AD 678735

ATD Report 69-5-50-3

CBE FACTORS

Monthly Survey No. 33

ATD Work Assignment No. 50

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FOREWORD

This report is the thirty-third in a series of monthly surveys covering the following areas:

I. CHEMICAL FACTORS
- Pesticides
- Herbicides
- Fertilizers
- Psychotomimetics
- Other Chemicals

II. BIOLOGICAL FACTORS
- Pathogens

III. ENVIRONMENTAL FACTORS
- Aerosols
- Ecology
- Micrometeorology
- Soil Science

IV. GENERAL

Titles of publications cited in Sections I—IV are listed alphabetically in Appendix I. Author's organizations are listed alphabetically in Appendix II. An author index is included as Appendix III. There is no bibliography.

I. CHEMICAL FACTORS

ACC NR: AP8018789 SOURCE CODE: UR/0409/68/000/002/0202/0203

AUTHOR: Ardashev, B. I.; Gaydzhurova, V. P.

ORG: Novocherkassk Polytechnic Institute (Novocherkasskiy politekhnicheskiy institut)

TITLE: Furan-containing cinchophen analogs

SOURCE: Khimiya geterotsiklicheskikh soyedineniy, no. 2, 1968, 202-203

TOPIC TAGS: heterocyclic compound, growth stimulator, furan

ABSTRACT: Investigation of the biological activity of various heterocyclics led to the synthesis of 2-furyl- and 2-benzofurylcinchonic acids from methylisatines, by condensation with 2-acetylfuran and 2-acetylbenzofuran in the presence of alkali. Some characteristics of the

Compd.	R	R'	Mp °C	% Yield
I	H	2-Furyl	210	56.0
II	6-CH_3	2-Furyl	250	54.0
III	H	2-Benzofuryl	272	60.0
IV	6-CH_3	2-Benzofuryl	262	61.1
V	7-CH_3	2-Benzofuryl	244	59.8
VI	8-CH_3	2-Benzofuryl	240	59.9

synthesized compounds are given in the table. The compounds are physiologically active (growth stimulators). [WA-50; CBE No. 33] [VS]

Card 1/2 UDC: 547.831.9'722

ACC NR: AP8018789

SUB CODE: 07, 11/ SUBM DATE: 30Nov65/ ORIG REF: 005/ OTH REF: 002

Card 2/2

ACC NR: AP8019236 SOURCE CODE: UR/0464/68/000/002/0203/0206

AUTHOR: Aren, A. K.; Gutmanis, A. Ya.

ORG: Riga Polytechnic Institute (Rizhskiy politekhnicheskiy institut)

TITLE: 2-Substituted 2-cyanomethyl-1,3-indanediones and amides of 2-substituted 1,3-dioxo-2-indanacetic acids

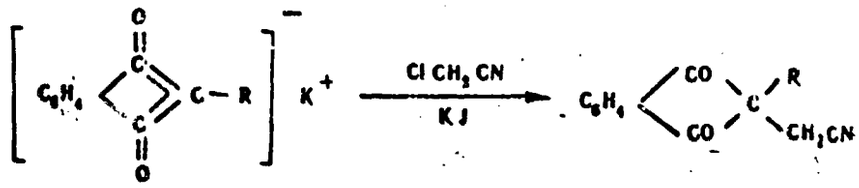
SOURCE: AN LatSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1968, 203-206

TOPIC TAGS: aromatic ketone, organic cyanate compound

ABSTRACT: The 2-cyanomethyl derivatives of 1,3-indanediones (IIa-k), which are characterized in Table 1, were synthesized by a new method which consists of the cyanomethylation of potassium salts of 2-aryl-1,3-indanediones in the presence of KI and K_2CO_3 in propanol with heating. The structure of compounds II was confirmed by IR spectra and by their

Card 1/4 UDC: 547.665+541.651

ACC NR: AP8019236



R = a) C_6H_5, b) $C_6H_4OCH_3$-p, c) $C_6H_4OCH_3$-m, d) C_6H_4Cl-p, e) C_6H_4Cl-m, f) C_6H_4Cl-o, g) C_6H_4--Br-m, h) C_6H_4Br-o, i) C_6H_4F-o, j) $C_6H_4(COH_3)_2$-m, p, k) $C_6H_4NHCOCH_3$-p

Table 1. 2-Substituted 2-cyanomethyl-1,3-indanediones

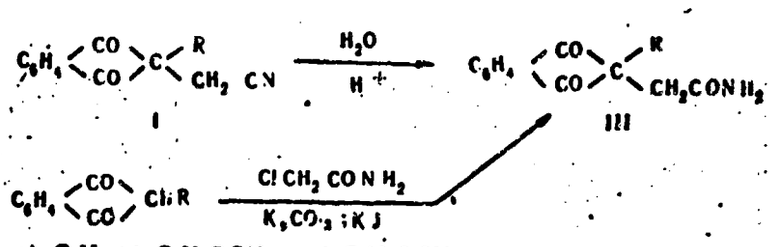
Compd.	Mp, °C	% Yield
IIa	113	87
IIb	103	86
IIc	112	71
IId	126	49

Card

Table 1. (Cont.)

IIe	104	46
IIg	123	50
IIh	174	44
IIi	164	53
IIj	177	38
IIk	260	28

conversion into the corresponding amides of 2-aryl-1,3-dioxo-2-indanacetic acids (III). The latter were also obtained by the reaction:



Ar = a) C_6H_5, b) $C_6H_4OCH_3$-*p*, c) $C_6H_4OCH_3$-*m*, d) C_6H_4—Cl-*m*, e) $C_6H_4NHCOCH_3$-*p*, f) $C_6H_3(OCH_3)_2$-*m*, *p*.

Table 2. Amides of 2-aryl-1,3-dioxo-2-indanacetic acids

Compound	Mp, °C	% Yield
IIIa	261	72
IIIb	241	64
IIIc	200	50
IIId	247	49
IIIe	267—270	24
IIIf	208	35

The amides are characterized in Table 2. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 14Oct66/ ORIG REF: 006/ OTH REF: 005

ACC NR: AT8019306 SOURCE CODE: UR/0000/67/000/000/0263/0264

AUTHOR: Aristov, L. I.

ORG: Institute of Chemistry, Academy of Sciences MoldSSR, Kishenev (Institut khimii Akademii nauk MoldSSR)

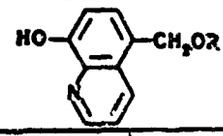
TITLE: Ethers based on 5-hydroxymethyl-8-hydroxyquinoline

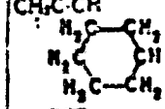
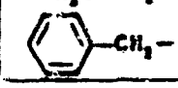
SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne," 1967, 263-264

TOPIC TAGS: aromatic ether, quinoline, pesticide

ABSTRACT: To study the relationship between the structure and pesticidal activity among the quinoline series, 12 new 8-hydroxyquinoline derivatives were synthesized by the reaction of 5-chloromethyl-8-hydroxyquinoline hydrochloride with the appropriate alcohols in the presence of

Table 1



Compound	Mp, °C	% Yield
CH_3	82—83	90
C_6H_5	83,—83,5	90
C_2H_7	67—68	85
$i\text{-}C_3H_7$	63—65	80
C_4H_9	47—48	70
$i\text{-}C_4H_9$	46—47	63
C_6H_{11}	149—150	80
C_2H_4Cl	90—91	85
$CH_2CH\text{-}CH_3$	80—81	85
$CH_2C\text{-}CH$	81—82	80
	79—80	65
	82—83	70

$NaHCO_3$. The new compounds are characterized in the table.

[WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 23Aug65/ ORIG REF: 002

ACC NR: AP8015275 SOURCE CODE: UR/0360/68/000/002/0056/0060

AUTHOR: Azerbayev, I. N.; Sarbayev, T. G.; Abiyurov, B. D.; Bazalitskaya, V. S.

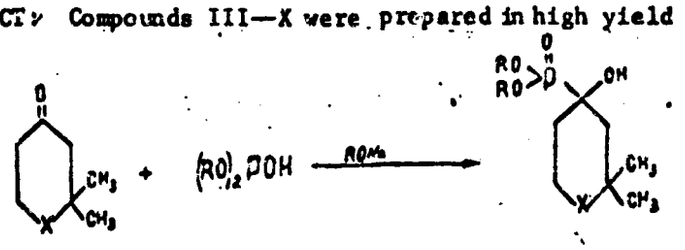
ORG: none

TITLE: Heterocyclic dialkyl phosphonic compounds

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1968, 56-60

TOPIC TAGS: piperidone, pyrane, piperidole, phosphonate ester

ABSTRACT: Compounds III—X were prepared in high yield as shown below:



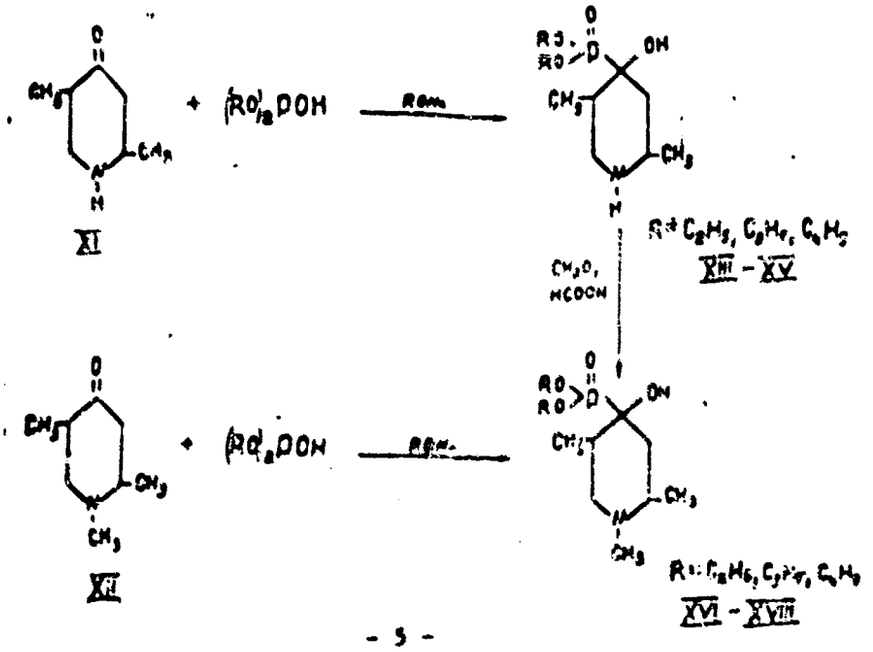
X=O (I) X=O; R=CH3, C2H5, C3H7, C4H9 III-VI

X=S (II) X=S; R=CH3, C2H5, C3H7, C4H9 VII-X

Card 1/5 UDC: 547.7(811)823+661.718.1

ACC NR: AP8015275

Compounds XIII—XVIII were obtained in yields up to 70% as shown:



XI

R=C2H5, C3H7, C4H9 XIII-XV

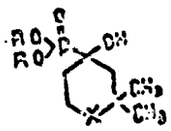
XII

R=C2H5, C3H7, C4H9 XVI-XVIII

Card 2/5

ACC NR: AP8015275

Table 1

№		Mp, °C	Rf	% Yield
III	$R=CH_3$, $X=O$	88–89	0,74	87
IV	$R=C_2H_5$, $X=O$	72–73	0,82	48
V	$R=C_3H_7$, $X=O$	Chromato-graphically purified (Al_2O_3)	0,87	76
VI	$R=C_4H_9$, $X=O$	Chromato-graphically purified (Al_2O_3)	0,78	80
VII	$R=CH_3$, $X=S$	117–118		

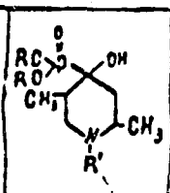
Card 3/5

ACC NR: AP8015275

Table 1. (Cont.)

VIII	$R=C_2H_5$, $X=S$	131–132	0,88	53
IX	$R=C_3H_7$, $X=S$	Chromato-graphically purified (Al_2O_3)	0,89	62
X	$R=C_4H_9$, $X=S$	38–39	0,90	50

Table 2

№		Mp, °C	Rf	% Yield
XIII	$R=C_2H_5$, $R'=H$	81–82	0.46	70

Card 4/5

ACC NR: AP8015275

Table 2. (Cont.)

XIV	$R=C_3H_7$ $R'=H$	71-72	0.55	57
XV	$R=C_4H_9$ $R'=H$	64-65	0.59	67
XVI	$R=C_2H_5$ $R'=CH_3$	72-73 Chromato-graphically purified (Al_2O_3)	0.81	69
XVII	$R=C_3H_7$ $R'=CH_3$		0.85	62
XVIII	$R=C_4H_9$ $R'=CH_3$	Chromato-graphically purified (Al_2O_3)	0.88	64

The synthesized compounds are of interest as potential physiologically active substances and are characterized in the tables. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [DC]

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 004

Card 5/5

ACC NR: AT8019298 SOURCE CODE: UR/0000/67/000/000/0184/0185

AUTHOR: Bagal, L. I.; Pevzner, M. S.; Lopyrev, V. A.; Yurchak, Ye. A.

ORG: Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskiy institut)

TITLE: Synthesis of 3-aminomethyl-5-amino-1,2,4-triazole

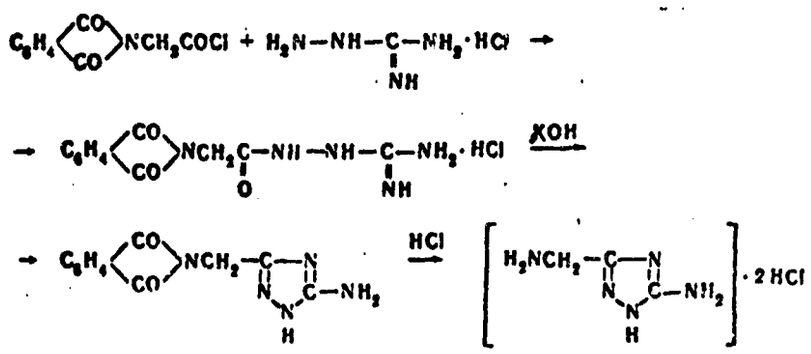
SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 184-185

TOPIC TAGS: organic azole compound, aminoguanidine, polyamine compound

ABSTRACT: In a search for new physiologically active compounds, 3-aminomethyl-5-amino-1,2,4-triazole was synthesized by the reaction:

Card 1/2 UDC: 547.79+542.953.5

ACC NR: AT8019298



The initial compound (phthalimidoacetyl) aminoguanidine (mp 238—239°C) was formed at 170—180°C. Its boiling with a 10-fold excess of KOH gave the 3-phthalimidomethyl-5-amino-1,2,4-triazole (mp 312°C), which on boiling with 10-fold excess of 6N HCl gave 3-aminomethyl-5-amino-1,2,4-triazole, which was isolated as dihydrochloride (mp 269—277°C). [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 28Sep65/ OTH REF: 004

Card 2/2

ACC NR: AP8019613 SOURCE CODE: UR/019/68/000/005/0116/0119

AUTHOR: Baymanis, E. A.; Logina, A. Zh.; Baltkays, Ya. Ya.

ORG: Latvian State University im. Petra Stuchki (Latviyskiy gosudarstvennyy universitet); Riga Medical Institute (Rizhskiy meditsinskiy institut)

TITLE: Effects of certain DL-malic hydrazides on monoaminoxidase activity *in vivo*

SOURCE: AN LatSSR. Izvestiya, no. 5, 1968, 116-119

TOPIC TAGS: monoaminoxidase inhibitor, enzyme catalysis, enzymatic activity

ABSTRACT: This article appears in Biologic Factors

Card 1/1 UDC: 615.7

ACC NR: AP8020978 SOURCE CODE: UR/0020/68/180/002/0351/0352

AUTHOR: Bel'skiy, V. Ye. (Corresponding member AN SSSR); Pudovik, A. N.; Yefremova, M. V.; Yeliseyenkov, V. N.; Panteleyeva, A. R.

ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Reactivity of phosphoric and phosphonic acid esters in hydrolysis reactions

SOURCE: AN SSSR. Doklady, v. 180, no. 2, 1968, 351-352

TOPIC TAGS: phosphate ester, aliphatic ester, hydrolysis

ABSTRACT: The reactivity of the title compounds in hydrolysis reactions increases in the order:

$$C_2H_5OP(O)(C_2H_5)_2 < (C_2H_5O)_2P(O)C_2H_5 < (C_2H_5O)_3P(O)$$

The reactivity was studied by measuring hydrolysis reaction rates at 80°C

Card 1/3 UDC: 541.127.3:542.938:547.26'118

ACC NR: AP8020978

Table 1

Compound	10^6K, (m sec^{-1})	10^2K_2 (l/mole-sec)
$C_2H_5OP(O)(C_2H_5)_2$	0,059	0,15
$(C_2H_5O)_2P(O)C_2H_5$	0,215	0,49
$(C_2H_5O)_3P(O)$	1,34	4,7

Table 2

Compound	Reagent	E(kcal/mole)	lg A
$C_2H_5OP(O)(C_2H_5)_2$	H_2O	21,9	6,32
	OH^-	9,5	3,05
$(C_2H_5O)_2P(O)C_2H_5$	H_2O	23,5	7,88
	OH^-	14,0 (?)	6,35(?)
$(C_2H_5O)_3P(O)$	H_2O	24,4	9,25
	OH^-	15,0 (?)	7,94(?)

Table 3

Compound	10^6K (sec^{-1})		
	60°	80°	80°
$C_2H_5OP(O)(C_2H_5)_2$	0,27	0,11	0,05
$(C_2H_5O)_2P(O)C_2H_5$	1,09	0,517	0,219
$(C_2H_5O)_3P(O)$	7,75	3,67	1,345

Card 2/3

ACC NR: AP8020978

and at various temperatures. The results are summarized in tables 1, 2, and 3. Orig. art. has: 3 tables. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 03Jan68/ ORIG REF: 007/ OTH REF: 011

Card 3/3

ACC NR: AP8017998 SOURCE CODE: UR/0477/68/000/001/0056/0059

AUTHOR: Butygin, V. A.; Vyatchannikov, K. A. (Candidate of medical sciences, Head)

ORG: Chair of Hygiene/ Head—Prof. Z. K. Mogilevchik/ Minsk Medical Institute /Rector—Dr. A. A. Klyucharev/ (Kafedra gigiyeny Minskogo meditsinskogo instituta); Department of Toxicology /Head—K. A. Vyatchannikov/, Belorussian Scientific Research Institute of Sanitation and Hygiene /Director—A. P. Rusayev/ (Otdel toksikologii Belorusskogo nauchno-issledovatel'skogo sanitarno-gigiyenicheskogo instituta)

TITLE: Evaluating the toxicity of sevin according to its effect on cholinesterase activity and serotonin content in blood and enterochromophilic cells

SOURCE: Zdravookhraneniye Belorussii, no. 1, 1968, 56-59

TOPIC TAGS: toxicity, sevin, insecticide intoxication, acetylcholinesterase, serotonin, cholinesterase inhibitor

ABSTRACT: This article appears in Biological Factors

Card 1/1

ACC NR: AT8019300 SOURCE CODE: UR/0000/67/000/000/0227/0229

AUTHOR: Dregval', G. F.; Rybak, N. A.

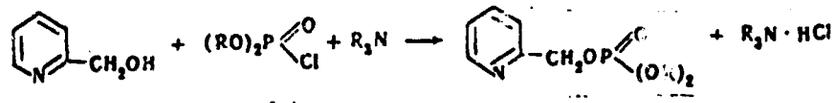
ORG: Donets Branch, Institute of Chemical Reagents and High Purity Chemicals (Donetskiy filial Instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)

TITLE: Pyridine series phosphates

SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 227-229

TOPIC TAGS: phosphorylation, organic phosphate, pesticide

ABSTRACT: In a search for new physiologically active compounds, particularly insecticides, a series of dialkyl pyridylmethyl phosphates was synthesized by the phosphorylation of 2- or 3-pyridinemethanols with dialkyl chlorophosphates in the presence of pyridine or triethylamine:



Card 1/4 UDC: 547.822+542.953.5

ACC NR: AT8019300

The new esters are characterized in tables 1 and 2. At 20—25°C in

Table 1

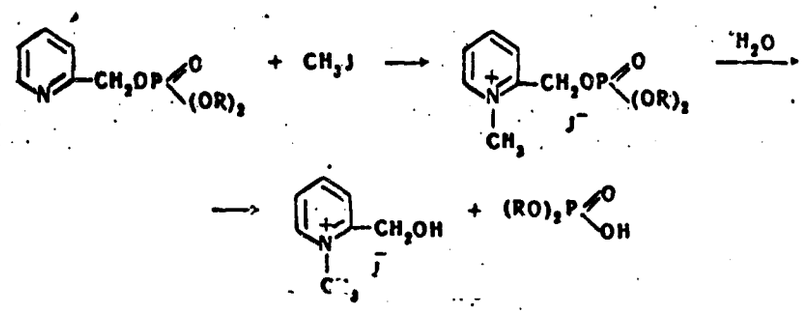
R	Bp, °C (mm)	n_D^{20}	d_4^{20}	% Yield
n-C_3H_7	155—160(17)	1,4338	1,0197	53
i-C_3H_7	163—164(4)	1,4349	1,0568	64
n-C_4H_9	157—159(10)	1,4201	0,9780	60
i-C_4H_9	160(9)	1,4395	1,0065	40
n-C_5H_{11}	178—180(2)	1,4330	0,9381	34
n-C_6H_{13}	189—192(2)	1,4381	0,9407	29

Card 2/4

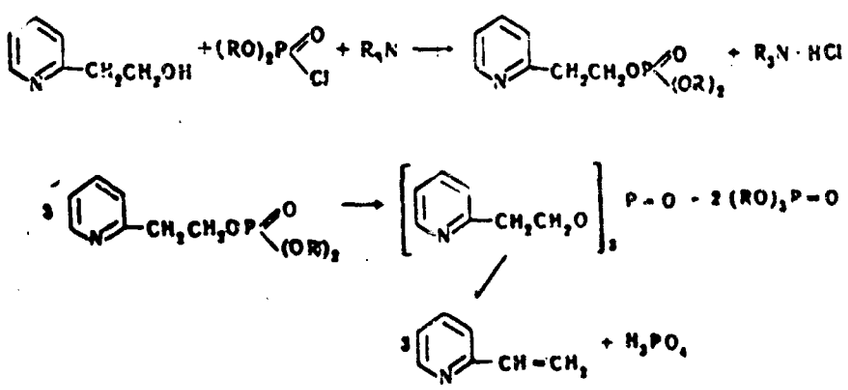
Table 2

R	Bp, °C (mm)	n_D^{20}	d_4^{20}	Yield %
C_2H_5	115—119(3)	1,4268	1,0288	11
n-C_3H_7	130—132(3)	1,4316	1,0064	32
i-C_3H_7	147—150(1)	1,4427	1,0455	46
n-C_4H_9	156—158(2)	1,4387	0,9992	27
i-C_4H_9	154—155(3)	1,4424	1,0118	34

benzene, the above esters reacted with methyl iodide to form pyridinemethanol methiodide (mp 122°C) and dialkylphosphoric acid:



The phosphorylation of pyridineethanol with dialkyl chlorophosphates gave the corresponding esters which were reported earlier:



These phosphates are thermally unstable and on heating decompose according to the scheme above. Orig. art. has: 2 tables. [WA-50; CRE No. 33] [FS]

SUB CODE: 07/ SUBM DATE: 05Oct65/ ORIG REF: 004/ OTH REF: 001

ACC NR: AP8018807 SOURCE CODE: UR/0450/68/002/004/0018/0021

AUTHOR: Fel'dman, I. Kh.; Kogan, N. A.; Nurova, I. M.

ORG: Leningrad Chemical and Pharmaceutical Institute (Leningradskiy khimiko-farmatsevticheskiy institut)

TITLE: Indole-containing amidine systems. II. Amidines of 3-indolecarboxylic acid

SOURCE: Khimiko-farmatsevticheskiy zhurnal, v. 2, no. 4, 1968, 18-21

TOPIC TAGS: indole

ABSTRACT: Imino esters of indolecarboxylic acids (potential serotonin antagonists) react with amino acids to form substituted amidines containing amino acid fragments. Racemic mixtures of amino acids were used. Compound (Ia) was obtained by the sequence: indole, 3-formylindole, 3-aldoxime, 3-cyanoindole Ia.

Card 1/5 UDC: 547.757

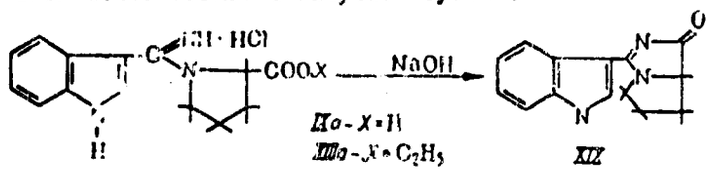
ACC NR: AP8018807

Table 1. Amidino Acids

Compd.	R'	% Yield	Mp, °C
IIa	$-H$	85	280
IIb		80	280
IIIa	$-CH_3$	56	280
IIIb		50	257
IVa	$-CH(CH_3)_2$	78	280
IVb		60	240
Va	$-CH(CH_3)(C_2H_5)$	35	210
Vb		40	225
VIa	$-CH_2-CH(CH_3)_2$	50	193
VIb		50	188
VIIa	$-CH_2OH$	40	192
VIIIa	$-CH_2-CH_2-SCH_3$	62	155
VIIIb		62	155
IXa	—	87	238

Card 2/5

The proline derivative formed a bicyclic system:



Treatment of acids II—IX with dry HCl in absolute ethanol yielded the hydrochlorides of the corresponding ethyl esters. Subsequent treatment

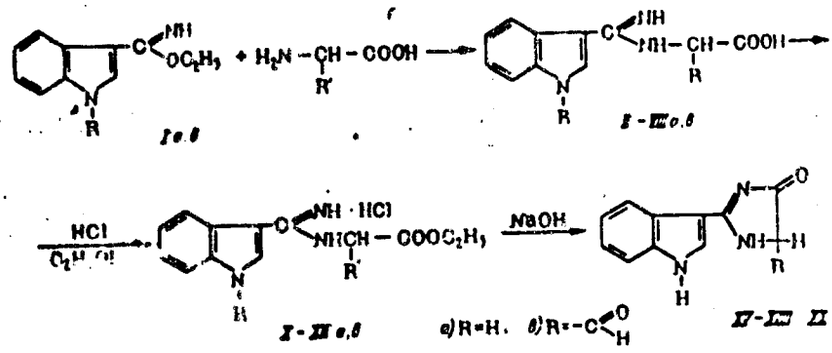


Table 2. Hydrochlorides of ethyl esters

Compd.	R'	% Yield	Mp, °C
Xa	$-CH(C_2H_5)(CH_3)$	90	170
XIa	$-CH_2CH(CH_3)(CH_3)$	85	165
XIIa	$-CH(CH_3)(CH_3)$	85	176
XIIIa	—	86	193

ACC NR: AP8018807

Table 3. Indolyl imidazolones

Compd.	R'	Mp, °C
XV	$-CH(CH_3)(C_2H_5)$	248
XVI	$-CH_2CH(CH_3)_2$	258
XVII	$-CH(CH_3)_2$	273
XVIII	$-CH_3$	265
XIX	—	248
XX	$-CH_2-CH_2-S-CH_3$	248

hydrochlorides of the corresponding ethyl esters. Subsequent treatment with alkali led to formation of compounds XV—XVIII, XX. The indicated structures were confirmed by parallel synthesis. [WA-50; CBE No. 33] [VS]

SUB CODE: 07, 11/ SUBM DATE: 01Aug67/ ORIG REF: 002/ OTH REF: 001

Card 5/5

ACC NR: AP8023000 SOURCE CODE: UR/0079/68/038/006/1408/1409

AUTHOR: Filatov, A. S.; Englin, M. A.

ORG: none

TITLE: Preparation of perfluoro-1-amino-2-iminoethane

SOURCE: Zhurnal obshchey khimii, v. 38, no. 6, 1968, 1408-1409

TOPIC TAGS: fluorinated organic compound, imino compound

ABSTRACT: The title compound (bp-2°C) was obtained (85%) by the reaction:

$$NF_2CF_2CHFNF_2 \xrightarrow[100°]{CsF} NF_2CF_2CF{=}NF + HF,$$

$$NF_2CF_2CF{=}NF + 6HI \longrightarrow C_2N_2 + 6HF + 3I_2$$

On treatment with acidified KI, perfluoro-1-amino-2-iminoethane decomposes to form C_2N_2 above. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 18Dec67

Card 1/1 UDC: 547.415

ACC NR: AP8016546 SOURCE CODE: UR/0390/68/031/002/0202/0205

AUTHOR: Khaunina, R. A.

ORG: Laboratory of Psychopharmacology/Head-I. P. Lapin/, Leningrad Scientific Research Institute of Neuropsychology im. V. M. Vekhterev (Laboratoriya psikhofarmakologii Leningradskogo nauchno-issledovatel'skogo psikhonevrologicheskogo instituta)

TITLE: Relation between the structure and [pharmacological] activity of phenyl derivatives of γ-aminobutyric acid

SOURCE: Farmakologiya i toksikologiya, v. 31, no. 2, 1968, 202-205

TOPIC TAGS: tranquilizer, aminobutyric acid, aliphatic ester

ABSTRACT: Earlier studies revealed that the introduction of the phenyl group into γ-aminobutyric (I) acid increases its ability to penetrate the hematoencephalic barrier and therefore increases tranquilizing activity of the acid. The effect of phenyl group position in γ-aminobutyric acid on its ability to penetrate the hematoencephalic barrier and on its pharmacological properties was studied by preparing α-, β-, and γ-phenyl-γ-aminobutyric acid (II, III, and IV, respectively) and testing them on

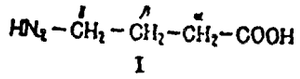
 UDC: 615.786-015.11

mice. The compounds were introduced intraperitoneally and directly into brain ventricles. The results are summarized in the table. The

Compound	Locomotion			Ataxia		Coordination		Effect on the Activity of Rozamol (60 mg/kg)			Thiosemicarbazide (20 mg/kg)				Corazole (90 mg/kg)			
	[illegible]	[illegible]	[illegible]	[illegible]	in 4 min	[illegible]	% of [illegible]	[illegible]	Side position (in min)	[illegible]	Lethal period (in min)	Life duration (in min)	% dead	[illegible]	[illegible]	% dead	[illegible]
H₂O	7	[illegible]	7	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	0	–
II	7	[illegible]	7	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
III	7	[illegible]	7	[illegible] not rise	0	0	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IV	7	[illegible]	7	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
H₂O	11	[illegible]	11	Rise	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	–
III	11	[illegible]	11	[illegible] not rise	0	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Methyl [illegible]	11	[illegible]	11	Rise	0	17	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Ethyl [illegible]	11	[illegible]	11	[illegible] not rise	11	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]

ACC NR: AP8016546

pharmacological activity of γ-aminobutyric acid phenyl derivatives was compared with that of its esters and amide:



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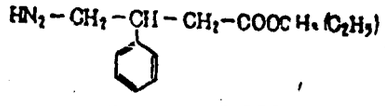
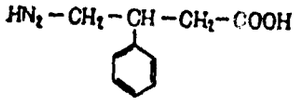
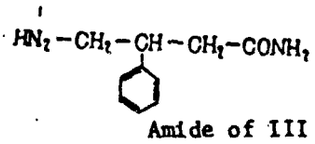


Esters of III



III



Amide of III

The experiments in which the compounds were introduced directly into brain ventricles indicate that the higher activity of β-phenyl-γ-amino-butyric acid as compared with the α- and γ-isomers is not connected with the ability to penetrate the hematoencephallic barrier but with the higher pharmacological activity of the β-isomer. Esterification of the acids has practically no effect on their pharmacological properties but increases their toxicity. [WA-50; CBE No. 33] [PS]

SUB CODE: 06, 07/ SUBM DATE: 18Mar67/ ORIG REF: 002/ OTH REF: 004

Card 3/3

ACC NR: AT8019309 SOURCE CODE: UR/0000/67/000/000/0310/0313

AUTHOR: Konshin, M. Ye.; Petyunin, P. A.

ORG: Perm' Pharmaceutical Institute (Permskiy farmatsevticheskiy institut); Khar'kov Pharmaceutical Institute (Khar'kovskiy farmatsevticheskiy institut)

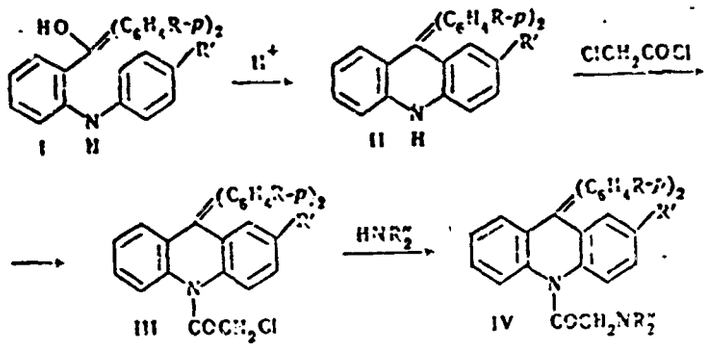
TITLE: Heterocycles. XLII. Synthesis of biologically active compounds in the 9.9-diaryl substituted acridan series

SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne," 1967, 310-313

TOPIC TAGS: nitrogen compound, chlorinated organic compound

ABSTRACT: In a search for new biologically active compounds, 10-N,N-diethylaminoacetyl- and 10-piperidinoacetyl-9,9-diarylacridans were synthesized by the reaction:

Card 1/6 UDC: 547.837.07:541.69



The starting compounds I, which are characterized in Table 1, were synthesized by a known method. Boiling of compounds I in acetic acid

Table 1. 2-Arylaminotriarylcarbinols (I)

Compound	R	R'	Mp, °C	% Yield
V	CH_3	CH_3	154	36
VI	Cl	CH_3	168—169	55,4
VII	CH_3	CH_3O	152	59

Table 1. (Cont.)

VIII	Cl	CH_3O	155	62,5
IX	H	Cl	167	34,2
X	CH_3	Cl	196	31,6
XI	Cl	Cl	200	37

gave compounds II which are characterized in Table 2. The latter

Table 2. 9,9-Diarylacridans (II)

Compound	R	R'	Mp, °C	% Yield
XII	CH_3	CH_3	215	90
XIII	Cl	CH_3	200	86,5
XIV	CH_3	CH_3O	170	74,5
XV	Cl	CH_3O	205—207	92,7
XVI	H	Cl	246	97
XVII	CH_3	Cl	225	93

compounds were heated with $ClCH_2COCl$ in benzene to form compounds III, characterized in Table 3. Compounds III were boiled with secondary

Table 3. 10-Chloroacetyl-9,9-diarylacridans (III)

Compd	R	R	Mp, °C	% Yield
XVIII	H	CH_3	220	63,5
XIX	CH_3	CH_3	195	70
XX	Cl	CH_3	210	62
XXI	H	CH_3O	192	57
XXII	CH_3	CH_3O	213	72
XXIII	Cl	CH_3O	212	84
XXIV	H	Cl	203	61,5
XXV	CH_3	Cl	208	58,2

Table 4. 10-N,N-diethylaminoacetyl- and 10-piperidinoacetyl-9,9-diarylacridans (IV)

Compd	R	R'	$N(R'')_2$	Mp, °C	% Yield
XXVI	H	CH_3	$N(C_2H_5)_2$	87	53
XXVII	H	CH_3	$N(CH_2)_5$	196	90
XXVIII	CH_3	CH_3	$N(C_2H_5)_2$	83	77,5
XXIX	CH_3	CH_3	$N(CH_2)_5$	108	59
XXX	Cl	CH_3	$N(C_2H_5)_2$	77	84
XXXI	Cl	CH_3	$N(CH_2)_5$	167	65
XXXII	H	CH_3O	$N(C_2H_5)_2$	121	45,8
XXXIII	H	CH_3O	$N(CH_2)_5$	214	67,5
XXXIV	CH_3	CH_3O	$N(C_2H_5)_2$	131	69,7
XXXV	CH_3	CH_3O	$N(CH_2)_5$	164	53,5
XXXVI	Cl	CH_3O	$N(C_2H_5)_2$	166	79,6
XXXVII	Cl	CH_3O	$N(CH_2)_5$	193	64,3
XXXVIII	CH_3	Cl	$N(C_2H_5)_2$	74	55,8
XXXIX	CH_3	Cl	$N(CH_2)_5$	180	54,3

ACC NR: AT8019309

amines in benzene solution to form compounds IV and are characterized in Table 4. Orig. art. has: 4 tables. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 03Nov65/ ORIG REF: 003

Card 6/6

ACC NR: AP8020534 SOURCE CODE: UR/0079/68/038/005/1098/1101

AUTHOR: Krasil'nikova, Ye. A.; Potapov, A. M.; Razumov, A. I.

