, a 50 percent discount on medication obtained by a physician's prescription was established for pensioners from the ranks of military servicemen, workers, white-collar workers and kolkhoz workers who receive old-age or disability pensions or in the case of the loss of the breadwinner at the minimum scale, with the exception of those people who receive a pension in the case of the loss of the breadwinner for children. The preferential benefit is granted based on a pension certification which contains the following: "is entitled to a 50 percent discount in the cost of medication." This entry must be certified by the seal and signature of the director of the institution which gave the certification.

If the minimum pensions for disability are designated for a specified time of incapacity to work, the date up to which the pensioner is entitled to preferential benefits is indicated on the certification. In this case, a prescription that is correctly written out by a physician is also needed for the dispensing of drugs from the pharmacy for this category of the population.

I also remind you that medicine is provided free of charge for all children under the age of one. Some patients with specified illnesses have a number of privileges for obtaining medication. To enumerate them, I think, does not make sense; there are more than 20 such designations on the list and when necessary, each treating physician can give exhaustive information about this.

In conclusion, I'll name the people who are entitled to priority service in the city's pharmacies. They are disabled veterans and those who took part in the Great Patriotic War, heroes of the Soviet Union, people who have been awarded Orders of Glory Third Class, party veterans who have been in the ranks of the CPSU for 50 or more years and citizenry who have blockade certification.

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CSO: 1840/1189

UDC 615.214.22.036.8.076.9:599.82

ANTISTRESS AND ANTINEUROTIC ACTION OF PSYCHOTROPIC PREPARATIONS IN EXPERIMENTS ON MONKEYS

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 86
(manuscript received 11 May 85) pp 30-33

[Article by V. G. Startsev, S. K. Mamamtavrishvili, S. K. Chirkova, A. M. Chirkov, T. M. Dzholiya and A. V. Kondakchyan, Institute of Experimental Pathology and Therapy, USSR Academy of Medical Sciences, Sukhumi]

[Abstract] Use of monkeys as a unique subject for psychopharmacological studies relates to their highly developed brain cortex, especially to the frontal lobes, to emotional behavior pattern, complex hierarchical relationship and to the close relationship to human biological rhythms. The effect of psychotropic preparations cannot be totally extrapolated from animals to humans without specific models. The effect of psychotropic preparations was studied on mature and adolescent male baboons in chronic experiments. Based on this model, it was established that the development of neurotic systemic disease was preceded by repeated impact of specific emotional stress. Furthermore, the leading mediator and the neurohormonal mechanism of neurogenic systemic pathology is the activation of the sympatoadrenal system. Psychotropic preparations with pronounced central adrenolytic effect exhibit antistress and antineurotic properties. Figures 3.

7813/12955

CSO: 1840/1198

UDC 616.98:579.861.2]-078.73

IMMUNOCHEMICAL PROFILE OF STAPHYLOCOCCUS AUREUS EXOPRODUCTS

Moscow ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII in Russian No 11,
Nov 85 (manuscript received 10 Nov 84) pp 41-43

[Article by T. V. Nosova, Gorki Scientific Research Institute of Epidemiology
and Microbiology]

[Abstract] Exoproducts excreted by staphylococcus into the environment are biologically active compounds, each of which plays a role in the spread, the course and characteristics of pathologic processes. Literature data show that staphylococcal exoenzymes exhibit definite antigenic properties. The goal of this study was to develop an immunological profile of extracellular products of *S. aureus* isolated from a suppurative focus of a patient. Two groups of antigens were isolated from these exoproducts: antigens to the exoproducts proper and cell-wall antigens. The exoproduct antigens have protein structure; serine proteinase was isolated from them. All of the antigens exhibited anode mobility and thermostability properties. References 6: 2 Russian, 4 Western.

7813/12955

CSO: 1840/1200

UDC 615.916:678].076.9:616.69-008.8-092-9

TOXICOLOGICAL ASSESSMENT OF POLYMERIC MATERIALS

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 5 Mar 84) pp 62-64

[Article by A. P. Yeskov, R. I. Kayumov, A. S. Luzhetskiy, O. M. Gurilev, Yu. N. Ryazanov, G. I. Smelik, I. M. Arefyev and V. G. Lappo, All-Union Scientific Research and Testing Institute of Medical Technology, USSR Ministry of Health, Moscow]

[Abstract] A schematic is presented for an optoelectronic system designed to test the mobility of bovine spermatozoids based on interference with a helium-neon laser beam, and for the toxicological assessment of medical polymeric materials from their effects on sperm mobility. Studies with several medical materials showed that, for example, aqueous extracts of polyethylene granules did not affect sperm mobility, while ortoplast [sic] extracts reduced the mobility time by 42%. In animal studies, the latter material also was found to irritate mucous membranes and the skin. Various materials employed in blood transfusion also reduced the sperm mobility time by 36 to 42% and, under in vitro conditions, promoted hemolysis of human erythrocytes. These observations point to the utility of the sperm mobility technique in assessing the toxicity of polymeric materials, and to the fact that frozen bovine sperm constitutes a suitable indicator after thawing. Figures 3; references 3: 2 Russian, 1 Western.

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CSO: 1840/2171

UDC 615.211/212.03:616.8-009.7-08]:061.3(47+57) 1983

PHARMACOLOGIC ASPECTS OF ANALGESIA, ALL-UNION CONFERENCE, 19-21 APRIL, 1983,
LENINGRAD

Moscow ANESTEZIOLOGIYA I REANIMATOLOGIYA in Russian No 1, Jan-Feb 86, pp 60-65

[Article by A. A. Papin, Department of Anesthesiology and Resuscitation,
Headed by Doctor of Medical Sciences M. Ya. Avrutskiy, Institute of Surgery
imeni A. V. Vishnevskiy, Director: Academician M. I. Kuzin, USSR Academy
of Medical Sciences, Moscow]

[Abstract] The conference presented the results of studies in four major areas: the neuropsychophysiological and neurochemical mechanisms of pain and analgesia; screening of analgesic substances in the search for new analgesics; the pharmacology of local and general anesthetics; and clinical aspects of analgesia. Topics discussed at the conference include the complex nature of the phenomenon of pain; neurophysiological mechanisms of pain; characteristics of neuronal activity of the CNS in pain; participation of the somatosensory cortex in activation of antinociceptive systems and mechanisms of reflex analgesia in the brain; influence of narcotic analgesics and opioid peptides on transmission of nociceptive excitation in the spinal cord and cerebral cortex; effectiveness of the influence of GABA-ergic preparations such as benzodiazepine tranquilizers on shifts in energy exchange in the brain; neurophysiological mechanisms of acupuncture analgesia; influence of electrodermal stimulation on content of biogenous amines and endogenous opiate peptides in the brain, adrenal glands and blood; intensity of peroxide oxidation of lipids as a criterion for estimating antinociceptive effect of neurotropic preparations; methods of preliminary screening and subsequent deeper pre-clinical study of analgesics; an etiologic approach to the study of psychophysiological mechanisms of pain and analgesia; basic methodological approaches to the study of analgesic activity of synthetic enkephalin analogs; experimental study of combined methods of utilization of analgesic substances and other neurotropic preparations and hormones; and estimation of the perception of pain.

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TOXICITY OF COPPER PHTHALOCYANINE

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85 (manuscript received 26 Jun 84) pp 92-93

[Article by B. A. Kurlyandskiy, Ye. V. Braude, A. M. Klyachnkina, N. L. Torshina, S. B. Khokhlova and Ye. V. Zasorina, Scientific Research Institute of Organic Intermediates and Dyes, Moscow]

[Abstract] Acute and subacute experiments were conducted with male rats to determine the toxicity spectrum of copper phthalocyanine (I) on intragastric administration of I as a 20% suspension in 2% starch or a 50% suspension in dimethyl sulfoxide. A single intraperitoneal administration of I in a dose of 3 g/kg did not lead to death but did impair renal function. Intragastric administration of 2 g/kg for 30 days did not lead to signs of intoxication. Analysis of the data indicated that such adverse effects as were induced by the administration of I were due to copper salt contaminants, and that purified preparations of I were innocuous with a TLV of 5 mg/m³, placing it as a class III hazard in view of its propensity to stain the skin. References 3 (Russian).

