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there is an appreciable asymmetry in forward and backward emission of particles, b) in the region of average multiplicity (between 3 and 8) the best agreement with the expected value $\gamma_c = 2.4$ is shown by a quantity found by a kinematic method which assumes a uniform distribution of the transverse momenta of shower particles; the assumption $\beta_c/\beta_i' = 1$ (β_c is the velocity of the center-of-mass with respect to laboratory coordinates (LC), β_i' is the velocity of the particles in CMS) leads to a systematic overestimate of the energy by a factor of two. Regardless of the method of estimation, γ_c for 3-ray stars is too high, while γ_c for 8-ray stars is too low; therefore the Lorentz-factor of the system where angular symmetry of the secondary particles is assumed, will decrease as the multiplicity increases, c) as the multiplicity increases, the fraction of the energy carried off by charged meson increases both in LC and CMS, but the fraction of the energy per meson is almost unchanged (about 17%); therefore $n_{\pi^0}/n_{\pi^\pm} < 0.5$ for 7- and 8-ray stars provided that the energy spectra $n_{\pi^0}/n_{\pi^\pm}$ of π^0 and $\pi^\pm$ -mesons are identical. The mass of the target also increases with the multi-

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plicity, but it does not exceed the mass of nucleon; this confirms the criteria for the selection of n-n-interactions. The authors acknowledge the help of L.I. Mikhaylova and O.V. Gunenkova. There are 8 figures and 4 tables.

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39307

24.6600

S/707/62/005/000/004/014
D290/D308

AUTHOR: Botvin, V.A.

TITLE: Fission of Al, Mo and W nuclei by 660 Mev protons

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy. v. 5, Alma-Ata, 1962. Fizika chastits vysokikh energiy. Struktura yadra, 65-82

TEXT: Al, Mo and W were chosen because Al is a typical light nucleus, W is a typical heavy nucleus, and Mo should show similar fission characteristics to the heavy nuclei in photo-emulsions (Ag and Br). Filaments of Al, Mo and W (about 100 μ diameter) were placed between two sheets of nuclear emulsion and irradiated by 660 Mev protons from a synchrocyclotron of NIKFI sheets of emulsion type P (R) 400 μ thick were used. The average number of rays per fission increases when passing from Al to Mo to W. The cross-sections found for the inelastic interaction of 660 Mev protons with Al, Mo and W were: Al - 400 ± 80 mb, Mo - 1030 ± 200 mb, W - 1850 ± 250 mb; these values agree well with experimental values found

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using counters, and with theoretical values calculated using the optical model of the nucleus. The values found for the ratio of the number of α-particles to the number of protons produced per fission were: Al - 0.50 ± 0.14, Mo - 0.36 ± 0.11, W - 0.34 ± 0.06; these values agree well with cosmic ray measurements with Al and W but do not agree with the predictions of the evaporation theory of the nucleus. The distributions of slow protons (less than 30 Mev) were measured for each nucleus. Theoretical distributions were calculated using the evaporation theory and the mean excitation energies of the nuclei; the experimental and theoretical distributions agree well in all three cases despite the fact that the evaporation theory is not applicable to Al as it contains such a small number of nucleons. The author acknowledges the help of Professor Zh. S. Takibayev, V.P. Dzhelepov and M.G. Meshcheryakov. There are 11 figures.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

S/056/62/042/001/001/048
B125/B108

AUTHORS: Boos, E. G., Botvin, V. A., Pavlova, N. P., Takibayev, Zh. S., Chasnikov, I. Ya.

TITLE: Analysis of 9-Bev proton-nucleon interaction in a nuclear emulsion

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 1, 1962, 3 - 11

TEXT: A constant distribution of transverse momenta is assumed for the suggested method of studying the dependence of angular and energy characteristics of proton-nucleon interaction on multiplicity. All showers observed in a P (R) type НИКФИ (NIKFI) emulsion irradiated with 9-Bev protons from the proton synchrotron of the OIYaI were classified according to their multiplicity. The transverse momenta of the secondary particles are constant over a wide range of primary particle energies and depend only slightly on multiplicity and target mass. The experimental distribution of $p_\perp$ is satisfactorily approximated by $\Delta N/N\Delta p_\perp = cp_\perp \exp(-p_\perp^2/b^2)$ (1). Owing