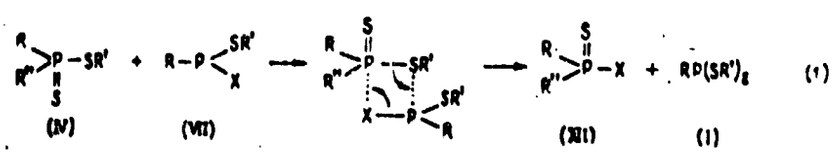
ORG: Kazan' Institute of Chemical Technology im. S. M. Kirov (Kazanskiy khimiko-tekhnologicheskiy institut)

TITLE: Derivatives of phosphinous and phosphonic acids. LII. Reactions of dithioesters of alkylphosphinous acids with alkyl halides

SOURCE: Zhurnal obshchey khimii, v. 38, no. 5, 1968, 1098-1101

TOPIC TAGS: phosphonic acid, aliphatic ester

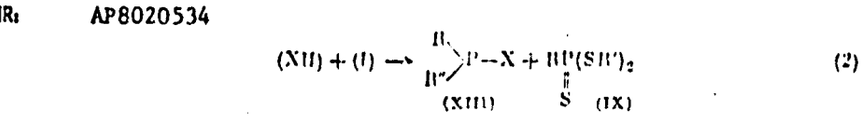
ABSTRACT: An earlier study revealed that the reaction of dithioesters of alkylphosphinous acids (I) with alkyl halides yielded (among the other products) S, S-dialkyl trithioalkylphosphonates (IX). It was suggested that the latter compounds are formed in a two-stage reaction:



(1)

Card 1/2 UDC: 547.26'118

ACC NR: AP8020534



(2)

This was confirmed by studying the preparation and properties of type VII

Table 1

$C_2H_5P(X)(SR')$

R'	X	% Yield	Bp, °C (mm)	n_D^{20}	d_4^{20}
C_2H_5	Br	75.0	74—75° (8)	1.5650	1.4108
C_4H_9	Br	70.0	118—119 (9)	1.5560	1.3220
C_2H_5	Cl	68.5*	56—58 (7)	1.5285	1.0835
C_4H_9	Cl	75.6	96—97 (9)	1.5162	1.0570

compounds, characterized in the table. Orig. art. has: 1 table.

[WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 28Apr67/ ORIG REF: 010/ OTH REF: 003

Card 2/2

ACC NR: AP8016555 SOURCE CODE: UR/0394/68/006/005/0052/0054

AUTHOR: Mel'nikov, N. N.; Khaskin, B. A.; Petruchenko, N. B.; Stonov, L. D.; Bakumenko, L. A.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Herbicidal activity of hexaalkyltriaminoalkylphosphonium and dialkylaminotrialkylphosphonium thio- and dithiophosphates

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 5, 1968, 52-54

TOPIC TAGS: organic sulfur salt, phosphate, herbicide, agricultural crop

ABSTRACT: Herbicidal activity of the earlier synthesized title compounds was studied in laboratory experiments on six-day old seedlings of wheat, oat, millet, radish and vetch grown on agar-agar at 25°C. The results are summarized in the tables. All title compounds inhibit the growth of these agricultural plants. The most active are compounds 5, 8, 9 and 10 in Table 1. The herbicidal activity of these thio- and dithiophosphates depends on the structure of both the cation and the anion of the herbicide molecule. The present study did not confirm the

Card 1/4 UDC: 615.777/779

Table 1

Herbicidal activity of $[(R_2N)_3\overset{CH_3}{\overset{|}{P}}]^+[R'X(O)P(O)YR'']^-$

Compound	R	R'	R''	X	Y	Dose of herbicide (kg/ha) causing 50% growth inhibition									
						Wheat		Oat		Millet		Radish		Vetch	
						Seedlings	Roots	Seedlings	Roots	Seedlings	Roots	Seedlings	Roots	Seedlings	Roots
1	C_2H_5	CH_3	CH_3	S	O	>10	>10	>10	3	10	5	>10	>10	>10	>10
2	C_2H_5	CH_3	C_2H_5	S	O	>10	9	7	2,5	7	6	>10	>10	>10	7
3	C_2H_5	CH_3	C_3H_8	S	S	>10	5	4	1,5	7	5	>10	>10	>10	5
4	C_2H_5	CH_3	$CH_2CONHCH_3$	S	S	>10	5	5	2	5	5	>10	>10	>10	5
5	C_3H_7	CH_3	$CH_2CONHCH_3$	S	S	6	1	6	0,5	1,5	1	2,5	2,5	5	0,7
6	CH_3	C_2H_5	2, 4, 5-$Cl_3C_6H_2$	S	O	>10	4	8	6	6	0,7	>10	>10	>10	5
7	C_2H_5	CH_3	2, 4, 5-$Cl_3C_6H_2$	S	O	10	3	5	2	5	0,5	>10	>10	>10	4
8	C_2H_5	C_2H_5	2, 4, 5-$Cl_3C_6H_2$	S	O	9	1,5	4	2	3	0,3	5	4	>10	3
9	C_3H_7	CH_3	2, 4, 5-$Cl_3C_6H_2$	S	O	5	0,7	5	0,5	2,5	0,25	2	2	6	0,5
10	C_6H_7	C_2H_5	2, 4, 5-$Cl_3C_6H_2$	S	O	4	0,6	4	0,4	4	0,4	2,5	2,5	7	0,6

earlier report that aminophosphonium salts have higher herbicidal activity with respect to dicotyledons than to monocotyledons. The herbicidal activity of these salts increased with increasing number of

Table 2

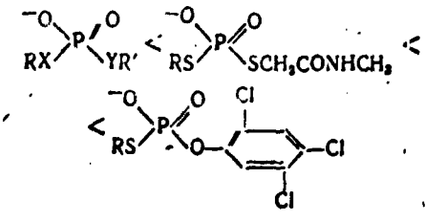
Herbicidal activity of $[R_3\overset{CH_3}{\overset{|}{P}}NR'_2]^+[R''S(O)P(O)OR''']^-$

Compound	R	R'	R''	R'''	Dose of herbicide (kg/ha) causing 50% growth inhibition									
					Wheat		Oat		Millet		Radish		Vetch	
					Seedlings	Roots	Seedlings	Roots	Seedlings	Roots	Seedlings	Roots	Seedlings	Roots
1	C_2H_5	C_2H_5	CH_3	CH_3	>10	>10	9	10	>10	>10	>10	>10	>10	5
2	C_2H_5	C_2H_5	CH_3	C_2H_5	>10	>10	5	5	10	10	>10	>10	>10	10
3	C_2H_5	C_2H_5	CH_3	2, 4, 5-$Cl_3C_6H_2$	10	2,5	7	3	4	0,5	>10	>10	>10	2,5
4	C_2H_5	C_2H_5	C_2H_5	2, 4, 5-$Cl_3C_6H_2$	9	3	4	2,5	2,5	1,5	7	4,5	>10	2,5
5	C_3H_7	C_3H_7	CH_3	2, 4, 5-$Cl_3C_6H_2$	9	4	4	3	3	1	>10	>10	>10	2,5
6	C_4H_9	C_2H_5	CH_3	2, 4, 5-$Cl_3C_6H_2$	9	2,5	3	2	3,5	0,5	>10	>10	>10	2,5

C atoms from 1 to 3 at the alkyl radical N atom in the cation part of the molecule. The effect of organophosphorus anion structure on

ACC NR: AP8016555

herbicidal activity increased in the following order:



R and R′ — C_1—C_3-alkyl, X and Y — O or S.

Orig. art. has: 2 tables. [WA-50; CBE No. 33] [PS]

SUB CODE: 02, 07/ SUBM DATE: 12Jul66/ ORIG REF: 003/ OTH REF: 001

Card 4/4

ACC NR: AF 016547 SOURCE CODE: UR/0390/68/031/002/0205/0209

AUTHOR: Motovilov, P. Ye.; Kozhevnikov, S. P.

ORG: Division of Pharmacology /Head—Active member of AMN SSSR Prof. S. V. Anichov/, Institute of Experimental Medicine, AMN SSSR, Leningrad (Otdel farmakologii Instituta eksperimental'noy meditsiny AMN SSSR)

TITLE: Connection between antitremor effect and structure of various compounds

SOURCE: Farmakologiya i toksikologiya, v. 31, no. 2, 1968, 205-209

TOPIC TAGS: pyrazolidone derivative, nervous system drug effect, pharmaceutical, anticonvulsant drug

ABSTRACT: This article appears in Biological Factors

Card 1/1 UDC: 616.786-015.11

ACC NR: AT8019296 SOURCE CODE: UR/0000/67/000/000/0159/0161

AUTHOR: Mukhina, N. A.; Vladimirova, M. P.; Terekhina, A. I.; Gilev, A. P.; Teten'chuk, E. V.

ORG: Novokuznets Scientific Research Chemical and Pharmaceutical Institute (Novokuznetskiy nauchno-issledovatel'skiy Khimikofarmatsevticheskiy institut)

TITLE: Some esters of 1-(2-hydroxyethyl)benzimidazole. I.

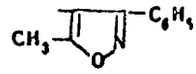
SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 159-161

TOPIC TAGS: oxalate, blood pressure, imide, hypothermia

ABSTRACT: In a search for new drugs, a series of esters of 1-(2-hydroxyethyl-benzimidazole was synthesized and their physiological properties determined. The esters are formed in the reaction of 1-(2-hydroxyethyl) benzimidazole with an equimolar amount of hydrochlorides of the appropriate acids in benzene or toluene in the presence of triethylamine. The reaction mixture is heated for 3—6 hr on a water bath. The esters

Card 1/3 UDC: 547.785.5

were converted into hydrochlorides or oxalates by treatment with HCl or oxalic acid. The new compounds are characterized in the table. Their

Compd.	R	MP °C	% Yield
1	CH_3	—	25,6
	Oxalate	133—134,5	—
2	$(CH_3)_3C$	100—101,5	25,8
	Oxalate	157—159	—
3	$C_6H_5OCH_2$	90—92	24,4
	Oxalate	165—167	—
4	C_6H_5	107—108,5	14,6
	Hydrochloride	192—193	—
5	$O—HOC_6H_4$	145—146	17,8
	Hydrochloride	200—201	—
6		88—89	38,3
	Hydrochloride	183—185	

toxicity and pharmacological properties were studied on mice and cats. The results revealed that they have low toxicity, but some of them have spasmolytic and hypothermic properties. Some of the compounds markedly decrease blood pressure for a short duration. Orig. art. has: 1 table. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 27Dec65/ ORIG REF: 001/ OTH REF: 001

ACC NR: AT8019303 SOURCE CODE: UR/0000/67/000/000/0234/0235

AUTHOR: Novikov, Ye. G.; Shvetsova-Shilovskaya, K. D.; Mel'nikov, N. N.; Tugarinova, I. N.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Organic insecticide-fungicides. CIII. Synthesis of some arylcarbamic and arylthiocarbamic acid derivatives

SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 234-235

TOPIC TAGS: isocyanate, thiocyanate, fungicide

ABSTRACT: In a search for new insecticides and fungicides, a series of derivatives of arylcarbamic and arylthiocarbamic acids ($R'NHCO_2R$ and $R'NHC(S)OR$, respectively) was synthesized by boiling the appropriate pyridyl alcohols with equimolar amounts of arylisocyanates or

Table 1

Compd.	R	R'	mp, °C
			$R'NHCO_2R$
I	$C_5H_4NCH_2$-2	C_6H_5	97—98
II	$C_5H_4NCH_2$-3	C_6H_5	132—133.5
III	$C_5H_4NCH_2$-4	C_6H_5	125—126
IV	6-$CH_3C_5H_3NCH_2CH_2$-2	C_6H_5	65—66
V	4,6-$(CH_3)_2C_5H_2NCH_2CH_2$-2	C_6H_4Cl-m	61—63
VI	$C_5H_4NCH_2C_6H_5$-2	C_6H_4Cl-m	112
VII	$C_5H_4NCH_2$-3	C_6H_4Cl-m	119
VIII	$C_5H_4NCH_2$-4	C_6H_4Cl-m	141
IX	$C_5H_4NCH_2CH_2$-2	C_6H_4Cl-m	108—109
X	4-$CH_3C_5H_3NCH_2CH_2$-2	C_6H_4Cl-m	105—106
XI	6-$CH_3C_5H_3NCH_2CH_2$-2	C_6H_4Cl-m	62—63
XII	4,6-$(CH_3)_2C_5H_2NCH_2CH_2$-2	C_6H_4Cl-m	92—93
XIII	$C_5H_4NCH_2$-2	$C_6H_4NO_2$-m	151.5—152
XIV	$C_5H_4NCH_2$-3	$C_6H_4NO_2$-m	194—195
XV	$C_5H_4NCH_2CH_2$-2	$C_6H_4NO_2$-m	162—163
XVI	4-$CH_3C_5H_3NCH_2CH_2$-2	$C_6H_4NO_2$-m	137—138
XVII	6-$CH_3C_5H_3NCH_2CH_2$-2	$C_6H_4NO_2$-m	136.5—137.5
XVIII	4,6-$(CH_3)_2C_5H_2NCH_2CH_2$-2	$C_6H_4NO_2$-m	140.5—141.5
XIX	$C_5H_4NCH_2$-2	$C_6H_4NO_2$-m	225
XX	$C_5H_4NCH_2$-2	$C_6H_4NO_2$-m	221—225
XXI	4-$CH_3C_5H_3NCH_2CH_2$-2	$C_6H_4NO_2$-p	203—204
XXII	6-$CH_3C_5H_3NCH_2CH_2$-2	$C_6H_4NO_2$-p	139—140.5
XXIII	4,6-$(CH_3)_2C_5H_2NCH_2CH_2$-2	$C_6H_4NO_2$-p	157.5—159

Table 1. (Cont.)

XXIV	$C_5H_4NCH_2$-2	C_6H_5	R'NHC(S)OR oil, mp of picrate 168—169°
XXV	$C_5H_4NCH_2$-4	C_6H_5	147—148
XXVI	$C_5H_4NCH_2CH_2$-2	C_6H_5	oil mp of picrate 137—138°

arylisothiocyanates in benzene solution or without a solvent. The compounds synthesized are characterized in the table. They have weak physiological activity. Orig. art. has: 1 table. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 24Dec65/ ORIG REF: 002/ OTH REF: 001

AUTHOR: Pudovik, A. N.; Gareyev, R. D.

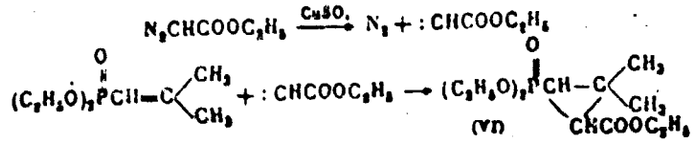
ORG: Kazan' State University im. V. I. Ul'yanov-Lenin (Kazanskiy gosudarstvennyy universitet)

TITLE: Reactions of carbenes with unsaturated phosphonic acid esters

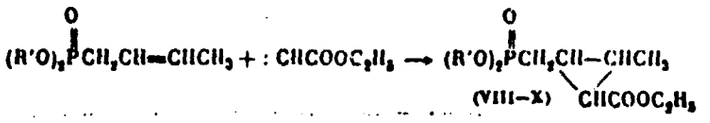
SOURCE: Zhurnal obshchey khimii, v. 38, no. 6, 1968, 1291-1295

TOPIC TAGS: phosphonic acid, aliphatic esters

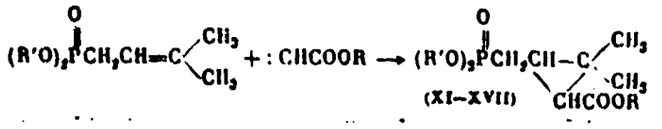
ABSTRACT: At 95—100°C in the presence of anhydrous $CuSO_4$, alkoxycarbenes reacted with unsaturated phosphonic acids to form esters of substituted cyclopropylphosphonic acids:



(VI)



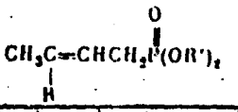
(VIII–X)



(XI–XVII)

The initial new unsaturated esters I—V shown in Table 1 were synthesized

Table 1

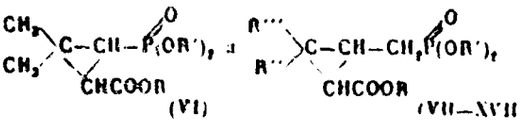


No.	R	R'	% Yield	Bp, °C (mm)	d_4^{20}	n_D^{20}
I	H	C_3H_7	36.3	85—87° (1.5)	0.9849	1.4410

Table 1. (Cont.)

II	H	C_4H_9	45.2	113 (2.5)	0.9568	1.4410
III	CH_3	C_3H_7	93.1	87—89 (0.8)	0.9795	1.4452
IV	CH_3	iso-C_3H_7	34.8	83—85 (1)	0.9529	1.4382
V	CH_3	C_4H_9	79.5	107—109 (0.5)	0.9604	1.4470

Table 2



(VI) (VII–XVII)

No.	R	R'	R''	R'''	% Yield	Bp, °C (mm)	d_4^{20}	n_D^{20}
VI	C_2H_5	C_2H_5	—	—	2.0	136—138° (0.2)	1.0823	1.4430
VII	CH_3	C_2H_5	H	H	14.0	121—123 (0.2)	1.1379	1.4162

ACC NR: AP8022979

Table 2. (Cont.)

VIII	C_2H_5	C_2H_5	CH_3	H	24.4	100–101 (0.08)	1.0875	1.4495
IX	C_2H_5	C_3H_7	CH_3	H	22.0	106–108 (0.05)	1.0587	1.4500
X	C_2H_5	C_4H_9	CH_3	H	22.5	123–124 (0.075)	1.0344	1.4510
XI	CH_3	C_2H_5	CH_3	CH_3	39.0	98–99 (0.08)	1.0925	1.4530
XII	C_2H_5	C_2H_5	CH_3	CH_3	40.9	102 (0.05)	1.0728	1.4518
XIII	CH_3	C_3H_7	CH_3	CH_3	38.1	106–107 (0.06)	1.0688	1.4541
XIV	C_2H_5	C_3H_7	CH_3	CH_3	39.2	110–112 (0.065)	1.0461	1.4523
XV	C_2H_5	iso-C_3H_7	CH_3	CH_3	38.0	103–105 (0.065)	1.0342	1.4474
XVI	CH_3	C_4H_9	CH_3	CH_3	39.8	119–121 (0.06)	1.0346	1.4531
XVII	C_2H_5	C_4H_9	CH_3	CH_3	40.0	124–126 (0.06)	1.0227	1.4528

from Na salts of dialkyl phosphites and chloroalkyl compounds using a previously reported method. The esters of the substituted cyclopropylphosphonic acids are characterized in Table 2. The structure of the new esters was established by IR spectra. Orig. art. has: 2 tables.

[WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 06Jul67/ ORIG REF: 007/ OTH REF: 002

Card 4/4

ACC NR: AT8014733 SOURCE CODE: UR/3343/67/004/004/0954/0962

AUTHOR: Rozengart, Ye. V.

ORG: Institute of Evolutionary Physiology and Biochemistry im. I. M. Sechenov, Academy of Sciences SSSR, Leningrad (Institut evolyutsionnoy fiziologii i biokhimii Akademii nauk SSSR)

TITLE: Inhibitory specificity of squid optic ganglion cholinesterase. Anticholinesterase effectivity of O-ethyl-S-n-alkyl methylthiophosphonates

SOURCE: Tartu. Universitet. Reaktsionnaya sposobnost' organicheskikh soyedineniy, v. 4, no. 4(14), 1967, 954-962

TOPIC TAGS: phosphonate ester, choline, acetylcholinesterase, acetylcholine, cholinesterase inhibitor, organophosphorus inhibitor

ABSTRACT: A study of catalytic activity and substrate and inhibitory specificity of squid optic ganglion cholinesterase (ChE) has shown that squid ChE is similar to beef erythrocyte acetylcholinesterase (AChE) relative to a series of properties and is distinguished from AChE as well as from horse serum cholinesterase (ChE) relative to some parameters. Squid ChE, like AChE, catalyzed he hydrolysis of acetyl-β-methylcholine

Card 1/6

and did not hydrolyze benzoylcholine; high concentrations of substrates inhibited its activity. Sensitivity to the organophosphorus inhibitor (OPI), a derivative of methylphosphonic acid, was significantly higher than sensitivity to the diethoxyphosphoric acid derivative. At the same time, the hydrolysis rate (at optimal concentrations) of acetylcholine, butyrylcholine and acetyl-β-methylcholine was practically the same as that characteristic for AChE and ChE. Moreover, the sensitivity of squid ChE to the OPI series was higher than that of other cholinesterases. Finally, squid ChE is in an intermediate position between AChE and ChE relative to the activity of catalytic center ($1.2 \cdot 10^5$). In setting up the first experiment, it was of interest to study in more detail the capacity of O-ethyl-S-n-alkyl methylthiophosphonates to inhibit squid ChE activity. As was shown earlier, the overall difference in anti-cholinesterase effectivity of these OPI's (studied as inhibitors of AChE and ChE) was determined by the configuration of the S-alkyl radical, and not by their capacity to be phosphorylated. These OPI's can be called "geometric inhibitors". Other S-alkyl derivatives of O-ethyl methylthiophosphonic acid, as well as O-n-alkyl S-alkyl methylthiophosphonates, also related to this group, appear to be effective inhibitors of ChE and α-chymotrypsin. The hydrophobic surrounding of enzyme active-center functional groups was studied using these OPI's. It is evident from the table that the capacity

Anticholinesterase effectivity of $(C_2H_5O)CH_3P(O)SR$ type compound

Code	R –	K, $M^{-1} \cdot min^{-1}$
LG-61	C_2H_5	$(3,2 \pm 0,1) \cdot 10^3$
LG-57	C_3H_7-n	$(5,5 \pm 0,7) \cdot 10^3$
LG-58	C_4H_9-n	$(1,1 \pm 0,0) \cdot 10^5$
LG-64	C_5H_{11}-n	$(1,1 \pm 0,0) \cdot 10^5$
LG-63	C_6H_{13}-n	$(2,0 \pm 0,1) \cdot 10^5$
LG-65	C_7H_{15}-n	$(7,7 \pm 0,6) \cdot 10^4$
LG-66	C_8H_{17}-n	$(1,3 \pm 0,1) \cdot 10^5$
LG-71	C_9H_{19}-n	$(1,9 \pm 0,2) \cdot 10^5$
LG-68	$C_{10}H_{21}$-n	$(1,6 \pm 0,1) \cdot 10^5$

of this OPI series to inhibit squid ChE activity depends on the length of the alkyl radical in the transition from the ethyl (LG-61) to the butyl (LG-58) derivative. The value of K increased by a factor of almost 40.

Further lengthening of the alkyl in the eliminated portion of the OPI had practically no effect on its effectivity.

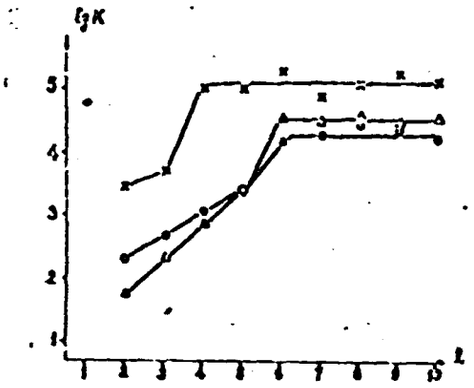
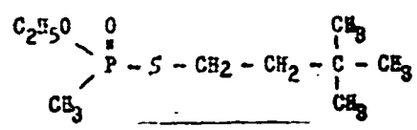


Fig. 1. Relationship of log K of enzymatic activity inhibition under the action of $C_2H_5O(CH_3)P(O)SC_{\ell}H_{2\ell+1}$ type OPI in relation to normal alkyl chain length (ℓ).

1—x—x squid ChE; 2—o—o AChE; 3—Δ—Δ ChE

The inhibitory action of these OPI's on ChE and AChE activity was studied earlier. In the figure, these data are compared with the results of the present study. The sensitivity of squid ChE to the entire OPI seems to be

higher than that of ChE and AChE and in the case of LG-58 this difference was 100-fold. From the figure, the similarity of the general character of the "structure-effectivity" relationship for cholinesterases of various origin is evident: the lengthening of the alkyl radical at first leads to an increase of inhibitory action, and then the curve proceeds to a plateau. In all cases, a sharp increase in effectivity—a distinctive break—is noticed before the transition to the plateau. For ChE and AChE, however, this break (by a factor of 15 and 6, respectively) occurred at the transition from LG-64 (ℓ=5) to LG-63 (ℓ=6), and for squid ChE (a break of a factor of 20) from LG-57 (ℓ=3) and LG-58 (ℓ=4). Therefore, the maximal length of the alkyl radical methylene group is 6 for ChE and AChE and 4 for squid ChE. A further increase in length has no effect on OPI effectivity. These quantitative differences are probably evidence of the fact that the configuration of the hydrophobic portion of squid ChE, onto which S-alkyl radicals of this type OPI are sorted, is different. As was shown earlier, the specific OPI for squid ChE is LG-56:



ACC NR: AT8014733

Its activity in relation to squid ChE ($K_1 = 2.6 \cdot 10^6\ m^{-1}\ min^{-1}$) was 500 to 1000 times greater than that for ChE and AChE. Its diethoxyphosphate analog, Gd-187, was also shown to be effective. On this basis, a hypothesis was made concerning the compatibility of the 3,3-dimethylbutyl radical with the squid ChE active surface. The alkyl chain in this radical contains four methylene groups. In connection with this, it is interesting to note the comparatively high effectivity of the butyl derivative LG-58 (L=4). Orig. art. has: 1 table and 2 figures.

[WA-50; CBE No. 33] [DC]

SUB CODE: 07/ SUBM DATE: 11Dec67/ ORIG REF: 010

Card 6/6

ACC NR: AP8014498 SOURCE CODE: UR/0079/68/038/004/0841/0844

AUTHOR: Rubinchik, G. F.; Manulkin, Z. M.

ORG: Tashkent Pharmaceutical Institute (Tashkentskiy farmatsevticheskiy institut)

TITLE: Synthesis of acyclic organotin compounds containing radicals derived from glycol and glycerin

SOURCE: Zhurnal obshchey khimii, v. 38, no. 4, 1968, 841-844

TOPIC TAGS: organotin compound, fungicide

ABSTRACT: The preparation of potential fungicides of the organotin series in which Sn is bound with $-OCH_2CH_2OH$ and $-OCH_2CHOHCH_2OH$ radicals was studied. The initial new halogenated organotin compounds were synthesized by known methods and are characterized in Table 1. Treatment of

$$(C_6H_{11})_2SnR_2 + X_2 \xrightarrow[180]{} C_6H_{11}SnR_2X + C_6H_{11}X$$

R = n-C_4H_9, o-C_6H_5; X = Br, J.

Card 1/3 UDC: 546.814:547.422:547.426.1

Table 1. Halogenated organotin compounds

Compound	% Yield	Bp, °C (mm)	d_4^{20}	n_D^{20}
$C_6H_{11}(n\text{-}C_3H_7)_2SnBr$	96.3	166—168° (2.5)	1.4639	1.5512
$C_6H_{11}(iso\text{-}C_3H_7)_2SnBr$	87.1	162 (3)	1.5320	1.5565
$C_6H_{11}(n\text{-}C_3H_7)_2SnI$	96.2	208—210 (3)	1.5649	1.5706
$C_6H_{11}(iso\text{-}C_3H_7)_2SnI$	93.0	177—178 (3)	1.6230	1.5910

$$C_6H_{11}R_2SnBr + NaOCH_2CH_2OH \rightarrow$$
$$\rightarrow C_6H_{11}R_2SnOCH_2CH_2OH$$
$$R = n\text{-}C_3H_7,\ iso\text{-}C_3H_7.$$

$$(C_6H_{11})_{4-n}SnBr_n + nNaOCH_2CH_2OH \rightarrow$$
$$\rightarrow (C_6H_{11})_{4-n}Sn(OCH_2CH_2OH)_n$$
$$n = 1,\ 2.$$

$$C_6H_{11}(C_3H_7)_2SnBr + NaOCH_2CHOHCH_2OH \rightarrow$$
$$\rightarrow C_6H_{11}(C_3H_7)_2SnOCH_2CHOHCH_2OH$$

$$(C_6H_{11})_{4-n}SnBr_n + nNaOCH_2CHOHCH_2OH \rightarrow$$
$$\rightarrow (C_6H_{11})_{4-n}Sn(OCH_2CHOHCH_2OH)_n$$
$$n = 1,\ 2.$$

Table 2. Organotin compound

Compound	% Yield	Mp, °C
$C_6H_{11}(n\text{-}C_3H_7)_2SnOCH_2CH_2OH$	62.0	150—151°
$C_6H_{11}(iso\text{-}C_3H_7)_2SnOCH_2CH_2OH$	60.8	96—97
$(C_6H_{11})_2Sn(OCH_2CH_2OH)_2$	70.0	214—215
$(C_6H_{11})_2SnOCH_2CH_2OH$	87.1	165—166
$C_6H_{11}(N\text{-}C_3H_7)_2SnOCH_2CHOHCH_2OH$	61.9	61—62
$(C_6H_{11})_2Sn(OCH_2CHOHCH_2OH)_2$	60.0	Decomposes at 200°
$(C_6H_{11})_2SnOCH_2CHOHCH_2OH$	62.5	151—152

the bromides with $NaOCH_2CH_2OH$ or $NaOCH_2CHOHCH_2OH$ yielded the hydroxy-organotin compounds which are characterized in Table 2. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 28Apr67/ ORIG REF: 004/ OTH REF: 002

ACC NR: AT8019292 SOURCE CODE: UR/0000/67/000/000/0044/0045

AUTHOR: Semenov, A. A.

ORG: Institute of Chemistry, Academy of Sciences MoldSSR (Institut khimii Akademii nauk MoldSSR)

TITLE: Indole derivatives. III. Improved methods for synthesizing 3,4-dihydro-β-carbolins

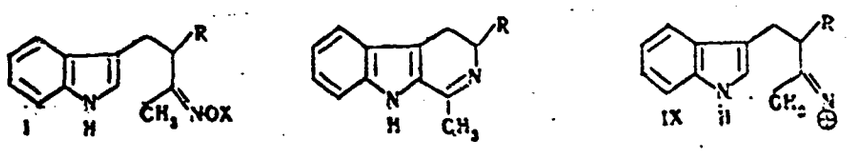
SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 44-45

TOPIC TAGS: organic oxime compound, phosphate ester, cyclization

ABSTRACT: The following two methods of the preparation of the title compounds:

Card 1/3 UDC: 547.759.07

ACC NR: AT8019292



II R=$CH_2C_6H_5$; III R=$CH_2CH=CH_2$
IV R=$(CH_2)_4OCOCH_3$

VII R=$CH_2C_6H_5$, X=H
VIII R=$CH_2C_6H_5$, X=$COCH_3$

V R=$(CH_2)_2N$ (CO, CO) C_6H_4

VI R=$CH_2CO_2C_2H_5$

are described. Method (a) involves treatment of oximes I with polyphosphate esters in benzene solution at 105—110°C. This reaction proceeds with Beckmann rearrangement and cyclization of the rearrangement products

Yields of 3,4-dihydro-β-carbolins obtained by methods (a) and (b)

Compd.	% Yield	
	Method (a)	Method (b)
II	50	85
III	40	80
IV	32	71
V	0	29

Card 2/3

ACC NR: AT8019292

into carbolins (II, III, and IV). Method (b) involves the treatment of the oximes I with tetraacetyl diborates in nitromethane. The reaction mixture is heated on a water bath for 2 hr. The yield of the carbolins obtained by the two methods are shown in the table. Orig. art. has: 1 table. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 16Nov65/ ORIG REF: 001/ OTH REF: 002

Card 3/3

ACC NR: AP8020536 SOURCE CODE: UR/0079/68/038/005/1104/1107

AUTHOR: Shokol, V.; Gamaleya, V. F.; Derkach, G. I.

ORG: Institute of Organic Chemistry, Academy of Sciences UkrSSR (Institut organicheskoy khimii Akademii nauk UkrSSR)

TITLE: Derivatives of isocyanatomethylphosphonic acid fluoride

SOURCE: Zhurnal obshchey khimii, v. 38, no. 5, 1968, 1104-1107

TOPIC TAGS: fluorinated organic compound, aliphatic ester, phosphonic acid

ABSTRACT: The initial isocyanatomethylphosphonic acid fluoride (I) was prepared by earlier reported reactions:

$$CH_3P(O)(Cl)NCO + SbF_3 \longrightarrow CH_3P(O)(F)NCO$$

$$CH_3P(O)ClF + NaOCN \longrightarrow CH_3P(O)(F)NCO$$

At 20°C in absolute ether, I reacted with arylamines to form 3-arylcarbamidomethylphosphonic acid fluorides (II):

$$CH_3P(O)(F)NCO + ArNH_2 \longrightarrow CH_3P(O)(F)NHCONHAr$$

Card 1/3 UDC: 546.185

which are characterized in Table 1. On heating with aqueous acid

Table 1

$CH_3P(O)(F)NHCONHAr$

Ar	% Yield	Mp, °C
C_6H_5	97	139—140°
$p\text{-}ClC_6H_4$	65	155—156
$p\text{-}NO_2C_6H_4$	43	164—165
$p\text{-}CH_3C_6H_4$	75	138—140

solutions, fluorides II hydrolyze to form arylureas and methylphosphonic acid:

$$CH_3P(O)(F)NHCONHC_6H_5 \xrightarrow{H_2O,\ HCl} CH_3P(O)(OH)_2 + C_6H_5NHCONH_2$$

Reactions of fluorides II with alcohols and phenols yield fluorides of aryl(alkyl)uretanmethylphosphonic acid:

$$CH_3P(O)(F)NCO + ROH \longrightarrow CH_3P(O)(F)NHCOOR$$

Table 2

$CH_3P(O)(F)NHCOOR$

R	% Yield	Mp, °C
CH_3	86	95—96°
C_2H_5	57	104—105
iso-C_3H_7	64	124—125
C_6H_5	41	119—121
$p\text{-}ClC_6H_4$	58	105—107

which are characterized in Table 2. Orig. art. has: 2 tables and 1 figure. [WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 19Jun67/ ORIG REF: 012/ OTH REF: 005

ACC NR: AP8018794 SOURCE CODE: UR/0409/68/000/002/0289/0292

AUTHOR: Suvorov, N. N.; Golubev, V. Ye

ORG: Moscow Chemical Technology Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Indole derivatives. XXXI. Synthesis of β-glycerides of 3-indolylcarboxylic acids

SOURCE: Khimiya geterotsiklicheskikh soyedineniy, no. 2, 1968, 289-292

TOPIC TAGS: heterosubstituted carboxylic acid, pesticide

ABSTRACT: In a search for new biologically active compounds, α- and β-glycerides of 3-indolylcarboxylic acids were synthesized by the reaction:

Card 1/4 UDC: 547.757.07:543.544+668.28

ACC NR: AP8018794

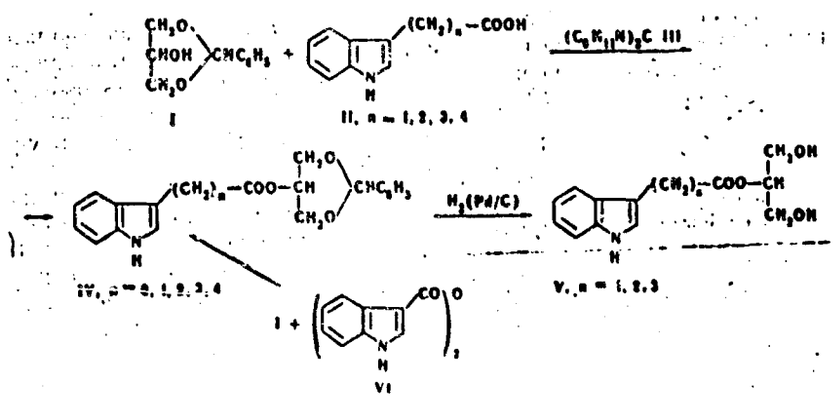


Table 1. R_f of α- and β-glycerides of 3-indolylcarboxylic acids separated by paper chromatography

Compd	R_f	R_f of α-isomer	Color developed in uv light
V, n=1	0,48	0.57	violet
V, n=2	0,41	0,32	violet
V, n=3	0,21	0,28	pink-violet

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Table 2. α,α′-Benzylideneglycerides of 3-indolylcarboxylic acids

Compd	Mp, °C	% Yield
IV, $n=1$	103—105	25,5
IV, $n=2$	129—131	30,0
IV, $n=3$	84—85	33,0
IV, $n=4$	119—121	57,0

Table 3. β-glycerides of 3-indolylcarboxylic acids

Compd.	n_D^{20}	% Yield
V, $n=1$	1,5525	78,0
V, $n=2$	1,5725	81,0
V, $n=3$	1,5820	72,0

The isomers were separated by paper chromatography. The separation data are given in Table 1. Constants and yields of the compounds synthesized are given in Tables 2 and 3. Orig. art. has: 3 tables.