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UDC 574.64:582

FACTORS AFFECTING TOXIN PRODUCTION BY ALGAE (LITERATURE REVIEW)

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 21, No 3, May-Jun 85
(manuscript received 2 Feb 82) pp 51-56

[Article by N. I. Kirpenko and Yu. A. Kirpenko, Institute of Hydrobiology,
Ukrainian SSR Academy of Sciences, Kiev]

[Abstract] A survey of largely Western literature is presented on the various factors that influence algal toxin production, in order to provide a basis for anticipating the presence of such toxic substances in water bodies in relation to biotic and abiotic conditions. The data show that variable effects are exerted by such factors as temperature, salinity, ionic composition, concentration of dissolved oxygen, and so forth. These effects are predicted on the physiological status of algae and act in conjunction with the biotic environment. Algae have been shown to produce bacteria-inhibiting toxins, while many bacterial toxins have been shown to inhibit or kill algae. In addition, in some cases only algal production of toxins is inhibited by bacterial metabolites. The situation with respect to toxin production by algae is further complicated by the fact that the algal ecosystem itself, consisting of various mixed algal populations, determined the toxinogenic potential of the different species of algae. References 47: 9 Russian, 38 Western.

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UDC 574.64:58:59

REVIEW OF BIOCHEMICAL MECHANISMS OF HYDROBIONT ADAPTATION TO TOXIC SUBSTANCES

Kiev GIDROBIOLOGICHESKIY ZHURNAL In Russian Vol 21, No 3, May-Jun 85
(manuscript received 11 Apr 84) pp 70-82

[Article by A. Ya. Malyarevskaya, Institute of Hydrobiology, Ukrainian SSR
Academy of Sciences, Kiev]

[Abstract] An analysis of the various studies conducted on the biochemical mechanisms of adaptation of fish and invertebrate aquatic animals to man-made and other toxic substances has revealed certain fundamental similarities among the various species. Among the key factors predisposing to survival in the face of toxic challenge was a metabolic capacity for elevating the tissue concentrations of vitamin B₁ and of NAD. Increase in the levels of the co-enzymes vitamin B₁ and NAD is correlated with the ability to sustain an anaerobic metabolism and the ability to metabolize the toxic agents. Although such species eventually predominated in polluted environments, they evidence a high incidence of teratogenic changes and genetic abnormalities. For these reasons, environmental monitoring should be based on hydrobionts showing the most susceptibility to the adverse effects of toxic agents. References 53: 1 Ukrainian, 33 Russian, 19 Western.

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CSO: 1840/2170

EFFECTS OF SODIUM 2,4-D ON PEROXIDASE ACTIVITY OF ELODEA CANADENSIS

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 21, No 3, May-Jun 85
(manuscript received 28 Oct 82) pp 100-103

[Article by A. A. Titova, All-Union Scientific Research Institute for Water Protection, Kharkov]

[Abstract] Trials were conducted with the effects of different concentration of the sodium salt of the herbicide 2,4-D (2,4-dichlorophenoxyacetate; 2,4-D Na) on the peroxidase activity of *Elodea canadensis*, to evaluate the role of peroxidase as a bioindicator of toxicity. Correlation of enzymatic activity with the survival rate over a 15 day period at a water temperature of 21-23°C demonstrated that 2,4-D Na concentrations of 10 mg/liter or less were non-toxic. With concentrations in the 1-10 mg/liter range the initial response was a decline in peroxidase activity in the first 2 days of exposure, followed by elevation to above baseline levels during days 3-10, and return to baseline activity by day 15. With moderately toxic doses (20-40 mg/liter) peroxidase activity shows an immediate increase that persists for 10 days, dropping to below baseline levels by days 15. With lethal concentration (100 mg/liter), the rise in peroxidase activity persisted throughout the period of observations (15 days) until cell dissolution. These observations provide further confirmation for the use of peroxidase activity as an indicator of environmental pollution. Tables 2; references 8: 6 Russian, 1 Hungarian (in English), 1 Western.

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UDC 614.7:615.9

IMPORTANCE OF ANALYTICAL METHODS FOR TOXIC AGENTS IN BIOLOGICAL SAMPLES IN
HYGIENIC STUDIES

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 24 Jul 84) pp 54-57

[Article by N. A. Pavolvskaya, Moscow Scientific Research Institute of
Hygiene imeni F. F. Erisman]

[Abstract] Until rather recent times determination of toxic substances in biological samples was largely limited to diagnosis of acute intoxications. However, with the development of environmental concern and expansions of biomedical investigations analytical methods have acquired increasing importance, particularly as they were designed for, or adapted to, analysis of toxic agents in biological samples. However, the advantages that such analytical technology offers is not being exploited to the fullest due to some lack of appreciation of their flexibility and sensitivity, inadequate standardization, lack of correlation of the results with diagnostic and prognostic significance, and some degree of scientific inertia. A stimulus to further development and application of the analytical methodology for toxic substances would come from more standardized methodology with wide application to various biosamples. To that end, the use of the latest analytical technology in hygienic studies, such as atomic absorption spectrometry, gas chromatography, neutron activation analysis, potentiometric measurements and polarographic methodology in place of wet chemistry would go a long way to further advance the field. References 34: 13 Russian, 21 Western.

12172/12955
CSO: 1840/2172

UDC 615.285.7:547.558.1].015.4:616.153.1-092.9

EFFECTS OF FOZALON ON CLINICAL BLOOD VALUES

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 26 Sep 84) p 73

[Article by L. G. Glukhova, Medical Institute imeni N. I. Pirogov, Vinnitsa]

[Abstract] In view of the controversy in the literature on whether the pesticide fozalon (O,O-diethyl-S-(6-chlorobenzo-xazolinyl-3-methyl)dithiophosphate) lowers the activity of serum cholinesterase (ChE), acute and long-term studies were conducted in outbred rats. A single intragastric administration of 0.5 LD₅₀ dose (14.4 mg/kg) of fozalon depressed ChE activity by the 5th day to 160 ± 2.5 mmole/liter from a baseline level of 239 ± 1.2 mmoles/liter. In the long-term studies, ChE activity was decreased by 1.3- to 1.9-fold in comparison with the baseline level, decreasing to a nadir 6 months after daily administration of 0.1 LD₅₀ dose/day (2.88 mg/kg/day). Concomitantly, both the serum activities of alkaline phosphatase and catalase were elevated by the administration of fozalon. Thus, fozalon, incorporating into its structure Cl, P and S, exerts multiple effects on the target organism. References 11: 9 Russian, 2 Western.

12172/12955

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UDC 613.481:615.28]-07:616.5-002.3-084

USE OF ANTIMICROBIAL WOOLEN MATERIALS IN PREVENTION AND TREATMENT OF SKIN DISEASES

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 14 Aug 84) pp 77-78

[Article by N. P. Likhacheva, Ye. G. Suvorova, Z. Yu. Kozinda, L. B. Vazhbin, E. Ye. Topchiyan, S. D. Stepanisko and A. P. Batanov]

[Abstract] Clinical trials were conducted in the management of 39 cases of pyoderma or dermatophytosis with woolen articles containing 1% 5-nitrofuryl-2-acrolein (NFA). Optimal therapeutic results were obtained in the pyoderma cases by use of the NFA-linens in combination with appropriate chemotherapy, resulting in complete epithelialization in 7 days. Similarly, dermatophytosis of the foot was treated most effectively by topical antifungal agents in combination with woolen socks containing 1% NFA, resulting in cures in 3-8 days. The use of such antimicrobial woolen articles was found to be free of allergenic or irritating sequelae, nor were any toxic side effects noted. References 6 (Russian).

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HYGIENIC STANDARDIZATION OF PERMISSIBLE CUTANEOUS EXPOSURE LEVELS FOR CHEMICAL AGENTS

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 20 Jul 84) pp 6-9

[Article by Yu. I. Kundiyeu and G. P. Rozhkovskaya, Kiev Scientific Research Institute of Labor Hygiene and Occupational Diseases]

[Abstract] A discussion is presented of the problem of establishing permissible cutaneous exposure levels (PELs) for various chemical agents, since it has been ascertained that skin levels are not always correlated with percutaneous ingress and systemic effects. Experience to date suggests that PELs make sense only in cases where there are direct dose-effect and time-effect relationships with regard to the percutaneous route. In view of this, it appears redundant to establish separate skin PELs for gaseous and highly volatile agents since the existing PELs for respiratory exposure suffice to assure safety. Such agents would not persist long enough on the skin to enter the blood stream. A different situation pertains, however, to agents that are highly irritating and to which dose- and time-effect relationships clearly apply. Cutaneous PELs are to be restricted to those agents that are viscous and oily, based on an evaluation of their metabolites in the body and systemic effects. References 29: 2 Czech, 8 Russian, 19 Western.