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to the law of conservation of momentum, the mean value of $p_\perp$ increases with increasing Θ in the case of small angles. Results of this method show better agreement with the experiment than earlier methods. The angular distribution of shower particles becomes more isotropic (in the c.m.s) with increasing multiplicity. The particle emission of the 3 and 8-pronged stars forward and backward is not symmetric. The best agreement with the expected Lorentz factor ($\gamma_c = 2.4$) is attained for mean multiplicities ($3 < n_s < 8$). The Lorentz factor tends to a decrease with increasing multiplicity. The portion of energy imparted to charged mesons increases with multiplicity in both the laboratory and center-of-mass systems. Hence, $n(\pi^0)/n(\pi^\pm) < 0.5$ for 7 or 8-pronged stars with equal energy spectra of π^0 and $\pi^\pm$ mesons. The estimable mass of the target particles increases with multiplicity, but does not exceed the nucleon mass estimated by N. G. Birger and Yu. A. Smorodin (ZhETF, 36, 1159, 1959). This justifies the criteria of selecting nucleon-nucleon interactions. The coworkers of the OIYaI are thanked for discussions, I. M. Gramenitskiy and M. I. Podgoretskiy for supplying their preprint on the angular distribution of particles in 8-pronged stars. There are 7 figures, 1 table, and 15 references: 11 Soviet and 4 non-Soviet.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

Analysis of 9-Bev proton-nucleon... S/056/62/042/001/001/048
B125/B108

The reference to the English-language publication reads as follows: P. L. Jain, E. Lohrmann, M. W. Teucher. Phys. Rev., 115, 643, 1959.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences Kazakhskaya SSR)

SUBMITTED: January 30, 1961

Card 3/4

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

Analysis of 9-Bev proton-nucleon...

S/056/62/042/001/001/048
B125/B108

Table. Observed events.

Legend: (1) Type of star, (2) number of prongs, (3) data obtained at the Laboratoriya vysokikh energiy Instituta yadernoy fiziki Akademii nauk Kazakhskoy SSR (Laboratory of High Energies of the Institute of Nuclear Physics of the Academy of Sciences Kazakhskaya SSR) and at the Laboratoriya vysokikh energiy Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory of High Energies of the Joint Institute of Nuclear Research).

Table

(1) Типы звезд	N	$\theta_{1/2}$	θ_r	$A(\beta_c/\beta'=1)$	A	$\frac{K^{\pm}}{n_s-1,25}$	$\frac{m_s}{\mu_\pi}$
3-лучевые (2)	110	$11°07'^{+2°02'}_{-1°}$	13°16'	+0,36±0,08	+0,04±0,08	0,21	≥1,6
4-лучевые	53	$15°30'^{+3°}_{-2°30'}$	16°29'	+0,26±0,08	−0,08±0,10	0,16	≥1,9
5-лучевые	19	$16°^{+3°12'}_{-1°}$	17°02'	+0,24±0,14	−0,04±0,14	0,13	≥3,0
6-лучевые	23	$18°36'^{+2°}_{-2°}$	17°07'	+0,24±0,12	−0,18±0,12	0,17	≥6,0
7-лучевые	6	$18°24'^{+3°}_{-5°}$	18°15'	−0,04±0,22	−0,20±0,22	0,16	≥5,8
8-лучевые	7	$27°24'^{+3°36'}_{-3°24'}$	25°	−0,20±0,17	−0,36±0,17	0,16	≥0,2
8-лучевые* (3)	13	$26°^{+5°30'}_{-4°00'}$	26°27'	−0,12±0,07	−0,30±0,07	0,17	≥5,6

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVIN, V.A.; TAKIVAYEV, Zh.S., akademik; USIK, P.A.

Inelastic pn-interactions at an energy of 9 Bev.
Dokl. AN SSSR 146 no.4:785-788 O '62. (MIRA 15:11)

1. Institut yadernoy fiziki AN KazSSR. 2. AN KazSSR (for Takibayev).
(Nuclear reactions)
(Mesons) (Protons)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOOS, E.G.; BOTVIN, V.A.; VINITSKIY, A.Kh.; TAKIBAYEV, Zh.S.; CHASNIKOV, I.Ya.