[WA-50; CBE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 07May66/ ORIG REF: 005/ OTH REF: 004

ACC NR: AT8019307 SOURCE CODE: UR/0000/67/000/000/0285/0290

AUTHOR: Tsizin, Yu. S.; Rubtsov, M. V. (Deceased)

ORG: All-Union Chemical and Pharmaceutical Scientific-Research Institute im. S. Ordzhonikidze, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut)

TITLE: Heterocyclic quinones. I. Synthesis and properties of 8-dialkylamino-5, 6-quinolinedione

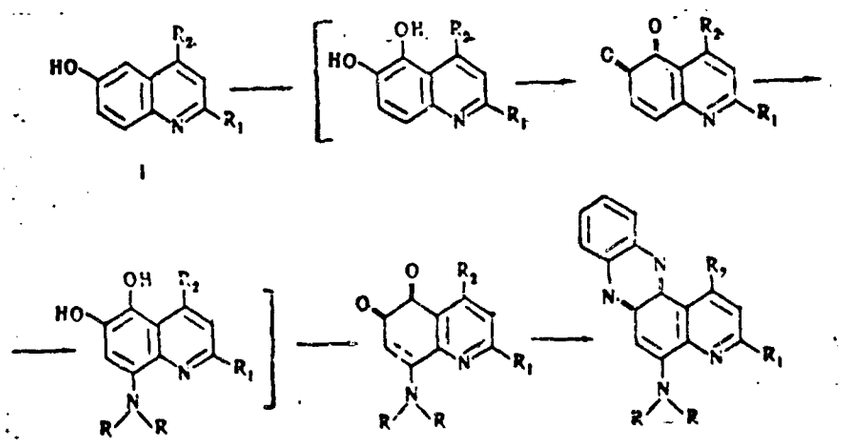
SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 285-290

TOPIC TAGS: aromatic ketone, quinoline, bactericide

ABSTRACT: In a search for new bactericides, a series of previously unreported 8-dialkylamino-5,6-quinolinediones (IIa-e) was synthesized by the oxidation of 6-hydroxylepidine, and 6-hydroxyquinaldine at room temperature in the presence of a Cu^{++}— sec-amine complex. On boiling in ethanol, II reacted with o-phenyldiamine to form III. Saponification of II with alkalies at 15—20°C gave IV and V:

Card 1/4 UDC: 547.832.07

ACC NR: AT8019307



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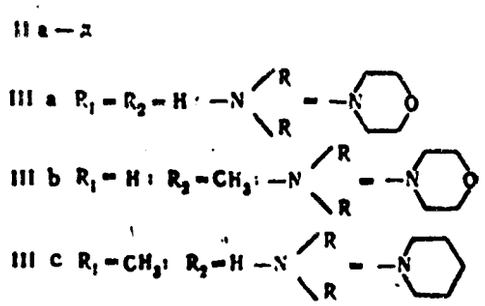
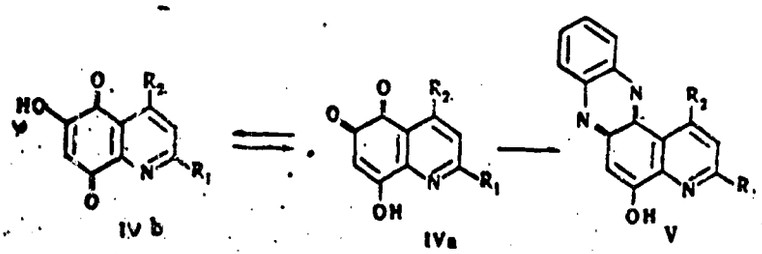
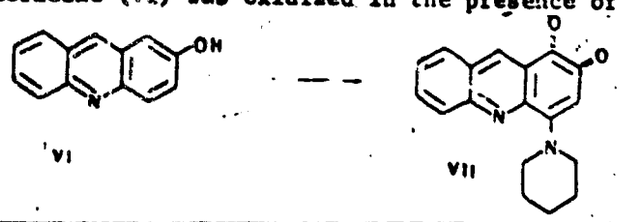




V a $R_1=R_2=H$
V b $R_1=H$; $R_2=CH_3$
V c $R_1=CH_3$; $R_2=H$

2-Hydroxyacridine (VI) was oxidized in the presence of piperidine into VII:



Compound	Mp, °C	Yield, %
IIa	173—175	80.7
IIb	182—183	82.5
IIc	177—178	58
IId	170—171	89.7
IIe	168—170	62.5
IIIa	197—198	95
IIIb	192—193	89
IIIc	158—160	82
VII	186—188	70

The new compounds are characterized in the table. [WA-50; CSE No. 33] [PS]

SUB CODE: 07/ SUBM DATE: 15Nov65/ ORIG REF: 003/ OTH REF: 010

ACC NR: AT8019308 SOURCE CODE: UR/0000/67/000/000/0291/0295

AUTHOR: Tsizin, Yu. S.; Rubtsov, M. V. (Deceased)

ORG: All-Union Chemical and Pharmaceutical Scientific Research Institute im. S. Ordzhonikidze, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut)

TITLE: Heterocyclic quinones. II. Synthesis and properties of substituted 2-styryl 5,6- and 5,8-quinolinedione

SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsodorzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne", 1967, 291-295

TOPIC TAGS: aromatic ketone, quinoline, quinone

ABSTRACT: In a search for new drugs, a series of substituted styrylquinolines was synthesized by the following reactions:

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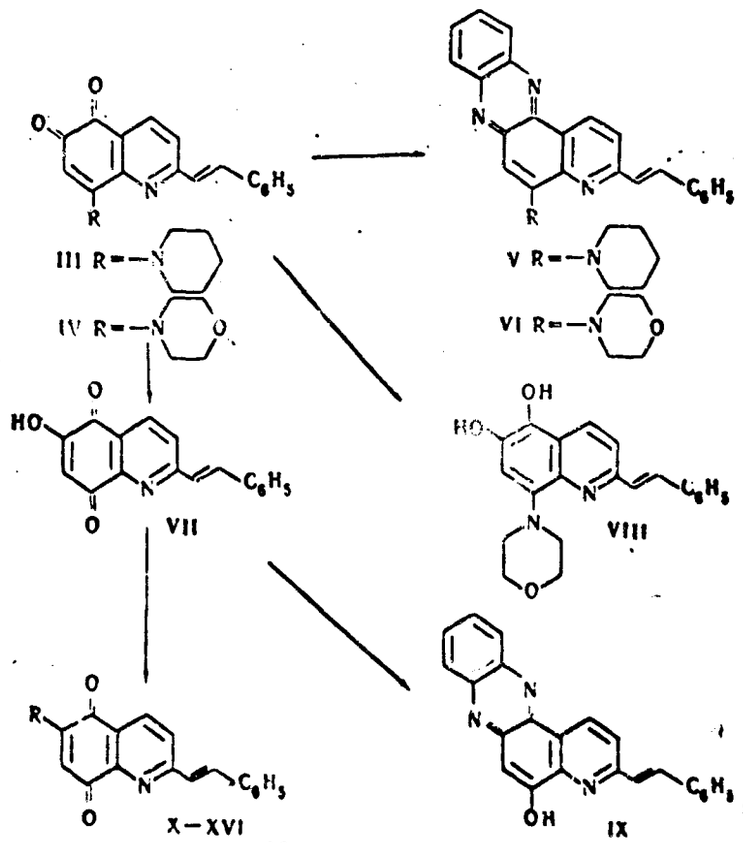
ACC NR: AT8019308



Card 2/4

X R=—OCH_3
XI R=—$NHCH_3$
XII R=—NHC_2H_5
XIII R=—NHC_3H_7-n
XIV R=—$N(CH_3)_2$

XV R=

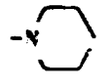
XVI R= 

Table 1

Compd.	Mp, °C	ν, cm^{-1}	% Yield
III	185—186 (decomp)	— 1620, 1637	80.3
IV	192—194 (decomp)	— 1623, 1630	68.0

Table 1. (Cont.)

XI	232—233 (decomp)	3370, 1635, 1628, 1668	70.4
XII	209—211	3350, 1635, 1635, 1673	72.4
XIII	167—169	3360, 1635, 1640, 1674	60.8
XIV	182—183	— 1632, 1680	83.0
XV	173—175	— 1628, 1673	80.5
XVI	174—175	— 1630, 1673	84.8

The new compounds are characterized in the table. [WA-50; CBE No. 33] [DC]

SUB CODE: 07/ SUBM DATE: 16Nov65/ ORIG REF: 002/ OTH REF: 001

ACCESSION NUMBERS FOR CHEMICAL FACTORS

AP8018197
AP8018790
AP8018791
AP8018796
AP8018798
AP8018800
AT8019294

II. BIOLOGICAL FACTORS

ACC NR: AP8020261 SOURCE CODE: UR/0240/68/000/005/0070/0072

AUTHOR: Agafonova, N. I. (Vilnius); Matulyavichus, V. P. (Candidate of physico-mathematical sciences; Vilnius)

ORG: none

TITLE: Biological aerosols and methods of trapping them

SOURCE: Gigiyena i sanitariya, no. 5, 1968, 70-72

TOPIC TAGS: biologic aerosol, biologic agent sampler, biologic agent detection, biologic agent filter

ABSTRACT: Electrical precipitation of aerosols is based on the aerosol particles being charged or uncharged. Even in the latter case, there are many charged particles that have obtained charges because of environmental conditions. It has also been shown that charged biological aerosol particles are more physiologically active. The simplest method for collecting particles is a charged wire with the charge maintained by a 400—800 v battery. After several hours, the particles collecting on the wire can be removed for study. Better traps are made employing filters. An electrical filter frequently used is 8—10 mm in diameter and has a 10 kv charge.

Card 1/2 UDC: 614.715/718-07

ACC NR: AP8020261

Particles in the air become charged by the corona discharge. For microbiological use, a device which can filter 800—1000 ℓ/min was tested. It effectively removed bacilli, fungal spores, algae, and ferrous metal particles from the air. Orig. art. has: 2 figures. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 24Feb67/ ORIG REF: 008

Card 2/2

ACC NR: AP8020286 SOURCE CODE: UR/0177/68/000/005/0051/0053

AUTHOR: Aleksevich, Ya. I.

ORG: none

TITLE: Detecting tetanus bacteria in wounds of tetanus patients with the fluorescent antibody method

SOURCE: Voyenno-meditsinskiy zhurnal, no. 5, 1968, 51-53

TOPIC TAGS: tetanus, fluorescent antibody method

ABSTRACT: Tetanus bacteria in wounds can be detected with polyvalent globulin labeled with fluorescein isothiocyanate and containing tetanus agglutinins within 24 hr of testing, with a preliminary reading possible within 30 min. Results of both direct and indirect fluorescent antibody tests coincided with results of bioassay, but the direct method is considered preferable because the time required for preparation of smears is less, and there is less chance of nonspecific fluorescence. Tetanus bacteria fluoresced with identical intensity independent of serotype, and agglutinated only monospecific serum, so that the fluorescent antibody method cannot be used to detect the serotype of tetanus bacteria. Polyvalent serum was prepared from serotypes 1, II, III, IV, V and VI. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 002

Card 1/1 UDC: 616.981.551:616.078

ACC NR: AP8016833 SOURCE CODE: UR/0402/68/000/002/0155/0159

AUTHOR: Anan'yev, V. A.; Narskiy, S. V.; Filatov, F. P.

ORG: Institute of Virology im. D. I. Ivanovskiy, AMN SSSR, Moscow (Institut virusologii AMN SSSR)

TITLE: Immunoelectrophoretic properties of adenovirus antigens

SOURCE: Voprosy virusologii, no. 2, 1968, 155-159

TOPIC TAGS: adenovirus, virus antigen, immunoelectrophoresis

ABSTRACT: Immunoelectrophoresis was used to distinguish antigens of epidemic types of adenovirus from latent types and human types from the virus of canine hepatitis. The method of counter electrophoresis can be used for rapid detection of adenovirus antigens. Standard adenovirus strains types 1—7 and strains isolated from patients with infectious hepatitis and other diseases were subjected to electrophoresis. The counter electrophoresis method is based on the fact that highly motile antigens migrate in gel under the influence of an electric current toward antibodies of the immune serum, forming precipitation lines where they meet. This process takes 15—20 min under normal conditions. Less motile

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ACC NR: AP8016833

antigens can only migrate in the opposite direction because of counter electroendosmosis. By conducting electrophoresis in two perpendicular directions, the procedure can be completed in 1—1.5 hr instead of several days. Orig. art. has: 4 figures. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 16Jan67/ ORIG REF: 002/ OTH REF: 010

Card 2/2

ACC NR: AP8016830 SOURCE CODE: UR/0402/68/000/002/0131/0141

AUTHOR: Barinskiy, I. F.; Dement'yev, I. V.; Vashkova, V. V.

ORG: Institute of Virology im. D. I. Ivanovskiy, AMN SSSR (Institut virusologii AMN SSSR); Institute of General Genetics, AN SSSR, Moscow (Institut obshchey genetiki AN SSSR)

TITLE: Chromosome damage caused by various viral infections

SOURCE: Voprosy virusologii, no. 2, 1968, 131-141

TOPIC TAGS: chromosome, vaccinia virus, hepatitis, foot and mouth disease, scarlet fever, measles virus, influenza virus, tickborne encephalitis virus

ABSTRACT: This survey article on the role of viruses in the etiology of chromosome damage emphasizes discussion of chromosome damage in leucocyte cultures obtained from ill persons and in virus-infected tissue cultures. Possible mechanisms to explain the effect of viruses on cells are also discussed. Among viruses definitely associated with chromosome damage are: vaccinia, hepatitis, measles, influenza and tickborne encephalitis. Yellow fever and herpes viruses have been proven responsible for chromosome damage in blood cells, and many investigators have shown the dangers

Card 1/2 UDC: 616.988-07:616-018.13:576.312.32+576.858.095:383:576.312.32

ACC NR: AP8016830

of mumps virus. Chromosome damage is local, transient or severe enough to "pulverize" the chromosome. Sendai virus in massive doses produces chromosomal despiralization in leucocytes *in vitro* within 10 min. Analogous results have been obtained with myxoviruses (parotitis, newcastle disease). Cellular effects of latent tickborne encephalitis and Newcastle disease appear as increased numbers of anaphase and metaphase abnormalities. *Herpes zoster* and adenoviruses delay mitosis by 24 hr in tissue cultures. Chromosomal rearrangement caused by fowl plague virus in human tissue culture is known. Viruses inactivated by heat, irradiation or chemicals did not produce abberations. Viruses containing labeled nucleic acids were used to determine mechanisms causing chromosomal damage. Most authors did not observe labeled fragments in the chromosomes. The use of nucleic acid analogs showed that there were preferred sites of attack. Some authors reported inhibition of DNA synthesis preceding chromosome breakup. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 02Feb67/ ORIG REF: 026/ OTH REF: 097

Card 2/2

ACC NR: AP8019613 SOURCE CODE: UR/0197/68/000/005/0116/0119

AUTHOR: Baymanis, E. A.; Logina, A. Zh. Baltkays, Ya. Ya.

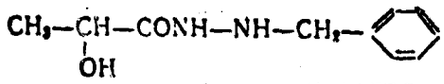
ORG: Latvian State University im. Petra Stuchki (Latviyskiy gosudarstvennyy universitet); Riga Medical Institute (Rizhskiy meditsinskiy institut)

TITLE: Effects of certain DL-malic hydrazides on monoaminoxidase activity *in vivo*

SOURCE: AN LatSSR. Izvestiya, no. 5, 1968, 116-119

TOPIC TAGS: monoaminoxidase inhibitor, enzyme catalysis, enzymatic activity

ABSTRACT: Alkyl dihydrazides of malic acid inhibit oxidative deamination in rat brain tissue. The benzyldihydrazide (III) in 25 mg/kg doses promotes the accumulation of serotonin in brain tissue. No such effect is observed with the isopropyl (II) and β-hydroxyethyl (I) derivatives. Malic acid benzyldihydrazide is a MAO inhibitor with a short latent period and duration of effect. Within 3 hr after a 100 mg/kg dose (I + II), the serotonin level is 85% above normal, while its analog



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ACC NR: AP8019613

Table 1. Inhibition of oxidative deamination of DL-malic acid by N^2-alkylhydrazides %* (50 mg/kg)

Preparation No.	R	Time in hr after administration of preparation			
		3	6	12	24
I	$-CH_2-CH_2-OH$	49	27	—	—
II	$-CH(CH_3)_2$	63	84	54	—
III	$-CH_2-C_6H_5$	88	67	66	30

* based on 5—7 independent tests

N^2-malic benzylhydrazide, inhibits serotonin activity completely. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 13Nov67/ ORIG REF: 004/ OTH REF: 003

Card 2/2

ACC NR: AT8019420 SOURCE CODE: UR/3355/65/013/000/0003/0008

AUTHOR: Beklemishev, N. D.; Kasymova, Kh. A.; Beglova, T. G.

ORG: none

TITLE: Latent brucellosis as prevalent pathological condition among the agricultural population of Kazakhstan

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 3-8

TOPIC TAGS: brucellosis, diagnostic medicine, disease carrier

ABSTRACT: Serological tests of response to brucellosis allergen were made in vaccinated and nonvaccinated persons in rural Kazakhstan and also in employees of meat processing plants. Case histories and careful follow-ups of the health of these persons were made. On the basis of previous surveys, the Kazakh Institute of Regional Pathology estimates that of 7351 persons tested, 29.9% in central Kazakhstan and 42.6% in the Alakul'sk district of Alma-Ata oblast who were engaged in occupations unconnected with cattle and meat processing responded positively to brucellosis skin tests. These persons were an unvaccinated rural population; also, it was

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ACC NR: AT8019420

determined in subsequent studies that they harbored brucellosis in its latent form, that the infection affected their general health adversely, and that some of them were carrying chronic or compensatory forms of the disease. Their general health was compared with that of a control group (480 persons) who had negative reactions to the brucellsois tests. The most frequent complaints of both groups, but occurring more often in the reacting group, were headaches, chronic fatigue, diminished working capacity, irritability, loss of memory, general weakness, as well as dizziness and loss of balance. Complaints were most frequent in cold weather and at the change of seasons. Abnormal EFC's and EKG's were more frequent in the positive group. Serological abnormalities also marked the positive group. Dyspepsia and chronic gastritis was more a symptom of the positive than the negative group. Physiological responses of vaccinated persons were compared with those of persons who had received saline injections simultaneously. There were only slight differences in EKG's in the two groups. Headaches were reported by the subgroup receiving vaccine V-19, but not by those receiving 104-M. Temperature and general health remained at or near normal. Immunological indices were positive, but blood and bioassays were negative; therefore, prophylactic vaccination against brucellosis does not appreciably affect the general health of the subjects. Orig. art. has: 3 figures. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8017998 SOURCE CODE: UR/0477/68/000/001/0056/0059

AUTHOR: Butygin, V. A.; Vyatchannikov, K. A. (Candidate of medical sciences, Head)

ORG: Chair of Hygiene/Head--Prof. Z. K. Mogilevchik/ Minsk Medical Institute/Rector--Dr . A. A. Klyucharev/ (Kafedra gigiyeny Minskogo meditsinskogo instituta); Department of Toxicology/Head--K. A. Vyatchannikov/, Belorussian Scientific Research Institute of Sanitation and Hygiene/Director--A. P. Rusayev/ (Otdel toksikologii Belorusskogo nauchno-issledovatel'skogo sanitarno-gigiyenicheskogo instituta)

TITLE: Evaluating the toxicity of sevin according to its effect on cholinesterase activity and serotonin content in blood and enterochromophilic cells

SOURCE: Zdravookhraneniye Belorussii, no. 1, 1968, 56-59

TOPIC TAGS: toxicity, sevin, insecticide intoxication, acetylcholinesterase, serotonin, cholinesterase inhibitor

ABSTRACT: Serotonin activity in the blood 1—2 hr after receipt of 60, 30, 15, 10, 5 mg/kg sevin (methylnapthylcarbamate) was investigated in rats. The serotonin concentration of the blood is increased slightly by

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ACC NR: AP8017998

10 mg/kg doses of sevin while 30 mg/kg doses raise the concentration of serotonin to 207% of normal. Plasma and erythrocyte cholinesterase activity was determined by the Hestrin method at 80, 60, 45, and 30 mg/kg doses. There was little change in serum and cellular cholinesterase activity after 2 hr. Therefore, change in serotonin content is more indicative of sevin intake than is depression of cholinesterase. The mechanism governing serum serotonin increase was investigated in enterochromophilic rat tissue cells stained by an argentophilic reaction. Argentophilic granules decrease after administration of sevin, indicating their loss of serotonin. The actual mechanisms involved require further study. Since a single relatively small dose of sevin can produce such noticeable changes, this method of detection is of interest to toxicologists studying normalization of tissue metabolism after poisoning. Orig. art. has: 3 tables.
[WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8016832 SOURCE CODE: UR/0402/68/000/002/0151/0155

AUTHOR: Chepulis, G.-K. S.; Zhdanov, V. M.

ORG: Institute of Virology im. D. I. Ivanovsky, AMN SSSR, Moscow (Institut virusologii AMN SSSR)

TITLE: The biological role of host antigens in myxoviruses

SOURCE: Voprosy virusologii, no. 2, 1968, 151-155

TOPIC TAGS: immunologic tolerance, Newcastle virus, virus antigen

ABSTRACT: Susceptibility to infection with Newcastle disease virus (NDV) was induced in naturally nonsusceptible animals by components of host cells Mice tolerant of chick embryo antigens infected with an allantoic strain of NDV developed agony within 48—72 hr, with local or diffuse hepatization observed in the lungs. Virus was isolated from the lungs of all tolerant animals on the first passage, and from internal organs and blood on the second passage or later. Tolerance to any chick embryo tissue (normal chorioallantoic fluid, body, liver, muscles, brain, fibroblast culture) was accompanied by development of disease after infection with NDV, while tolerance to heterogeneous antigens (guinea pig kidneys, sheep erythrocytes, bovine serum, and human erythrocytes) did not lead to

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ACC NR: AP8016832

infection. All NDV strains isolated from tolerant mice were identical serologically to the initial Sato strain and were serologically different from avian plague virus (to which mice are naturally susceptible). Development of viral infection is connected with tolerance to a species-specific antigen (of chick embryo origin) which enters into the composition of the virus. In subsequent reproductive cycles, the virus includes species-specific antigens of mouse tissue in its composition, and the immunobiological phenomenon described above continues. Orig. art. has: 3 tables. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 06Dec67/ ORIG REF: 004/ OTH REF: 002

Card 2/2

ACC NR: AT8019321 SOURCE CODE: UR/0000/67/000/000/0030/0037

AUTHOR: Davydova, M.S.; Sapegina, V.F.; Drozdova, Yu.V.; Luk'yanova, I.V.

ORG: none

TITLE: Gamasid ticks in a tickborne encephalitis focus in the northeast Altai

SOURCE: AN SSSR. Sibirskoye otdeleniye. Biologicheskiy institut. Priroda ochagov kleshchevogo entsefalita na Altaye; severo-vostochnaya chast' (Nature of breeding grounds for tickborne encephalitis in the Altai; northeastern part). Novosibirsk, Izd-vo "Nauka," 1967, 30-37

TOPIC TAGS: disease carrying tick, tickborne encephalitis, medical geography, epidemiology, epizootiology

ABSTRACT: Ticks were collected in a focus of tickborne encephalitis in the northern Altai from forest-steppe, mountain valleys, forested slopes and high mountain areas. There were 6938 ticks taken from mammals, 5 from birds, and 42 from the forest floor. Other ticks were collected from mammal and bird nests making a total of 11,286 ticks belonging to 76 taxonomic groups. Free-living ticks, the systematics of which are uncertain, were excluded. In the forest-steppe and foothill zone,

Card 1/10

ACC NR: AT8019321

Table 1. Gamasoid ticks of the Northeast Altai.

Taxonomic group	Species	No. of ticks	Forest steppe and foothill zone	Forested mountain area	Forest-tundra and tundra (alpine zone)
1	2	3	4	5	6
	Parasitidae gen. sp. NN.	284	++	+++	
1	*Paradus sp.*	196	+	++	+
2	*Pergamasus sp.* I	2		+	
3	*Pergamasus sp.* II	3		+	
4	*Eugamasus sp.*	2		+	
5	*Poecilochirus sp.*	37	+	+	
6	*P. necrophori* Vitzth.	1500	+++	+++	
7	*P. subterraneus* (L. Müll.)	172	+	+	
8	*Gamasodes armatus*	4	+	+	
	Veigaia sp. NN.	10		+	
9	*Veigaia sp.*	1		+	
10	*V. nemorensis* (C. L. Koch)	33		+	
11	*V. igolkini* Breg.	2	+	+	
12	*V. koroljevae* Dav.	87		++	
13	*V. kochi* (Träg.)	13		+	
14	*V. slonovi* Breg.	1		+	

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ACC NR: AT8019321

Table 1. (Cont.)

	Ascaidae gen. sp. NN	268	+	++	+
15	*Euryparasitus sp.*	7	+	+	
16	*Eur. emarginatus* (C. L. Koch)	182	+	+	+
17	*Cyrtolaelaps sp.* NN	9	+	+	
18	*C. mucronatus* (G. et R. Can.)	45		+	
19	*Macrocheles decoloratus* (C. L. Koch)	14	+	+	
20	*M. glaber* (Müll.)	771	+	++	
21	*M. matrius* Hull.	5	+	+	
22	*M. tardus* (C. L. Koch)	14	+	+	
23	*M. nataliae* Breg.	3		+	
24	*Pachylaelaps sp.*	3	+		+
25	*Aceoseiidae gen. sp.*	2		+	
26	*Phytoseiidae Episeius sp.*	6	+		
27	*Germania sp.*	3		+	
28	*G. pigmaeus* (Müll.)	8	+	+	
29	*Eviphis sp.*	9	+	+	
30	*Cosmolaelaps sp.*	1		+	
31	*Hypoaspis sp.*	1		+	
32	*Hs. aculeifer* (Can.)	1	+		
33	*Hs. heselhausi* Oudms.	7		+	
34	*Hs. murinus* Strandtm. et Men.	4	+	+	
35	*Androlaelaps pavlovskii* Breg.	1		+	
36	*Haemolaelaps glasgowi* (Ewing)	205	+++	+	
37	*Hl. coseis* (Berl.)	83		++	
38	*Hl. allobii* Breg.	9	+		
39	*Hl. montchadskyi* Viol.	1	+		
40	*Hl. dogieli* (Hirst.)	80		++	
41	*Eulaelaps stabularis* (C. L. Koch)	481	++	++	+
42	*E. kolpakovae* Breg.	4	+		
43	*E. novus* Vitzth.	169		+	
44	*Laelaps muris* (Ljungh)	75	++	+	
45	*L. lemmi* Grube	1		+	+
46	*L. cisthrionomydis* Lange	1070	++	+++	+
47	*L. kileris* C. L. Koch	631	++	+++	
48	*L. micromydis* Zachv.	7	+	+	

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Table 1. (Cont.)

49	*L. pavlovskii* Zachv.	365	+	+	
50	*Hyperlaelaps crassus* (Zachv.)	131	+	+	
51	*Hy. amphibius* (Zachv.)	37	+	+	
52	*Myonyssus ingricus* Breg.	19		+	
53	*Ololaelaps sellnichi* Breg. et Korol.	2		+	
54	*Ol. halaskovae* Breg. et Korol.	5		+	+
55	*Laelaspis astronomicus* Koch	6	+		
56	*Haemogamasus nidi* Mich.	65	+	+	
57	*Hg. nidiformes* Breg.	220	+	+ +	+
58	*Hg. serdjukovae* Breg.	7		–	
59	*Hg. liponyssoides* Ewing	421	–	+ + +	+
60	*Hg. zachvatkini* Breg.	5		+	
61	*Hg. mandschuricus* Vitzth.	103	+	+ +	
62	*Hg. ambulans* (Thorell)	1167	+ +	+ + +	+
63	*Hg. citelli* Breg. et Nelz.	1	+		
64	*Hg. kitanoi* Asanuma	2		–	
65	*Ichoronyssus flavus* (Kol.)	5		+	
66	*Hirstionyssus isabellinus* (Oudms.)	487	+ +	+ + +	+
67	*Hi. eusoricis* Breg.	1143	+ +	+ – +	
68	*Hi. talpae* Zem.	84	–	+ –	
69	*Hi. criceti* (Sulz.)	2	+		
70	*Hi. musculi* (Johnst.)	2	–	–	
71	*Hi. myospalacis* Zem.	54	+	+	
72	*Neonyssus nucifragae* (Hirst.)	20		+	
73	*Dermanyssus gallinae* (Redi) Dug.	386	+	+	
74	*Spinturnix vespertilionis* L.	2		+	
75	*Epicriidae gen. sp.*	12		+	
76	*Zerconidae gen. sp.*	3		+	
	Total . . .	11286			

Legend: + — rare species, + + — common species, and + + + — very common species.

various species of field mice are the most common mammals. Of the 45 tick species found on small mammals, *Haemolaelaps glasgowi*, *Hirstionyssus eusoricus*, and *Eulaelaps stabularis* were the most common. Infestation was low with an average of only one tick per animal. The mammal distribution is approximately shown by Table 2. In the forest-steppe area the

Table 2. Number of ectoparasite examinations of small mammals in various topographical zones of the Northeast Altai.

Species	Animals studied			
	total	forest-steppe and foothill zone	forested mountain area	upland and alpine [tundra] area
Altai mole	40	6	34	
Pygmy shrew	2133	529	1604	
White toothed shrew	14	14		
Water shrew	53	43	10	
Altai pika	22		22	

Table 2. (Cont.)

Siberian chipmunk	28		28	
Forest mouse	145	72	73	
House mouse	7	7		
Harvest mouse	7	7		
Field mouse	107	81	22	4
Asiatic forest mouse	258	62	196	
Common hamster	13	12	1	
Common red backed vole	234	154	80	
Siberian red vole	2663	89	2525	49
Red-grey vole	470		448	22
Water rat	26	20	5	1
Root vole	457	77	380	
Field vole	62	24	38	
Common vole	158	143	15	
Narrow skulled vole	34	33	1	
Forest lemming	6		6	
Bat	1		1	
Total	6938	1373	5489	76

following species were found to participate in the summer circulation of tickborne encephalitis virus: *Hl. glasgowi, E. stabularis, Hl.*

isabellinus, Hl. eusoricis, Haemogamasus mandschuricus, Hg. ambulans, and *L. pavlovskiy*. In winter, the principal species involved include *Hl. glasgowi, E. stabularis,* and *Haemogamasus nidiformes*. Table 3 shows the result of tick collections in the forest-mountain zone. The average number of ticks per animal here was 2.0. There are few mammals in the

Table 3. Gamasoid ticks in the forest-mountain zone of the Northeast Altai.

No.	Species	Tick collections						
		Examined						totals
		5489	5	8	75	42	3	
		from mammals	from birds	from birds' nests	mammal burrows	from forest floor	from beetles	
1	2	3	4	5	6	7	8	9
	Parasitide gen. sp.	80		2	22	9	15	128
1	*Parasitus sp.*	173			5	1	8	187
2	*Pergamasus sp.* I	1				1		2
3	*Pergamasus sp.* II				2	1		3
4	*Eugamasus sp.*					2		2
5	*Poecilochirus sp.*	36						36
6	*P. necrophori*	1415	1				14	1430
7	*P. subterraneus*	154					7	161
8	*Gamasodes armatus*	3						3
	Veigaia sp. NN				2	8		10
9	*Veigaia sp.*					1		1

ACC NR: AT8019321

Table 3. (Cont.)

10	*V. nemorensis*	4			10	19		33
11	*V. igolkini*					1		1
12	*V. koroljevae*	9			4	74		87
13	*V. kochi*				6	7		13
14	*V. slomovi*				1			1
	Ascaidae gen. sp. NN	245			4	4		253
15	*Euryparasitus sp.*	6						6
16	*Eur. emarginatus*	112			46	7		165
17	*Cyrtolaelaps sp. NN*	1			7			8
18	*C. mucronatus*	2			5	38		45
19	*Macrocheles decoloratus*	2		7				9
20	*M. glaber*	387				1	367	755
21	*M. matrius*	1						1
22	*M. tardus*	12						12
23	*M. nataliae*	3						3
24	*Aceosejidae gen. sp.*					2		2
25	*Garmania sp.*	3						3
26	*G. pigmaeus*	3			3	1		7
27	*Eviphis sp.*	6					2	8
28	*Cosmolaelaps sp.*					1		1
29	*Hypoaspis sp.*				1			1
30	*Hs. heselhausi*	6				1		7
31	*Hs. murinus*	3						3
32	*Androlaelaps paviovskii*			1				1
33	*Haemolaelaps glasgowi*	26						26
34	*Hl. casalis*			83				83
35	*Hl. montchadskii*	1						1
36	*Hl. dogieli*	66	6		14			86
37	*Eulaelaps stabularis*	189			140			329
38	*E. novus*			165				165
39	*Laelaps muris*	26						26
40	*L. lemmi*	1						1
41	*L. clethrionomydis*	1031						1031
42	*L. hilaris*	595			7			602
43	*L. micromydis*	5						5

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ACC NR: AT8019321

Table 3. (Cont.)

44	*L. pavlovskyi*	214						214
45	*Hyperlaelaps arvalis*	116						116
46	*Hr. amphibius*	3						3
47	*Myonyssus ingricus*	19						19
48	*Ololaelaps sellnicki*					2		2
49	*Ol. halaskovae*					5		5
50	*Haemogamasus nidi*	58						58
51	*Hg. nidiformes*	131			81			212
52	*Hg. serdjukovae*	7						7
53	*Hg. liponyssoides*	300			102			402
54	*Hg. zachvatkini*	5						5
55	*Hg. mandschuricus*	69			6			75
56	*Hg. kitanoi*	1		1				2
57	*Hg. ambulans*	884			247			1131
58	*Ichoronyssus flavus*	5						5
59	*Hirstionyssus isabellinus*	304			103			407
60	*Hi. eusoricis*	984			4			988
61	*Hi. talpae*	73						73
62	*Hi. musculi*	1						1
63	*Hi. myospalacis*	37						37
64	*Neonyssus nucifragae*		20					20
65	*Dermanyssus gallinae*		2	381				383
66	*Spinturnix vespertilionis*	2						2
67	*Epicriidae gen. sp.*					12		12
68	*Zerconidae gen. sp.*					3		3
	Total	7820	29	644	822	201	413	9925

high mountain areas; the redbacked vole and the red-grey vole were the

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ACC NR: AT8019321

types most frequently trapped. Eleven species of ticks were found, and the index of infestation was low (about 0.2/animal). The most common ticks found were *L. olethrionomydis*, *H. ambulans*, *H. liponyssoides* and *H. nidiformes*. Orig. art. has: 3 tables. [WA-50; CBE No. 33][LP]

Card 10/10

ACC NR: AT8019320 SOURCE CODE: UR/0000/67/000/000/0021/0029

AUTHOR: Drozdova, Yu. V.