12172/12955

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UDC 615.9.015.4.07

EVALUATION OF TOXIC SUBSTANCES FOR CUMULATIVE BURDEN BY METHOD OF B. N. TIKHONOV AND V. K. SHITIKOV

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 27 Jun 84) pp 70-73

[Article by B. M. Shtabskiy, Lvov Medical Institute]

[Abstract] Recently, V. N. Tikhonov and V. K. Shitikov [Gigiyena i Sanitariya, No 4: 79-80, 1984] have criticized the work of Yu. S. Kagan and V. V. Stankevich, suggesting that the use of the latter authors' coefficient of cumulation for predicting cumulative burden, when single dosages are varied, leads to erroneous conclusions. In fact, Tikhonov and Shitikov are said to have made two erroneous assumptions: one holding that death resulting from administration of nonlethal doses occurs when C reaches a level incompatible with life (= to a single LD_{50}), and the other, that this situation applies regardless of the value of D_p . The first assumption is contradicted by the well-documented existence of supracumulation and adaptation, indicating a change in susceptibility to the toxic agent in the course of the experiment, and the second contention by the existence of dose-effect relationships. References 13 (Russian).

12172/12955

CSO: 1840/2171

UDC 614.71:678.044.21]-07

DETERMINATION OF MAXIMUM PERMISSIBLE CONCENTRATIONS OF CHEMICAL AGENTS IN AIR
IN RELATION TO AGE-SUSCEPTIBILITY OF ANIMALS

Moscow GIGIYENA I SANITARIYA in Russian No 3, Mar 85 (manuscript received
3 Aug 84) pp 76-78

[Article by N. Zh. Dabayev]

[Abstract] Since all age strata of the human population are exposed to air pollutants, experimental studies on maximum permissible concentrations of pollutants have recently attempted to relate age to susceptibility. Exposure studies conducted with mice and rats have shown that the different ages groups (young, adult, aged) can differ by as much as 16-fold in terms of their susceptibility to monomethylamine. Studies have been conducted on as many as 10 different age groups of rats, mice, hamsters, and guinea pigs to identify the most susceptible age group(s) to agents similar to monomethylamine, on the basis of which maximum permissible concentrations can be calculated. Although such studies are in preliminary stages and complicated by complex mathematical and statistical reasoning, they do lead to a more realistic appraisal of the effect of environmental pollutants on human health. The anticipation is that in the future age-dependent susceptibility to various risk factors, including air pollutants, will receive more serious consideration in toxicological investigations. Tables 1; references 6 (Russian).

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PHYSIOLOGY

UDC 613.644:613.68]-07:612.821

EFFECT OF SHIP NOISE ON FREE ASSOCIATION RATE OF SAILORS ON PROLONGED SEA DUTY

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 4 Jun 84) pp 82-83

[Article by A. A. Volkov and S. S. Markaryan, Water Transport Hygiene SRI, USSR Ministry of Health, Moscow]

[Text] An evaluation of the effect of ship noise on human associative responses is of interest both from the viewpoint of describing the overall biological nature of noise effects, and in the elaboration of hygienic noise standards that take into account the mental effects of noise. The objective of the present investigation was to study and evaluate the influence of various acoustic conditions in extensive periods of duty at sea on the free association rate (FAR) of sailors.

In the course of one and one-half months at sea, FAR measurements were recorded for 64 inexperienced students aged 19 to 21 years and 16 seamen aged 25 to 32 years with three to five years of sea duty experience. The students were examined prior to and after the cruise, and the sailors were examined before and after watches during the first three days at sea. The students' work routine consisted of training-work exercises eight hours a day. The sailors had two four-hour watches daily. The examination results of the experienced specialists were viewed as an indicator of ship noise effect during the watch period, and as an indicator of ship noise effect during the cruise in the case of the students. The FAR were determined by the presentation of three sets of stimulus-words: I -- indifferent (e.g., table, doll, store), II -- noise-related (e.g., diesel, roar, fan), III -- words denoting quiet and rest (e.g., sleep, quiet, blanket) [1].

In accordance with the time keeping and measurement data, the equivalent sound levels during the watch periods for the sailors were 94 or 64 dBA (engine crew and navigators respectively). The students were divided into four groups: The first and second groups were exposed to a noise level of 84 dBA at sea, and the third and fourth groups were exposed to a noise level of 64 dBA. Moreover, the students in the first and third groups lived in quarters in which the vibrations were within the permissible limits, whereas the students in the second and fourth groups lived in quarters in which the vibrations exceeded vessel standards 1103-73 in the 8 hertz band by 7 and 11 dB of acceleration in the horizontal-transverse and vertical directions respectively.

The noise level in the living quarters of the students and sailors was 56 dBA, and ranged from 69 to 94dBA in the training and work-training areas, dependent upon the type of activity there. The vibrations at the work areas of the examined persons did not exceed the permissible limits.

Table 1. Results of the Word-Association Test for Sailors at the Beginning of the Cruise

(1) Группа обследованных	(2) Набор слов-раздражителей	(3) Латентный период свободных ассоциаций, с	
		(4) до вахты	(5) после вахты
Судоводители (6)	I	0,50±0,05	0,63±0,07
	II	0,73±0,08	0,73±0,08
	III	0,70±0,06	0,69±0,07
Машинная команда (7)	I	0,56±0,05	0,57±0,09
	II	1,05±0,07*	0,67±0,09**
	III	0,80±0,08	0,71±0,07

(8) Примечание. Одна звездочка — различия с довахтенными показателями судоводителей достоверны при $P < 0,01$; две — с довахтенными показателями достоверны при $P < 0,01$.

Key:

1. Group of examined subjects
2. Set of stimulus-words
3. Latent period of free associations, sec.
4. Before a watch
5. After a watch
6. Navigators
7. Engine crew
8. Note: One asterisk -- differences with pre-watch indices of navigators are reliable at $P < 0.01$; two asterisks -- differences with pre-watch indices are reliable at $P < 0.01$

This study presents only the rate of associative responses as it is the index which is the most objective and amenable to quantitative expression. A semantic-hierarchical analysis of the test results detected no reliable changes.

The results of the word-association test for the sailors are presented in the table and in the diagram.

Upon comparing the pre-watch indices (see Table), one can see that the presentation of the words in set I resulted in the highest FAR for both groups of sailors, whereas the responses to the stimuli of sets II and III were characterized by a lower FAR. There were no differences in the latent period of responses to the presentation of words of either set I or II for the tested groups of sailors before a watch, although the FAR for the engine crew was 43.8 % lower than the FAR for navigators with respect to

the words of set II. The slowdown in responses to the word stimuli of set II allows us to believe that the pre-watch associative mechanisms in the engine room personnel are characterized by a selectively reduced functional lability. When taken together with this kind of selective increase of the FAR in response to the words of set II (an increase of 36.2%), which we found to be the case in the engine room after a watch, the data of the association-word test may be indicative of the noise origin of the indicated changes.

The average latent periods for associative responses to stimulus-words of the same set did not have any group differences in the case of the test groups of students at the beginning of the cruise. Those periods were 0.37 ± 0.02 , 0.66 ± 0.03 , and 0.59 ± 0.04 for the words of sets I, II, and III respectively. As one can see from the diagram, the FAR for the words of set I was somewhat lower for all groups at the end of the cruise, although this reduction did not reach a reliable level.

A reduction in the FAR was established for the students of all groups at the end of the cruise upon the presentation of set III, in which case the latent association times for the students of the 1st, 2nd, 3rd, and 4th groups increased by 0.21 sec. (36%), 0.18 sec. (32%), 0.14 sec. (22%), and 0.16 sec. (27%) respectively. Reliable FAR changes were also detected at the end of the cruise upon the presentation of set II words. In that case the latent response period of the students of the 1st and 2nd groups decreased by 0.18 sec. (27%) and 0.26 sec. (37%) respectively. The latent period for the 3rd and 4th groups increased by 0.13 sec. (21%), although this was reliably manifested only in the test subjects of the latter group.

The reduction in the FAR for the students of the 1st and 2nd groups in response to the words of set III, which was greater than this index's change in the persons of the other two groups, may indicate that the disturbances of the sailors' association responses during a watch are caused by noise. The FAR changes in response to the words of set II at the end of the cruise demonstrate that the associative mechanisms of the students in the 3rd and 4th groups were characterized by signs of selective inhibitory dominance with respect to noise. The FAR increase at the end of the cruise for the students of the 1st and 2nd groups indicated the heightened excitability of those mechanisms. Moreover, the magnitude of FAR shifts allows us to assume that the aforementioned indicator is affected not only by noise, but also by the vibrations in the living quarters.

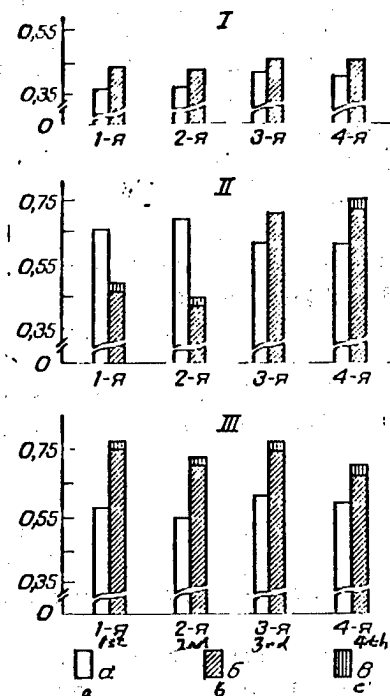


Figure 1. Free Association Latent Period (in seconds) of Test Group Students in a One and One-Half Month Cruise.