Inelastic interactions between protons, π-mesons, and nucleons in photographic emulsions in the 7 - 20 Bev. energy range. Izv. AN SSSR. Ser. fiz. 28 no.11:1770-1772 N '64. (MIRA 17:12)

1. Institut yadernoy fiziki AN KazSSR.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

L 26781-66 EWT(m)/T

ACC NR: AP6017447 SOURCE CODE: UR/0361/65/000/002/0070/0073

AUTHOR: Botvin, V. A.; Takibayev, Zh. S.; Sharapov, K. V.

ORG: none

TITLE: Investigation of the inelastic interaction of antiprotons with neutrons at 3 Gev/c

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 2, 1965, 70-73

TOPIC TAGS: antiproton, neutron, neutron interaction, inelastic interaction, meson, pi meson, particle track

ABSTRACT: In this article are presented the experimental results from inelastic $\bar{P}n$-interactions with a 3 Gev/c impulse using a 600μ layer of Ilford-G5 emulsion in a proton synchrotron. 134 cases of interaction of a primary antiproton with quasi-free neutrons were analyzed. Data are presented without distinguishing between the two processes possible: anihilation and creation of mesons. The distribution of the inelastic $\bar{P}n$-interactions with respect to the number of rays is presented: the average number of protons and antiprotons per interaction for a $\bar{P}n$-event is 0.39 ± 0.07. Conclusions are drawn that the fraction of cases of creation of mesons is close to the same for $\bar{P}p$ and $\bar{P}n$-interactions in the investigated energy range. It is also noted that in several 5 to 7 ray cases a proton track was observed, indicating creation

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ACC NR: AP6017447

reactions. The pulse distribution of the pi-mesons produced reaches a maximum in the region of 0.1-0.3 Gev/c and drops sharply at high energy ranges. Orig. art. has: 4 figures and 1 table. [JPRS]

SUB CODE: 20 / SUBM DATE: 29Dec64 / ORIG REF: 003 / OTH REF: 004

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINA, L. M.; TADZHIYEV, F. Kh.

Changing the technological properties of loess by adding plastic clays. Sbor. nauch. trud. NII po stroi. ASiA no.2: 69-75 '61. (MIRA 16:1)

(Uzbekistan—Loess)
(Uzbekistan—Ceramic materials)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINA, L.M.; ZABELINA, R.F.; SALIDZHANOV, S.B.

Improving the quality of brick at the Kattakurgan plant for the production of vibrated brick panels. Sbor. nauch. trud. NII po stroi. ASiA no.4:110-114 '63. (MIRA 17:8)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINA, M.P.

BOTVINA, M.P.

USSR/ Chemical Technology. Chemical Products and Their Application. Pesticides I-7

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12406

Author : Botvina M.P.
Inst : Kazan' University
Title : Use of Hexachlorane to Control Soil-Inhabiting Pests

Orig Pub : Uch. zap. Kazanskogo un-ta, 1956, 116, No 1, 199-202

Abstract : Treatment of soil with 25% hexachlorocyclohexane dust with phosphorite fertilizer as the carrier, applied at a uniform rate of 40 kg per hectare, reduces the number of wireworms, Selatosomus latus F., S. aeneys L., Agriotes sputator L., A. obscurus L. and A. lineatus L. by 78.6%. A 12% hexachlorocyclohexane dust with talc as a carrier, at a rate of 80 kg per hectare causes 70% mortality of wireworms, and at a dosage of 40 kg per hectare 80-96% mortality of the larvae of root weevils Sitona flavescens March., S. lineatus L. and S. hispidulus F.

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Kafedra zoologii bespozvonochnykh

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

USSR/ Chemical Technology. Chemical Products and Their Application. Pesticides I-7

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12406

It was noted that hexachlorocyclohexane has a stimulating action on the development of wheat.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINA, M. P.

USSR / General and Specialized Zoology. Insects. P

Abs Jour: Ref Zhur-Biol., No 2, 1958, 6757.

Author : ~~Botvina, M. P.~~
Inst : Kazan University.
Title : The Tuber Weevils of Tartaria.

Orig Pub: Uch. zap. Kazansk. un-ta, 1956, 116, No 5, 157-160.