ORG: none

TITLE: The population and landscape distribution of Ixodid ticks in northeast Altai

SOURCE: AN SSSR. Sibirskoye otdeleniye. Biologicheskiy institut. Priroda ochagov kleshchevogo entsefalita na Altaye; severo-vostochnaya chast' (Nature of breeding grounds for tick-borne encephalitis in the Altai; northeastern part). Novosibirsk, Izd-vo "Nauka", 1967, 21-29

TOPIC TAGS: tick, disease carrying insect, insect ecology, encephalitis

ABSTRACT: The distribution of *Ixodes persulcatus*, the most widespread tick species in this area and the carrier of tickborne encephalitis, is shown in Figure 1. As can be seen from the figure, *I. persulcatus* ticks are distributed by altitude zones, and are not found above 1500—1800 m. The density of ticks in various areas can change as cattle are brought in to serve as hosts for adult ticks, but these population changes are

Card 1/3

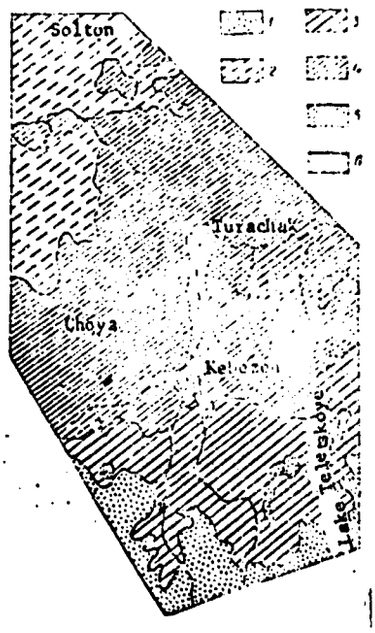

Fig. 1. Schematic map of the population density of *I. persulcatus* ticks in northeast Altai (average for May-June, 1960—1964)

1 - ticks were not observed in very sparse fir and cedar forests of middle level uplands and alpine zones; 2 - 1.0--2.0 ticks per collection hr in forest-steppe foothills; 3 - 2.1—4.0 ticks in dense coniferous forests of middle-level-upland taiga and sparse deciduous lowland forests; 4 - 4.1—8.0 ticks per collection hr in sparse deciduous forests of foothills, sparse deciduous and pine forests of the middle course of the Biya and dense lowland forests; 5 - 8.1—16.0 ticks per collection hr in sparse pine and deciduous forests of the upper course of the Biya; 6 - 16.1—32.0 ticks per collection hr in pine-birch and deciduous (birch) forests along the shores of Lake Teletskoye.

limited by climatic conditions, especially the soil moisture and solar radiation. Orig. art. has: 1 figure and 2 tables.

[WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

ACC NR: AP8016820 SOURCE CODE: UR/9063/68/002/002/0117/0120

AUTHOR: D'yakov, Yu. T.; Sadykkhodzhayeva, N. G.

ORG: none

TITLE: Adaptation of *Rhizoctonia solani* Kuehn to fungicides. Report II. Adaptation to pentachloronitrobenzene

SOURCE: Mikologiya i fitopatologiya, v. 2, no. 2, 1968 117-120

TOPIC TAGS: fungicide, drug resistance

ABSTRACT: Strains of *Rhizoctonia solani* were isolated on the basis of their resistance and adaptation to pentachlorinitrobenzene. The original resistance of strain 1, isolated from cotton, was greater than that of strains 7 and 8, isolated from potatoes. Extracts from a single strain, taken from the tips of hyphae, differed in resistance. Not all extracts could adapt to pentachloronitrobenzene. The most resistant extract (13) began to adapt after four subculturings in the presence of pentachlornitrobenzene, while the least resistant extract (11) did not adapt after 13 subculturings. Figure 1 shows the relation between fungicide dosage and growth rate of adapted and unadapted extracts. An adapted strain is

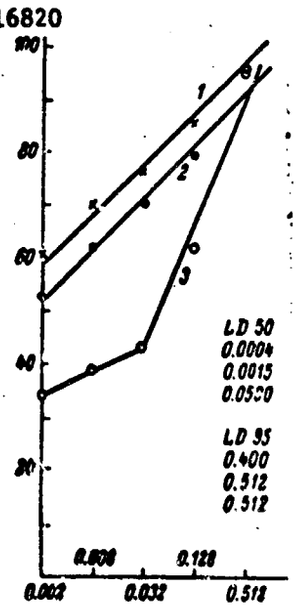

Fig. 1. Suppression of linear growth rate of *R. solani* by different concentrations of pentachloronitrobenzene (%)

Abscissa shows concentration of pentachlornitrobenzene (log scale) Ordinate shows per cent supression of linear growth. 1 - strain 11; 2 - strain 13, unadapted; 3 - strain 13, adapted

resistant only to concentrations of fungicide not exceeding those to which it was exposed during subculturing. This finding, which is admittedly supported by evidence taken only from extract 13, contradicts the evidence

ACC NR: AP8016820

of N. M. Elsaid and J. B. Sinclair (Phytopath., 52, 8, 1962). The heightened resistance of an adapted extract was maintained after six subculturings in the absence of fungicide. Orig. art. has: 3 tables and 1 figure. [WA-50; CBE No. 33] [PW]

SUB CODE: 06/ SUBM DATE: 19May67/ OTH REF: 013

Card 3/3

ACC NR: AP8020798 SOURCE CODE: UR/0297/68/013/006/0511/0516

AUTHOR: Finn, G. R.

ORG: Microbiology Department, Volgograd Medical Institute (Kafedra mikrobiologii Volgogradskogo meditsinskogo instituta)

TITLE: Dynamics of multiplication of typhoid bacteria sensitive and resistant to antibiotics

SOURCE: Antibiotiki, v. 13, no. 6, 1968, 511-516

TOPIC TAGS: chloromycetin resistance, neomycin resistance, streptomycin resistance, chlortetracycline resistance, typhoid fever

ABSTRACT: Study of the dynamics of multiplication of seven typhoid strains (six freshly isolated strains and a standard culture of Tu_2 No. 1203) resistant to streptomycin, chloramphenicol, neomycin and chlortetracycline showed that resistant strains had a slower multiplication rate than antibiotic-sensitive initial strains. This altered multiplication rate was more pronounced in chlortetracycline- and especially chloramphenicol-resistant strains, and was less pronounced among streptomycin- and neomycin-resistant typhoid variants. Delayed growth of resistant bacteria was

Card 1/2 UDC: 576.851.49(Bac.typhi).095.6

ACC NR: AP8020798

usually associated with a longer lag phase: for chloramphenicol- and partly for chlortetracycline-resistant strains, however, the logarithmic growth phase was often shortened and the stationary growth phase was correspondingly longer. Antibiotic-resistant strains also accumulated less biomass during multiplication than sensitive initial strains. The dynamics of multiplication were studied photometrically. Orig. art. has: 2 tables and 3 figures. [WA-50; ZBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 16Dec66/ ORIG REF: 008/ OTH REF: 004

Card 2/2

ACC NR: AP8016841 SOURCE CODE: UR/0402/68/000/002/0238/0242

AUTHOR: Gaydamovich, S. Ya.; Kazals, Dzh.

ORG: Department of Arboviruses, Institute of Virology im. D. I. Ivanovskiy, AMN SSSR, Moscow (Otdel arbovirusov Instituta virusologii AMN SSSR); Arbovirus Laboratory, Rockefeller Fund, Yale University, New Haven, USA (Arbovirusnaya laboratoriya Rokfellerovskogo fonda i Yeylskogo universiteta)

TITLE: Comparative study of hemagglutinating arbovirus antigens prepared from tissue cultures and mouse brains

SOURCE: Voprosy virusologii, no. 2, 1968, 238-242

TOPIC TAGS: arbovirus, serologic test, equine encephalomyelitis, Chikungunya fever

ABSTRACT: Noninfectious antigens of Venezuelan equine encephalomyelitis (VEE) virus and Western equine encephalitis (WEE) virus obtained from tissue cultures were as specific as infectious antigens obtained from mouse brains. Noninfectious Chikungunya virus antigen obtained from tissue culture was not as specific as the mouse brain antigen, although this may have been due to laboratory contamination. Noninfectious antigens can be conveniently used in the complement fixation and hemagglutination inhibition

Card 1/2 UDC: 615.373:616.988.25-078.73

ACC NR: AP8016841

tests for laboratory diagnosis of arbovirus infections. Noninfectious antigens also possess hemagglutinating properties in a wider pH range than brain antigens (optimum range of pH 6.0 to 6.4 as compared with pH 6.0 for brain antigens). Chick embryo cultures were infected with 10^5 CD_{50} of WEE virus, and transplanted hamster kidney cultures with 10^4 CD_{50} of Chikungunya virus. Orig. art. has: 5 tables.
[WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 28Jun67/ ORIG REF: 005/ OTH REF: 001

Card 2/2

ACC NR: AT8015314 SOURCE CODE: UR/0000/65/000/000/0114/0119

AUTHOR: Grigor'yeva, L. V.

ORG: Department of Microbiology, Kiev Institute of Post-Graduate Medicine (Kafedra mikrobiologii Kiyevskogo instituta usovershenstvovaniya vrachey); Laboratory of Sanitary Bacteriology and Virology, Ukrainian Institute of Community Hygiene (Laboratoriya sanitarnoy bakteriologii i virusologii Ukrainskogo instituta kommunal'noy gigiyeny)

TITLE: Detection of a viral aerosol under experimental conditions

SOURCE: AMN SSSR. Voprosy sanitarnoy bakteriologii i virusologii (Problems of sanitary bacteriology and virology). Moscow, Izd-vo "Meditsina", 1965, 114-119

TOPIC TAGS: biologic aerosol, viral aerosol, bacteriophage aerosol chamber, Escherichia coli, biologic agent filter,/ (U) FPP 15 biologic agent filter, (U) FPC 15 gelatin filter, (U) FPA 15 synthetic rubber filter, (U) FP-15 fiber filter

ABSTRACT: The effectiveness of several methods of detecting viral aerosols was determined using a phage aerosol and observing the infection of newborn mice with Coxsackie virus. Preliminary studies were made with the

Card 1/2 UDC: 614.4-078+576.8:614.4

ACC Nb AT8015314

Chicago strain of *E. coli* phages in a closed chamber. Samples were taken 30—60—90 min after aerosolization. The contents of 30—40 l of air were sampled and plated on meat peptone agar containing phage-sensitive cultures. Colony counts were made after 24 hr incubation. This enabled the perfection of experimental technique and the designing of more effective filters, such as the FPA-15 synthetic rubber filter. Other filters in the FP series had loss coefficients of less than 1%. An electroprecipitator was the most efficient device. Sodium alginate was the least effective medium for trapping phage particles because of its rapid activity loss within 1—2 hr. Once the apparatus was standardized using a phage model, droplet infection of mice with Coxsackie virus proceeded. This demonstrated that using phage as a viral model was an excellent means of conducting aerosol studies. The disease developed much faster via aerosol infection than under natural conditions. It was possible to detect the destructive changes occurring in the skeletal and cardiac muscles by electrophysiological methods during the course of the disease. Orig. art. has: 1 figure and 9 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC Nb: AP3021598 SOURCE CODE: UR/0440/68/000/002/0109/0111

AUTHOR: Ges', D. K.--Ges', D. K.

ORG: none

TITLE: Virus diseases of sugar beets in Belorussia

SOURCE: AN BSSR. Vestsi. Seryya biyalagichnykh navuk, no. 2, 1968, 109-111

TOPIC TAGS: plant virus, sugarbeet yellows virus, plant disease, mosaic virus

ABSTRACT: Sugarbeet yellows virus is the most widespread and harmful of the sugarbeet virus diseases in this area, damaging up to 30--40% of roots and 40--60% of seeds. In the USSR sugarbeet yellows virus is widespread in the 11 sugarbeet-growing areas of the Ukraine, and in Latvia, Lithuania, Armenia and Kazakh SSR. Sugarbeet varieties only slightly damaged by yellows virus during tests conducted in 1966 included Uladovgkaya 752, Yaltukhovskaya, Verkhnyachskaya 031 and Ramonskaya 06. The first signs of damage by sugarbeet yellows virus were noted in late May--early June on seedlings. Sugarbeet mosaic virus damaged 27% of seedlings and 40% of mature plants

Card 1/2 UDC: 633.1:632.3

ACC NR: AP8021598

here in early June. Young sugarbeet seedlings (3--5 leaves) were infected with sap from mosaic-damaged plants by inoculation and by *Aphis fabae* aphids. Symptoms of sugarbeet mosaic appeared 31 days after inoculation or aphid transmission. Plants could only be infected with sugarbeet yellows virus by aphid transmission. Orig. art. has: 2 tables and 2 figures. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2

ACC NR: AT8019431 SOURCE CODE: UR/3355/65/013/000/0070/0074

AUTHOR: Ionova, V. K.; Chokina, K. R.

ORG: none

TITLE: Pathomorphological changes during experimental brucellosis in rabbits

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 70-74

TOPIC TAGS: brucellosis, pathology, morphology, reticuloendothelial system

ABSTRACT: Experimental infection of rabbits with *Brucella* strains of the sheep-goat type or with unclassified *Brucella* strains obtained from hares produced generalized infection with characteristic pathomorphological changes, independent of the route of infection. The infective dose for both types of *Brucella* was 100 billion cells. Pathomorphological changes included focal and diffuse hyperplasia of reticuloendothelial-system components with formation of granulomas, dystrophic changes in internal organs, (liver, kidneys, heart, spleen) and destructive proliferating vasculitis.

Card 1/2

ACC NR: AT8019431

Brucellosis in rabbits was subacute and prolonged; changes in internal organs were noted on the third month of the illness. Brucellosis in rabbits was characterized by severe, predominantly interstitial pneumonia, tending to chronic pneumonia, especially in animals infected with hare strains. *Brucella* cultures were most frequently isolated from the lungs of infected rabbits. Dystrophic changes were also noted in brain nerve cells, with some proliferation of glial cells and adventitial cells. Orig. art. has: 3 figures. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ACC NR: AP8020819 SOURCE CODE: UR/0451/68/000/003/0017/0021

AUTHOR: Ivlev, L. S.; Klevalin, V. M.; Proskurnina, N. N.; Treskunov, A. A.

ORG: Leningrad University im. A. A. Zhdanov (Leningradskiy universitet); Military Medical Academy im. S. M. Kirov (Voyenno-meditsinskaya akademiya); Leningrad Branch All-Union Scientific Research Institute of Medical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo priborostroyeniya)

TITLE: Certain procedural features of studying different types of aerosols

SOURCE: Meditsinskaya tekhnika, no. 3, 1968, 17-21

TOPIC TAGS: biologic aerosol, aerosol generator, medical equipment, atmospheric pollution

ABSTRACT: Finely dispersed aerosols (particle size 0.1—5 mμ) are the most harmful for man in that they penetrate not only the upper respiratory tract but also the bronchi and bronchioles. Experimental study of biological aerosols involves investigation of aerosol concentration in the air and properties of settling. Horse serum (dried), starch, and pollens have been used as model aerosols and have been trapped by filters, and by a

Card 1/5 UDC: 613.633+614.715]-07

special trap operating on an inertia principle. The "two-stage impactor" is useful for measuring aerosol particles between 0.4—8 mμ. Approximations can be made according to $\vartheta = 2\rho r^2 V/2\eta R$, where V is the flow speed through the nozzle, η is the kinematic density of the air, r is the radius of the settling particles, ρ is the specific particle density, and R is the nozzle radius. In practice, the exit diameter of the first nozzle was 9 mm, and the second was 6mm. Figure 1 shows the effectiveness of the impactor. If the calculated concentration is taken as the sum of the particles'

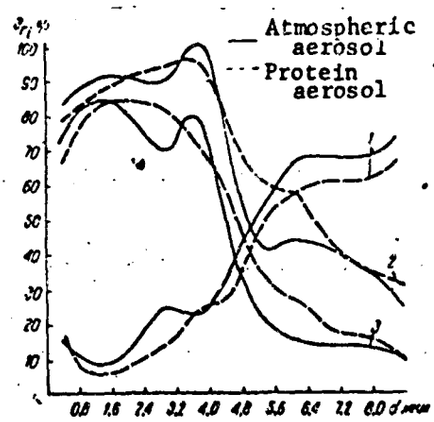

Fig. 1. Effectiveness of the impactor

1 - trapping effectiveness for atmospheric and protein aerosols of various diameters at the first cascade of the impactor; 2 - same for the second cascade; 3 - separation capacity of the impactor; 4 - atmospheric aerosol; 5 - protein aerosol

diameters increasing stepwise between r_{min} to r_{max}, then:

$$N = \sum_{n(r_{min})}^{n(r_{max})} n(r) \simeq \sum_{i=1}^{i=k} n(\bar{r}_i)$$

and the weight concentration is expressed by

$$P \simeq 4/3\pi\rho g \sum_{i=1}^{i=k} n(\bar{r}_i)\, \bar{r}_i^3 \, .$$

and the light signal is

$$S \simeq \pi \sum_{i=1}^{i=k} n(\bar{r}_i)\, \bar{r}_i^2\, k(r_i),$$

where ρ is the specific particle density and $n(\bar{r}_i)$ is the number of particles between ri_{min} and ri_{max}. Calculations were made at 11 intervals between r = 0.4--8 mμ. Calculations can be made according to the following

ACC NR: AP8020819

formulas:

$$N = P\frac{N_0}{P_0},$$

$$\frac{N_0}{P_0} = \frac{\sum_{i=1}^{i=11} n_0(\bar{r}_i)}{4/3\pi\rho q \sum_{i=1}^{i=11} n_0(\bar{r}_i)\,\bar{r}_i^3}$$

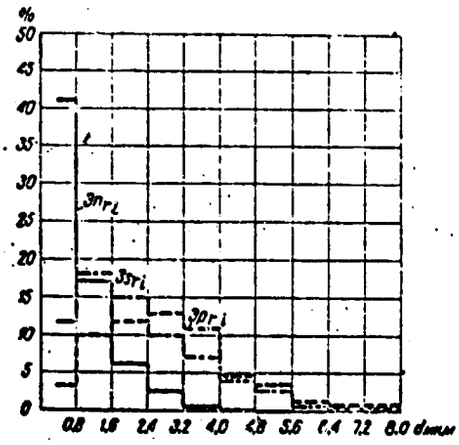

Fig. 2. Distribution of particle sizes at the second cascade of the impactor

Card 4/5

ACC NR: AP8020819

Measurements are not 100% accurate with this device, varying between 60 to 73% effective. A shorter formula

$$\frac{dN}{dr} = -\frac{c}{r^n},$$

is used to simplify calculations. Orig. art. has: 2 figures and 7 formulas. [WA-50; CBE No. 53] [LP]

SUB CODE: 06/ SUBM DATE: 08Jan68/ ORIG REF: 005/ OTH REF: 002

Card 5/5

ACC NR: AP8020263 SOURCE CODE: UR/0240/68/000/005/0095/0099

AUTHOR: Kalina, G. P. (Prof.)

ORG: Moscow Scientific Research Institute of Hygiene im. F. F. Erisman (Moskovskiy nauchno-issledovatel'skiy institut gigiyeny)

TITLE: Systematic classification of bacteria of the *E. coli* group with respect to sanitation biology

SOURCE: Gigiyena i sanitariya, no. 5, 1968, 95-99

TOPIC TAGS: public health, hygiene, Escherichia coli, taxonomy

ABSTRACT: Enterobacteria are divided into groups based on their fermentation of certain sugars and their response to other chemicals in the environment as shown in Table 1. However, *S. typhi* and *S. paratyphi* are citrate negative and *S. paratyphi* A rarely produces H_2S; *Aerobacter* sometimes

Card 1/2 UDC: 614.3:576.851.48

ACC NR: AP8020263

Table 1. Classification of Ewing and Edwards confirmed by the International Nomenclature Committee (based on divisions into tribes)

Tribes	Escherichieae	Salmonelleae	Klebsielleae	Proteae
Includes Species	Escherichia, Shigella	Salmonella, Arizona, Citrobacter	Klebsiella, Aerobacter (Enterobacter), Serratia	Proteus, Providencia
Indol	Varies	—	—	Varies
Methyl red	+	+	—	+
Acetylmethylcarbinol	—	—	+	—
Sodium citrate	—	+	+	Varies
H_2S production	—	+	— or slow +	+
Urease production	—	—	—	+
KCN	—	Varies	+	+
Phenylalanine	—	—	—	+

actively produces urease. Keys to the identification of the various groups are presented. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 17Aug67/ ORIG REF: 008/ OTH REF: 007

Card 2/2

ACC NR: AP8020285 SOURCE CODE: UR/0177/68/000/005/0038/0042

AUTHOR: Kazantsev, A. P. (Colonel, Medical service; Doctor of medical sciences)

ORG: none

TITLE: Early diagnosis of typhoid and paratyphoid A and B

SOURCE: Voyenno-meditsinskiy zhurnal, no. 5, 1968, 38-42

TOPIC TAGS: diagnostic medicine, typhoid fever, paratyphoid fever, military medicine, military personnel

ABSTRACT: Experimental early diagnosis of typhoid and paratyphoid has been tested for seven years. In 64% of the cases, diagnosis was confirmed bacteriologically, and, in 6% of cases, serologically. Recently, the trend has been toward light or moderately severe cases with acute cases a rarity. Seventy-five per cent of the patients reported a feeling of weakness and headache (73%) as an initial symptom. Other symptoms were: loss of appetite (63%), sleeplessness (41%), constipation (20%), stomach pains (15%), chills (18%), and diarrhea (7%) which could have signified any of a number of diseases. Forty-two per cent of patients had a temperature higher than

Card 1/2 UDC: 616.927+616.927.7-071

ACC NR: AP8020285

39°C, and exanthema was observed in 70% of patients. Serological and internal changes were typical of the disease. Hemocultures were used to isolate the disease agent. Early diagnosis was difficult and unreliable in most cases, and it was suggested that cultures be done immediately when the disease is suspected. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 002

Card 2/2

ACC NR: AP8016546 SOURCE CODE: UR/0390/68/031/002/0202/0205

AUTHOR: Khaunina, R. A.

ORG: Laboratory of Psychopharmacology /Head—I. P. Lapin/, Leningrad Scientific Research Institute of Neuropsychology im. V. M. Vekhterev (Laboratoriya psikhofarmakologii Leningradskogo nauchno-issledovatel'skogo psikhonevrologicheskogo instituta)

TITLE: Relation between the structure and [pharmacological] activity of phenyl derivatives of γ-aminobutyric acid

SOURCE: Farmakologiya i toksikologiya, v. 31, no. 2, 1968, 202-205

TOPIC TAGS: tranquilizer, aminobutyric acid, aliphatic ester

ABSTRACT: This article appears in Chemical Factors

Card 1/1 UDC: 615.786-015.11

ACC NR: AT8015305 SOURCE CODE: UR/0000/65/000/000/0053/0061

AUTHOR: Kitenko, V. S.

ORG: Department of Microbiology, People's Friendship University im. Patrice Lumumba (Universitet druzhby narodov, Kafedra mikrobiologii)

TITLE: Viability and detection of pathogenic microbes in the environment

SOURCE: AMN SSSR. Voprosy sanitarnoy bakteriologii i virusologii (Problems of sanitary bacteriology and virology). Moscow, Izd-vo "Meditsina," 1965, 53-61

TOPIC TAGS: pathogen screening method, biologic agent detection, biologic agent sampler, bacteria spore, botulism, anthrax, Escherichia coli, influenza, fungus disease, parasite ecology, Streptococcus, staphylococcus, biologic agent filter, brucellosis, melioidosis, tularemia

ABSTRACT: Data on the viability of microbes in the air comes from observations made during outbreaks of disease and from experimental laboratory studies. The persistance of microbes in soil (anthrax) has been measured. Organisms capable of long existence in the environment are usually highly modified for this, and the mode of distribution and

persistence of an organism depends on these adaptations. Different classes of infections have environmental survival traits in common. Agents of intestinal infections are commonly voided into soil and water, and are usually resistant to sun, temperature changes and dryness, and respond to the environment by enclosing themselves in spores which can survive for years (*Cl. botulinum, Bac. anthracis*). *Cl. tetani* and *Cl. perfringens* multiply in the mammalian intestine but usually enter the body through wounds and are less resistant to environmental pressures. Another route for the circulation of these organisms is via polluted water. Microorganisms which cause cholera, typhoid, paratyphoid and dysentery are known to survive in water from a week to several months. Most intestinal bacteria have an intestine-soil or intestine-water cycle. Respiratory infections are usually dust or droplet borne. Influenza virus belongs to the first group and must find a new host in a very short time, while dust borne organisms are adapted to survive longer. Infections entering via broken skin have more complex circulation patterns. Agents causing severe fungal infections are found in dust and soil and around houses, while venereal infections can only be spread by direct and intimate contact. Blood-borne infections (viral, rickettsial, protozoal and spirochete) have no resistance to the environment and must be spread by carriers, that is, another biological system, from one host to another. These organisms are highly adapted to living

tissue and cannot be grown on inert media. The viability of organisms varies with the seasons, relationships with antagonists and symbiotes, moisture and temperature fluctuations, and the physical and chemical characteristics of the environment. Complete ecological studies of parasitic microorganisms require that quantitative and qualitative determination of them be made in the natural environment and in their associations with other species found there. This has been extremely difficult and many scientists use "surrogate" indicators such as *E. coli*, *Streptococci*, *Straphylococci*, etc. One of the impossible tasks has been the separation of pathogens from saprophytes in the quantities and physical state in which they exist in the environment, since they do not reproduce while airborne and all diagnostic methods depend on their reproduction on nutrient media. Collection and trapping attempts which emphasize inhibiting the saprophytes have been indifferently successful. Mechanical methods include filtration and centrifugation, the latter often used for separating viruses and rickettsia. Physical methods include heating a sample and noting spore formation in the pathogens. Chemical methods include acid-base treatment, precipitation, coagulation, and treatment with urea or other compounds. Standard biological practices include the infection of a susceptible animal with a culture, seeding on several media designed for culturing specific pathogens, the use of filters or microtraps, culturing on antibiotics (for rickettsia

and viruses), and treatment with antiphage sera (before seeding material containing plague bacilli). Only two methods, heating to reveal anaerobes and culturing on alkaline peptone solution for the cholera vibrio, are consistently successful. Bacteriological methods are not sensitive to very small quantities and therefore are useless for pathogen environmental investigation. Any successful new method must respond to individual cells since the infectious dose of some of the more serious pathogens is ten to several hundred cells. Antigenic, morphological and biochemical differences in strains have provided other diagnostic tools, and they are the characteristics most likely to be detected in environmental work as well as for epidemiological use. Many types of samplers have been invented. Means of preserving and studying samples exist and can be adapted to methods that isolate and identify pure cultures according to morphological, antigenic or agglutination criteria. Modified Coons methods employing fluorescent sera have been used to identify the agents of melioidosis, tularemia, brucellosis, plague, cholera and anthrax. Fluorescent methods are highly sensitive and economical of time and materials. Specific reaction of specially bred animals to microorganisms and their toxins may still be used. Pasteur's method is useful only in cases where the disease or agent to be identified infects both humans and laboratory animals, and many human diseases cannot be reproduced in this way. Possibly the detection in the atmosphere

ACC NR: AT8015305

of a bacteriophage specific for a given pathogen can be used as an indicator, but this is not practical at present. The phage titer rise reaction identifies *Shigella*, cholera and plague agents. A series of physical methods (including: the detection of botulinum toxin in the atmosphere via ultraviolet light which induces fluorescence in the toxin; infrared bacteria identification; and infrared spectroscopy) can identify environmental organisms in pure or mixed cultures. Molecular spectral analysis and the fluorescent antibody method are also used.

[WA-50; CBE No. 33][LP]

SUB CODE: 06/ SUBM DATE: none

Card 5/5

ACC NR: AT8016361 SOURCE CODE: UR/3349/67/032/000/0011/0028

AUTHOR: Krupina, A.P. (Candidate of biological sciences)

ORG: none

TITLE: *E. coli*, its biological properties and distribution in the environment. Literature survey

SOURCE: Leningrad. Institut epidemiologii i mikrobiologii. Trudy, v. 32, 1967. Voprosy etiologii i diagnostiki pishchevykh toksikoinfektsiy (Problems of etiology and diagnostics of food toxico-infections), 11-28

TOPIC TAGS: Escherichia coli, planetary environment, serology

ABSTRACT: The classification of pathogenic *E. coli* and its phylogenetic relationship to other enterobacteria were discussed in light of data obtained in the last ten years. Most epidemiologists believe that sick children are the source of epidemic outbreaks. The average incubation period is 2—3 days. However, pathogenic organisms are sometimes isolated from healthy adults and the incidence of carriers in the population is from 2—5%. Outbreaks usually occur among persons who have some existing infirmities. Most biochemical criteria of both pathogenic and apathogenic strains are the same, but O antigens and toxins mark the pathogens. Most

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ACC NR: AT8016361

scientists believe that serological analysis is the best method of differential diagnosis. Decarboxylase activity has been used to identifiy pathogenic organisms. Pathogenic and nonpathogenic *E. coli*, *shigella* and *Salmonella* differ among themselves in polysaccharide composition. Flagellae are present in most nonpathogenic forms and absent in most pathogenic forms, but fine studies have revealed the presence of "finbriae" in pathogens which are superior to flagellae at participating in agglutination. Bacteriocins (over 20 colicins among *E. coli* strains) have also been suggested as genetic markers. Colicinogenicity is a characteristic of a majority of strains isolated in epidemics. Phage typing is another method expected to be diagnostically useful in the future. Orig. art. has: 2 tables. [WA-50; CBE No. 33][LF]

SUB CODE: W06/ SUBM DATE: none/ ORIG REF: 085/ OTH REF: 024

Card 2/2

ACC NR: AT8019330 SOURCE CODE: UR/0000/67/000/000/0116/0125

AUTHOR: Luk'yanova, I. V.; Sapegina, V. F.

ORG: none

TITLE: Small mammals--hosts of Ixodid ticks in a forest-steppe focus of tickborne encephalitis of the northeast Altai

SOURCE: AN SSSR. Sibirskoye otdeleniye. Biologicheskiy institut. Priroda ochagov kleshchevogo entsefalita na Al'taye; severo-vostochnaya chast' (Nature of breeding grounds for tickborne encephalitis in the northeastern Altai; Novosibirsk, Izd-vo "Nauka", 1967, 116-125

TOPIC TAGS: mammal, disease carrying mammal, host-parasite relationship, disease carrying tick, epizootiology, human ailment, tickborne encephalitis, medical geography, medical entomology

ABSTRACT: Small mammals as hosts of *Ixodes persulcatus* in a tickborne encephalitis focus in the northeast Altai were investigated. Table 1 shows the types of small mammals present. There were fewer *I. persulcatus* than *Dermacentor* or *Haemaphysalis concinna* in this area. A total of 30498 ticks of 25 species were collected from 1309 small mammals. Hosts of

Card 1/4

Table 1. Relative species composition of small mammals in a forest-steppe focus of tickborne encephalitis in the northeast Altai (June—August 1963)

Insectivora	%	Rodents	%
Lesser shrew . . .	21,4	Common redbacked vole	10,5
Common shrew	18,2	Common vole .	9,7
Arctic shrew	3,0	Siberian red vole	7,3
Water shrew	1,7	Field mouse	5,5
Flat-tailed shrew	1,1	Forest mouse . . .	4,9
White toothed shrew	1,1	Root vole . . .	4,4
Middle shrew . . .	0,5	Asiatic forest mouse	3,7
Mole . . .	0,5	Field vole	1,8
Eventoothed shrew.	0,3	Narrow skulled vole	1,1
Pygmy shrew . .	0,1	Water rat	1,1
		Common hamster . .	0,8
		House mouse	0,5
		Harvest mouse . . .	0,5
		Steppe mouse . . .	0,2
		Large toothed red backed vole . .	0,1
Totals	47,9	Totals	52,1

Table 2. Tick infestation of small mammals in a forest-steppe focus of tickborne encephalitis in the northeast Altai (June—August 1063)

Species	No. [illegible] studied	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Insectivora													
Common Shrew	225	77	11,40	2,10	25	1,3	0,010	30	1,70	0,20	42	1,8	1,00
Flat-tailed shrew	11	61	4,70	2,70	21	0,3	—	11	1,70	0,05	64	2,1	0,00
Even-toothed shrew	4	25	3,70	1,00	—	—	—	10	0,70	0,20	10	0,7	0,10
Arctic shrew	11	64	13,40	1,20	21	0,6	0,010	34	1,30	0,00	11	1,3	0,10
Water shrew	3	33	2,00	—	—	—	—	—	—	—	33	0,3	—
Middle shrew	229	16	3,00	0,10	7	0,1	0,000	16	0,10	0,00	13	0,1	0,10
Mole	1	—	—	—	—	—	—	—	—	—	—	—	—
Pygmy shrew	11	27	3,07	0,07	—	—	—	12	1,00	—	—	—	—
White toothed shrew	12	16	2,30	0,10	25	0,1	0,020	12	0,30	—	26	0,6	0,70
Water shrew	1				36	—	0,200	—	—	—	—	—	—
Altai mole													
Rodents													
Common redbacked vole	152	46	27,60	7,10	33	2,9	0,700	31	2,00	0,00	21	0,5	0,05
Siberian red vole	47	61	16,70	1,10	42	3,4	0,300	60	3,90	0,10	31	0,7	0,01
Large toothed redbacked vole	1	100	—	1,00	—	—	—	100	1,70	—	—	—	—
Root vole	68	61	24,00	3,30	74	11,1	2,300	16	2,70	0,30	70	0,1	0,00
Common vole	138	73	23,10	3,70	37	1,9	1,100	19	0,70	0,00	9	0,1	0,00
Field vole	26	73	24,00	1,00	11	0,4	1,000	20	2,70	—	72	0,3	0,00
Narrow skulled vole	21	100	11,00	0,70	32	1,7	0,030	8	0,03	0,00	17	0,2	—
Field mouse	74	73	7,90	1,00	25	0,6	—	27	1,30	0,07	37	0,1	0,00
Asiatic forest mouse	57	53	17,00	2,30	68	1,1	0,070	30	2,70	0,30	17	0,5	0,04
Water rat	7	86	2,70	0,00	—	—	—	—	—	—	86	0,3	—
Forest mouse	7	71	7,00	0,70	11	0,3	—	11	0,10	—	14	0,1	—
Harvest mouse	11	36	5,70	0,30	16	0,1	0,000	55	3,70	0,10	11	0,1	0,05
Steppe mouse	3	—	—	—	—	—	—	—	—	—	—	—	—
House mouse	17	70	11,70	1,00	46	0,3	0,000	30	1,70	0,10	30	0,3	0,00
Common hamster	19	68	137,70	0,30	160	0,9	12,000	68	16,10	0,00	35	2,1	0,00

ACC NR: AT8019330

these ticks make up a complex of species typical of both forest and taiga. Table 2 shows the distribution of ticks on hosts. Orig. art. has: 9 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002

Card 4/4

ACC NR: AP8016302 SOURCE CODE: UR/0476/67/046/004/0799/0804

AUTHOR: Maksimova, Yu. P.

ORG: Department of Entomology, Kharkov State University (Kafedra entomologii Khar'kovskogo gosudarstvennogo universiteta)

TITLE: Description of Coleoptera injuring trees and shrubs in Kharkov

SOURCE: Entomologicheskoye obozreniye, v. 46, no. 4, 1967, 799-804

TOPIC TAGS: plant disease, beetle, economic entomology, chemical pest control method, plant pest

ABSTRACT: Investigation of predatory Coleoptera in Kharkov between 1961—1964 revealed 80 harmful species with maximum concentration in old parks in old sections of the city. Minimum numbers were found on young trees in industrial sections far from their natural habitat.

Species names of beetles in Khar'kov parks:

Elateridae

1. *Prosternon tessellatum* L.
2. *Agriotes gugistanus* Fald.
3. *A. sputator* L.
4. *Athous niger* L.

Card 1/5 UDC: 595.762+632.76(477.54)

5. *A. haemorrhoidalis* F.
6. *Limonius aeruginosus* Ol.
7. *Lacon murinus* L.

Scarabaeidae

8. *Melolontha melolontha* L.
9. *Amphimallon solstitialis* L.
10. *Rhizotrogus aestivus* Ol.
11. *Epicometis hirta* Poda
12. *Oxythyrea funesta* Poda
13. *Hoplia parvula* Kryn.
14. *Lathrus apterus* Laxm.
15. *Valgus hemipterus* L.

Buprestidae

16. *Agrilus angustulus* Hb.
17. *A. chrycoderes* Ab.
18. *A. viridis* L.
19. *Trachys minuta* L.
20. *Anthaxia quadripunctata* L.

Meloidae

21. *Lytta vesicatoria* L.

Cantharididae

22. *Cantharis rustica* Fall.
23. *C. livida* var. *rufipes* Hbst.

Tenebrionidae

24. *Opatrum sabulosum* L.

Cerambycidae

25. *Rhopalopus clavipes* F.
26. *Saperda populnea* L.
27. *S. carcharias* L.
28. *Tetrops praeusta* L.
29. *Rhamnusium bicolor* Schr.
30. *Prionus coriarius* L.

Chrysomelidae

31. *Chalcoides fulvicornis* F.
32. *Ch. aurata* March.
33. *Baltica salicati* Wse. (*quercetorum* Foudr.)
34. *Chaetocnema concinna* March.
35. *Plagiodera versicolora* Laich.
36. *Cryptocephalus bipunctatus* L.