I, II, III -- sets of stimulus-words; 1st, 2nd, 3rd, 4th test groups; a -- indices at the beginning of cruise; b -- indices at the end of the cruise; c -- difference reliable at $P < 0.05$.

The FAR deceleration that was observed at the end of the cruise among the students of the 3rd and 4th groups in response to noise-related words, coincides with the results obtained from an examination of female guides on a passenger river boat in whom the acoustic circumstances during cruises were characterized by sound levels that did not exceed 65 dBA [1]. At the same time, the elevated FAR in response to "noisy" stimulus-words during cruises in students of the 1st and 2nd groups, taken together with the FAR selective increase in engine crew members during a watch, demonstrates that exposure to intensive noise (84 -- 94 dBA) causes an acceleration in the initially retarded associative processes. One may assume that the inhibition of those processes prior to a watch is caused by the prior exposure to noise on board ship over a period of three to five years with five to seven-day shore leaves after cruises of two to three months' duration.

The data obtained here, together with the results from other clinical, physiological, and biochemical methods under both actual and laboratory conditions, have been used to devise a hygienic noise standard and the substantiation of health requirements for acoustic situations on marine vessels (SN [vessel standards] 2498-81) [2].

Conclusions

1. Exposure to vessel noise equivalent to 64 dBA results in the selective deceleration of associative processes upon the presentation of words denoting the actuating factor.
2. Exposure to vessel noise greater than 84 dBA is accompanied by a selective acceleration of the associative responses to significant stimulus-words.
3. Prolonged (over a period of several years) exposure to vessel noise of 94 dBA may cause a selective retardation of human mental associative processes which is retained even after shore leaves between cruises.
4. FAR in response to stimulus-words of variable connotative groups, together with other methods utilized in ship hygiene, may be used as a criterion for evaluating exposure to various vessel noises.

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6289

CSO: 1840/2173

UDC 616.152.21-008.64-02:[613.291:661.833.42]-099-085.874:613.292:547.96

CORRECTION OF SODIUM NITRITE-INDUCED HYPOXIA BY DRY PROTEIN MIXTURE

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 7 Jun 84) pp 23-25

[Article by M. M. Seredenko, M. M. Filippov, I. N. Mankovskaya, G. I. Solomko and P. M. Karpovets, Institute of Physiology imeni A. A. Bogomolets, Ukrainian SSR Academy of Sciences, Kiev; Scientific Research Institute of Nutritional Hygiene, Ukrainian SSR Ministry of Health, Kiev]

[Abstract] Male rats were employed in study to determine the efficacy of a standard dry protein mixture (DPM; TU-49-UkrSSR-407-82) in overcoming the hypoxic effect of the extensively used food preservative sodium nitrite. In both short-term (5 mg NaNO_2 /100 g body weight) and long-term (3 mg/100 g daily for 30 days) experiments, subcutaneous administration of NaNO resulted in changes in blood chemistries and in polarographic data on the gastrocnemius indicative of hypoxia. However, in animals maintained on a diet supplemented with 300-400 mg/day of DPM all of the biochemical parameters indicated a lessening or reversal of hypoxia. In particular, DPM promoted a reduction in methemoglobin concentration, increased the oxygen-carrying capacity of the blood, and restored gas exchange to normal with abrogation of the hypoxic state in the gastrocnemius muscle. Thus, in addition to serving as a valuable nutritional supplement, DPM was also found effective in overcoming the hypoxic effects of sodium nitrite. References 13: 12 Russian, 1 Western.
References 13: 12 Russian, 1 Western.

12172/12955
CSO: 1840/2172

UDC 612.821.6+612.741.1+681.142.1

RECORDING AND ANALYSIS OF MOTOR ACTIVITY OF ANIMALS WITH ELEKTRONIKA-D3-28
MICROCOMPUTER

Moscow ZHURNAL VYSSHEY NERVNOY DEYATELNOSTI IMENI I. P. PAVLOVA in Russian
Vol 36, No 1, Jan-Feb 86 (manuscript received 17 Jan 85) pp 189-191

[Article by I. Z. Plyusnina, V. F. Plyusnin and V. P. Grivin, Institutes of
Cytology and Genetics and of Chemical Kinetics and Combustion, Siberian
Department, USSR Academy of Sciences, Novosibirsk]

[Abstract] Electronic schemas are presented for the use of the microcomputer
Elektronika-D3-28 in monitoring and analyzing the motor activity of caged
animals. The basic approach was an expansion of the previous report in which
this microcomputer was used to monitor and analyze EEG tracings [Mordvinov
Ye. F., and Burnin, S. A., Zhurn. Vyssh. Nervn. Deyat., 34(3): 593, 1984].
Evaluation of the data obtained for a special cage, with an affixed sensor,
used to enclose a fox demonstrated suitability of this approach for analyzing
the movements of any animal. The mechanism could be set to monitor move-
ments within time frames lasting from 10^{-4} to 5 sec. Several cages
can be monitored at once, considering the 16 or 32 kbyte memory that
Elektronika-D3-28 can possess. Figures 3; references 3 (Russian).

12172/12955

CSO: 1840/2160

UDC 340.621+340.624.6](478.9) 1964-1983

VIOLENT DEATH CHARACTERISTICS IN MOLDAVIA OVER TWENTY-YEAR PERIOD

Moscow SUDEBNO-MEDITSINSKAYA EKSPERTIZA in Russian No 4, Oct-Dec 85
(manuscript received 3 Apr 84) pp 25-26

[Article by P. I. Maksimov and G. S. Bachu, Department of Forensic Medicine, Headed by Candidate of Medical Sciences, P. I. Maksimov, Moldavian SSR Ministry of Health, Kishinev] Moldavian SSR

[Abstract] The major purpose of this study was to determine the dynamics of violent death, the structure of traumatism by years and the changes which have occurred in the frequency of individual types of trauma over the period from 1964 through 1983. The data for these years indicate that among various causes of violent death, mechanical trauma is most important (45.6% of deaths), various mechanical asphyxia factors, next (26.7%) and poisoning, third (17.4%). Death resulted much less frequently from extreme temperatures (5.5%), electric shock (3.5%) and unclassified types of violent death (1.3%). Cases of violent death over the twenty-year period represented 64.4% of the total number of cadavers for which autopsies were performed. An annual decline in the specific percentage was noted, a result of a combination of preventive measures. The number of cases of fatal poisoning alone shows a tendency to increase over the period, while electric shock decreased. References 1 (Russian).

6508/12955
CSO: 1840/2125

HYGIENIC ASPECTS OF RADIOACTIVE AND TOXIC ELEMENT LEVELS IN SOLID FUEL AND AIRBORNE ASH PARTICLES

Moscow GIGIYENA I SANITARIYA in Russian No 3, Mar 85
(manuscript received 31 Aug 84) pp 47-50

[Article by N. K. Novikova and V. A. Knizhnikov, Institute of Biophysics, USSR Ministry of Health, Moscow]

[Abstract] Studies were conducted on the emissions of power stations using various Soviet coals and Estonian shale, in order to assess the health risk in relation to radionuclide and toxic element levels in the fuels. Scanning electron microscopy showed that 83.26% of the coal ash particles were 2 μ m or less in size, while for the shale the corresponding figure was 81.55%. Thus, both types of fuel presented with essentially identical risk of particles that can be airborne for prolonged periods of time and enter the lungs, with only a minimal level of retention in the upper respiratory tree. Although there was significant chemical difference between the ash component of coal and shale, there were no significant differences between the radionuclide and trace element compositions. However, the specific radioactivity of Ra-226, Pb-210, Th-228 and K-40 showed an inverse increase to the size of the particles, with the highest enrichment in radioactivity attributed to Pb-210. The ease of penetration of the smallest particles into the human pulmonary tissue, in conjunction with their high radioactivity, poses a serious health risk. References 9: 8 Russian, 1 Western.

12172/12955

CSO: 1840/2175

SUBCHRONIC TOXICITY TEST FOR EVALUATION OF CUMULATIVE CHARACTERISTICS OF NOXIOUS SUBSTANCES

Moscow GIGIYENA I SANITARIYA in Russian No 3, Mar 85
(manuscript received 26 Jun 84) pp 57-60

[Article by B. M. Shtabskiy and I. G. Shatinskaya, Lvov Medical Institute]

[Abstract] Mature white rats were employed in a study designed to assess the value of the subchronic toxicity test [Lim, R.K.S. et al., Arch. Int. Pharmacodynam., 130: 336-353, 1961] in determining the cumulative potential of noxious agents. On the basis of the determination of the cumulative coefficients, the test substances ranked as follows: afos (organophosphorus pesticide) > $\text{Cd}(\text{NO}_3)_2$ > $\text{Pb}(\text{NO}_3)_2$ > dimethyl phthalate > oxalic acid > tsiodirn [sic] (organophosphorus pesticide) > N-methylaminodithiocarbamic acid. The test was found suitable for such studies based on survival figures, when expressed in standard coefficients of cumulation (SC_c). $\text{SC}_c = (\text{D}_2/\text{D}_1) \text{C}_c$, where D_1 and D_2 are doses leading to 50% mortality early and late after a single administration of the toxic agents, and C_c represents the cumulative coefficient. A value of less than unity for the cumulative coefficient indicates that that agent tends to be cumulative, and a value of greater than unity reflects enhanced resistance to the agent. References 11: 10 Russian, 1 Western.

12172/12955

CSO: 1840/2175

UDC 614.31:613.294:663](447)

TRENDS IN OVERSIGHT ACTIVITIES OF SANITARY EPIDEMIOLOGIC SERVICE OF UKRAINIAN
SSR IN FIELD OF PUBLIC NUTRITION

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 1 Jun 83) pp 28-31

[Article by A. M. Kasyanenko, Ukrainian SSR Ministry of Health, Kiev]

[Abstract] Industrialization of public nutrition in the Ukrainian SSR has placed new demands on the sanitary epidemiologic service in setting standards and monitoring performance. This includes oversight of food quality and facilities at schools, recreational resorts, and industrial enterprises to meet the demand of each unique situation, such as provisions for night-shift workers. In addition, the sanitary epidemiologic service of the Ukrainian SSR is charged with ensuring efficient food distribution and allocation of food resources. Finally, special care is accorded to analyzing and correcting food- or nutrition-associated health risk factors, including examination of the food products themselves, their methods of production and preparation, and handling. References 2 (Russian).

12172/12955
CSO: 1840/2172

UDC 613+614]:378.661

EXPERIENCE WITH COMPREHENSIVE STATE EXAMINATION ON HYGIENE AT SANITARY-
HYGIENE AT SANITARY-HYGIENE FACULTY

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 28 Nov 83) pp 40-43

[Article by V. D. Chernenko, M. V. Krivososov, M. P. Vorontsov, G. I. Yevtushenko, M. I. Ivashchenko, V. A. Krivoshey, B. M. Ovcharenko and A. I. Putevskoy, Kharkov Medical Institute; Kharkov Oblast Sanitary Epidemiologic Station; Kharkov Municipal Sanitary Epidemiologic Station]

[Abstract] In order to economize time and eliminate the number of narrowly specialized examinations on hygiene at the various faculties of medical institutes, an experiment was conducted at the Kharkov Medical Institute to test a comprehensive examination for graduates in hygiene. The examination was designed to cover both practical and theoretical knowledge, included an adequate time for preparation (14 days) and generally lasted 35-40 minutes per student. At Kharkov, 35.5% of the students passed with a rating of 'excellent', 43.3% with a rating of 'good', and 21.2% with a rating of 'satisfactory'. In general, the students did very well in analyzing concrete sanitary situations with their etiological and epidemiological connotations and in prescribing corrective and preventive measures. They fell short, however, when it came to providing the government and party authorities with proper documentation and recommending administrative sanctions. On the whole, the experience was evaluated in a highly positive manner both by the examiners and examinees and appears to be a step in the right direction in assessing knowledge in hygiene. References 1 (Russian).

12172/12955
CSO: 1840/2172

UDC 614.71./72:66]-07:616.316-008.839.624-097-053.2-078.73

SALIVARY IgA LEVELS IN CHILDREN RESIDING IN INDUSTRIAL REGION WITH AIR POLLUTION

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 22 Feb 84) pp 89-90

[Article by Ye. A. Usatova, Municipal Sanitary Epidemiologic Station, Voroshilovgrad]

[Abstract] Determinations were conducted on the IgA levels of children in Voroshilovgrad residing in an industrial rayon with heavy air pollution, for comparison with the same parameter in children residing in a rayon with low levels of pollution. Examination of a total of 574 children, 7-8 years old, showed a statistically significant difference between the two groups in terms of an overall yearly average value: 7.1 ± 1.3 mg% for the children in the high pollution area, and 16.7 ± 2.2 mg% for the children in the low pollution area. Seasonal variations were also noted, with 4.3-4.7 mg% mean values for the experimental group in winter and spring versus 11.3-29.2 mg% for the control group. The difference between these two groups was least pronounced in the fall, with a mean value of 11.1 mg% IgA for the experimental group and 13.8 mg% for the control children. The lower IgA values in the saliva of the experimental group of children were accompanied by a higher incidence of acute respiratory infections and a more severe clinical course.

References 6 (Russian).

12172/12955
CSO: 1840/2172

DISPENSARIZATION OF WORKERS AND EMPLOYEES OF GEOPHYSICAL GROUPS

Moscow SOVETSKAYA MEDITSINA in Russian No 3, Mar 86
(manuscript received 14 Jun 85) pp 69-73

[Article by Ye. I. Zharov, Ye. A. Prokhorovich, A. L. Vertkin and A. V. Belov, Department of Internal Medicine, Number Four, Headed by Professor Ye. I. Zharov, Moscow Medical Institute of Stomatology imeni N. A. Semashko]

[Abstract] A special three-stage program was conducted to provide mass health examinations [dispensarization] for two hundred persons, 18 to 55 years of age, members of geophysical study groups in the central band of the RSFSR. The three-stage dispensarization services included collection of a case history, ordinary clinical examination, and recording of ECG. The second stage included functional studies of the cardiovascular system, including tetrapolar thoracic rheography, a bicycle ergometer test and a psychoemotional test. The third stage utilized special methods of examination, including radioimmune determination of the hormonal profile of the blood, radiosotope renography, i.e.-urography and consultation with specialists as indicated. The third stage was performed only on persons with cardiovascular system disorders. Some 27% were found with cardiovascular system diseases including 13% with hypertension, 3.5% with renal hypertension, 2% with thyriotoxicosis with hypertension and 6.5% with ischemic heart disease. Latent hypertensive tendencies were found in the bicycle ergometer and psychoemotional tests in 3.5% of the patients, while 4.5% were found in these tests to have latent coronary insufficiency. The three-stage method of physical examination allows refinement of detection of the mechanism of development of diseases and determination of means for differential treatment and prophylaxis. References 5 (Russian).

6508/12955
CSO: 1840/2124

UDC 616-084.3(470)

PREPARATION FOR UNIVERSAL ANNUAL PHYSICAL EXAMINATION OF THE POPULATION IN
PENZA OBLAST

Moscow SOVETSKAYA MEDITSINA in Russian No 3, Mar 86
(manuscript received 22 Apr 85) pp 73-75

[Article by Y. U. Laptev and Baskakova, Penza]

[Abstract] The general annual physical examination of the population represents a qualitatively new stage in the development of Soviet public health. In Penza Oblast, interdepartmental organizational measures have been taken, and the order has been given in the oblast health department. The Penza Oblast CPSU committee, the oblast executive committee and various other bureaucratic entities have discussed the related problems at great length. Previous experiences indicated that medical examinations are best given in public clinics; a necessary, indeed irreplaceable component of the dispensarization method is sanitary education, requiring that doctors have contact with patients to inspire them to strengthen and protect their health. Since 10 to 15% of the rural population will be examined by traveling teams, it will be necessary to allocate more vehicles and equipment for this purpose. In some places in the oblast, conditions have not been created to support general physical examination of the population. In places there are insufficient blood pressure measuring devices, electrocardiographs, x-ray film, apparatus and reagents for laboratory studies. These problems must be solved so that the great work of providing annual physical examinations for all Soviet people can stride forward decisively.