37. *C. cordiger* L.
38. *C. ocellatus* Drap
39. *Melasoma populi* L.
40. *Agelastica alni* L.
41. *Luperus ranthopoda* Schrank
42. *L. flavipes* L.
43. *Labidostomis cyanicornis* Germ.
44. *Gynandrophthalma affinis* Hellw.
45. *G. cyanea* F.
46. *Galerucella viburni* Payk.
47. *Pachybrachis probus* Wse.
48. *Phyllotreta vittula* Redt.

Bruchidae

49. *Eusperrmophagus sericeus* Geoffr.

Curculionidae

50. *Apion flavipes* Payk
51. *A. malvae* F.
52. *A. radiolus* Kirby
53. *A. nigritarse* Kirby
54. *Otiorrhynchus velutinus* Germ.
55. *O. fullo* Schr.
56. *Phyllobius pyri* L.
57. *Ph. oblongus* L.
58. *Ph. argentatus* L.
59. *Ph. urticae* Deg.
60. *Polydrosus inustus* Germ.
61. *P. impar* Germ.
62. *Byctiscus populi* L.
63. *Curculio glandium* Marsh.

64. *Magdalis armigera* Geoffr.
65. *M. ruficornis* L.
66. *Rhynchites pauxillus* Germ.
67. *Rh. aequatus* L.
68. *Attelabus nitens* Scop.
69. *Sitona lineatus* L.
70. *Sciaphobus squalidus* Gyll.
71. *Peritelus familiaris* Boh.
72. *Brachyderes incanus* L.
73. *Eusomus ovulum* Germ.
74. *E. acuminatus* Boh.
75. *Foucartia squamulata* Hbst.

Ipidae

76. *Scolytus multistriatus* L.
77. *S. scolytus* L.
78. *S. ratzeburgi* Jans.
79. *Xyleborus dispar* Fabr.
80. *Ips sexdentatus* Boern.

Orig. art. has: 1 table. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005

ACC NR: AP8016555 SOURCE CODE: UR/0394/68/006/005/0052/0054

AUTHOR: Mel'nikov, N. N.; Khaskin, B. A.; Petruchenko, N. B.; Stonov, L. D.; Bakumenko, L. A.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Herbicidal activity of hexaalkyltriaminoalkylphosphonium and dialkylaminotrialkylphosphonium thio- and dithiophosphates

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 5, 1968, 52-54

TOPIC TAGS: organic sulfur slat, phosphate, herbicide, agricultural crop

ABSTRACT: This article appears in Chemical Factors

Card 1/1 UDC: 615.777/779

ACC NR: AP8016547 SOURCE CODE: UR/0390/68/031/002/0205/0209

AUTHOR: Motovilov, P. Ye.; Kozhevnikov, S. P.

ORG: Division of Pharmacology/Head--Active Member of AMN SSSR Prof. S. V. Anichkov/, Institute of Experimental Medicine, AMN SSSR, Leningrad (Otdel farmakologii Instituta eksperimental'noy meditsiny AMN SSSR)

TITLE: Connection between antitremor effect and structure of various compounds

SOURCE: Farmakologiya i toksikologiya, v. 31, no. 2, 1968, 205-209

TOPIC TAGS: pyrazolidone derivative, nervous system drug effect, pharmaceutical, anticonvulsant drug

ABSTRACT: The relationship between physiological action and chemical structure of the compounds shown in Table 1 was determined. Compounds IEM-502,522 and 526 prevented the development of tremors in mice (150--200 mg/kg) and in rabbits (25 mg/kg). They did not affect synaptic transmission of neural impulses. The other compounds showed no antitremor activity even at high doses. As shown in the table, all compounds were similar in structure. The three effective compounds contained one phenyl radical or methyl group and a phenyl group. Compounds having only a methyl radical did not prevent

Card 1/5 UDC: 616.786-015.11

Table 1. Chemical structure and certain physico-chemical properties of the compounds studied

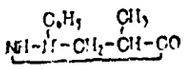
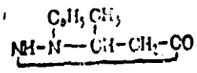
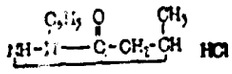
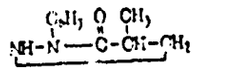
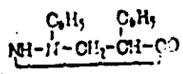
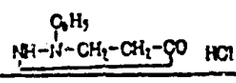
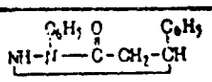
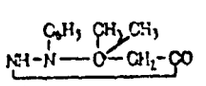
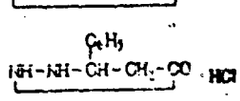
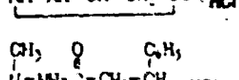
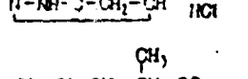
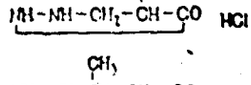
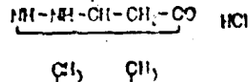
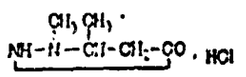
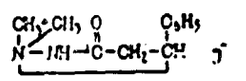
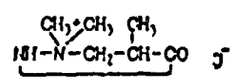
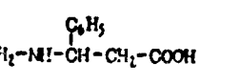
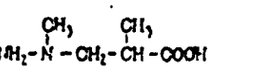
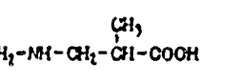
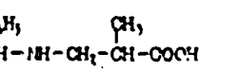
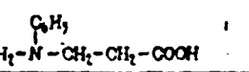
No.	Compd No.	Chemical Structure
1	IEM-500	
2	IEM-501	
3	IEM-502	
4	IEM-503	
5	IEM-504	
6	IEM-505	

Table 1. (Cont.)

7	IEM-516	
8	IEM-510	
9	IEM-522	
10	IEM-526	
11	IEM-528	
12	IEM-529	
13	IEM-530	

ACC NR: AP8016547

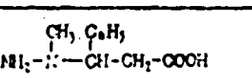
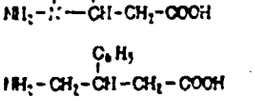
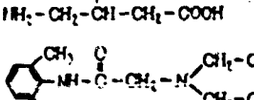
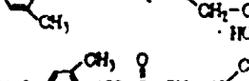
Table 1. (Cont.)

14	IEM-531	
15	IEM-532	
16	IEM-534	
17	IEM-544	
18	IEM-545	
19	IEM-546	
20	IEM-547	
21	IEM-548	

Card 4/5

ACC NR: AP8016547

Table 1. (Cont.)

22	IEM-552	
23	β-phenyl (phenigam)	
24	Xycaine	
25	Isoxycaine	

tremors. Cyclic structure was necessary for effectiveness. Phengamine and the quaternary compounds were not effective. All pyrazolodone compounds showed no local anesthetic activity. Quaternary compounds (IEM-532,534) completely dissociated in solution. Orig. art. has: 1 table.

[WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 16Nov66/ ORIG REF: 004/ OTH REF: 001

Card 5/5

ACC NR: AT8019296 SOURCE CODE: UR/0000/67/000/000/0159/0161

AUTHOR: Mukhina, N. A.; Vladimirova, M. P.; Terekhina, A. I.; Gilev, A. P.; Teten'chuk, E. V.

ORG: Novokuznets Scientific Research Chemical and Pharmaceutical Institute (Novokuznetskiy nauchno-issledovatel'skiy Khimikofarmatsevticheskiy institut)

TITLE: Some esters of 1-(2-hydroxyethyl)benzimidazole. I.

SOURCE: AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb. 1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles). Riga, Izd-vo "Zinatne," 1967, 159-161

TOPIC TAGS: oxalate, blood pressure, imide, hypothermia

ABSTRACT: This article appears in Chemical Factors

Card 1/1 UDC: 547.785.5

ACC NR: AP8016858 SOURCE CODE: UR/0346/68/000/004/0096/0097

AUTHOR: Nefed'yev, A. I. (Candidate of veterinary sciences)

ORG: Stavropol' Regional Scientific Research Veterinary Station (Stavropol'skaya krayevaya nauchno-issledovatel'skaya veterinarnaya stantsiya)

TITLE: Differentiation of *Brucella* isolated from aborted cattle fetuses

SOURCE: Veterinariya, no. 4, 1968, 96-97

TOPIC TAGS: brucella, bacterial disease vaccine

ABSTRACT: A method of accelerated dye differentiation of *Br. abortus* cultures, using an exsiccator and increased CO_2 (to 10%), has been developed which permits differentiation of freshly isolated cultures from infected animals, and from animals inoculated with strain 19 vaccine. The new method takes 8—10 days. The standard method of *Brucella* differentiation (after Huddleson) takes 70—80 days and requires adaptation of *Brucella* to aerobic culture conditions. Since the accelerated method does not require this adaptation, multiple passages, or long storage, the development of atypical forms is prevented. A supplementary, but less accurate method of differentiating field strains of *Brucella*

Card 1/2 UDC: 619:616.981.42-078:626.22/.28

ACC NR: AP8016858

from strain 19 can be conducted with semisolid agar containing 1:80,000 parts gentian violet. Penicillin in concentrations of 2.5, 5 and 10 units/ml is added. Bacterial suspensions containing 100,000 or 1 billion *Brucella*/ml are specified for this test. The *Brucella* cultures tested were isolated from aborted fetuses of cattle in Stavropol kray and the Kabardian ASSR. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8016201 SOURCE CODE: UR/0020/68/179/004/1001/1004

AUTHOR: Odintsov, V. S.; Petrenko, V. S.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii Akademii nauk UkrSSR)

TITLE: Activity dynamics and physiological role of acetylcholinesterase, aliphatic and aromatic esterase in the ontogenesis of blood sucking insects of the genus Aedes (Diptera: Culicidae)

SOURCE: AN SSSR. Doklady, v. 179, no. 4, 1968, 1001-1004

TOPIC TAGS: disease vector, disease carrying insect, mosquito, acetylcholinesterase, enzymatic activity, enzyme

ABSTRACT: Acetylcholinesterase, aliphatic esterase and aromatic esterase activity in various developmental stages of *Aedes aegypti* and *Aedes communis* were studied. The dynamics and physiological effects of these enzymes were followed closely. The mosquitoes were wild strains obtained in the summer in the vicinity of Kiev. All enzyme determinations were done in tissue homogenates. Cholinesterase activity increases progressively

Card 1/2 UDC: 557.150.8:595.771

ACC NR: AP8016201

throughout ontogenesis and reaches its peak in the imago stage. Aromatic esterase also increases but not as dramatically. Aliphatic esterase activity reaches maximum in 4th instar larvae and decreases in the adult. Enzyme activity is higher in females than in males. Presented by Academician A. V. Palladin, 16Oct67. Orig. art. has: 1 table and 1 figure.
[WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 05Oct67/ ORIG REF: 004/ OTH REF: 014

Card 2/2

ACC NR: AP8022057 SOURCE CODE: UR/0177/68/000/006/0055/0057

AUTHOR: Osipyan, V. T.; Rachinskiy, F. Yu.; Krupenina, A. A.; Shapilov, O. D.; Potapenko, T. G.; Savinskiy, Ya. R.

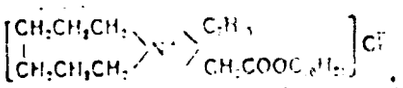
ORG: none

TITLE: Dermin—a new, effective disinfectant

SOURCE: Voyenno-meditsinskiy zhurnal, no. 6, 1968, 55-57

TOPIC TAGS: quaternary ammonium compound, bactericide, bacteriostasis/(U) dermin disinfectant

ABSTRACT: Dermin, a quaternary ammonium compound, has high antibiotic activity



It is 50% soluble in water and forms a resistant film. It is also soluble in ethyl and isopropyl alcohol and less so in benzene and toluene, but it is insoluble in ether and acetone. Water solutions of the compound can

Card 1/2 UDC: 615.777/.779

ACC NR: AP8022057

be stored for a year without losing their bactericidal activity. It is effective against *E. coli* and *Staph aureus* in 1:400 dilution. It is non-toxic to human skin and can be used as a washing compound. Orig. art. has: 1 formula and 2 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8021815 SOURCE CODE: UR/0000/67/000/000/0469/0472

AUTHOR: Parshina, N. V.; Frolova, L. F.

ORG: Institute of Microbiology and Virology AN KazSSR, Alma-Ata (Institut mikrobiologii i virusologii AN KazSSR)

TITLE: An antibiotic substance of Actinomycete strain 30

SOURCE: Konferentsiya biokhimikov Respublik Sredney Azii i Kazakhstana, 1st. Alma-Ata, 1966. Trudy (Transactions of the conference of biochemists of the Republics of Central Asia and Kazakhstan). Tashkent, Izd-vo "Fan", 1967, 469-472

TOPIC TAGS: antibiotic research, actinomycete, bactericide, bacteriostasis, fungicide

ABSTRACT: In the search for an antagonist to sugarbeet fungi, an antibiotic substance was isolated from Actinomycete strain 30. Its solubility, luminescence, chromatographic spectrum, antibiotic spectrum, toxicity, and the resistance of test organisms to it were determined. The culture fluid is weakly antibiotic *in vitro*, and the active principle was isolated from the mycelia. It was highly effective against *Rhizoctonia solani*,

Card 1/2

ACC NR: AT8021815

Botrytis cinerea, and *Helminthosporium sativum*. Two fractions were isolated from the mycelia: a strongly and a weakly antibiotic fraction. It is best soluble in weakly alkaline solutions and is only slightly toxic and not very heat resistant. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8017238 SOURCE CODE: UR/0290/67/000/003/0132/0134

AUTHOR: Poltev, V.I.; Grobov, O.F.

ORG: Biological Institute, Siberian Branch AN SSSR, Novosibirsk (Biologicheskiy institut Sibirskogo otdeleniya AN SSSR); All-Union Institute of Experimental Veterinary Medicine (Vsesoyuznyy institut eksperimental'noy veterinarii)

TITLE: Bee rickettsiosis

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya biologo-meditsinskikh nauk, no. 3, 1967, 132-134

TOPIC TAGS: rickettsial disease, bird, animal disease, disease vector, host parasite relationship, blood parasite, fowl septicemia

ABSTRACT: The majority of rickettsia are found in arthropods, and each arthropod usually has its specific rickettsia, for example: (*Melophagus ovinus* L.) — *Rickettsia melophagi* (*Cimex lectularis* Lin.) — *Rickettsia lectularia* (*Pediculus humanus* Lin.) — *Rickettsia rocha — limae* (*Ctenocephalides felis* Bouche) — *Rickettsia ctenocephali* Sikora, (*Trichodectes pilosus* Giebel) — *Rickettsia trichodectae* Hindle, (*Linognathus stenopsis* Burm) — *Rickettsia linognathi* Hindle, (*Culex quinque*

Card 1/2 UDC: 576.807:638.15

ACC NR: AP8017238

fasciatus Say) — *Rickettsia culicis* C. Brumpt, *pipiens* Linn. — *Wolbachia pipientis* Hertig, (*Dermacentor andersoni* St.) — *Rickettsia dermacentrophila* Steinhaus (*Trombidium holosericeum* Linn.) — *Rickettsia sericea* Gir. et Mart. (*Popillia japonica* Newm) — *Rickettsiella popillae* Dutky et Gooder, (*Melolontha melolontha* L. and *Melolontha hippocastani* Fabr.) *Rickettsiella melolonthae* (Krieg) Philip, (*Tipula paludosa* Mg.) — *Rickettsiella tipulae* Mull — Kogl, y *Stethorus* sp. — *Enterella stethorae* (Hall and Bodgley) Krieg (*Tenebrio molitor* L.) — *Rickettsiella tenebrionis*. Rickettsia transmission is via bites. Rickettsia are most often intracellular, more rarely found on the cell surface or free in the tick body. They destroy stomach cells and cause the death of the tick or other insect. Investigations of bee deaths in the Soviet Union revealed the presence of *Micrococcus tetragenus* and unidentified rickettsia. The source of infection was usually ticks. Often an infected tick carrier of fowl rickettsioses can be identified by the milky white color of the hemolymph. Immediate prophylaxis is recommended because the diseases borne by the vector will shorten the life of the bees or impair their general condition. [WA-50; CBE No. 33][LP]

SUB CODE: 06/ SUBM DATE: 05Apr67/ ORIG REF: 003/ OTH REF: 007

Card 2/2

ACC NR: AT8019433 SOURCE CODE: UR/3355/65/013/000/0079/0083

AUTHOR: Postricheva, O. V.; Rybalko, S. I.

ORG: none

TITLE: Brucellosis among muskrats

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 79-83

TOPIC TAGS: brucellosis, animal vector research, disease carrying mammal, epidemiology

ABSTRACT: *Brucella* cultures closely resembling *Br. suis* were isolated from muskrats (*Ondatra zibethica*) inhabiting ponds and reservoirs in the Ala-Kul basin. A total of 258 animals were trapped in 1962 in reeds in the shallow part of Lake Kochkarkul. Water voles, ermine, and wild pigs are also found in this area, and there are foxes in the adjoining semidesert area. Infection of guinea pigs with suspensions from muskrat organs produced a positive cutaneous allergic test in 13 out of 21 animals, positive Huddleson's tests in seven animals and positive Wright's tests in eight animals 50 days after infection. Complement fixation tests were negative in all cases.

Card 1/2

ACC NR: AT8019433

Typical *Brucella* cultures were obtained from lymph nodes of two guinea pigs, but they agglutinated polyvalent serum in lower titers than standard *Brucella* strains (1:320 and 1:20 as compared with 1:640). Cultures isolated from muskrats were only slightly virulent, since bacteremia was only observed in regional lymph nodes of infected guinea pigs, and colony growth on culture medium was sparse. More work on brucellosis among muskrats in different parts of Kazakhstan is necessary to establish its epidemiological role in human and animal infection. Orig. art. has: 6 tables.
[WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005

Card 2/2

ACC NR: AP8019614 SOURCE CODE: UR/0439/68/047/005/0690/0696

AUTHOR: Razvyazkina, G. M.; Pridantseva, Ye. A.

ORG: All-Union Scientific-Research Institute of Phytopathology, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)

TITLE: Leafhoppers of the *Psammotettix striatus* group (Homoptera, Cicadellidae), carriers of grain viruses, and their distribution

SOURCE: Zoologicheskiy zhurnal, v. 47, no. 5, 1968, 690-696

TOPIC TAGS: plant virus, disease carrying insect, plant hopper, taxonomy, plant parasite

ABSTRACT: The *P. striatus* group of small (3.2—4.4 mm) grain leafhoppers can be divided (by the structure of male genitalia) into four species: *P. striatus*, *P. confinis*, *P. agrestis*, and *P. volgensis*. The old species *P. alienus* and *P. provincialis* should be considered members of the *P. striatus* group, since their morphological differences can be considered within the normal range of variation of *P. striatus*. *P. striatus*, the most widespread species, is the carrier of winter wheat mosaic, wheat stunt and pale-green wheat stunt. *P. striatus* and *P. confinis* are found

Card 1/2 UDC: 595.753.1:597/599:001.4+591.9

ACC NR: AP8019614

in the taiga (Sverdlovsk, Leningrad, Gor'kiy, and Irkutsk oblasts, Karelian ASSR and Primorskiy kray), and in mixed forests (Leningrad, Moscow, Gor'kiy and Transcarpathian oblasts and Estonia). All four species inhabit the forest-steppe zones of Kuybyshev, Amur, Kharkov, Voronezh, and Chernigov oblasts, Khabarovsk kray, Dagestan ASSR, Armenia, Moldavia and Georgia and the steppe zones of Krasnodar and Khabarovsk krays, Kuybyshev, Amur, Volgograd, Vinnitsa, Odessa, and Dnepropetrovsk oblasts and the Tuva ASSR. *P. strictus* is also found in the desert and semi-desert areas of Volgograd oblast, Tuva ASSR and Uzbekh SSR. All four species are mesophilic and xerophilic. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 012

Card 2/2

ACC NR: AP8020968 SOURCE CODE: UR/0020/68/180/002/0294/0296

AUTHOR: Rvachev, L. A.

ORG: Institute of Epidemiology and Microbiology im. N. F. Gamaleya, Academy of Medical Sciences SSSR (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Experimental computer modeling of large-scale epidemics

SOURCE: AN SSSR. Doklady, v.180, no. 2, 1968, 294-296

TOPIC TAGS: biologic model, computer epidemiologic model, epidemiology, influenza, biocybernetics

ABSTRACT: Computer modeling of an influenza epidemic encompassing 128 cities and including transport networks and other parameters performed. Cities were assigned numbers from 1--n. ρ_i is the population of city i; σ_{ij} is the number of people traveling from city i to city j per unit of time t; $\phi(t,l)$ is the number of people in city i at moment t and those ill at moment l; $x_i(t)$ is the number of nonimmunes in city i at moment t; $\lambda_i(t)$ is a time-transmission factor; T is the maximum duration of the illness; and g (τ) is the remainder of sick persons at time τ after the beginning

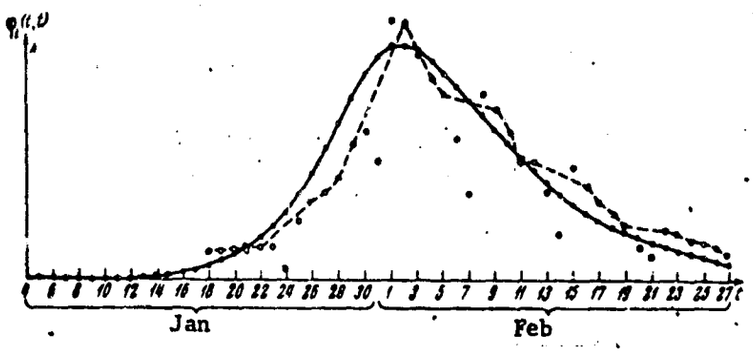
Card 1/3 UDC: 519.2:61

of the epidemic. The unknown function $\phi(t,1)$ where $t \geqslant 1$ and $x_i(t)$ was calculated where initially:

$$\frac{\partial \varphi_i}{\partial t} = \sum_{j=1}^{n} \left(\frac{\sigma_{ji}}{\rho_j} \varphi_j - \frac{\sigma_{ij}}{\rho_i} \varphi_i \right),$$

$$\frac{dx_i}{dt} = \sum_{j=1}^{n} \left(\frac{\sigma_{ji}}{\rho_j} x_j - \frac{\sigma_{ij}}{\rho_i} x_i \right) - \varphi_i(t, t),$$

$$\varphi_i(t, t) = \frac{\lambda_i(t)}{\rho_i} x_i(t) \int_0^T \varphi_i(t, t-\tau) g(\tau) d\tau.$$



The graph shows the correspondence between the course of the epidemic as it actually occurred (dotted line) and its modeled course (solid line). Orig. art. has: 1 figure and 1 formula. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: 22May67/ ORIG REF: 003/ OTH REF: 002

CC NR: AT8019435 SOURCE CODE: UR/2355/65/013/000/0086/0091

AUTHOR: Rybalko, S. I.; Postricheva, O. V.

ORG: none

TITLE: Serological study of commercial fur animals for brucellosis

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 86-91

TOPIC TAGS: brucellosis, complement fixation reaction, epidemiology

ABSTRACT: A 1962—1964 serological study (Huddleson's test, Wright's test, complement fixation test) of caged fur animals in four Alma-Ata and East Kazakhstan fur farms showed that 4.4—12.4% of silver-black foxes (*Vulpes vulpes*) reacted positively. Results of two tests coincided in 1.8% of animals, and of three tests in 3.5% of animals. About 4.4% of blue foxes (*Vulpes lagopus*) also reacted positively in the brucellosis tests. The high percentage of positive reactions among silver-black foxes on one farm is explained by the use of animal carcasses, taken from brucellosis-unsafe farms, for food. Serological study of 11 species of wild fur animals from all areas of Kazakhstan showed that seven species were serologically positive (the exceptions were muskrats, water voles, wolves, and wild pigs).

The most infected species were susliks (*Citellus maximus*) trapped in Western Kazakhstan (6.1% infected); marmots (*Marmota bobac*) trapped in Dzhungarian Ala-tau (5.3%); and marals (*Cervus elaphus*) (13.4%). In addition, 0.6% to 2.9% of saigas (*saiga tatarica*) and 3.3% of European hares gave positive reactions. Brucellosis among these species of wild animals is probably acquired from domesticated animals. Fur farms must be considered possible sources of brucellosis infection, and no uncooked meat from dead or discarded animals should be used for the feeding of caged fur animals. Orig. art. has: 2 tables. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 002

ACC NR: AP8017928 SOURCE CODE: UR/0477/68/000/002/0060/0062

AUTHOR: Rytik, P. G.; Boyko, V. I.; Lyamshev, V. V.; Smirnova, Ye. I.

ORG: none

TITLE: Detecting ornithosis with the direct and inhibition fixation reactions

SOURCE: Zdravookhraneniye Belorussii, no. 2, 1968, 60-62

TOPIC TAGS: serologic test, ornithosis, complement fixation reaction

ABSTRACT: Study of the incidence of ornithosis among people and some bird species in the Minsk area showed that 75 out of 85 pigeons were spontaneously infected. The direct complement fixation test was positive for 15 birds and the indirect or inhibition complement fixation test, for 51 cases. Both tests were positive in nine cases. Antibody titers in the direct test (1:64) were lower than in the inhibition test (1:128—1:512). Investigated birds apparently had ornithosis 1—1.5 years before the tests. Study of chickens at the Minsk meat-packing plant in 1966 showed only two positive reactions out of 70 in the inhibition complement fixation test in titer of 1:16. Examination of chicken butchers in the plant

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ACC NR: AP8017928

in 1966 showed complement-fixing ornithosis antibodies in the sera of 21 patients: however, titers were not always high enough to be diagnostic (1:4). Indirect or neutralizing antibodies were found in the sera of 10 workers in titers from 1:16 to 1:256. It was concluded that at least 12 of the 36 workers were previously infected with ornithosis, probably in mild form. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2

ACC NR: AT8021804 SOURCE CODE: UR/0000/67/000/000/0289/0291

AUTHOR: Sakhibov, D. N.; Yukel'son, L. Ya.

ORG: Institute of Zoology and Parasitology, AN UzbSSR, Tashkent (Institut zoologii i parazitologii AN UzbSSR)

TITLE: Certain enzymes in the venom of Central Asian pit vipers

SOURCE: Konferentsiya biokhimikov Respublik Sredney Azii i Kazakhstana, 1st. Alma-Ata, 1966. Trudy (Transactions of the conference of biochemists of the Republics of Central Asia and Kazakhstan). Tashkent, Izd-vo "Fan", 1967, 289-291

TOPIC TAGS: snake venom, toxin effect, enzymatic catalysis

ABSTRACT: Snake venom principally consists of proteins and peptides having toxic properties; enzymes play a principal role in the toxicity. Phospholipase A produces hemolytic and neurotoxic effects, and cholinesterase produces neurotoxic effects. ATPase produces illness and shock.

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ACC NR: AT8021804

Table 1. Effects of phospholipase A isolated from Central Asian snakes (hemolytic method) HE_{50}/mg toxin

Toxin	Drying method	
	Lyophilization	over $CaCl_2$
Viper	+	±
Vipera lebetina	+?	+?
Cobra	0,4	1,5
Ussurian mamushi	++++	+++
Eohis carinata	+?	+++

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Table 2. Effects of phospholipase A from the venom of Central Asian snakes on coagulation inhibition in egg yolk

Toxin	Dilution	Coagulation time in min	
		Drying method	
		lyophilization	over $CaCl_2$
Viper	1:5000	12 min 10 sec	12 min 10 sec
	1:10000	3—10	3—15
Vipera lebetina	1:5000	11—02	12—25
	1:10000	5—20—	5—45
Cobra	1:5000	40—15	46—10
	1:10000	13—10	14—10
Ussurian mamushi	1:5000	17—20	17—40
	1:10000	5—20	6—00
Echis carinata	1:5000	9—25	18—00
	1:10000	2—50	3—10
Control		2—45	2—45

Table 3. Hyaluronidase activity of Central Asian snakes (turbidimetric method)

Toxin	Drying method	
	lyophilization	over $CaCl_2$
Viper	36,6	25,4
Vipera lebetina	39,0	36,0
Cobra	39,0	39,0
Ussurian mamushi	39,0	39,0
Echis carinata	37,0	30,0

Table 4. Viscosimetric determination of hyaluronidase activity of Central Asian snake venom (units/ml venom)

Toxin	Drying method	
	lyophilization	over $CaCl_2$
Viper	21,0	8,5
Vipera lebetina	17,0	24,0
Cobra	42,0	30,0
Ussurian mamushi	32,0	28,0
Echis carinata	23,0	12,6

ACC NR: AT8021804

Table 5. ATPase activity of Central Asian snake venom/mg venom

Toxin	Drying method	
	lyophilization	over $CaCl_2$
Viper	2,5	4,6
Vipera lebetina	5,4	4,4
Cobra	6,6	5,4
Ussurian mamushi	4,8	4,5
Echis carinata	5,2	2,5

The effects of pure enzymes isolated from snakes were studied quantitatively *in vitro*, the results are shown in the tables. Orig. art. has: 5 tables. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 5/5

ACC NR: AT8019423 SOURCE CODE: UR/3355/65/013/000/0024/0032

AUTHOR: Shin, N. G.; Ishchanova, R. Zh.; Ionova, V. K.

ORG: none

TITLE: The variability of *Brucella* strains isolated from hares

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 24-32

TOPIC TAGS: brucella, bacteriophage, bacterial genetics

ABSTRACT: The variation of *Brucella* strains isolated from hares from *melitensis* type to *suis* type is apparently not a true mutation, but is caused by the effect of different host species, artificial nutrient media and bacteriophage. Subcultures of initial hare strains tended to be less virulent than parent strains, but pathomorphological changes in infected animals were similar for both strain groups. The decrease in virulence of one variant could be attributed to passage through crested gerbils (instead of the usual guinea pigs). Three other strains lost ability to produce hydrogen sulfide, reduced thionine less vigorously, and lost virulence.

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Brucella strains isolated from hares may be lysogenic. The observed variation in *Brucella* strains is classified as adaptive mutation and lysogenic conversion, both considered within the limits of intraspecies variation. Orig. art. has: 5 tables and 1 figure. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 024/ OTH REF: 007

Card 2/2

ACC NR: AT8019427 SOURCE CODE: UR/3355/65/013/000/0049/0053

AUTHOR: Shnyreva, Ye. A.; Zenkova, N. F.

ORG: none

TITLE: Properties of *Brucella* strains correlated with the severity of brucellosis among humans

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 49-53

TOPIC TAGS: brucellosis, enzymatic activity, agglutination

ABSTRACT: Attempts at correlation of the characteristics of 32 *Brucella melitensis* cultures with the severity of disease produced by these strains in humans showed that most often the severity of brucellosis depended on the virulence of the strain and its agglutination properties. No correlation between variability of *Brucella* strains or their enzymatic activity and the severity of brucellosis could be established. Twenty out of 33 strains did not produce hyaluronidase, catalase activity was high in all strains, and all strains produced urease. No avirulent strains were isolated from patients with severe brucellosis (characterized by chills,

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ACC NR: AT8019427

headache, severe weakness, and pronounced intoxication). Some highly virulent *Brucella* strains were associated with light cases, but these strains might have been infected with bacteriophage. Results of the comparisons show that in some cases the severity of brucellosis depends on the state of health of the patient, previous sensitization (working in a meat-packing plant, for example), the size of the infective dose or perhaps the *Brucella* biotype. Orig. art. has: 4 tables. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 001

Card 2/2

ACC NR: AT8019331 SOURCE CODE: UR/0000/67/000/000/0126/0133

AUTHOR: Smirnov, V. M.; Ravkin, Yu. S.

ORG: none

TITLE: Chipmunks in tickborne encephalitis foci in northeast Altai

SOURCE: AN SSSR. Sibirskoye otdeleniye. Biologicheskiy institut. Priroda ochagov kleshchevogo entsefalita na Altaye; severo-vostochnaya chast' (Nature of breeding grounds for tick-borne encephalitis in the Altai; Northeastern part). Novosibirsk, Izd-vo "Nauka", 1967, 126-133

TOPIC TAGS: disease carrying mammal, animal vector research, encephalitis, biocenosis, tick

ABSTRACT: The chipmunk population density in northeast Altai is highest in dense coniferous forests of the middle-level uplands, where it is approximately 17 animals/ km^2 in July and August after the young leave the burrows. In other vegetation zones of this area, the densities are 0--7 animals/km^2 and 0--49/km^2. Chipmunks migrate between neighboring plant formations in the search for food, so that population shifts to areas with the greatest food supplies occur. *Ixodes persulcatus* ticks were most prevalent on chipmunks, with a few specimens of *I. trianguliceps* and *I. apronophorus*. Chipmunks are most heavily tick-infested

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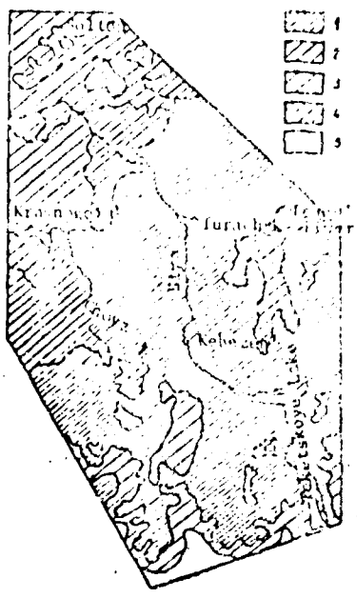

Fig. 1. The population and distribution of chipmunks in northeast Altai (average for July--August, 1961—1963, after young left burrows)

1 - Approximately 50 specimens/km^2 in pine-birch forests of the upper course of the Biya, densely forested lowland and densely forested coniferous taiga in the middle-level uplands; 2 - approximately 20 specimens/km^2 in sparse deciduous forests of foothill plains and forests of the middle course of the Biya; 3- 5—10 specimens/km^2 in forest-steppe foothill plains, pine-birch and deciduous-birch forests on shores of Lake Teletskoye, sparse deciduous forests in lowlands, subalpine very sparsely forested middle-level uplands and alpine zone forested with Arctic dwarf birch: 4- 1 or less specimens/km^2 in bushes and stunted birch groves of foothill and lowland swamps; 5 - chipmunk rot observed in rocky tundra of alpine zone.

in sparse mixed coniferous and deciduous forests and in the densely forested lowlands. In this area, the average number of ticks per chipmunk from May to mid-July was 4.2 larvae and 5.7 nymphs, with 1.3 larvae and 3.2 nymphs in late July—August, and 0.1 larvae and 1.0 nymph in September. The distribution of the chipmunk in northeast Altai is shown in Figure 1. Orig. art. has: 5 figures and 2 tables.

[WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 001

ACC NR: AP8016831 SOURCE CODE: UR/0402/68/000/002/0146/0151

AUTHOR: Solov'yev, V. D.; Bektemirov, T. A.; Neklyudova, L. I.

ORG: Virology Department, Central Institute of Post-Graduate Medicine, Moscow (Kafedra virusologii Tsentral'nogo instituta usovershenstvovaniya vrachey)

TITLE: Interferon production among influenza patients

SOURCE: Voprosy virusologii, no. 2, 1968, 146-151

TOPIC TAGS: interferon, influenza, leukocyte

ABSTRACT: Interferon production was studied in 61 influenza patients during the epidemic of January—February 1967. Most of the cases were caused by influenza A2 virus. During the first four days of the disease, interferon was regularly found in the urine, blood serum and contents of the upper respiratory passages. Interferon titers in nasal secretions were higher on the 3rd—4th day than during the first two days of the illness, while urine and blood titers remained about the same. The interferon concentration in nasopharyngeal washings of patients with an initial antibody titer of 0—1:20 was approximately 2 1/2 times higher than for patients with an antibody titer of 1:40 or higher. Higher interferon concentrations were also noted in the nasal secretions and urine of patients with higher

Card 1/2 UDC: 616.921.5:576.858.095.383

ACC NR: AP8016831

body temperature. The leukocytes of patients with a fever of 38°C or higher produced more interferon than the leukocytes of patients with lower body temperature. An inverse relationship between leukocytic interferon titers and the length of the disease was also observed. It was concluded that, although interferon is of different value in infections of different etiology, it apparently plays an important role in the pathogenesis of influenza. This postulate is confirmed by the higher interferon concentrations in the acute period of the disease, and by the shorter duration of infections in people with high leukocytic interferon titers. Orig. art. has: 7 tables. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 27Nov67/ ORIG REF: 005/ OTH REF: 010

Card 2/2

ACC NR: AP8020986 SOURCE CODE: UR/0020/68/180/002/0480/0481

AUTHOR: Terskikh, I. I.; Galegov, G. A.; Chutkov, N. A.; Bekleshova, A. Yu.