6508/12955
CSO: 1840/2124

UDC 617.3+617-001-053.2

STATUS AND PROSPECTS FOR DEVELOPMENT OF ORTHOPEDIC-TRAUMATOLOGIC SERVICES
FOR CHILDREN IN RUSSIAN FEDERATION

Moscow ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE in Russian No 11, Nov 85
(manuscript received 1 Jul 85) pp 1-4

[Article by V. L. Andrianov, N. G. Veselov and V. M. Parfenov, Leningrad
Pediatric Orthopedic Institute imeni G. I. Turner, (Director: Professor
V. L. Andrianov)]

[Abstract] Although ambulatory-polyclinic institutions play the leading role in provision of orthopedic-traumatologic services to children, the organizational status of this type of specialized service requires further improvement in the RSFSR. Hospital treatment for children with musculo-skeletal pathology is provided at one hundred departments, including twenty-two orthopedic departments, sixty-two traumatology-orthopedic departments and sixteen traumatology departments. There are sixty-three sanatoria for children with orthopedic disease and deformities and forty-two specialized boarding schools, primarily for children with scoliosis and infantile cerebral paralysis. Nine scientific and practical reference points for pediatric orthopedics and traumatology have been created on the initiative of the authors' Institute at pediatric hospitals or specialized sanatoria in the Russian Federation. One of the major problems requiring further attention is development of prophylaxis of both traumatism and disease of the musculo-skeletal apparatus. Analysis of data on the status of traumatism in the Republic indicates that the work of various departments studying the causes of injuries and traumatic factors in several types of accidents is insufficiently coordinated and ineffective. The rate of injuries to children is not decreasing in the Republic. A new trend in the study of prevention of children's traumatism is the combined study of social-hygienic and organizational aspects of pediatric traumatism, psychological precursors to development of injuries in children. All of these studies will help to determine the specific causes of injury in various areas and will assist in the development of specific suggestions for each region.

6508/12955
CSO: 1840/2127

UDC 614.3/.4:614.79(477.62-22)

SANITARY AND EPIDEMIOLOGIC WELLBEING OF RURAL POPULATION IN DONETSK OBLAST

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 22 Jun 84) pp 77-78

[Article by A. M. Arykh and N. V. Grin, Donetsk Medical Institute imeni
M. Gorky]

[Abstract] Marked advances have been made in the last 10 years in the delivery of sanitary and epidemiologic services to the rural population in the Donetsk Oblast, as witnessed by the increasing number of specialized sanitary and epidemiologic stations, the establishment of large environmental monitoring laboratories, and expansion of health and recreational facilities. Taking into consideration that only 11% of the population in the Donetsk Oblast is rural, an extensive program has been developed to engage the urban and student populations in agricultural work programs on a temporary basis, usually during harvest time. This required special and additional health and living facilities provided with the latest in technology. In situations where inadequate preparations have been made to assure adequate health resources for the temporary urban workers, arrival of the latter is delayed until proper measures have been taken. Thus, for example, in 1983 the arrival of a student was delayed for 2-5 days at 15 farms until the hygienic requirements were met. In addition, the efficiency of ambulatory sanitary teams in monitoring health risk indicators in the rural areas has prevented the occurrence of any outbreaks of infections among such transient city workers in the rural environment for the past several years.

12172/12955
CSO: 1840/2171

UDC 614.3/.4:614.79(476.7-22)

EXPERIENCE OF BREST ZONAL SANITARY EPIDEMIOLOGIC STATION IN MONITORING RURAL FACILITIES

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 85
(manuscript received 16 Apr 84) pp 74-75

[Article by A. M. Dobriyanin, V. M. Rakot and L. V. Glebko, Brest Oblast Sanitary Epidemiologic Station]

[Abstract] In order to facilitate sanitary oversight over various rural facilities in the Brest Oblast, a Zonal Sanitary Epidemiologic Station was created on January 1, 1978. The Station was assigned oversight in the Kamenetskiy, Zhabinskivskiy, Maloritskiy and Brest rayons, and is currently staffed by 7 sanitary physicians. Various forms of sanitary oversight are performed by the Station, excluding epidemiologic, bacteriologic and disinfection studies. As a result of field work and educational campaigns, the quality of foodstuffs in the affected regions has been improved, especially dairy products, and significant reduction has been obtained in the number of unacceptable water samples. As a result of the intensification of sanitary measures by the Station there have been no mass outbreaks of communicable diseases in the 4 rayons in the last 5 years, nor of food poisoning. The creation of such a specialized station was seen to be an effective measure in overcoming the local shortage of sanitary physicians.

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CSO: 1840/2171

SCANDAL AT KIRGHIZ ONCOLOGICAL RESEARCH INSTITUTE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 6 May 86 p 4

[Article by V. Khrustalev, special correspondent, Frunze]

[Abstract] A scandalous affair at the Kirghiz Scientific Research Institute of Oncology has come to light, in which a respected and accomplished researcher, V. Kalygin, has been discredited for working on the salutary effects of mumiye [sic]. This preparation has been shown to have many beneficial effects in wound healing and in the treatment of neoplasms, although the active principle has yet to be identified with certainty. However, Kalygin has been dismissed and his laboratory liquidated on the order of the director of the institute, S. Imambayev, a move approved by O. Turgunbayev, Kirghiz SSR Minister of Health, and by a commission from the USSR Ministry of Health. The underlying charge was that Kalygin was using a preparation as yet unapproved by the State Drug Committee, overlooking the fact that this was an experimental preparation and that it has been found effective even by A. Sayen Sayenko, the previous director of the institute and presently head of the Chair of Oncology and Radiology of the Kirghiz Medical Institute. Many of those who had to take a stand against Kalygin privately apologized to him that they had to do so under pressure from Imambayev. The underlying motive of the action against Kalygin appears to be that Imambayev has a hematologist friend Abdyldayev who needed lab space. And so, an oncological research laboratory had to be disbanded to make room for Imambayev's friend.

12172/12955

CSO: 1840/1181

UDC 616.12-005.4-07:616.153.922

PSYCHOLOGICAL ASPECTS OF MEASURES TO DECREASE LEVEL OF CHOLESTEROL IN
POPULATION STUDY

Moscow KARDIOLOGIYA in Russian Vol 25, No 11, Nov 85
(manuscript received 24 Jul 84) pp 72-75

[Article by A. A. Goshtautas, Ya. A. Pyatkyavichene, S. B. Domarkene and
L. E. Margyavichene, Scientific Research Institute of Physiology and Pathology
of the Cardiovascular System, Director: Professor I. N. Bluzhas, Kaunass
Medical Institute]

[Abstract] An attempt was made to study the possible influence of psychological variables on participation of the population in measures intended to normalize the level of cholesterol and changes in the cholesterol content of the blood of the subjects. The work was performed as a part of a cooperative study of the effectiveness of multifactor prophylaxis of myocardial infarction and cerebral insult among males 40 to 59 years of age in Kaunass. Subjects with indications of IHD (ischemic heart disease) were selected for the study, as well as men with hypercholesterolemia (260 mg% or more). Characteristically, persons who failed to take part in the preventive program (which included stopping smoking, changing diet, changing exercise patterns) were more aware of the possibility of development of serious disease than persons who did take part in the study, but tended to be people whose personality type made rapid decisions rather than contemplating and evaluating evidence. The psychological specifics of these personalities not only tended to make them less likely to take part in the attempt to reduce blood cholesterol, but also less likely to be successful when they did take part. References 10: 7 Russian, 3 Western.

6508/12955
CSO: 1840/2126

UDC 612.6.052.014.482-019:599.82+616-001.28-07:616-055.5/.7-092.9:599.82

MONKEYS AS STUDY SUBJECTS IN INVESTIGATIONS OF CYTOGENETIC EFFECT OF RADIATION

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 86
(manuscript received 11 May 85) pp 51-54

[Article by L. P. Kosichenko and V. S. Barkaya, Institute of Experimental Pathology and Therapy, USSR Academy of Medical Sciences, Sukhumi]

[Abstract] Comparative study of cytogenetic effects was carried out on monkeys exposed to different intensity radiation. It was shown that a high level of chromosomal changes was retained for many years in the bone marrow of monkeys exposed to radiation independent of the intensity and conditions of such exposure. Longlasting mutagenic effects and appearance of pathologic cell clones is due to the fact that injured stem cells of the bone marrow with balanced chromosomal material do not lose their ability to multiply and undergo mitosis at different periods after radiation exposure. Daughter cells inherit stable chromosomal rearrangements which in turn lead to development of pathologic cell clones. Balanced chromosomal exchanges appeared to be the principal disorders observed. References 9: 4 Russian, 5 Western.