ORG: Institute of Virology im. D. I. Ivanovskiy, Academy of Medical Sciences, SSSR (Institut virusologii Akademii meditsinskikh nauk SSSR)

TITLE: The inhibiting effect of 5-bromo-2'desoxyuridine and 6-azauridine on reproduction of ornithosis virus

SOURCE: AN SSSR. Doklady, v. 180, no. 2, 1968, 480-481

TOPIC TAGS: viral genetics, antimetabolite drug, ornithosis, virus DNA

ABSTRACT: Treatment of ornithosis virus in tissue culture (human amnion) with 50μ g/ml of 5-bromo-2'-desoxyuridine interrupted the viral reproductive cycle at the stage of RNA inclusions, preventing the accumulation of DNA-containing material and the development of mature, infectious particles. Introduction of this dose of antimetabolite into tissue culture 3 hr before virus infection completely prevented formation of RNA-containing inclusions. It must be assumed that the DNA which penetrates the cell is not sufficient to ensure intense synthesis of RNA. Introduction of 6-azauridine (in a concentration of 10^{-3} M) into cultures 3 hr before infection

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ACC NR: AP8020986

sharply inhibited RNA accumulation. Inclusions with DNA-containing material were observed, however, which were morphologically different from inclusions in controls. Experimental data indicate that synthesis of the entire RNA mass is not obligatory for formation of infectious virus particles. Information RNA must be synthesized, however. The fragmentation of inclusions can be explained by the inhibiting effect of 6-azauridine on the formation of ornithosis virus cell membranes. Orig. art. has: 1 figure. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 22Dec67/ ORIG REF: 002/ OTH REF: 003

Card 2/2

ACC NR: AP8016836 SOURCE CODE: UR/0402/68/000/002/0192/0199

AUTHOR: Terskikh, I. I.; Gusman, B. S.; Danilov, A. I.

ORG: Institute of Virology im. D. I. Ivanovskiy, AMN SSSR (Institut virusologii AMN SSSR); Institute of Human Morphology, AMN SSSR, Moscow (Institut morfologii cheloveka AMN SSSR)

TITLE: Immumomorphological and serological indices during ornithosis immunization with aerosols of liquid vaccine

SOURCE: Voprosy virusologii, no. 2, 1968, 192-199

TOPIC TAGS: aerosol immunization, virus aerosol, ornithosis, reticuloendothelial system

ABSTRACT: Aerosol immunization of Rhesus monkeys with a killed tissue vaccine was conducted using an atomizer built by A. I. Gromyko and I. V. Kashina, which delivers 4.5—5 ml in 20 min. The average radius of the aerosol particle was 0.[illegible]. The concentration of aerosol particles per ml of air at the moment of completion of spraying was 1.0×10^5, and 8×10^4 at the end of the immunization period. An IVK_2 aerosol chamber was used. Monkeys weighing 2.3—2.5 kg breathed vaccinal aerosol for 1 hr. Aerosol immunization was conducted three times with 1-day intervals. The inhaled dose per immunization session was 5.5×10^{-2} g, and 1.6×10^{-1} g for the

Card 1/2 UDC: 616.988.73-085.37-036.8

ACC NR: AP8016836

three sessions. The vaccine did not produce unfavorable reactions and created a pronounced immunological response in monkeys. Immunomorphological shifts were noted on the 4th day after vaccination, reached a maximum on the 7th day and then abated, although shifts were still clearly expressed 2 ½ months after immunization (the end of the observation period). Morphological shifts spread to all organs of the reticuloendothelial (RES) system. Reactions were as intense in remote lymph nodes as in regional lymph nodes, and included increase in multiplication of follicles in lymph nodes and tonsils, accompanied by formation of macrophages. Myelosis of the spleen was noted in vaccinated monkeys, especially in later immunization periods. The presence of a general interstitial reaction in lungs without pneumonia indicates the protective character of this reaction. Virus-neutralizing antibodies were observed from the 4th day of immunogenesis, and titers were highest in organs participating most intensely in the immunological response (bone marrow, lungs and lymph nodes). Immunization with a finely dispersed aerosol of liquid vaccine is thus an effective method of ornithosis prophylaxis. Orig. art. has: 2 tables and 4 figures. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: 06Dec65/ ORIG REF: 007/ OTH REF: 010

Card 2/2

ACC NR: AT8019451 SOURCE CODE: UR/3355/65/013/000/0201/0205

AUTHOR: Trofimov, G. K.; Beklemisheva, N. P.

ORG: none

TITLE: Effect of aeroions on immunological reactivity in experimental infectious allergy

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 201-205

TOPIC TAGS: immunogenesis, immunology, brucellosis

ABSTRACT: The effect of charged particles on the development of immunological reactivity was investigated in rabbits which had received live brucellosis strain no. 19-VA vaccine. Three series of experiments involving 35 rabbits were conducted. Thirteen of these rabbits of which 2 were later sacrificed were the controls, 11 received positively charged ions, and 11 received negative ions. The groups were given 28—31 thirty-minute treatments. The ionizer yielded 1.5 million positive ions per cm^2. The control animals received no treatments. Each rabbit received one human-sized dose (2—4 million organisms, according to turbidity studies). Serological tests were made with blood obtained via cardiac puncture

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ACC NR: AT8019451

before vaccination, and after two and four weeks. The Bourne reaction (vaccinal shock) was sought and other allergy and opsono-phagocytic responses were recorded. The number of leucocytes increased in all three groups within two weeks after vaccination. Other indicators based on anatomical, histological, and serological data showed that charged ions do not appreciably affect the development of immunological reactivity, and such treatment is not recommended. Orig. art. has: 3 tables and 2 figures. [WA-50; CBE No. 33] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8016368 SOURCE CODE: UR/3349/67/032/000/0132/0148

AUTHOR: Vitivker, V.S.; Morozova, O.M.

ORG: none

TITLE: Biological characteristics of *Cl. perfringens* strains from different sources

SOURCE: Leningrad. Institut epidemiologii i mikrobiologii. Trudy, v. 32, 1967. Voprosy etiologii i diagnostiki pishchevykh toksikoinfektsiy (Problems of etiology and diagnostics of food toxico-infections), 132-148

TOPIC TAGS: *Clostridium perfringens*, pathogen screening method, heat biologic effect, bacteriology

ABSTRACT: *Clostridium perfringens* cultures were isolated from soil, feces of healthy persons, meat products, machinery in meat processing plants, milk and contaminated materials found to be the sources of food poisoning. Several heat-tolerant type A strains, which had been little studied, were investigated. Comparison of heat-tolerant and heat-sensitive strains showed that heat resistance was a reliable strain marker. The heat-resistant strains grew slowly, compared to other strains, on alkaline media containing no added hydrocarbons. Also strain A attacked

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ACC NR: AT8016368

glycerine less readily. Hemolytic activity was determined in different media to which the blood of various animals had been added. Hemolytic alpha, delta and theta toxins were obtained. Colony morphology differed on media with horse and sheep blood. Heat-tolerant strains were obtained by incubation at 80°C for 20 min. Orig. art. has: 9 tables and 3 figures. [WA-50; CBE No. 33][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 012

Card 2/2

ACC NR: AT8018548 SOURCE CODE: UR/3356/66/037/000/0286/0296

AUTHOR: Volgin, V.I.

ORG: none

TITLE: A new genus and new species of mites from the family Acaridae (Acarina, Acariformes)

SOURCE: AN SSSR. Zoologicheskiy institut. Trudy, v. 37, 1966. Novyye vidy nasekomykh fauny SSSR i sopredel'nykh stran, 286-296

TOPIC TAGS: acarology, tick, disease vector, disease carrying tick, zoology, anatomy

ABSTRACT: Four new mites of the family Acaridae, subfamily Rhizoglyphinae, are shown in Figure 1. The genus *Acarotalpa* can be distinguished from other members of the subfamily Phizoglyphinae by its powerful fossorial front legs, by the unusual position of the anal appendages in males and by several other characteristics. A small colony of *Acarotalpa fossor* was observed in the nest of a common vole *(Microtus arvalis)*. *Acotyledon maracandicus* has no single distinguishing feature. Colonies of this species were found in the soil in Uzbek SSR in cultivated fields (alfalfa, cotton). *Histiogaster orientalis* mites occur in

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ACC NR: AT8018548

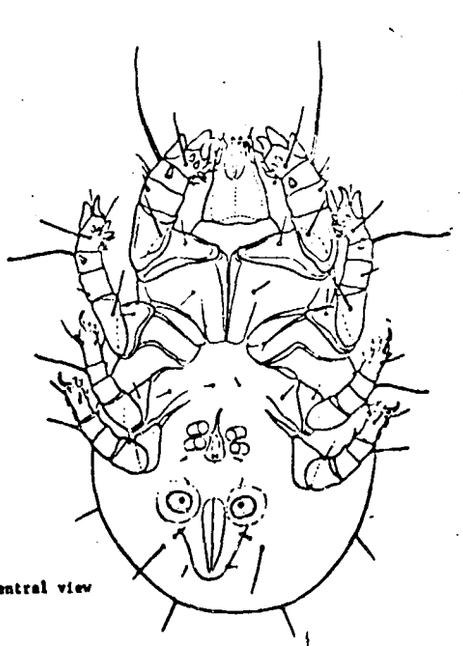

Fig. 1a. *Acarotalpa fossor* (new genus and species).

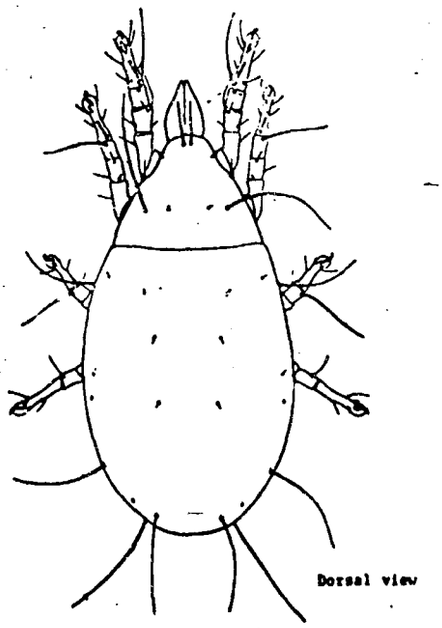

Fig. 1b. *Acotyledon maracandicus* (new species).

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ACC NR: AT8018548

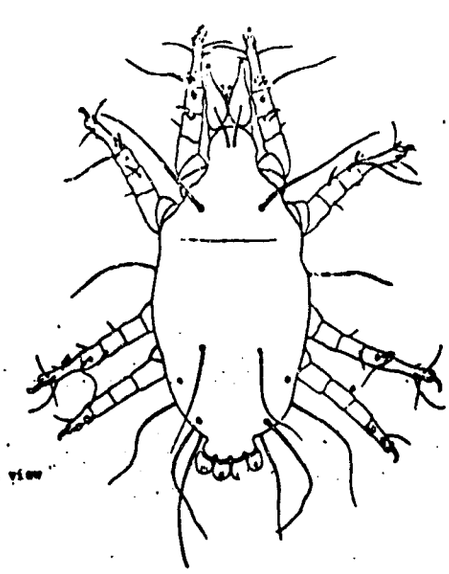

Fig. 1c. *Histiogaster orientalis* (new species).

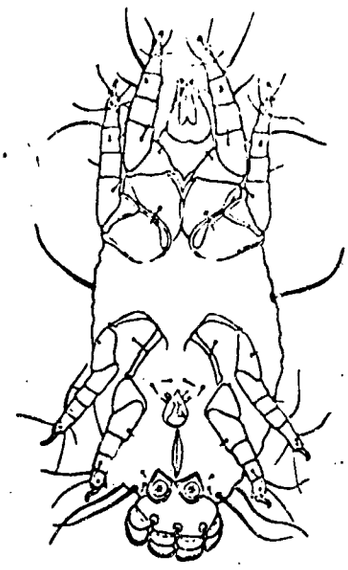

Fig. 1d. *Histiogaster ornatus* (new species).

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ACC NR: AT8018548

Khabarovsk: a small colony was found in a dog cherry tree. *Histiogaster ornatus* has shorter legs than *H. orientalis*. This species was found around Vladivostok in decaying wood in the Chernaya Valley. Orig. art. has: 6 figures. [WA-50; CBE No. 33][JS]

SUB CODE: 06/ SUBM DATE: none

Card 4/4

ACC NR: AT8019422 SOURCE CODE: UR/3355/65/013/000/0017/0023

AUTHOR: Zenkova, N. F.

ORG: none

TITLE: Bacteriophages for *Brucella* strains isolated in Kazakhstan

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 17-23

TOPIC TAGS: brucella, bacteriophage

ABSTRACT: Kazakhstan regional strains of *Brucella* isolated from people (43 strains), agricultural animals and commercial and wild animals (29 strains, from blue fox, silver-black fox, muskrat, maral, hare, and *Dermacentor daghestanicus* ticks) were lysed to a considerable degree by the 51 phage races obtained from 80 *Brucella* strains. Bacteriophages were weak upon primary isolation, but five races reached a titer of 10^{-8}--10^{-9} after several passages. All bacteriophages obtained were not strictly type-specific, since most of them lysed strains of both *Br. melitensis* and *Br. suis*, and some lysed all three *Brucella* species. A total of 44 bacteriophages were obtained from *Br. melitensis* strains, one from *Br. abortus*, two from *Br. suis* and two from unclassified hare strains. Orig. art. has: 6 tables. [WA-50; CBE No. 33] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 015/ OTH REF: 003

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ACC NR:

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ACCESSION NUMBERS FOR BIOLOGICAL FACTORS

AP8013746
AP8015470
AP8015471
AP8015473
AP8015474
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III. ENVIRONMENTAL FACTORS

ACC NR: AP8018961 SOURCE CODE: UR/0050/68/000/004/0063/0069

AUTHOR: Andreyev, B.G.; Lavrinenko, R.F.

ORG: Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya)

TITLE: Some data on the chemical composition of the atmospheric aerosols of Central Asia

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 63-69

TOPIC TAGS: atmospheric chemistry, atmospheric aerosol, aerosol, dust storm, air pollution, atmospheric boundary layer

ABSTRACT: Before the present study was made in September—October 1966, very little was known about the obviously high degree of air pollution in Central Asia, most of which is attributable to natural causes such as the presence of large desert areas consisting of sandy and loess-type soils, a dry climate, and frequent strong winds which cause dust storms. Samples taken at ground level and from aircraft flying on level flights at altitudes of 300 and 1000 m, and using membrane and gauze filters and a two-chamber trap, were chemically analyzed at the Main Geophysical Observatory. Soil samples were also collected to determine the origin

of the atmospheric dust in the aerosol samples. Loess and solonchak soils, in which 10% or more of the total mass was in solution, constituted the most chemically active matter in the atmosphere. Sandy soils were found to be the major source of atmospheric dust, most of which was silica (50—99%); the remaining component of the sandy soil content originated from the carbonate soils and solonchak, chloride, and sulfate soils (the latter sometimes contained large amounts of sodium). Measurements made on the outskirts of Tashkent (an area generally accepted as being typical of the natural background pollution in Central Asia) showed that the air pollution (non-toxic) considerably exceeded the acceptable limits established for the USSR (0.50 mg/m^3, average daily amount, 0.15 mg/m^3). Moreover, of the 30 series of measurements made at various times of the day, the average mass concentration of the aerosols in the surface boundary layer amounted to 0.80 mg/m^3, varying between 0.46 and 1.34 mg/m^3, and indicated that this relatively high concentration of aerosols was rather constant (See Table 1). Approximately 21% of the matter in the aerosols of the surface boundary layer was in solution. The fact that the atmospheric dust contained more matter in solution than was found in the soils was attributed to the fact that in the atmosphere the lightest particles contained a larger percent of matter in solution than did the heavier particles which remained on the surface of the ground and consisted largely of insoluble silica. HCO_3' was the most

Table 1. Total concentration (N, micrograms/m^3) and ion content (micrograms/m^3) of aerosols in the atmospheric surface boundary layer.

	N	SO_4''	Cl'	NO_3'	HCO_3'	Na^+	K^+	Ca^{++}	Mg^{++}	NH_4^+	Portion in solution micro-grams /m^3	Portion in solution %	pH
Average	0,80	16,3	6,8	5,7	102,1	6,0	4,0	18,3	8,3	6,5	174,0	21,1	6,15
Maximum	1,34	44,2	18,2	18,4	164,4	10,9	7,4	34,4	14,3	30,0	—	27,6	6,33
Minimum	0,46	0,0	0,0	0,0	25,1	3,1	2,5	3,6	3,9	0,0	—	11,2	5,96

prevalent ion in the atmosphere (78% of all anions, and 12.8% of the total concentration) and was the only anion found in all samples. Next in quantity were the SO_4'' (averaged 16.3 micrograms/m^3, 2% of total concentration), chlorine, and nitrate (6.8 and 5.7 micrograms/m^3, respectively) anions. Among the cations, Ca'' concentration predominated (18.3 micrograms/m^3) and was more than twice that of the second-place Mg'' cation (See Table 2). Both the amount of dissolved matter in the

Table 2. Average ion content of the aerosols in the free atmosphere (micrograms/m^3)

Altitude, m	Particles	SO_4''	Cl'	NO_3'	HCO_3'	Na^+	K^+	Mg^{++}	Ca^{++}	NH_4^+	Total ions	pH
300	Large	25,6	12,6	0,1	43,6	2,0	1,4	5,6	14,9	5,4	111,2	5,70
	Small	8,0	6,1	0,0	0,9	1,5	1,0	3,4	2,2	3,7	26,8	5,27
	Total	33,6	18,7	0,1	44,5	3,5	2,4	9,0	17,1	9,1	138,0	—
1000	Large	20,6	10,1	0,0	24,5	1,6	1,3	4,8	12,0	3,3	78,2	5,56
	Small	9,1	5,4	0,1	0,4	1,3	1,0	3,0	1,3	2,9	24,5	5,17
	Total	29,7	15,5	0,1	24,9	2,9	2,3	7,8	13,3	6,2	102,7	—

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aerosols and the total pollution in the atmosphere were rather high (at the ground level the ions total 174 micrograms/m^3 or 21% of the total concentration, and at the 300- and 1000-m levels, 138 and 103 micrograms/cm^3, respectively). The nitrates in the atmosphere over Central Asia were insignificant (appeared only in two of 42 samples) and were attributed to industrial pollution in the surface boundary layer. Ca'' cations predominated in the aerosols in the free atmosphere, the average content over Central Asia being represented by the scheme

$$Ca^{++} > Mg^{++} > NH_4^+ > Na^+ > K^+ .$$

An interesting feature was the change in cation content with height in the large- and small-size aerosols (See Table 3). Stoichiometric

Table 3. Ratio of cations in large and small aerosols

Altitude, m	Ca^{++}/Mg^{++} large particles	Ca^{++}/Mg^{++} small particles	Ca^{++}/Na^+ large particles	Ca^{++}/Na^+ small particles	Ca^{++}/K^+ large particles	Ca^{++}/K^+ small particles
300	2,66	0,65	7,45	1,46	10,64	2,20
1000	2,50	0,43	7,50	1,00	9,23	1,30

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calculations resulted in a scheme representing the changes in the ion content of the aerosols in which the most probable simple molecular compounds in solution in the aerosols in the surface boundary layer were $Ca(HCO_3)_2$, $Mg(HCO_3)_2$, $MgCl_2$, NaCl, $(NH_4)_2SO_4$, and KNO_3. In the free atmosphere the large particles were $Ca(HCO_3)_2$, $CaSO_4$, $MgSO_4$, $(NH_4)_2SO_4$, $MgCl_2$ and NaCl; the small particles were NaCl, $MgCl_2$, $CaSO_4$, and $(NH_4)_2SO_4$. The final aspect of the study involved the chemical analyses of aerosols collected on a flight in the Nukus region at h = 300 m during a dust storm (See Table 4). It was concluded that the high content (+20%) of

Table 4. Chemical composition of aerosols at time of dust storm (micrograms/m^3).

	SO_4^{--}	Cl^-	HCO_3^-	Na^+	K^+	Mg^{++}	Ca^{++}	Total ions
C	55.1	25.5	145.2	14.2	3.5	126.2	265.7	201[illegible].1
C/$\bar{C}$	2.5	1.4	33.4	4.1	3.5	11.0	15.6	[illegible]4.6

matter in solution in the aerosols influences both the chemistry of the precipitation and makes the atmospheric properties more aggressive, accelerating corrosion because of the presence of chlorides. It also favors the development of condensation nuclei over the area. Orig. art. has: 2 figures and 5 tables. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: 29Aug67/ ORIG REF: 003

Card 5/5

ACC NR: AP8010425 SOURCE CODE: UR/0362/68/004/002/0236/0240

AUTHOR: Antonov, V. S.

ORG: High-Mountain Geophysical Institute (Vysokogornyy geofizicheskiy institut)

TITLE: Some problems in artificially modifying supercooled stratiform clouds

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 2, 1968, 236-240

TOPIC TAGS: weather modification, cloud seeding, stratus cloud, dry ice, supercooled cloud

ABSTRACT: Theoretical calculations and experimental results are compared for various parameters involved in seeding stratiform clouds with supercooled reagents such as dry ice. The expression used to calculate the width l of the seeded strip in the cloud is derived as a function of time and mean wind velocity, as

$$l = 2y = 2c(\bar{u}t)^{m/2}\sqrt{\ln\frac{Qe^{[x_0/2c(\bar{u}t)^{m/2}]}\,\mathrm{erf}\,[x_0/2c(\bar{u}t)^{m/2}]}{\sqrt{\pi}\,c(\bar{u}t)^{m/2}n^*}}, \qquad (1)$$

where Q is the output of the source; c is a coefficient which characterizes

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turbulent diffusion, but which in contrast to the usual coefficient, has dimensionality; $\bar{u}$ is the mean wind velocity; x_0 is the length of the seeded strip; z_0 is the cloud thickness; m is a numerical parameter which varies from 1 to 2; τ is time, and n* is the frontal concentration. This equation indicates that for given l, n*, Q and m the time for forming the zone depends only on $\bar{u}$ since the coefficient of the vertical turbulent diffusion under simple equilibrium conditions depends only on $\bar{u}$. Since (1) cannot be solved analylitically relative to τ, the calculations are made by a numerical method for the following values of the parameters and coefficients in the equation: $Q = 75 \times 10^8 cm^{-2}$, $n^* = 5\ cm^3$, $x_0 = 40$ km, and $z_0 = 500$ m. The coefficient c was determined from a nomogram on which m = 1.75 and 1.8. Fig. 1 shows the results of calculation from (1) in a $\tau, \bar{u}$ system of coordinates. The dotted curves (m = 1.8) correspond to the normal lapse rate in a cloud and the dashed line curves when m = 1.75 correspond to a lapse rate of approximately 0°/100 m. The numbers refer to the distance between adjacent seeded belts. Experimental data on cloud seeding and dispersal, collected in 1961—1962 and 1963—1964 at the Institute of Applied Geophysics, are shown in Fig. 2. In this diagram the circles denote experiments on dispersing stratiform clouds, and curves marked with crosses denote experiments on redistribution of the intensity of cloud precipitation.

Fig. 2 shows that there is a clear dependence of the time of the seeded zone formation on 1) the mean wind speed, especially at low speeds and 2) the distance between seeded zones. On the other hand, its theoretical

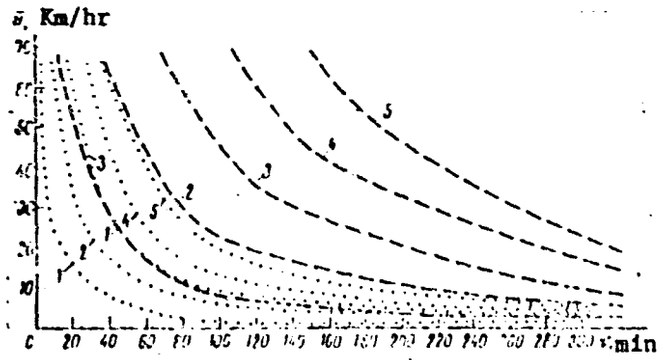

Fig. 1. Dependence of time of formation of the zone of artificial seeding effect τ_{ef} on the mean wind speed $\bar{u}$ in clouds for different values of l and m (theoretical calculation).

ACC NR: AP8010425

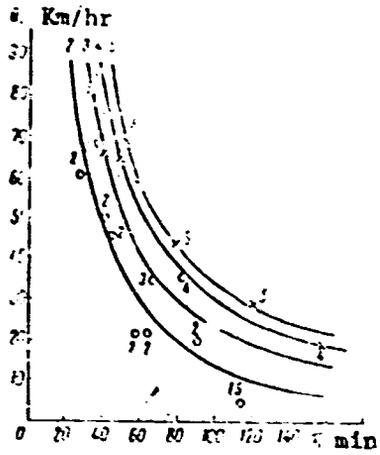

Fig. 2. Dependence of time of formation of the zone of artificial seeding effects τ_{ef} on the mean wind speed $\bar{u}$ in clouds for different values of l and m (theoretical calculation).

dependence on atmospheric stratification was not observed during the experiments. Other phases of the study investigated included theoretical and experimental determinations of the boundary of the crystallization front and the influence of the amount of reagent used. Orig. art. has: 2 figures and 15 formulas. [WA-50; CSE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: 22Mar67/ ORIG REF: 008/ OTH REF: 002

Card 4/4

ACC NR: AP8018966 SOURCE CODE: UR/0050/68/000/004/0119/0119

AUTHOR: Bezuglaya, E.Yu.

ORG: none

TITLE: Conference of the Interdepartmental Scientific Council for the Study of Climatic and Agroclimatic Resources held 29—30 November 1967 at the Main Geophysical Observatory

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 119

TOPIC TAGS: scientific conference, climatology conference, agroclimatic conference, natural resource

ABSTRACT: The tenth session of the Interdepartmental Scientific Council for the Study of Climatic and Agroclimatic Resources was held on 29—30 November 1967 at the Main Geophysical Observatory. M.I. Yudin discussed the main method of subdividing meteorological fields into natural orthogonal components which can be used to determine large-scale climatological characteristics and to solve the problem of the most rational disposition of stations in the aerological network. O.A. Drozdov described a method and the prospects for determining atmospheric precipitation. He also pointed out the fact that corrected precipitation

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ACC NR: AP8018966

charts could now be compiled for some areas in the USSR but that there still are too few data for regions in which high winds are frequent (Kazakhstan, Soviet Far East, Arctic). F.Ya. Klinov described the organizational procedures used to make weather observations in the lower layer of the atmosphere at the 300-m tower at Obninsk; he also suggested possible uses for these data in climatological research. F.A. Vorontsov reviewed the physical and statistical studies in the atmospheric boundary layer, such as methods of making experimental observations, the study of errors inherent in network weather station observation of the wind, some of the patterns of the boundary layer characteristics, and the results of statistical analyses of aerological measurements made at network stations. Problems relating to the distribution of industrial effluents in the atmosphere as a function of weather conditions was the subject discussed in a paper by M.Ye. Berlyand.

[WA-50; CBE No. 33][EK]

SUB CODE: 04/ SUBM DATE: none

Card 2/2

ACC NR: AT8017500 SOURCE CODE: UR/2531/67/000/202/0060/0064

AUTHOR: Chikirova, G.A.

ORG: none

TITLE: Investigation of the kinetics of moisture absorption by particles of ion-exchange resin in a medium saturated with water vapor and in fog

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 202, 1967. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and modifications), 60-64

TOPIC TAGS: atmospheric chemistry, atmospheric pollution, cloud seeding, fog dispersal, ion exchange resin, particle absorption kinetics

ABSTRACT: Five ion-exchange resins (SDV-10T-1, SDV-3T, KU-2-2, KU-23, and KF-1) were used in experiments carried out to determine the growth rate of single particles in a moving fog and under saturation conditions. These particles were first dried at a temperature of 100°C and ground in a ball mill. The equipment was installed in a horizontal wind tube (d = 10 cm and l = 70 cm) which was connected to a 1 cm^3 aerosol chamber. Fog was produced in the chamber by atomizing distilled water at a pressure of 3—4 atm; the temperature and pressure in the chamber were controlled and the fog passed through the tube at a constant rate

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ACC NR: AT8017500

of 0.5 m/sec. The particles were collected on disks 1—2 μ in diameter and were photographed with a "Zenit" camera (X 8 and X 15). Two series of experiments were carried out. In the first series of experiments the opening between the chamber and the tube was covered by a filter; in the second, the fog was forced through the tube at a slow rate and the resin particles grew by condensation as well as by the impingement of the fog droplets on the suspended particles. The SDV-10T-1 and SDV-3T resins were found to be the most effective in the growth process. However, the overall results indicated that these resins were not sufficiently effective for them to be recommended for cloud-seeding purposes; this confirms the results obtained in a large chamber. Orig. art. has: 3 figures and 3 tables. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 004

Card 2/2

ACC NR: AP8010414 SOURCE CODE: UR/0362/68/004/002/0160/0169

AUTHOR: Gurvich, A. S.

ORG: Institute of Physics of the Atmosphere, AN SSSR (Institut fiziki atmosfery AN SSSR)

TITLE: Determination of turbulence characteristics from experiments involving light propagation

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 2, 1968, 160-169

TOPIC TAGS: atmospheric turbulence, atmospheric physics, optic turbulence detection, light propagation, monochromatic light, refraction, wave intensity, wave phase, high frequency wave

ABSTRACT: A study is made of the statistical structure of small-scale turbulent areas in the atmosphere observed from monochromatic light ray fluctuations. The method is based primarily on determination of the correlation and spectral functions in the density of a gas in a jet. The spectrum of the fluctuation of the refractive index of the medium can be determined from the spectra of the fluctuations in wave intensity and phase when the relative fluctuations in the refractive index are small and they vary at

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ACC NR: AP8010414

distances of the wave-length order. The simplest method involves the measurement of fluctuations in intensity. When the low-frequency part of the spectrum ($x \ll 2\pi/\lambda L$) is used, the method is sensitive enough to investigate small-scale inhomogeneities in the atmospheric temperature field. Orig. art. has: 4 figures and 12 formulas. [WA-50; CBE No. 33] [ER]

SUB CODE: 04, 20/ SUBM DATE: 16May67/ ORIG REF: 007/ OTH REF: 007

Card 2/2

ACC NR: AT8017527 SOURCE CODE: UR/2960/67/000/005/0240/0244

AUTHOR: Ivlev, L.S.

ORG: none

TITLE: Role of distribution mechanisms and sources of atmospheric aerosols

SOURCE: Leningrad. Universitet. Problemy fiziki atmosfery, no. 5, 1967, 240-244

TOPIC TAGS: air pollution, atmospheric aerosol, aerosol distribution, atmospheric model

ABSTRACT: The roles of various mechanisms by which atmospheric aerosols are vertically distributed are evaluated and the possibility of constructing a theoretical model of this distribution is discussed. Above 25 km, convection and turbulent diffusion are considered unlikely and above 30—35 km any aerosols present are considered to be either of cosmic or photochemical origin. The equation

$$K\frac{\partial m_r}{\partial h} - v_{st} \cdot m_r = \Phi(r) \qquad (1)$$

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ACC NR: AT8017527

is used to determine the concentration of aerosols of cosmic origin at h = 30—80 km; here h = height, m_r is the mass of the aerosols of cosmic origin which have a size of r per 1 cm^3 of air, ϕr is the aerosol particle flux, K is the coefficient of turbulent diffusion (K_{10} = 0.18 cm^2/sec at h = 10 km; $K_1 = 10^2$ cm^2/sec for h < 80 km), and v_{sr} is the rate of aerosol particle sedimentation of a specific size when $r \ll \lambda$. In the lower layers such factors as turbulent diffusion, vertical convection, radiation, and gravity, which affect the vertical distribution of aerosols, are discussed. Factors taken into consideration in the troposphere include coagulation, aerosol washout, and convective fluxes; in the atmospheric boundary layer, photochemical processes also must be taken into account. Orig. art. has: 1 figure and 7 formulas. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 004

Card 2/2

ACC NR: AT8010845 SOURCE CODE: UR/2667/67/000/048/0008/0027

AUTHOR: Koshinskiy, S. D.

ORG: none

TITLE: Calculation with varying degrees of assurance of the maximum, uninterrupted duration of storms

SOURCE: Moscow. Nauchno-issledovatel'skiy institut aeroklimatologii. Trudy, no. 48, 1967. Voprosy gidrometeorologii Sibiri (Problems of hydrometeorology in Siberia), 8-27

TOPIC TAGS: marine meteorology, weather forecasting, ocean storm, coast storm, wind field, wind direction, wind speed, wind duration, storm duration, storm frequency, statistic analysis

ABSTRACT: A large body of data is collected and statistically analyzed on wind speeds and directions during gales and storms of varying duration at Cape Lopatka on Kamchatka, on Zhiloy Island in the Caspian Sea east of Baku, at Novorossiysk on the Black Sea, at Kara-Bogaz-Gol on the eastern side of the Caspian Sea, at Anadyr' on the Bering Sea coast, and at Murmansk on the Barents Sea. The principal difficulties encountered in making analyses of this type and methods used to circumvent them are described. These include 1) the occurrence during a single storm of winds of

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different directions (solved either by constructing for each storm wind roses using only four quarters, or preferably by determining the frequencies of winds of various directions by season of the year) (See Table 1);

Table 1

Season	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
	Cape Lopatka								Anadyr'							
Winter	8	9	17	4	2	2	12	46	9	30	27	12	1	1	9	11
Spring	5	9	23	5	2	2	11	43	6	26	26	18	2	1	9	12
Summer	1	6	28	4	1	1	9	50	4	7	21	46	7	1	5	9
Autumn	4	4	15	7	3	3	15	49	12	19	14	11	1	1	15	27
Year	5	7	20	5	2	2	12	47	8	22	22	19	2	1	10	16
	Novorossiysk								Murmansk							
Winter	15	42	2	15	18	4	1	3	5	2	1	3	55	17	8	9
Spring	7	67	2	8	10	3	1	2	12	3	2	3	33	16	14	17
Summer	8	81	3	2	2	3	0	1	34	9	3	3	19	14	6	12
Autumn	11	74	1	3	7	2	0	2	10	2	1	2	40	19	12	14
Year	11	62	2	8	11	3	1	2	11	3	1	3	41	17	11	13

Conditional frequency (percentages) of wind directions when v ≥ 10 m/sec

Table 1 (cont.)

	Kara-Bogaz-Gol								Zhiloy Is.							
Winter	8	7	51	10	6	3	4	8	33	8	3	5	81	15	2	26
Spring	10	9	39	5	2	4	7	24	44	3	1	2	9	6	1	34
Summer	13	15	33	3	0	1	3	32	57	4	1	0	1	1	0	36
Autumn	12	10	54	7	1	1	2	13	43	11	5	5	5	6	0	25
Year	11	10	44	7	3	2	4	19	44	7	2	3	6	7	1	30

Note: 1) "0" designates frequency of less than 0.5%. 2) All instances when winds had a velocity of v ≥ 10 m/sec were assumed to represent 100%.

2) relating each storm to a specific category (by wind force), particularly if the wind speed during the storm varied within a wide range (used Sorkina's wind-speed gradations of 5—10, 10—15, 15—20 m/sec etc. and assumed that the wind speeds were never less than the lowest speeds recorded during the regular observations made four times per day); and 3) treatment of temporary abatements or rising of winds beyond the critical value during an observation period (here, if the wind once or twice slacked off slightly to a speed less than the critical value during an observation period, the period was included as a part of a single continuous storm). Measurements made at the above six weather stations over the 25-year period between 1936 through 1960 are summarized in Table 2.

Table 2

Frequency of storms differing in direction, force, and uninterrupted duration (in % of total number of storms of a given direction)

Quarter	V m/sec	$\bar{n}$	$\bar{\tau}$	τ_{max}	Gradations of storm duration (hr) <6	6–12	12–24	24–48	48–72	72–96	96–120	>120
					Zhiloy Is.							
NNW	>10	73	15,8	~120	29	22,5	26,9	18,1	3,0	0,4	0,05	0,5
	>15	27	9,4	~48	43	28	23	6	—	—	—	—
	>20	8,2	6,6	~36	63	23	12	2	—	—	—	—
					Kara-Bogaz-Gol							
E	>10	64,0	15,4	~246	48	15,8	15,0	13,5	4,7	2,2	0,5	0,3
	>15	10,6	9,2	~66	49	22	16,6	10,0	2,4			
	>20	1,2	5,1	~36	70	20	7	3				
					Novorossiysk							
NE	>10	37,9	18,2	~162	40	17	17	17	5,4	2,1	0,8	0,7
	>15	15,1	15,0	~120	42	21	17	14	4,0	1,2	0,5	0,3
	>20	7,0	11,7	~60	45	23	16	13,7	2,3			

Table 2 (cont.)