7813/12955
CSO: 1840/1198

MODIFYING EFFECTS OF UV-IRRADIATION ON SEQUELAE OF Sr-89 UPTAKE BY
EXPERIMENTAL ANIMALS

Moscow GIGIYENA I SANITARIYA in Russian No 3, Mar 85
(manuscript received 2 Aug 84) pp 68-70

[Article by B. Stefanov, Ya. Georgiyeva, Khr. Nechev and V. Shopova, Medical
Academy and Higher Medical Institute, Pleven, Bulgaria]

[Abstract] Rats were employed in a study designed to test the effects of irradiation with a suberythematous dose of UV radiation (= 0.5 erythematous dose) for 10 days on the hematologic sequelae of intratracheal administration of Sr-89 in a dose of 370 kBq. Phasic changes in the electrolytes and cells resulted from the administration of the radionuclide: hemoglobin, for example, was elevated in the experimental group for the first 15 days, but depressed through days 30-60. Lymphocyte counts were depressed throughout the 60 day period of observation in the Sr-89 group, whereas leucocyte counts were depressed only during the first 15 days and by day 60 exceeded by two-fold the control level. Among the other changes noted were elevation of Na throughout the 60 day period and depression of P_i . Blood cholinesterase was elevated to a statistically significant degree by Sr-89 administration only on day 1, 8 and 60. Pre- or post-treatment with UV radiation either completely abolished such changes or mitigated their manifestation, suggesting that UV irradiation may have potential use in the prevention of Sr-89 induced damage to the mammalian organism. Tables 3; references 10: 7 Russian, 3 Western.

12172/12955
CSO: 1840/2175

VETERINARY MEDICINE

VACCINATION: RELIABLE SHIELD AGAINST CHRONIC ANIMAL DISEASES

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 8-10

[Article by O. Z. Iskhakov, I. A. Kosilov, A. A. Novitskiy and L. A. Malysheva]

[Abstract] An all-out effort is underway to eradicate cattle brucellosis. In those areas where proper programs were introduced, the disease is under control, in some areas it is actually eradicated. One of the more effective measures includes the use of vaccines. Measures based only on early diagnosis without proper prophylactic intervention did not yield satisfactory results. In the early programs vaccine from agglutinogenic strain 19 was used but in adult animals it was retained for a long time and interfered with later diagnoses. Therefore, its continued use was restricted to animals 5-7 months old. Then the weakly agglutinogenic strain 82 was introduced. The following schedule was developed for prophylactic purposes: original immunization of 4-month-old animals followed by revaccination after 10 months and again after two years. Positive results were obtained only with this specific combination; strain 82 alone was not as satisfactory; deviation from the above schedule did not yield the same results. Thus it was shown that the use of this vaccination schema intensified its antiepidemic effectiveness, diminished the numbers of diseased animals and lowered the infection loci.

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NECROBACTERIOSIS: CLINICAL PICTURE, PROPHYLAXIS AND CONTROL MEASURES

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 12-18

[Article by V. M. Belyarov and V. A. Lukyanovskiy]

[Abstract] A descriptive review of necrobacteriosis (necrobacillosis) is presented without any literature citations. It is an infectious disease with purulent-necrotic skin lesions and involvement of neighboring tissues, mucous membranes and internal organs caused by *B. necrophorum*, spread by sick and healed animals. The pathogen can be carried for a long time in the animal body and is spread in feces, saliva, necrotic tissue, infecting water, soil, feed, bedding etc. Poor sanitary conditions favor the spread of this disease. It may take a benign and/or a "malignant" course. Detailed clinical manifestations are reported for many animal species based on post-mortem section. The incubation period is usually 1-3 days. Diagnosis is made on the material recovered from necrotic foci using bacteriologic, bacterioscopic and biologic methodology. The treatment includes surgical excision with application of antiseptic, bacteriostatic and antimicrobial preparations. At this time, there are no effective prophylactic measures available. Control measures include daily examination of animals, transfer of herds to new pastures when the first cases are noted and avoidance of old pastures for 2-3 months, maintenance of sanitary conditions, quarantine restrictions, etc.

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ELECTROAEROSOL DISINFECTION METHOD OF TRANSPORTATION MEDIA

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 27-28

[Article by V. S. Yarnykh, M. P. Butko, N. A. Shaluyev and N. M. Kelbikhanov,
All Union Scientific Research Institute of Veterinary Sanitation]

[Abstract] Refrigerated cars, trucks and airplanes are subject to strong corrosive processes during exposure to aggressive disinfectants. In the aerosol and electroaerosol state, the disinfectants do not wet the structure surfaces and are corrosion safe. A methodology was developed for disinfecting refrigerated carriers by means of electroaerosols consisting of glutaric aldehyde and peracetic acid used at 40 and 35 ml/m³ with a 2 and 1 hr exposure, respectively. The applicator is rotated on a stand placed centrally in the car. Four to six rotations of the atomizer are adequate for each container. Figures 2; references 11 (Russian).

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AEROIONIZATION AND ITS EFFECT ON RESISTANCE OF COWS

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 28-30

[Article by N. M. Khrenov and A. V. Chunikhin, Kherson Agricultural Institute]

[Abstract] Effect of aeroionization on resistance of milk-producing cows was studied. It was shown that exposure of milking cows to aeroionization in dairy farm stables increased their resistance and intensified their functional activity, especially of the thyroid gland expressed by elevated level of bound iodine. At a dose of 0.5 mg/kg, aminazine did not protect against the effect of aeroionization but depressed the stress reaction of test animals. Clinical indices of experimental and control groups remained within the normal range (temperature, pulse, respiration rate). Control of the microclimate of stables is very important: air movement, low dust levels, moderate relative humidity, low levels of ammonia, hydrogen sulfide and carbonic acid.

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AFRICAN SWINE PLAGUE (LITERATURE REVIEW)

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 38-44

[Article by I. F. Vishnyakov]

[Abstract] African Swine Plague (ASP) is a viral disease with high contagiousness and superacute, acute, subacute, chronic and latent courses. Both wild and domesticated animals are attacked and survivors are life-long carriers of the virus. Detailed review of the course of disease with pathological findings were reviewed along with various immunologic methods used in studies of this virus: hemadsorption reaction, antigenic properties of ASP virus, diagnostic methods such as direct immunofluorescence, complement binding reaction, diffusion precipitation reaction, radial immunodiffusion, immuno-electroosmophoresis, indirect immunofluorescence, immunoenzymatic analysis and radioimmunologic analysis. Figure 1; references 59: 4 Russian, 55 Western.

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VITAMIN PP PREPARATION FOR FEED

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 63-64

[Article by V. Ye. Brytskov, S. M. Payenok, Ya. S. Gusak and E. M. Guseynov, Scientific Production Association "Vitaminy"]

[Abstract] Fodder such as grain concentrate is rich in nicotonic acid, most of which is in a non-assimilable form, however. To counteract this, feed must be supplemented with the vitamin. One of the better candidates for this purpose is "Niatsinat" feed vitamin PP. Results of toxicity studies are reported. The preparation is non-toxic, exhibits biological activity and has no undesirable effects on experimental animals. Evaluation carried out on pigs showed that "Niatsinat" is as effective as the pharmacological nicotinic acid, but, economically, it surpassed the latter by better weight gain, stability and feed expenses. The weight increase due to vitamin PP is evidently the result of lesser use of deficient tryptophan in synthesis of nicotinic acid and its inclusion in protein synthesis.

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THIRD SCIENTIFIC METHODOLOGICAL CONFERENCE ON MYCOPLASMA INFECTIONS

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 68-70

[Article by V. P. Berdnik and K. Pfuetzner]

[Abstract] The conference was held in Jena, GDR with participation of scientists from Bulgaria, Hungary, East Germany, Poland, Rumania, USSR and Czechoslovakia. The program included the following topics: mycoplasma infections in cattle; mycoplasma infections in pigs; experimental infections of laboratory animals; mycoplasma infections of birds and mycoplasma in cell cultures and in vaccines. Topics on cattle infections dominated and the papers from East Germany authored primarily by Pfuetzner were the most numerous: isolation, longevity, inactivation, experimental infection spread and general etiologic observations were covered. Scientists from the USSR and East Germany discussed infections in pigs; they noted that clinical, hematologic and immunologic characteristics manifested the intensity of pathologic processes in pigs. The remaining papers followed the topics listed above.

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USE OF ANTIMALIGNANT ANTHRAX VACCINES OF L. S. TSENKOVSKIY

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 70-71

[Article by M. N. Gladenko and Ye. S. Ostrenskiy]

[Abstract] A historical overview of the subject is presented. In 1856-57 F. A. Brauel isolated the pathogen of malignant anthrax from the blood of patients and animals and propagated this disease experimentally in animals using this isolate; he preceded the work of R. Koch and L. Pasteur by two decades. Eventually Pasteur reduced the pathogenic virulence and was able to vaccinate sheep and cows against malignant anthrax. Malignant anthrax was a serious problem in Russia and G. L. Skodovskiy turned to Pasteur for a supply of vaccine which proved to be too expensive for him. In 1882 professor L. S. Tsenkovskiy was sent to Pasteur to learn his technique but came back empty-handed. Upon his return, he began developing his own vaccine and a year later already had an available supply. A laboratory was set up in the Kherson region in the village Belozierka. In two years, this laboratory produced enough vaccine to vaccinate 1333 sheep. A special commission reviewed and approved Tsenkovskiy's vaccine: a 77% immunity was achievable. The number of vaccinated sheep grew steadily; the work turned to horses and cattle. Tsenkovskiy died on 25 Sep 1887. His laboratory lasted for four more years in Belozierka; 45,000 animals were vaccinated thanks to the efforts of this laboratory. A new, bigger laboratory was opened in 1903 on a much larger scale under its first director A. A. Nitskevich.