					Murmansk							
SW	>10	42,4	16,6	~132	35	21	23	14	4,4	1,9	0,5	0,2
	>15	10,0	11,2	~66	40	30	21	7,4	1,6			
	>20	2,6	7,4	~30	60	32	14,8	3,2				
					Cape Lopatka							
NW	>10	82,0	31,0	~300	19	13,6	20,9	26,3	10,5	4,9	2,9	1,9
	>15	43,6	16,2	~11[illegible]	33	21	24	17	3,7	1,0	0,5	
	>20	22,0	13,0	~78	40	23	21	14	1,8	0,2		
NE	>10	36,4	21,7	~180	30	17,6	22	19	6,6	2,7	1,1	1,0
	>15	25,0	16,0	~102	31	21	23	[illegible]0	3,6	1,2	0,2	
	>20	17,0	11,4	~78	45	24	19	10	1,8	0,2		
					Anadyr'							
NE	>10	32,6	15,8	~120	41	17	22	14	4,3	1,2	0,5	
	>15	18,8	15,6	~90	33	20	24	18	4,1	0,9		
	>20	14,1	11,1	~90	49	22	17	10	1,7	0,3		
SE	>10	33,8	15,2	~96	41	19	20	13,3	5,2	1,5		
	>15	10,8	15,1	~72	34	22	20	18,4	5,2	0,4		
	>20	5,7	14,5	~72	37	23	21	15,4	2,9	0,7		

In the statistical analyses of storm frequencies, wind directions, and storm durations, the values of V > 20 m/sec and V > 10 m/sec were used to define a "storm." Several statistical, empirical, and theoretical methods

ACC NR: AT8010845

of analyzing the data are discussed and demonstrated in relation to effectiveness with different storm frequencies over different intervals of time (Pearson criteria for distribution of parameters on curves, Goodrich curves). Orig. art. has: 2 figures, 10 tables, and 10 formulas.

[WA-50; CBE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 040

Card 6/6

ACC NR: AT8017194 SOURCE CODE: UR/0000/67/000/000/0031/0039

AUTHOR: Krystanov, L. (Academician BAN, President BAN); Yordanov, D.

ORG: none

TITLE: Turbulence in the atmospheric surface boundary layer

SOURCE: Ravnovesnyy gradiyent temperatury (Equilibrium temperature gradient); sbornik statey. Leningrad, Gidrometeoizdat, 1967, 31-39

TOPIC TAGS: microclimatology, atmospheric boundary layer, atmospheric turbulence, boundary layer turbulence, vertical heat flux, lapse rate

ABSTRACT: Mathematical models are derived for the following conditions in the atmospheric surface boundary layer: 1) vertical profile of the wind during unstable stratification, 2) equilibrium lapse rate, 3) vertical turbulent heat flux, and 4) the coefficient of heat conductivity and turbulent viscosity. In deriving the basic equations it is assumed that the vertical component of flux velocity is the sum of the mechanical w_M' and the thermal components, the mixing length is the sum of the mechanical (l_M) and thermal (l_T) mixing lengths, and that the thermal velocity component w_T' is due to Archimedes forces caused by horizontal temperature inhomogeneities. The equation

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$$\tau = \rho(k_M + k_T)\frac{d\bar{u}}{dz} \qquad (1)$$

is used to derive the expression for the vertical profile of the wind in the surface boundary layer. It is then assumed that turbulent friction is constant and the equation becomes

$$\frac{d\bar{u}}{dz} = \frac{v_*}{\varkappa z} \cdot \frac{k_M}{(k_M + k_T)}. \qquad (2)$$

When the surface boundary layer is characterized by a state of near-stable stratifications ($k_T \to 0$), a logarithmic wind profile is obtained from (2). When $k_T \neq 0$, the dimensionless magnitude

$$\varphi = \frac{k_M}{k_M + k_T} \qquad (3)$$

is dependent on the Ri number and is a correction for instability to the logarithmic wind profile. The types of functions of φ are determined by

$$k_M = \varkappa v_* z, \qquad (4)$$

and

$$k_T = 2^{1/2}\lambda^2\varkappa^2\left(\frac{g}{\bar{T}}\right)^{1/2}\left(-\frac{\partial\bar{T}}{\partial z}\right)^{1/2} z^2, \qquad (5)$$

and

$$\varphi = \frac{k_M}{k_M + k_T} \qquad (3)$$

to become

$$\varphi = \frac{2}{1 + [1 + 2^{1/2}\lambda^2(-\mathrm{Ri})^{1/2}]^{1/2}} \qquad (6)$$

and it is determined that

$$\varphi = [1 + 2^{1/2}\lambda^2(-\mathrm{Ri})^{1/2}]^{-1}. \qquad (7)$$

When $\lambda = 1$ and $\lambda = 1.4$, with φ derived by the Gurvich empirical formula, the values of φ calculated from (6), compared with values derived by other investigators, are as follows: Gurvich - $\varphi_1 = [1 + 1.5(-\mathrm{Ri})^{1/2}]^{-1}$; Gol'tsman - $\varphi_2 = (1 + \alpha_2\mathrm{Ri})^{-1/2}$ for $\alpha_2 = 7$ and $\alpha_2 = 12$, Obukhov and Monin - $\varphi_3 = 1 + \alpha_3\mathrm{Ri}$ where $\alpha_3 = 9$; Rider and Ellison - $\varphi_4 = (1 + \alpha_4\mathrm{Ri})^{-1/4}$ where $\alpha_4 = 14$.

Equation (8)

$$q = -c_p\rho\left[k_T\frac{\partial\bar{T}}{\partial z} + (k_M + k_T)\left(\frac{\partial\bar{T}}{\partial z} + \gamma_a\right)\right] \qquad (8)$$

indicates that the vertical heat flux reverts to zero when $\frac{\partial\bar{T}}{\partial z} = \beta$, not when $\frac{\partial\bar{T}}{\partial z} = \gamma_a$, and

$$\beta = \frac{k_M + k_T}{k_M + 2k_T}\gamma_a \qquad (9)$$

is called the equilibrium lapse rate. The equilibrium lapse rate varies in the interval $0.5\gamma_a \leq \beta \leq \gamma_a$. By substituting k_M and k_T, its magnitude can be determined from (9) as a function of the dynamic velocity v^* and height z when $\lambda = 1$. This indicates that near the ground the

determining factor is dynamic turbulence ($\beta \to \gamma_a$) and at greater heights, it is thermal ($\beta = 0.5\gamma a$), and suggests the presence of a dynamic sub-layer. Since the surface boundary layer is characterized by a large lapse rate, it is assumed that $\left|-\frac{\partial \bar{T}}{\partial z}\right| \gg \gamma_a$ and (8) is derived as

$$q = -c_p \rho (2k_T + k_M) \frac{\partial \bar{T}}{\partial z}. \qquad (10)$$

In comparison with experimental data, equation (10) forms the Priestley function

$$\Pi^* = \frac{q}{c_p \rho \left(\frac{g}{T}\right)^{1/2} \left(-\frac{\partial \bar{T}}{\partial z}\right)^{3/2} z^2}. \qquad (11)$$

In the expression for Π^*, q is replaced by (11) to obtain

$$\Pi_1^* = 2^{3/2} \lambda^2 \varkappa^2 \left\{1 + \frac{1}{-1 + \left[1 + 2^{3/2} \lambda^2 (-\mathrm{Ri})^{1/2}\right]^{1/2}}\right\}. \qquad (12)$$

Equations (1) and (10) indicate that the heat-conductivity factor $k_H = 2k_T + k_M$ differs from that of the turbulent viscosity $k_p = k_T + k_M$. For a state which is close to neutral equilibrium, $k_H \to k_p$ and for a state close to free convection, $k_H \to 2k_p$. According to Pasquille, the

difference between k_p and k_H as compared with experimental data is formed by the ratio

$$\frac{k_H}{z^2 \frac{d\bar{u}}{dz}} = \frac{\varkappa^2 (2 - \varphi)}{\varphi^2}, \qquad (13)$$

$$\frac{k_p}{z^2 \frac{d\bar{u}}{dz}} = \frac{\varkappa^2}{\varphi^2} \qquad (14)$$

when $\lambda = 1.4$. The $\frac{k_H}{k_p}$ ratio remains essentially constant for large magnitudes $R_f = \frac{k_H}{k_p} \mathrm{Ri}$, and a constant of 1.6 appears to be generally acceptable. Orig. art. has: 5 figures and 19 formulas.

[WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 006

ACC NR: AT8017197 SOURCE CODE: UR/0000/67/000/000/0068/0072

AUTHOR: Lazareva, N. A.; Solomatina, I. I.

ORG: none

TITLE: Determination of the magnitude of the equilibrium lapse rate from experimental data

SOURCE: Ravnovesnyy gradiyent temperatury (Equilibrium temperature gradient); sbornik statey. Leningrad, Gidrometeoizdat, 1967, 68-72

TOPIC TAGS: atmospheric boundary layer, temperature field, lapse rate, heat flux, turbulent exchange, atmospheric turbulence, equilibrium lapse rate

ABSTRACT: Balloon measurements, made in the atmosphere over the Voyeykovo area in the May—August 1958—1959 period, and radiosonde data collected in 1965 at Irkutsk (May—October), Tallin (June—August), and Vysokaya Dubrava (June—September), were the basic information used in a study and recalculation of the equilibrium lapse rate γ_p, generally given by most investigators as 0.6°/100 m. A selection of data was made on the basis of instances when it was anticipated that the equilibrium lapse rate would equal the observed rate. The results of calculations of γ_p made for different months at the several stations and the average value

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ACC NR: AT8017197

for each station are presented in a table. The experimental data gave an average γ_p value of 0.62°/100 m. Another study was carried out in which radiosonde measurements made at 0700, 1300, and 1900 hr were subdivided by the times at which the soundings were made into three groups, and γ_p was determined for each station; the means of all three stations were also tabulated. Graphs prepared to show the frequencies of γ_p show that the maximum frequency occurred at γ_p = 0.7°/100 m. Since the turbulent heat flux was not always equal to zero, the γ_p was also calculated by the formula

$$\gamma_p = \frac{P_0}{\rho c_p k} + \frac{1}{\rho c_p k}\int_0^H \rho c_p \Delta\theta\, dz,$$

where $\Delta\theta$ is the change in the temperature potential with time. The data used were obtained over Voyeykovo (balloon measurements) and from gradient observations made in 1967 in the surface boundary layer. Possible errors were reduced by using only those observations in which the differences between $P_0/\rho c_p k$ and $1/\rho c_p k \int_0^H \rho c_p \Delta\theta dz$ were not more than 0.2°/100 m. The average value of γ_p was 0.66°/100 m. Orig. art. has: 1 figure, 3 tables, and 2 formulas. [WA-50; CBF No. 33] [FR]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ACC NR: AT8017211 SOURCE CODE: UR/3352/67/010/000/0010/0015

AUTHOR: Matmuratov, D.

ORG: none

TITLE: Frequency of dry winds in the Karakalpak ASSR

SOURCE: Uzbekistanskoye geograficheskoye obshchestvo. Izvestiya, v. 10, 1967, 10-15

TOPIC TAGS: local climatology, arid climate, wind field, local wind, weather forecasting

ABSTRACT: Weather data collected over a 25-year period (to 1962) at the weather stations in the Karakalpak ASSR and adjacent areas form the basis of a study of the frequency and duration of the hot dry winds in the area. The duration of such winds was defined as that period during which the 13-hr dew-point spread exceeded 50 mb. Analyses indicated that these winds could be expected to occur from early May to the end of September, except in the coastal area where they occur in July and August. Drought years in the area were in 1938, 1944, 1952, and 1954. Orig. art. has: 7 tables. [WA-50; CBE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 008

Card 1/1

ACC NR: AT8010010 SOURCE CODE: UR/3269/67/000/015/0037/0047

AUTHOR: Popov, A. K.; Rudenko, S. I.

ORG: none

TITLE: Experiments with a four-level scheme of forecasting the geopotential in the troposphere and lower stratosphere taking into account radiation and thermal conductivity

SOURCE: Gidrometeorologicheskiy nauchno-issledovatel'skiy tsentr SSSR. Trudy, no. 15, 1967. Dinamika atmosfernykh dvizheniy planeternogo masshtaba i gidrodinamicheskiy dolgosrochnyy prognoz pogody (Dynamics of atmospheric movements on a planetary scale and hydrodynamic long-range weather forecasting), 37-47

TOPIC TAGS: weather forecasting, tropospheric geopotential, stratospheric geopotential, atmospheric model, atmospheric turbulence, heat radiation, thermal conductivity

ABSTRACT: The results are presented of experiments carried out using the four-level scheme for forecasting the geopotential in the troposphere and lower stratosphere proposed by M. B. Galin, A. K. Popov, and S. I. Rudenko (Trudy MMTs, no. 12, 1966). This scheme is described as being prepared for operational use and experimental forecasting at the Division of

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Planetary Atmospheric Dynamics and Hydrodynamic Weather Forecasting of the USSR Hydrometeorological Center. An abbreviated mathematical derivation is presented and a program is set up for the Center's electronic computer. First, the initial fields of the heights of the standard isobaric surfaces were fed into the computer (AT_{50}, AT_{100}, AT_{200}, AT_{300}). Sea-level pressures were added and then the initial fields of the heights of the 150- and 250-mb surfaces were interpolated from the standard levels. The 950-mb surface was derived from the sea-level pressure using a baric gradient which was assumed to be 8.5 m/mb. The following formulas were used:

$$H_{150} = 0{,}414H_{100} + 0{,}586H_{200},$$
$$H_{250} = 0{,}456H_{200} + 0{,}544H_{200},$$
$$H_{950} = 0{,}85(p_0 - 950).$$

The forecasts for the standard levels were computed from the formulas:

$$H_{100} = 0{,}371H_{50} + 0{,}629H_{150},$$
$$H_{200} = 0{,}437H_{150} + 0{,}563H_{250},$$
$$H_{300} = H_{250} - 120,$$
$$p_0 = 950 + 1{,}176H_{950}.$$

The forecast was calculated for a period of several days with geopotential values for all isobaric surfaces and for each day. The quality of the forecasts was determined visually and by calculated estimates. In the latter, all surfaces were estimated for two areas: 1) the entire northern hemisphere—$\theta = 5 - 80°$, $\lambda = 0-360°$, and 2) an east-west zone— $\theta = 20-50°$, $\lambda = 0-360°$. The forecast estimates (ρ) were calculated from the coincidence of the actual and forecasted tendencies by the formula

$$\rho = \frac{n_+ - n_-}{n_+ + n_-},$$

where n_+ is the number of times the signs of the tendencies coincided, and n_- is the number of non-coincidences. A study was also made of the influence of the atmospheric parameters Γ (static stability) and $\Delta = \frac{d\alpha}{dz}$ on the stability of atmospheric processes, and also on the quality of the forecasts. Orig. art. has: 10 figures, 1 table, and 13 formulas.

[WA-50; CBE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 005

ACC NR: AT8017212 SOURCE CODE: UR/3352/67/010/000/0073/0078

AUTHOR: Rasulov, M.

ORG: none

TITLE: Deserts of the western part of the Karshi steppe

SOURCE: Uzbekistanskoye geograficheskoye obshchestvo. Izvestiya, v. 10, 1967, 73-78

TOPIC TAGS: area description, desert terrain, local climatology, wind field, sand dune

ABSTRACT: The migratory sand dunes in the western part of the Karshi steppe of Uzbekistan present several obstacles to the operation of agricultural communities. A combined ground and aerial survey, in combination with data taken from the literature and wind observations made at the Mubarek weather station, form the basis of an analysis of the types of dunes present, their methods of formation, and the methods for the prevention of further migration. Emphasis is on seasonal variations in wind directions and speeds. During the winter months the prevailing winds are northwesterly and southeasterly and their average speed is 3.0—3.3 m/sec; occasionally, these winds become as high as 17 m/sec or higher. In spring, northerly, northwesterly, and northeasterly winds are

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ACC NR: AT8017212

more prevalent and they have an average speed of 3.2—3.7 m/sec. In the summer the presence of heat lows causes northerly winds to prevail and their average speed increases to 4.7 m/sec in the daytime, with speeds of 5.4 m/sec occurring in July. Dust storms are more frequent in summer than during any other season. In the fall the prevailing winds are northerly and northwesterly and the average speed falls off to 3.1 m/sec. Graphic data presented in the text include wind roses by speed and direction at the Mubarek station and tabulated seasonal data which include precipitation, temperatures, wind speeds, and occurrences of dust storms. Orig. art. has: 2 figures and 1 table. [WA-50; CBE No. 33] [ER]

SUB CODE: 08, 04/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ACC NR: AT8011681 SOURCE CODE: UR/0462/68/000/001/0064/0073

AUTHOR: Shapiro, S. M.; Solov'yev, Yu. A.; Aytuarov, T. A.

ORG: Institute of Hydrogeology and Hydrophysics, AN KazSSR, Alma-Ata (Institut gidrogeologii i gidrofiziki AN KazSSR)

TITLE: Regime of interstitial ground waters in the Sayan syncline

SOURCE: AN KazSSR. Izvestiya. Seriya geologicheskaya, no. 1, 1968, 64-73

TOPIC TAGS: hydrology, hydrogeology, ground water, interstitial water, water supply

ABSTRACT: The modern hydrogeological conditions in the Sayan syncline north of Lake Balkhash in the Kazakhstan republic result from highly-complicated and long-term processes (geological, intrusive, structural, geomorphological, climatological, etc); the areal distribution of areas affectedby these factors is illustrated by a hydrodynamic sketch of the area. The effects of surface and subsurface runoff on the level of Lake Balkhash are described. Orig. art. has: 3 figures and 2 tables.

[WA-50; CBE No. 33] [ER]

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 015

Card 1/1 UDC: 551.49

ACC NR: AP8018957 SOURCE CODE: UR/0050/68/000/004/0034/0040

AUTHOR: Shershkov, V.V.

ORG: Hydrometeorological Scientific Research Center SSSR (Gidrometeorologicheskiy nauchno-issledovatel'skiy tsentr SSSR)

TITLE: Some questions on the problem of convection in the boundary layer of the atmosphere

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 34-40

TOPIC TAGS: theoretic meteorology, atmospheric model, atmospheric convection, orographic turbulence, atmospheric turbulence

ABSTRACT: The nonlinear plane problem of the development of motion and maximum steady state flow induced from an unevenly heated ground surface in the atmospheric boundary layer is solved on the basis of the following hydrodynamic equations for a viscous liquid with heat flux taken into account:

$$\frac{\partial u}{\partial t} + u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial z} = -\frac{\partial \Phi}{\partial x} + \nu_1\frac{\partial^2 u}{\partial x^2} + \nu_1\frac{\partial^2 u}{\partial z^2}$$

$$\frac{\partial \Phi}{\partial z} = \lambda T. \qquad (1)$$

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$$\frac{\partial u}{\partial x}+\frac{\partial v}{\partial z}=0,$$

$$\frac{\partial T}{\partial t}+u\frac{\partial T}{\partial x}+v\frac{\partial T}{\partial z}=-(\gamma_a-\gamma)v+\varkappa_1\frac{\partial^2 T}{\partial x^2}+\varkappa_2\frac{\partial^2 T}{\partial z^2},$$

where

$$\lambda=\frac{g}{T_m};\ \gamma_a=\frac{\varkappa-1}{\varkappa}\frac{g}{R};\ \gamma=-\frac{dT(z)}{dz}.$$

Here ν is the coefficient of kinematic viscosity, $\varkappa$ is the coefficient of thermal conductivity, T_m is the mean temperature, by height, and $T(z)$ is the standard temperature distribution with height. The boundary conditions are

$$\text{for}\quad z=\delta(x)\qquad u=v=0,\ T=\theta(x);$$

$$\text{for}\quad z\to\infty\ \frac{\partial u}{\partial z}=\frac{\partial T}{\partial z}=\Phi=0; \tag{2}$$

$$\text{for}\quad x\to\pm\infty\ \frac{\partial u}{\partial x}=\frac{\partial T}{\partial x}=\frac{\partial\Phi}{\partial x}=0,$$

where $z=\delta(x)$ is the equation for the unevenness of the ground. The initial conditions are:

$$\text{for}\quad t=0\qquad u=v=T=\Phi=0.$$

The following dimensionless variables and functions are introduced:

$$x=L\bar{x},\ z=L\bar{z},\ t=\tau\bar{t},\ u=U\bar{u},\ v=U\bar{v},$$

$$\Phi=U^2\bar{\Phi},\ T=\frac{U^2}{\lambda L}\bar{T}. \tag{3}$$

Substituting (3) in (1), and dropping the dashed lines over the dimensionless variables and functions, the following system of equations are derived:

$$\frac{\partial u}{\partial t}+\frac{\partial u^2}{\partial x}+\frac{\partial vu}{\partial z}=-\frac{\partial\Phi}{\partial x}+\frac{\nu_1}{LU}\left(\frac{\partial^2 u}{\partial x^2}+\frac{\nu_2}{\nu_1}\frac{\partial^2 u}{\partial z^2}\right),$$

$$\frac{\partial\Phi}{\partial z}=\frac{gL}{T_{cp}U^2}T,$$

$$\frac{\partial u}{\partial x}+\frac{\partial v}{\partial z}=0, \tag{4}$$

$$\frac{\partial T}{\partial t}+\frac{\partial uT}{\partial x}+\frac{\partial vT}{\partial z}=-D^2v+\frac{\varkappa_1}{LU}\left(\frac{\partial^2 T}{\partial x^2}+\frac{\varkappa_2}{\varkappa_1}\frac{\partial^2 T}{\partial z^2}\right),$$

where

$$D^2=\frac{(\gamma_a-\gamma)\lambda L^2}{U^2}.$$

Scale and velocity characteristics are selected so that

$$\frac{\nu_1}{LU} = \frac{gL}{T_m U^2} = 1.$$

Next, the unevenness of the ground is "rectified" using the following substitution of the variables:

$$\xi = x,\ \zeta = z - \delta(x).$$

With these variables, the system of equations (4) becomes

$$\frac{\partial u}{\partial t} + \frac{\partial u^2}{\partial \xi} + \frac{\partial u w}{\partial \zeta} = -\frac{\partial \Phi}{\partial \xi} + \delta' T + \frac{\partial^2 u}{\partial \xi^2} - \delta' \frac{\partial^2 u}{\partial \xi \partial \zeta} +$$

$$+ \left(\delta'^2 + \frac{\nu_2}{\nu_1}\right) \frac{\partial^2 u}{\partial \zeta^2} - \delta'' \frac{\partial u}{\partial \zeta},$$

$$\Phi = -\int_{\zeta}^{\infty} T d\zeta,$$

$$w = -\int_0^{\zeta} \frac{\partial u}{\partial \xi} d\zeta, \qquad (5)$$

$$\frac{\partial T}{\partial t} + \frac{\partial u T}{\partial \xi} + \frac{\partial w T}{\partial \zeta} = -D^2 (w + \delta' u) + \frac{\partial^2 T}{\partial \xi^2} - \delta' \frac{\partial^2 T}{\partial \xi \partial \zeta} +$$

$$+ \left(\delta'^2 + \frac{\varkappa_2}{\varkappa_1}\right) \frac{\partial^2 T}{\partial \zeta^2} - \delta'' \frac{\partial T}{\partial \zeta},$$

where

$$w = v - \delta' u.$$

The boundary conditions take the forms:

$$\text{when } \zeta = 0 \quad u = w = 0,\ T = \theta(\xi);$$

$$\text{when } \zeta \to \infty \ \frac{\partial u}{\partial \zeta} = \frac{\partial T}{\partial \zeta} = \Phi = 0; \qquad (6)$$

$$\text{when } \xi \to \pm\infty \ \frac{\partial u}{\partial \xi} = \frac{\partial T}{\partial \xi} = \frac{\partial \Phi}{\partial \xi} = 0.$$

Then the first and fourth equations in the system (5) are written in finite differences for an isometric grid

$$u^{n+1}_{i,j} = u^n_{i,j} - \frac{\Delta t}{2\Delta \xi}\left[u^{n^2}_{i+1,j} - u^{n^2}_{i-1,j}\right] - \frac{\Delta t}{2\Delta \zeta}\left[u^n_{i,j+1} w^n_{i,j+1} -\right.$$

$$\left. - u^n_{i,j-1} w^n_{i,j-1}\right] - \frac{\Delta t}{2\Delta \xi}\left[\Phi^{n+1}_{i+1,j} - \Phi^{n+1}_{i-1,j}\right] + \Delta t \delta'_i T^{n+1}_{i,j} +$$

$$+ \frac{\Delta t}{\Delta \xi^2}\left[u^n_{i-1,j+1} - 2u^n_{i,j} + u^n_{i+1,j}\right] - \frac{\Delta t}{4\Delta \zeta \Delta \xi} \delta'_i \left[u^n_{i+1,j+1} - \right. \qquad (7)$$

$$\left. - u^n_{i-1,j+1} - u^n_{i+1,j-1} + u^n_{i-1,j-1}\right] + \frac{\Delta t}{\Delta \zeta^2}\left(\delta'^2_i + \frac{\nu_2}{\nu_1}\right) \cdot \left[u^n_{i,j+1} - \right.$$

$$-2u^n_{i,j}+u^n_{i,j-1}\Big]-\frac{\Delta t}{2\Delta^\eta_i}\delta^\eta_i\Big[u^n_{i,j+1}-u^n_{i,j-1}\Big];$$

$$T^{n+1}_{i,j}=T^n_{i,j}-\frac{\Delta t}{2\Delta^\xi_i}\Big[u^n_{i+1,j}T^n_{i+1,j}-u^n_{i-1,j}T^n_{i-1,j}\Big]-\frac{\Delta t}{2\Delta^\eta_i}\Big[w^n_{i,j+1}T^n_{i,j+1}-$$

$$-w^n_{i,j-1}T^n_{i,j-1}\Big]-\Delta tD^2\Big(w^n_{i,j}+\delta^\eta_i u^n_{i,j}\Big)+\frac{\Delta t}{\Delta^{\xi 2}_i}\Big[T^n_{i+1,j}-2T^n_{i,j}+T^n_{i-1,j}\Big]-$$

$$-\frac{\Delta t\delta^\eta_i}{4\Delta^\xi_i\Delta^\eta_i}\Big[T^n_{i+1,j+1}-T^n_{i-1,j+1}-T^n_{i+1,j-1}+T^n_{i-1,j-1}\Big]+\frac{\Delta t}{\Delta^{\eta 2}_i}\Big(\delta^{\eta 2}_i+\frac{\varkappa_2}{\varkappa_1}\Big)\cdot$$

$$\cdot\Big[T^n_{i,j+1}-2T^n_{i,j}+T^n_{i,j-1}\Big]-\frac{\Delta t}{2\Delta^\eta_i}\delta^\eta_i\Big[T^n_{i,j+1}-T^n_{i,j-1}\Big].$$

$$u_{i,10}=u_{i,11},\ T_{i,10}=T_{i,11},\ u_{1,j}=u_{2,j},\ T_{1,j}=T_{2,j},$$

$$u_{33,j}=u_{64,j},\ T_{63,j}=T_{64,j},\ u_{i,0}=0,\ T_{i,0}=\theta\ (x_i),$$

where

$$i=2,3,\ldots,63.\ j=1,2,\ldots,10.$$

The calculations are made in the following sequence: 1) the temperature field T, 2) the field ϕ is determined by integration from the second equation in (5), and 3) ϕ values are used to calculate u from the velocity

field. Numerical examples are given for a steady-state condition, streamlines of an infinitely heated belt, the interaction of the free atmosphere with the atmospheric boundary layer when U = 1, and for atmospheric diffusion in eddies. Orig. art. has: 3 figures and 7 formulas. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: 18Dec67/ ORIG REF: 001

ACC NR: AP8018967 SOURCE CODE: UR/0050/68/000/004/0120/0120

AUTHOR: Ter-Markaryants, N.Ye.

ORG: none

TITLE: [Session of the Scientific Council held 16—17 October 1967 at the Main Geophysical Observatory]

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 120

TOPIC TAGS: scientific conference, dynamic meteorology, weather forecasting, cloud seeding, air pollution, hail prevention

ABSTRACT: More than 200 scientists attending a session of the Scientific Council held on 16—17 October 1967 at the Main Geophysical Observatory heard papers by the following speakers: 1) M.I. Budyko, Corresponding Member of the USSR Academy of Sciences, reviewed the history of the Observatory since it was founded in 1849; he also noted that the Observatory had been awarded the Order of the Red Banner of Labor for its successful work; 2) in dwelling on the history of the evolution of dynamic meteorology in the Soviet Union, Professor M.I. Yudin enumerated the important approaches made at the Observatory in solving the following problems in numerical weather forecasting: a) calculations of such

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non-adiabatic factors in equations of motion as the influx of radiation heat and phase transitions of humidity and b) the combination of hydrodynamic and statistical methods and the calculation of empirical relationships; 3) a joint paper presented by N.P. Rusin, D.P. Bespalov, and M.S. Sternzat described the development of the meteorological observation system used in the Soviet Union from 1914 when it consisted of about 1400 stations and 1500 posts, to a period of rigidly controlled scientifically developed procedures including the introduction of new types of observations (aerological, actinometric, and agrometeorological) new instruments, and automated data recording and analysis; 4) a similar review paper on the evolution of Soviet climatology by O.A. Drozdov, I.A. Gol'tsberg, A.N. Lebedev, and O.G. Sorochan (published subsequently in *Climatological Handbook* and *Climatology of the USSR* series; 5) a paper by I.V. Vasil'chenko, P.A. Vorontsov, G.P. Gushchin, and V.P. Kolokolov on geophysical observations such as actinometric, atmospheric-optical, ozone and heat balances, observations in the surface boundary and boundary layers of the atmosphere (gradient, structural, and aerological), observations of condensation nuclei concentrations and the chemical composition of precipitation; 6) studies carried out in connection with satellite meteorology problems were reviewed by V.L. Gayevskiy, K.Ya. Kondrat'yev and K.S. Shifrin; 7) V.Ya. Nikandrov and N.S. Shishkin discussed studies of cloud physics and cloud modification, principally

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ACC NR: AP8018967

methods of artificial regulation of the phase and microstructural transformation of clouds and fog by localized applications. Other topics discussed included methods of hail prevention and cloud seeding and 8) a paper by M.Ye. Berlyand who dealt with the principal problems in the field of atmospheric diffusion and air pollution. The paper discussed such related topics as the derivation of formulas and procedures for determining ground-level pollutant concentrations and calculations of isolated areas in which the terrain is slightly dissected and the pollution, therefore, is higher than over flat terrain. A recent study of the air pollution in USSR cities is mentioned. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: none

Card 3/3

ACC NR: AP8018960 SOURCE CODE: UR/0050/68/000/004/0056/0062

AUTHOR: Terziyev, F. S.; Yakovlev, B. A.

ORG: Murmansk Administration of the Hydrometeorological Service (Murmanskoye upravleniye gidrometsluzhby)

TITLE: Improving forecasts of the development and dispersal of evaporation fogs [steam fogs]

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 56-62

TOPIC TAGS: weather forecasting, fog, evaporation fog, steam fog

ABSTRACT: The results and a description of the procedures used in a study carried out in an attempt to improve the prediction of times of onset and dispersal of evaporation fogs over Kola Bay are reported. The data used in the investigation consisted of measurements made at the Kola weather station during the 0100-, 0700-, 1300-, and 1900-hr observation periods (1942—1965) and at the Murmansk stations during these periods and for those at 0300, 0900, 1500 and, 2100 hr (1952—1965). The development and dispersal of the evaporation fogs occurring during these periods are analyzed as single or multiple functions of cloud cover, wind speed and direction, ground cover (presence or lack of snow), air temperature (rate

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ACC NR: AP8018960

of change per observation period or for longer periods), water temperature, and synoptic situations (direction and paths of anticyclones, presence of inversions, and humidity). The nomograms derived by Timofeyev (*Meteorological Regime of Reservoirs, Gidrometeoizdat*, 1963), which were designed for fog prediction from air temperatures, water temperatures and humidity, were adapted for conditions in Kola Bay (using the same parameters) for data measured over water or coastal areas or sea ice. With the acquisition of data from a larger number of stations, both land and sea-based, the author anticipates further improvement of evaporation fog forecasting by using the Timofeyev nomogram method. Orig. art. has: 4 figures and 2 tables. [WA-50; CBE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: 22Jun67

Card 2/2

ACC NR: AT8017200 SOURCE CODE: UR/0000/67/000/000/0091/0100

AUTHOR: Vorontsov, P.A.

ORG: none

TITLE: Determination of the components of turbulent energy balance from experimental data

SOURCE: Ravnovesnyy gradiyent temperatury (Equilibrium temperature gradient); sbornik statey. Leningrad, Gidrometeoizdat, 1967, 91-100

TOPIC TAGS: atmospheric turbulence, turbulent energy balance, atmospheric boundary layer structure, turbulent energy component, turbulent mixing

ABSTRACT: This paper is described as the first attempt to utilize balloon soundings to calculate the parameters of turbulent energy balance. The usual equation for turbulent energy balance, excluding horizontal diffusion and advection terms, and assuming that $\sigma_u = \sigma_v$, is simplified to

$$E = \sigma_u^2 + \frac{\sigma_w^2}{2}. \qquad (1)$$

The magnitudes in the right-hand side denote that k_β^2 is the influx of turbulent energy caused by the transformation of the main motion

Card 1/5 UDC: 551.511

(dynamic factor) B;

$$k_T \frac{g(\gamma_p - \gamma_n)}{T} = A,$$

is the energy influx and outflux due to counter - Archimedean forces (A), and ν is

$$\nu = a \frac{\beta^2}{k}, \qquad (2)$$

where a is a constant factor of 0.046 and k and k_T are coefficients of turbulent viscosity and heat conductivity. Here $k = k_T$; β is the vertical gradient of the wind velocity in a layer 100 m thick, T is the average temperature of the layer, g is the gravitational acceleration, γ_p and γ_n are the equilibrium and observed lapse rates for the 100-m layer, and $\frac{\partial}{\partial z} k \frac{\partial E}{\partial z} = D$, the magnitude of turbulent energy diffusion. D is calculated from the equation

$$D = \frac{\partial}{\partial z} k \frac{\partial E}{\partial z}\Big|_i = \frac{(k_{i+1} + k_i) E_{i+1} - [k_{i+1} + 2k_i + k_{i-1}] E_i + (k_i + k_{i-1}) E_{i-1}}{2\Delta z^2} \qquad (3)$$

and E and k are assumed to equal zero at the earth's surface. D can be calculated only for the 100- and 200-m levels; at the 300-m level it is determined as a residual term in the original turbulent energy balance equation. The influx-outflux of kinetic energy between two time intervals is designated as $\frac{dE}{dt}$. Calculations are made using two of the most frequently accepted values of γ_p: 1°/100 m and 0.6°/100 m. The sum of all terms of the turbulent energy balance equation is calculated from

$$\sum = k\beta^2 - k\frac{g(\gamma_p - \gamma_n)}{T} + \frac{\partial}{\partial z} k \frac{\partial E}{\partial z} = \frac{\partial E}{\partial t}. \qquad (4)$$

This abbreviated and simplified method was used in calculating actual measurements made every two hours from captive balloons over Voyeykovo. In determining diurnal changes, observations were divided into six periods: 0100, 0500, 0900, 1300, 1700, and 2100 hr for the summer and winter seasons. The data are summarized in Tables 1 and 2. These

Table 1. Magnitudes of E m²/sec², β m/sec/100 m, k m²/sec and γ °/100 m (for $u' > 0.1$ m/sec). Voyeykovo.

Hours	H m	Warm season				Cold season			
		E	β	k	γ	E	β	k	γ
0100	100	1.70	2.0	17	-2.8	0.07	2.9	9	1.7
	200	1.05	1.3	17	-0.7	0.12	2.1	9	-0.9

Table 1. (Cont.)

	300	0,84	0,6	15	0,1	0,65	1,3	6	-0,5
0500	100	0,84	3,2	12	-2,1	0,72	2,5	16	—1,5
	200	1,05	1,5	15	-0,6	0,57	2,1	10	—1,0
	300	0,76	0,9	12	-0,2	0,43	1,3	8	—0,1
0900	100	1,27	1,5	41	0,5	1,60	2,3	18	—0,1
	200	1,22	1,2	38	0,5	1,39	2,1	15	—0,2
	300	0,96	0,7	30	0,7	0,81	1,2	11	—0,1
1300	100	3,06	1,0	58	1,5	2,43	2,5	28	0,6
	200	2,16	0,1	53	1,1	2,03	1,8	22	0,7
	300	2,15	0,5	49	0,9	1,16	1,0	11	0,2
1700	100	1,66	0,9	46	0,8	1,57	2,8	22	0,5
	200	1,74	0,8	46	0,9	1,03	1,9	15	0,2
	300	1,47	0,6	41	0,7	0,79	0,8	11	0,1
2100	100	1,82	2,7	16	-1,1	1,15	3,2	10	—1,6
	200	1,51	1,3	15	0,1	0,85	1,7	6	—0,4
	300	1,25	0,1	12	0,4	0,50	0,9	5	0,0

Table 2. Components of turbulence energy balance (cm^2/sec^3)(for u' > 0.1 m/sec). Voyeykovo.

Hours	H м	Warm season						Cold season					
		kp'	A	D	—ε	dK/dt	z	kp'	A	D	—ε	dK/dt	z
0100	100	143	—83	—28	88	-1	—55	76	—70	—5	46	0	—45
	200	24	—17	9	29	0	—13	18	—20	1	38	0	—39
	300	6	—3	—	21	0	—	5	—11	—	32	0	—

Table 2. (Cont.)

0500	100	123	—110	—2	27	0	—16	100	—111	7	15	0	—22
	200	33	—61	—7	31	0	—69	44	—51	1	14	0	—23
	300	10	—32	—	23	0	—	13	—17	—	10	0	—
0900	100	93	41	—25	18	1	90	95	—43	—17	61	0	—29
	200	53	38	2	18	0	75	61	—35	—3	58	1	—33
	300	15	12	—	14	0	—	16	—26	—	28	0	—
1300	100	53	181	—123	74	1	41	175	0	—12	96	1	36
	200	12	100	18	48	1	81	71	75	—2	87	1	56
	300	10	49	—	43	1	—	14	—20	—	69	1	—
1700	100	38	32	—35	28	—1	8	172	—7	—27	51	—1	88
	200	28	46	—15	30	—1	30	54	—21	6	32	—1	8
	300	16	16	—	24	—1	—	10	—21	—	18	—1	—
2100	100	117	—90	—21	95	0	—89	102	—75	—4	60	0	—37
	200	25	—26	2	70	0	—69	17	—20	—3	55	0	—61
	300	2	—8	—	60	0	—	4	—10	—	31	0	—
Mean diurnal	100	572	—29	—231	—330	0	—21	720	—300	—88	—312	0	—9
	200	175	80	9	—220	0	35	268	—75	0	—231	0	—91
	300	59	31	—	—185	0	—	62	—108	—	—188	—	—
av. in layer	100—300	806	85	—	—711			1050	—492	—88	—601	—	

components are compared with those calculated earlier by Panofsky for the 120-m level, with Ri numbers in the 0.0—0.5 range. Values obtained by the proposed methods are considered to be satisfactory. Orig. art. has: 1 figure, 4 tables, and 8 formulas. [WA-50; CBE No. 33][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 002

ACC NR: AT8017198 SOURCE CODE: UR/0000/67/000/000/0073/0081

AUTHOR: Vorontsov, P. A.; Shekhter, F. N.; Yudin, M. I. (Professor)

ORG: none

TITLE: Determination of the turbulent heat flux in the atmospheric boundary layer

SOURCE: Ravnovesnyy gradiyent temperatury (Equilibrium temperature gradient); sbornik statey, Leningrad, Gidrometeoizdat, 1967, 73-81

TOPIC TAGS: atmospheric boundary layer, atmospheric convection, atmospheric turbulence, heat flux

ABSTRACT: Frequent (every two hours) balloon soundings in the atmospheric boundary layer (to h = 500m), aircraft or helicopter measurements (to h = 1.5 km), and pilot balloon measurements were the data used in a study to determine whether turbulent heat fluxes could be calculated from measurements made with instruments which are generally available at weather stations in the USSR. In the calculations, Yudin's final equation for heat-flux calculation (isobaric system of coordinates, unsaturated atmosphere and quasi-static state) is integrated from p_0 to the variable pressure p to permit the calculation of the heat flux in an atmospheric layer

of any thickness $p_0 - p$ or $z - z_0$ (z is that height above the ground of the isobaric surface having the pressure p). The formula then becomes

$$\Delta Q(z) = \Delta S(z) - \Delta F(z) + \frac{c_p}{g}\int_{p_0}^{p}\frac{\partial T}{\partial t}dp + \frac{c_p}{g}\int_{p_0}^{p}\left(u\frac{\partial T}{\partial x} + v\frac{\partial T}{\partial y}\right)dp - \frac{c_p}{g}\int_{p_0}^{p}\frac{\gamma_a - \gamma}{\rho g}\tilde{\omega}\,dp, \quad (1)$$

where $\Delta Q(z) = Q(z) - Q(0)$, $\Delta S = S(z) - S(0)$, $\Delta F = F(z) - F(0)$.

The fluxes are considered to be positive when they move upward. The influx of long-wave radiation is calculated with the usual formulas by introducing an approximate expression for calculating ΔF from boundary layer observations so that the equation becomes

$$F(z) - F(0) = \int_0^m E(T_0)\left[D'_1(|m - \tau|) - D'_1(\tau)\right]d\tau - E(T_0)\left[1 - D(m)\right], \quad (2)$$

where $E = \sigma T^4$, T_i is the temperature at h = z, $m = \int_0^z \rho_w \sqrt{\frac{p}{p_0}}\, dz$, $M = \int_0^\infty \rho_w \sqrt{\frac{p}{p_0}}\, dz$, ρ_w is the absolute humidity, and $D(x)$ is the transmission function. $E(T_i)$ is then expanded into a Taylor series in the vicinity of the point $T = T_0$ and, limited to the first term in (2), the equation becomes

$$\Delta F(z) = E(T_i) f(m, M - m) + [E(T_i) - E(T_0)][1 - D(m)] - \\ - 400 \left(\frac{F}{\rho_w T} \frac{dT}{dz}\right)_z m [1 - D(M)], \qquad (3)$$

where $f(m, M-m) = D(M-m) - D(M)$, ρ_w is expressed in g/m^3, T in K°, $\frac{dT}{dz}$ in degrees/100m, E in cal/cm^2/mm, and m and M is the depth of precipitation in cm. The transmission function is calculated by

$$D(x) = 0{,}461 e^{-1{,}18\sqrt{x}} + 0{,}539 e^{-7{,}75\sqrt{x}}, \qquad (4)$$

with the radiation absorbed by water vapor and carbon dioxide taken into account. The formula used to calculate the incoming radiation is

$$S^{\downarrow}(z) = W(1 - \Gamma_a) D_s\left(\frac{M - m}{\sin h_\odot}\right) \sin h_\odot, \qquad (5)$$

where Γ_a is the albedo of the atmosphere, h is the altitude of the sun above the horizon, $D_s(x)$ is the transmission function for solar radiation, and W is the solar energy entering the upper boundary of the atmosphere. Assuming that the total amount of radiation reaching the ground $[S^{\downarrow}(0)]$ is known, the direct solar radiation is determined from

$$\Delta S_{dir}(z) = \left[\frac{D_s\left(\frac{M - m}{\sin h_\odot}\right)}{D_s\left(\frac{M}{\sin h_\odot}\right)} - 1\right] S^{\downarrow}(0). \qquad (6)$$

The amount of the radiation reflected from the earth's surface that is absorbed by water vapor is determined from

$$\Delta S_{refl}(z) = \Delta S_{dir}(z) \frac{\Gamma}{\left(1 - \frac{M - m}{M}\right)} \left[\left(1 + 1{,}61 \sin h_\odot \frac{m}{M}\right) - 1\right]. \qquad (7)$$

The influence of the transient state is calculated from

$$\frac{c_p}{g}\int_{p_0}^{p}\frac{\partial T}{\partial t}\,dp = -\frac{c_p}{2g\Delta t}\sum_{i=0}^{n}\Delta T(p_i)\,[(p_{i-1}-p_i)+(p_i-p_{i+1})], \qquad (8)$$

where $\Delta t = 2$ hr, and $(p_{i-1}-p_i) = 13$ mb. The effect of advection is calculated from the equation of state and the geostrophic relation

$$A = \frac{c_p}{g}\int_{p_0}^{p}\left(u\frac{\partial T}{\partial x}+v\frac{\partial T}{\partial y}\right)dp = \frac{c_p l}{gR}\int_{p_0}^{p}p\left(v\frac{\partial u_g}{\partial p}-u\frac{\partial u_g}{\partial p}\right)dp, \qquad (10) \qquad (9)$$

where U_g and V_g are projections of the vector of the geostrophic wind velocity on the coordinate axis, R is a gas constant, $l = 2\omega\sin\varphi$, ω is the angular velocity of the rotation of the earth, and ψ is the geographic latitude. It is assumed that the geostrophic wind changes linearly with height. Therefore

$$A = \frac{c_p l}{g^2}\cdot\frac{\Delta V_g^0}{\Delta z_0}\int_{p_0}^{p}TV\sin\left(\widehat{\vec{V}\,\Delta\vec{V}_g^0}\right)dp, \qquad (10)$$

where $\Delta\vec{V}_g^0$ is the difference in the vector of the geostrophic wind velocity at the 850- and 1000-mb surfaces, and Δz_0 is the distance between these two surfaces. Substituting in (10) the integral sums, the equation becomes

$$A = -\frac{c_p l}{2g^2}\cdot\frac{\Delta V_g^0}{\Delta z_0}\sum_{i=0}^{n}T(p_i)V(p_i)\sin\left(\widehat{\vec{V}_i\,\Delta\vec{V}_g^0}\right)\times \qquad (11)$$
$$\times\,[(p_{i-1}-p_i)+(p_i-p_{i+1})].$$

In calculating heat advection from (11), the direction and velocity of the geostrophic wind are taken from constant-pressure charts. The result is that extrapolation errors occur; errors also result from the fact that small-scale heat advection effects cannot be calculated precisely. Therefore, only those air flows are selected which exist when the advective heat flux is negligible. With proper selection, the effect of advection in the 500—1000-m layer ($\bar{A}$) is described approximately by

$$\bar{A} \approx -\frac{c_p l}{g}\int_{p_0}^{p_1}pT\left(u\frac{\partial v}{\partial p}-v\frac{\partial u}{\partial p}\right)dp. \qquad (12)$$

Substituting finite differences, and after transformation, the equation becomes

$$|\bar{A}| \approx \frac{c_p l}{g}\,pTV_1V_2\,|\sin(d_1-d_2)|. \qquad (13)$$

The effect of vertical velocity is calculated in accordance with the following criteria: 1) little advection $|V_1V_2\sin(d_1-d_2)| \leqslant 8$ m²/cek.²; 2) no convective clouds prevent; 3) $|\gamma_a-\gamma| \leqslant 0.5°/100$ м at h = 100—500 m;

ACC NR: AT8017198

and 4) no condensation in the atmospheric layer. Calculations made with actual measurements indicate that when the data are carefully selected, the described procedure is adequate for the calculation of turbulent heat fluxes from systematic weather station observations. Orig. art. has: 1 table and 14 formulas. [WA-50; CBE No. 33] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 001

Card 7/7

ACC NR: AP8018965 SOURCE CODE: UR/0050/68/000/004/0118/0118

AUTHOR: Zakharov, V.N.

ORG: none

TITLE: At the Main Administration of the Hydrometeorological Service

SOURCE: Meteorologiya i gidrologiya, no. 4, 1968, 118

TOPIC TAGS: scientific conference, meteorology, hydrology, water pollution, atmospheric circulation, cloud seeding

ABSTRACT: Important meteorological and hydrometeorological conferences and seminars to be held in 1968 include the Twenty-Second Hydrochemical Conference on Problems of the Pollution and Purification of Surface Runoff to be held in the second quarter of 1968; the All-Union Conference on Problems of General Atmospheric Circulation to meet in Tiflis during the third quater; the Interdepartmental Conference on Cloud Physics and Cloud Modification to be held in Leningrad during the second quarter; and a conference on the results of work carried out to accomplish the first stages of automating the systems used at the Hydrometeorological Service, to be held in Moscow during the second quarter. [WA-50; CBE No. 33][ER]

SUB CODE: 04, 08/ SUBM DATE: none

Card 1/1

IV. GENERAL

ACC NR: AP80200261 SOURCE CODE: UR/0240/68/000/005/0070/0072

AUTHOR: Agafonova, N. I. (Vilnius); Matulyavichus, V. P. (Candidate of physico-mathematical sciences; Vilnius)

ORG: none

TITLE: Biological aerosols and methods of trapping them

SOURCE: Gigiyena i sanitariya, no. 5, 1968, 70-72

TOPIC TAGS: biologic aerosol, biologic agent sampler, biologic agent detection, biologic agent filter.

ABSTRACT: This article appears in Biologic Factors

Card 1/1 UDC: 614.715/718-07

ACC NR: AP8014478 SOURCE CODE: UR/0413/68/000/009/0141/0142

AUTHOR: Basmanov, P. I.; Corodinskiy, S. M.; Kvitko, I. I.; Petryanov-Sokolov, I. V.; Romanchuk, V. Ya.; Shatskiy, S. N.

ORG: none

TITLE: Respirator. Class 61, No. 212755

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1968, 141-142

TOPIC TAGS: respirator, biologic protective mask

ABSTRACT: A respirator which comprises a half-mask, and has an electrostatically charged filter made of soft fibrous material, is operated by opening the half-mask, diaphragm and fastening band and also a flexible brace. To provide repeated use, the frame of the housing is perforated and is covered with a soft edge which is turned inside the half-mask. The interchangeable filter is located in the outer part of the frame and is fitted to the soft edge beneath the housing; one side of the filter is held by the flexible brace. To provide even pressure in the diaphragm and exterior mechanical protection of the filter, the housing of the half-mask is in a perforated shell which is in the shape of the housing. [MA-50; CBE No. 30] [BC]

SUB CODE: 06/ SUBM DATE: 26Jan67

Card 1/1 UDC: 614.894.24

ACC NR: AP8014490 SOURCE CODE: UR/0017/68/000/003/0032/0033

AUTHOR: Durikov, A.

ORG: none

TITLE: Chemical detector

SOURCE: Voyennyye znaniya, no. 3, 1968, 32-33

TOPIC TAGS: chemical warfare, chemical detection, phosgene, mustard gas, diphosgene, cyanogen compound

ABSTRACT: The VPKhR military chemical detector and the PKhR chemical detector differ little in construction and operation; both can be used for civil defense. The VPKhR (see the figure) is intended for use in determining the presence of CW agents in the air, on the ground, on equipment, clothing and other objects. The detector contains a hand pump, protective covers, heater, flashlight, and a small shovel. While earlier devices (the PKhR-54) had glass jars for taking samples, the VPKhR uses indicator tubes. The VPKhR weighs 2.2 kg, is operated by one person, and is carried on a shoulder harness. The hand pump pumps air through the indicator tubes at a rate of about 2 l/min. The detector has a collector which makes it possible to test not just one,

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ACC NR: AP8014490

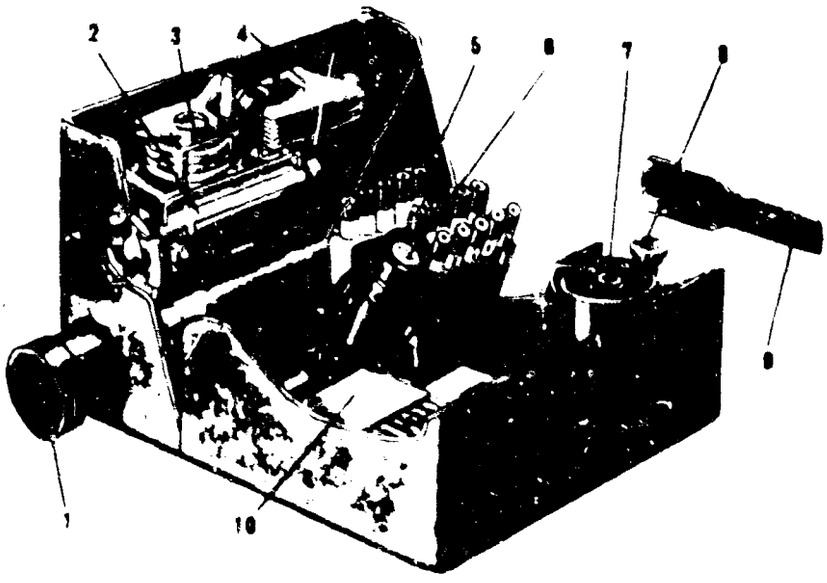

Fig. 1. VPKhR Military chemical detector

1 - Hand pump; 2 - packing for pump; 3 - protective covers; 4 - antismoke filters; 5 - cartridges for heater; 6 - flashlight; 7 - heater housing; 8 - spindle; 9 - small shovel; 10 - cassettes with indicator tubes.

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ACC NR: AP8014490

but 2—5 indicator tubes simultaneously. There are three types of indicator tubes, each marked differently, for detecting Sarin, Soman, and V-agents; for detecting mustard gas; and for detecting phosgene, diphosgene, hydrocyanic acid and cyanogen chloride. Because the sensitivity of the indicator tubes is reduced at low temperatures, the heater of the VPKhR is used to heat the indicator tubes when the temperature is below zero for testing for Sarin, Soman and V-agents, and at temperatures below 10—15°C when testing for mustard gas. The tests detect CW agents in the following order: Sarin, Soman, and V-agents; phosgene, hydrocyanic acid, and cyanogen chloride; mustard gas. [WA-50; CBE No. 34] [BC]

SUB CODE: 15/ SUBM DATE: none

Card 3/3

ACC NR: AT8015314 SOURCE CODE: UR/0000/65/000/000/0114/0119

AUTHOR: Grigor'yeva, L. V.

ORG: Department of Microbiology, Kiev Institute of Post-Graduate Medicine (Kafedra mikrobiologii Kiyevskogo instituta usovershenstvovaniya vrachey); Laboratory of Sanitary Bacteriology and Virology, Ukrainian Institute of Community Hygiene (Laboratoriya sanitarnoy bakteriologii i virusologii Ukrainskogo instituta kommunal'noy gigiyeny)

TITLE: Detection of a viral aerosol under experimental conditions

SOURCE: AMN SSSR. Voprosy sanitarnoy bakteriologii i virusologii (Problems of sanitary bacteriology and virology). Moscow, Izd-vo "Meditsina," 1965, 114-119

TOPIC TAGS: biologic aerosol, viral aerosol, bacteriophage aerosol chamber, Escherichia coli, biologic agent filter,/ (U) FPP 15 biologic agent filter, (U) FPC 15 gelatin filter, (U) FPA 15 synthetic rubber filter, (U) FP-15 fiber filter

ABSTRACT: This article appears in Biologic Factors

Card 1/1 UDC: 614.4-078+576.8:614.4

ACC NR: AP8020819 SOURCE CODE: UR/0451/68/000/003/0017/0021

AUTHOR: Ivlev, L. S.: Klevakin, V. M.; Proskurnina, N. N.; Treskunov, A. A.

ORG: Leningrad University im. A. A. Zhdanov (Leningradskiy universitet); Military Medical Academy im. S. M. Kirov (Voyenno-meditsinskaya akademiya); Leningrad Branch All-Union Scientific Research Institute of Medical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo priborostroyeniya)

TITLE: Certain procedural features of studying different types of aerosols

SOURCE: Meditsinskaya tekhnika, no. 3, 1968, 17-21

TOPIC TAGS: biologic aerosol, aerosol generator, medical equipment, atmospheric pollution

ABSTRACT: Original article appears in Biologic Factors

Card 1/1 UDC: 613.633+614.715]-07

ACC NR: AT8015305 SOURCE CODE: UR/0000/65/000/000/0053/0061

AUTHOR: Kitenko, V. S.

ORG: Department of Microbiology, People's Friendship University im. Patrice Lumumba (Universitet druzhby narodov, Kafedra mikrobiologii)

TITLE: Viability and detection of pathogenic microbes in the environment

SOURCE: AMN SSSR. Voprosy sanitarnoy bakteriologii i virusologii (Problems of sanitary bacteriology and virology). Moscow, Izd-vo

TOPIC TAGS: pathogen screening method, biologic agent, detection, biologic agent sampler, bacteria spore, botulism, anthrax, Escherichia coli, influenza, fungus disease, parasite ecology, Streptococcus, staphylococcus, biologic agent filter, brucellosis, melioidosis, tularemia

ABSTRACT: This article appears in Biological Factors

Card 1/1 UDC: 614.4-078+576.8:614.[illegible]

ACC NR: AP8013475 SOURCE CODE: UR/0017/68/000/004/0042/0043

AUTHOR: Romanov, A.

ORG: none

TITLE: [Protective coverall]

SOURCE: Voyennyye znaniya, no. 4, 1968, 42-43

TOPIC TAGS: CBR protective clothing, radiation protection, biologic protective clothing

ABSTRACT: Standard items of protective clothing, such as the OP-1 coat, the L-1 light protection suit, coveralls, etc., which are made of rubberized cloth, cannot be worn for long periods in the heat. A coverall made of three layers of moleskin-type cotton can be worn at temperatures above 15°C. While being worn the coverall is moistened with water; depending on conditions, it has to be remoistened in 1—2 hr. The coverall can be worn continuously for 6—8 hr. When wet it affords additional protection from liquid and vapor contaminants, from radioactive dust and from bacterial agents. The coverall can be worn over standard protective clothing, but when worn with a gas mask, boots and gloves, it can be worn without other protective clothing and still

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ACC NR: AP8013475

provide protection. Under normal conditions it will retain its protective properties while in storage for four years.

[WA-50; CBE No. 50] [BC]

SUB CODE: 06, 15/ SUBM DATE: none

Card 2/2

ACC NR: AP8020968 SOURCE CODE: UR/0020/68/180/002/0294/0296

AUTHOR: Rvachev, L. A.

ORG: Institute of Epidemiology and Microbiology im. N. F. Gamaleya Academy of Medical Sciences SSSR (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Experimental computer modeling of large-scale epidemics

SOURCE: AN SSSR. Doklady, v. 180, no. 2, 1968, 294-296

TOPIC TAGS: biologic model, computer epidemiologic model, epidemiology, influenza, biocybernetics

ABSTRACT: This article appears in Biological Factors

Card 1/1 UDC: 519.2:61

ACC NR: AP8016836 SOURCE CODE: UR/0402/68/000/002/0192/0199

AUTHOR: Terskin, I. I.; Gusman, B. S.; Danilov, A. I.

ORG: Institute of Virology im. D. I. Ivanovskiy, AMN SSSR (Institut virusologii AMN SSSR); Institute of Human Morphology, AMN SSSR, Moscow (Institut morfologii cheloveka AMN SSSR)

TITLE: Immumomorphological and serological indices during ornithosis immunization with aerosols of liquid vaccine

SOURCE: Voprosy virusologii, no. 2, 1968, 192-199

TOPIC TAGS: aerosol immunization, virus aerosol, ornithosis, reticuloendothelial system

ABSTRACT: This article appears in Biological Factors

Card 1/1 UDC: 616.988.75-085.37-036.8

ACC NR: AT8019451 SOURCE CODE: UR/3355/65/013/000/0201/0205

AUTHOR: Trofimov, G. K.; Beklemisheva, N. P.

ORG: none

TITLE: Effect of aeroions on immunological reactivity in experimental infectious allergy

SOURCE: AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy, v. 13, 1965. Brutsellez v Kazakhstane (Brucellosis in Kazakhstan), 201-205

TOPIC TAGS: immunogenesis, immunology, brucellosis

ABSTRACT: This article appears in Biological Factors

Card 1/1

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AUTHOR: none

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TITLE: [Fire fighting equipment]

SOURCE: Tekhnika - molodezhi, no. 5, 1968, 11

TOPIC TAGS: fire fighting equipment, special purpose truck, jet engine

ABSTRACT: The TRU-100 uses a fine spray of water mixed with exhaust gases to extinguish fires. The equipment consists of an obsolete jet engine mounted on a ZIL-157 truck chassis, and a water hose. The direction of the water is that of the jet exhaust which simultaneously atomizes the water into a highly dispersed state and forms a mixture

Card 1/2

ACC NR: AP8019650

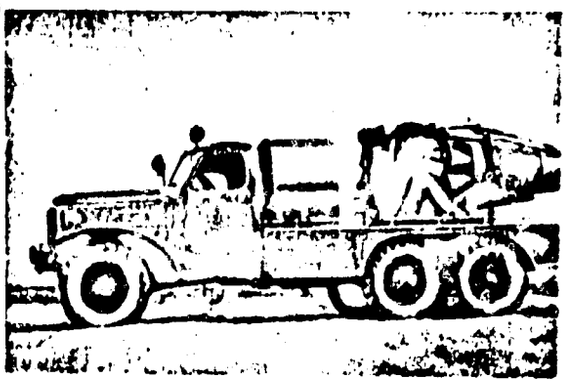

Fig. 1. TRU-100

with exhaust gases which extinguishes fires. Output of the equipment is 100 kg of fire extinguishing mixture per second.

[WA-50; CBE No. 50] [BC]

SUB CODE: 13/ SUBM DATE: none

Card 2/2

APPENDIX I. SOURCES

AMN SSSR. Kazakhskiy institut krayevoy patologii. Trudy. Brutsellez v Kazakhstane (Academy of Medical Sciences of the USSR. Kazakh Institute of Regional Pathology. Transactions. Brucellosis in Kazakhstan)

AMN SSSR. Voprosy sanitarnoy bakteriologii i virusologii. (Problems of sanitary bacteriology and virology)

AN BSSR. Vestsi. Seryya biyalagichnykh navuk (Academy of Sciences of the Belorussian SSR. News. Biological Sciences series)

AN KazSSR. Izvestiya. Seriya geologicheskaya (News of the Academy of Sciences of the Kazakh SSR. Geology series)

AN KazSSR. Izvestiya. Seriya khimicheskaya (Academy of Sciences of the Kazakh SSR. News. Chemical series)

AN LatSSR. Izvestiya (Academy of Sciences of the Latvian SSR. News)

AN LatSSR. Izvestiya. Seriya khimicheskaya (Academy of Sciences of the Latvian SSR. News. Chemistry series)

AN LatSSR. Khimiya geterotsiklicheskikh soyedineniy. sb.1: Azotsoderzhashchiye geterotsikly (Chemistry of heterocyclic compounds, no. 1: Nitrogen containing heterocycles)

AN SSSR. Doklady (Academy of Sciences of the USSR. Reports)

AN SSSR. Sibirskoye otdeleniye. Biologicheskiy institut. Priroda ochagov kleshchevogo entsefalita na Altaye; severo-vostochnaya chast' (Academy of Sciences of the USSR. Siberian Branch. Biological Institute. Nature of breeding grounds for tickborne encephalitis in the Altai; northeastern part)

AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya biologo-meditsinskikh nauk (Academy of Sciences of the USSR. Siberian Branch. News. Biological and Medical Sciences series)

AN SSSR. Zoologicheskiy institut. Trudy. Novyye vidy nasekomykh fauny SSSR i sopredel'nykh stran (Academy of Sciences of the USSR. Zoological Institute. Transactions. New species of insects of the USSR and adjacent regions)

Antibiotiki (Antibiotics)

Entomologicheskoye obozreniye (Entomology Review)

Farmakologiya i toksikologiya (Pharmacology and Toxicology)

Gidrometeorologicheskiy nauchno-issledovatel'skiy tsentr SSSR. Trudy. Dinamika atmosfernykh dvizheniy planeternogo masshtaba i gidrodinamicheskiy dolgosrochnyy prognoz pogody (Hydrometeorological Scientific Research Center of the USSR. Transactions. Dynamics of atmospheric movements on a planetary scale and hydrodynamic long-range weather forecasting)

Gigiyena i sanitariya (Hygiene and Sanitation)

Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki (Inventions, Industrial Samples, Trademarks)

Khimiko-farmatsevticheskiy zhurnal (Chemical and Pharmaceutical Journal)

Khimiya geterotsiklicheskikh soyedineniy (Chemistry of Heterocyclic Compounds)

Khimiya v sel'skom khozyaystve (Chemistry in Agriculture)

Konferentsiya biokhimikov Respublik Sredney Azii i Kazakhstana, 1st. Alma-Ata. Trudy. (Conference of biochemists of republics of Central Asia and Kazakhstan. Transactions. 1st, Alma-Ata)

Leningrad. Institut epidemiologii i mikrobiologii. Trudy. Voprosy etiologii i diagnostiki pishchevykh toksikoinfektsiy (Leningrad. Institute of Epidemiology and Microbiology. Transactions. Problems of etiology and diagnostics of food toxico-infections)

Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy. Fizika oblakov i aktivnykh vozdeystviy (Leningrad. Main Geophysical Observatory. Transactions. Physics of clouds and modifications)

Leningrad. Universitet. Problemy fiziki atmosfery (Leningrad. University Problems of Wave Diffraction and Propagation)

Meditsinskaya tekhnika (Medical Technology)

Mikologiya i fitopatologiya (Mycology and Phytopathology)

Moscow. Nauchno-issledovatel'skiy institut aeroklimatologii. Trudy. Voprosy gidrometeorologii Sibiri (Moscow. Scientific Research Institute of Aeroclimatology. Transactions. Problems of hydrometeorology in Siberia)

Ravnovesnyy gradiyent temperatury. Sbornik statey (Equilibrium temperature gradient; collections of articles)

Tartu. Universitet. Reaktsionnaya sposobnost' organicheskikh soyedineniy (Tartu. University. Reactivity of organic compounds)

Tekhnika - molodezhi (Engineering for Youth)

Uzbekistanskoye geograficheskoye obshchestvo (Uzbek Geographic Society)

Voprosy virusologii (Problems of Virology)

Voyenno-meditsinskiy zhurnal (Military Medical Journal)

Voyennyye znaniya (Military Science)

Zdravookhraneniye Belorussii (Belorussian Public Health)

Zhurnal obshchey khimii (Journal of General Chemistry)

Zoologicheskiy zhurnal (Zoological Journal)

APPENDIX II. ORGANIZATIONS

All-Union Chemical and Pharmaceutical Scientific Research Institute im. S. Ordzhonikidze, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut)

All-Union Institute of Experimental Veterinary Medicine (Vsesoyuznyy institut eksperimental'noy veterinarii)

All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

All-Union Scientific-Research Institute of Phytopathology, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)

Arbovirus Laboratory, Rockefeller Fund, Yale University, New Haven, USA (Arbovirusnaya laboratoriya Rokfellerovskogo fonda i Yeylskogo universiteta)

Biological Institute, Siberian Branch AN SSSR, Novosibirsk (Biologicheskiy institut Sibirskogo otdeleniya AN SSSR)

Chair of Hygiene Minsk Medical Institute (Kafedra gigiyeny Minskogo meditsinskogo instituta)

Department of Arboviruses, Institute of Virology im. D. I. Ivanovskiy, AMN SSSR, Moscow (Otdel arbovirusov Instituta virusologii AMN SSSR)

Department of Entomology, Kharkov State University (Kafedra entomologii Khar'kovskogo gosudarstvennogo universiteta)

Department of Microbiology, Kiev Institute of Post-Graduate Medicine (Kafedra mikrobiologii Kiyevskogo instituta usovershenstvovaniya vrachey)

Department of Microbiology, People's Friendship University im. Patrice Lumumba (Universitet druzhby narodov, Kafedra mikrobiologii)

Department of Toxicology, Belorussian Scientific Research Institute of Sanitation and Hygiene (Otdel toksikologii Belorusskogo nauchno-issledovatel'skogo sanitarno-gigiyenicheskogo instituta)

Division of Pharmacology, Institute of Experimental Medicine, AMN SSSR, Leningrad (Otdel farmakologii Instituta eksperimental'noy meditsiny AMN SSSR)

Donets Branch, Institute of Chemical Reagents and High Purity Chemicals (Donetskiy filial Instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)

High-Mountain Geophysical Institute (Vysokogornyy geofizicheskiy institut)

Hydrometeorological Scientific Research Center SSSR (Gidrometeorologicheskiy nauchno-issledovatel'skiy tsentr SSSR)

Institute of Chemistry, Academy of Sciences MoldSSR (Institut khimii Akademii nauk MoldSSR)

Institute of Chemistry, Academy of Sciences MoldSSR, Kishenev (Institut khimii Akademii nauk MoldSSR)

Institute of Epidemiology and Microbiology im. N. F. Gamaleya, Academy of Medical Sciences SSSR (Institut epidemiologii mikrobiologii AMN SSSR)

Institute of Evolutionary Physiology and Biochemistry im. I. M. Sechenov, Academy of Sciences SSSR, Leningrad (Institut evolyutsionnoy fiziologii i biokhimii Akademii nauk SSSR)

Institute of General Genetics, AN SSSR, Moscow (Institut obshchey genetiki AN SSSR)

Institute of Human Morphology, AMN SSSR, Moscow (Institut morfologii cheloveka AMN SSSR)

Institute of Hydrogeology and Hydrophysics, AN KazSSR, Alma-Ata (Institut gidrogeologii i gidrofiziki AN KazSSR)

Institute of Microbiology and Virology AN KazSSR, Alma-Ata (Institut mikrobiologii i virusologii AN KazSSR)

Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

Institute of Organic Chemistry, Academy of Sciences UkrSSR (Institut organicheskoy khimii Akademii nauk UkrSSR)

Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii Akademii nauk UkrSSR)

Institute of Physics of the Atmosphere, AN SSSR (Institut fiziki atmosfery AN SSSR)

Institute of Virology im. D. I. Ivanovskiy, Academy of Medical Sciences, SSSR (Institut virusologii Akademii meditsinskikh nauk SSSR)

Institute of Virology im. D. I. Ivanovskiy, AMN SSSR (Institut virusologii AMN SSSR)

Institute of Virology im. D. I. Ivanovskiy, AMN SSSR, Moscow (Institut virusologii AMN SSSR)

Institute of Zoology and Parasitology, AN UzbSSR, Tashkent (Institut zoologii i parazitologii AN UzbSSR)

Kazan' Institute of Chemical Technology im. S. M. Kirov (Kazanskiy khimiko-tekhnologicheskiy institut)

Kazan' State University im. V. I. Ul'yanov-Lenin (Kazanskiy gosudarstvennyy universitet)

Khar'kov Pharmaceutical Institute (Khar'kovskiy farmatsevticheskiy institut)

Laboratory of Psychopharmacology, Leningrad Scientific Research Institute of Neuropsychology im. V. M. Vekhterev (Laboratoriya psikhofarmakologii Leningradskogo nauchno-issledovatel'skogo psikhonevrologicheskogo instituta)

Laboratory of Sanitary Bacteriology and Virology, Ukrainian Institute of Community Hygiene (Laboratoriya sanitarnoy bakteriologii i virusologii Ukrainskogo instituta kommunal'noy gigiyeny)

Latvian State University im. Petra Stuchki (Latviyskiy gosudarstvennyy universitet)

Leningrad Branch All-Union Scientific Research Institute of Medical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo priborostroyeniya)

Leningrad Chemical and Pharmaceutical Institute (Leningradskiy khimiko-farmatsevticheskiy institut)

Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskiy institut)

Leningrad University im. A. A. Zhdanov (Leningradskiy universitet)

Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya)

Microbiology Department, Volgograd Medical Institute (Kafedra mikrobiologii Volgogradskogo meditsinskogo instituta)

Military Medical Academy im. S. M. Kirov (Voyenno-meditsinskaya akademiya)

Moscow Chemical Technology Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

Moscow Scientific Research Institute of Hygiene im. F. F. Erisman (Moskovskiy nauchno-issledovatel'skiy institut gigiyeny)

Murmansk Administration of the Hydrometeorological Service (Murmanskoye upravleniye gidrometsluzhby)

Novocherkassk Polytechnic Institute (Novocherkasskiy politekhnicheskiy institut)

Novokuznetsk Scientific Research Chemical and Pharmaceutical Institute (Novokuznetskiy nauchno-issledovatel'skiy Khimikofarmatsevticheskiy institut)

Perm' Pharmaceutical Institute (Permskiy farmatsevticheskiy institut)

Riga Medical Institute (Rizhskiy meditsinskiy institut)

Riga Polytechnic Institute (Rizhskiy politekhnicheskiy institut)

Stavropol' Regional Scientific Research Veterinary Station (Stavropol'skaya krayevaya nauchno-issledovatel'skaya veterinarnaya stantsiya)

Tashkent Pharmaceutical Institute (Tashkentskiy farmatsevticheskiy institut)

Virology Department, Central Institute of Post-Graduate Medicine, Moscow (Kafedra virusologii Tsentral'nogo instituta usovershenstvovaniya vrachey)

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