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CAREER OF VETERINARIAN G. M. PROZOROV

Moscow VETERINARIYA in Russian No 2, Feb 86 pp 71-72

[Article by V. S. Shipilov and V. V. Khramtsov]

[Abstract] This recalls the life and a book by G. M. Prozorov, "Veterinary Birth-Assistance Science With a Chapter on Offspring Diseases." Academician Grigoriy M. Prozorov initiated veterinary obstetrics during the last century. He began his studies at St. Petersburg Medical-Surgical Academy attending medical and veterinary courses. During his military service he participated in campaigns in Poland and in Turkey. By 1845 he reached the status of a professor. He served in this medical-surgical academy until 1863. Upon retirement he continued active interest in his work. A number of his more important papers are listed along with some choice citations.

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COMPARATIVE STUDY OF EFFECT OF CERTAIN PESTICIDES ON PROCESSES OF NATURAL SELF-PURIFICATION OF SEAWATER AND FRESHWATER

Moscow GIGIYENA I SANITARIYA in Russian No 8, Aug 85 pp 79-80
(manuscript received 10 Dec 84) pp 79-80

[Article by D.I. Sapegin, I.N. Kalsada, A.G. Kucher and I.S. Severinov from the Crimean Medical Institute, Simferopol]

[Text] Representatives of two widely used pesticides, organophosphorus (phosphamide) and copper-containing (copper sulfate), were the objects of this study. Hermetically sealed 200-mL phials were filled with seawater and freshwater, and the effect of pesticides on biochemical oxygen consumption [BPK] was studied [2, 4, 5]. The effect of the toxic chemical on the water's ammonia and nitrite content, oxidation susceptibility, and pH was studied in model reservoirs with a holding capacity of 20 L [2, 4-7]. All indices were determined immediately after the addition of the pesticide as well as after 1, 2, 4, 8, 10, 15, and 20 days. Four series of experiments were conducted. Threshold concentrations of phosphamide and copper sulfate (1 mg/L) were used in the experiments [1, 2]. The pesticide had a stimulating effect on the BPK. With the exception of the day 2 observation, the effect was more expressed in the vessels with the freshwater. In addition, no strict quantitative regularity was established in the diversity of this effect. Thus, in the day 1 observation, the increase in the BPK of the freshwater was 1.7-fold more expressed than in the seawater, 1.8-fold on day 4, 1.1-fold on day 8, and 1.6-fold on day 20.

Compared with the control reservoirs, the average shifts in oxidation susceptibility in the experimental model reservoirs with seawater and freshwater were insignificant with respect to amount and were irregular. This confirms the view in work [3] that the BPK is a more sensitive and accurate index for estimating processes of the self-purification of seawater than of oxidation susceptibility. Compared with the control reservoir, the ammonia content in the experimental reservoirs decreased most significantly on the 8th to 10th day. In the freshwater reservoirs with phosphamide, the ammonia concentration decreased somewhat on the first and second day of observation, but increased thereafter. In the majority of samples taken from the test reservoirs with the seawater, the content of nitrites increased in comparison with the control; the reverse was observed in the freshwater reservoirs. The pH of the water in the experimental reservoirs with seawater and freshwater did not differ from the control.

The change in the microbe number under the effect of phosphamide was determined both in the BPK phase and in the nitrification phase. From the day 4 observation in the BPK phase, an increase in the microbe number was registered in the test vessels compared with the controls. A short-term decrease preceded the

increase in the given index (on the second day in the phials with the seawater and on the first and second days in the containers with the freshwater). Analogous changes were observed in the nitrification stage, only the preliminary bacteriocidal effect was longer: in comparison with the control reservoir, an increase in the microbe number in the model reservoirs with phosphamide was only registered beginning with the eighth day. In both phases, no regularity was detected in the difference in the fluctuations in the growth of saprophyte microflora in the seawater and in the freshwater: in some samples the changes caused by phosphamide were more expressed in the freshwater, and in others they were more pronounced in the seawater.

Thus, judging by the change in BPK in the concentrations under study, phosphamide accelerated the processes of the natural self-purification of water, which was expressed in the vessels with freshwater. This is evidently explained by the stimulating effect of the toxic chemical on the development of saprophyte microflora, including bacteria participating in the processes of the water's self-purification from organic substances. The changes in the nitrification processes were less demonstrative in both the seawater and freshwater.

Under the effect of copper sulfate, a decrease in BPK was noted in the phials with seawater and freshwater in comparison with the control. In all stages of observation except the day 20 observation, this was more expressed in the seawater. As in the experiments with phosphamide, the quantitative differences in the individual stages of measurement were nonidentical. For example, the decrease in BPK in the seawater in the day 1 observation was 2.3-fold more expressed than in the freshwater, 3.5-fold more on day 2, 1.2-fold more on day 4, 1.4-fold more on day 8, 2.1-fold more on day 10, and 2.2-fold more on day 15.

Compared with the control, the oxidation susceptibility of the water in the model reservoirs with copper sulfate increased more significantly in the seawater (with the exception of the 4th and 20th days). In different stages, the difference in the changes in oxidation susceptibility in the seawater and freshwater was subject to great fluctuations. The ammonium content decreased under the effect of the pesticide. In some stages of observation, this decrease was more significant in the seawater, and in others it was more significant in the freshwater. The nitrite concentration in the test reservoirs increased (with the exception of days 2, 4, and 20), which was more expressed in the freshwater. The pH changed toward the alkali side to a greater degree in the freshwater.

The microbe number was reduced under the effect of copper sulfate in the seawater and in the freshwater. In the BPK phase, the decrease was more expressed in the seawater on days 2, 4, and 15, and it was more pronounced in the freshwater on the other days. In the majority of stages of the observation, in the nitrification phase the change in the growth of saprophyte microflora was more significant in the freshwater.

Thus, judging by the change in the majority of indices, copper sulfate inhibits the processes of natural self-purification of seawater and, to a lesser degree, of freshwater. This inhibition may be explained by the bacteriocidal effect of copper compounds, which is proved by the reduction in the microbe number in experimental phials and model reservoirs as compared with the controls.

Comparing the changes in the parameters under study in the seawater and freshwater under the effect of both pesticides leads to the following conclusion.

The changes in self-purification indices of seawater and freshwater either differ significantly with respect to magnitude or they have an opposite direction. Consequently, data in the literature about the effect of pesticides on the total sanitary condition of freshwater should not be used when establishing the limit allowable concentration [PDK] of pesticides in seawater.

No regular correlation relationship was observed in the difference in the effect of pesticides on the self-purification indices of seawater and freshwater. For example, the effect of phosphamide on the more accurate index of the self-purification of water, BPK, was more pronounced in freshwater; for copper sulfate, it was more pronounced in seawater. The relative difference in the effect of one pesticide, both on the different indices and on one index on different days of observation, were not identical. Consequently, it was not possible to propose a correction factor that would have made it possible to use the effect of a pesticide on the sanitary condition of freshwater reservoirs as the basis for computing the threshold concentration of that pesticide in seawater according to an analogous toxicity factor.

Thus, in standardization of pesticides in seawater in order to establish threshold concentrations based on the effect on the total sanitary condition, it is necessary to conduct separate experiments with seawater.

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EVALUATION OF AIR POLLUTION LEVELS AT WORK AREAS FROM MEASUREMENTS OF TOXIC AGENTS

Moscow GIGIYENA I SANITARIYA in Russian No 2, Feb 85
(manuscript received 3 Sep 84) pp 44-46

[Article by A. K. Pankov, V. M. Isayev and V. P. Arsenkin, All-Union Scientific Research Institute of Chemical Reagents and Especially Pure Chemical Substances, Moscow]

[Abstract] Description is provided of a photometer used for the detection of various toxic chemicals, such as chlorine, hydrogen chloride and ammonia, in conjunction with the mathematical foundations and rationale for applying the Lambert-Beer law to such measurements. The method was designed for the determination of a single toxic dose at a given work area from the optical density of an indicator element. The key elements of the electric circuit consist of a comparative and a working photoresistor incorporated into a bridge scheme of the photometer. The apparatus operated with a $\pm 10\%$ error with cutoff points of 0.017, 0.020 and 0.025 $\text{mg}\cdot\text{min}/\text{dm}^3$ for ammonia, chlorine, and hydrogen chloride, respectively. Figures 2; references 6: 4 Russian, 2 Western.

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