Abstract: Twelve species of the genus Sitona were found. For peas the mass species was S.crinitus, for clover -S.sulcifrons and for lucerne-S.inops; S.flavescens, S.puncticollis and S.longulus (the most numerous) S.crinitus, S.tibialis, S.lineatus, S.callosus and S.hispidulus were common species for clover and lucerne. The damage by the beetles of the genus Sitona cut

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

USSR / General and Specialized Zoology. Insects. P

Abs Jour: Ref Zhur-Biol., No 2, 1958, 6757.

Abstract: down the crops of clover and lucerne, decreased the yield of the peas. Damage to the roots of clover and lucerne (in the second and third year) by the Sitona larvae led to infections by fungi and therefore to the destruction of the plants. -- A. P. Adrianov.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

RUMANIA / Chemical Technology. Chemical Products and Their Applications. Carbohydrates and Their Processing. H

Abs Jour: Ref Zhur-Khimiya, 1959, No 4, 13390.

Author : Bocicaga, V.; Anastasiade, Gh.; Botvinic, V.; Petrovici, C.; Tatarla, A.

Inst : Not given.

Title : Obtaining Glutamic Acid, Betaine and Potassium Salt from Alkali Solution of the Stephenovskiy Process and from Malt Grains Obtained During Manufacture of Alcohol from Molasses.

Orig Pub: Lucrarile Inst. cercetari aliment., 1958, 2, 49-56.

Abstract: A communication of results of laboratory study of the process of extracting three products which have important significance for the food, pharmaceutical and chemical industries. Establishment

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

RUMANIA / Chemical Technology. Chemical Products and Their Applications. Carbohydrates and Their Processing. H

Abs Jour: Ref Zhur-Khimiya, 1959, No 4, 13390.

Abstract: of a technological process will be conducted in an experimental situation. -- Authors' resume.

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

NOSOV, Aleksandr Ivanovich, dots., kand. tekhn.nauk; BOTVINIK, Boris Sholomovich; BULIN, Vasiliy Petrovich; GONCHAROV, Vasiliy Savel'yevich; SAPELKIN, Vladimir Aleksandrovich; MIKHEYEVA, L.N., red.izd-va; KARLOVA, G.L., tekhn. red.

[Over-all mechanization and automation at repair enterprises of the lumbering industry] Kompleksnaia mekhanizatsiia i avtomatizatsiia na remontnykh predpriiatiiakh lesnoi promyshlennosti; sbornik statei pod red. A.I.Nosova. Moskva, Goslesbumizdat, 1963. 68 p. (MIRA 16:7)
(Lumbering--Machinery)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTWINNIK, M. M.

"Sur la question de la tautomerie lactime-lactamique." M. M. Botwinnik et N. J. Gawrilow. (p. 1614)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii). 1937, Volume 7, No. 11.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

PROCESSES AND PROPERTIES INDEX

Lactam-lactim tautomerism. II. Oxidation of imidazole and its derivatives with perbenzoic acid. M. M. Botvinnik and M. A. Prokof'ev. *J. Gen. Chem.* (U. S. S. R.) 7, 1931-8(1937).—See *C. A.* 31, 4661[1] where the authors' names were omitted by mistake. E. J. C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

PROCESSES AND PROPERTIES INDEX

BC

a-3

[redacted]

R. B. C.

Lab. Org. Chem. im. Zelinskiy

METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

Cas

10

Dehydration of hydroxy amino acids. M. M. Botvinnik, M. A. Prokof'ev and N. D. Zelinskii. *Compt. rend. acad. sci. U. R. S. S.* 30, 129-32(1941)(in English).—β-Hydroxyvaline (2.1 g.) and 4.57 g. Bz_2O were ground together in a mortar and heated on a glycerol bath slowly to 150°, the mixt. becoming homogeneous at 120-5°; the mixt. was digested with *N* NaOH and the residue crystd. from a mixt. of 40% Et_2O and 60% alc. by cooling with solid CO_2, yielding, after recrystn. from 80% alc., 0.86 g. of the azlactone (I) of α-(benzoylamino)-β-methylcrotonic acid (II). Hydrolysis of 2.6 g. of I with 30 cc. *N* NaOH by heating 30 min. on the steam bath and acidification (to Congo red) with 10% HCl gave 2.3 g. of II, m. 210-17° (cf. *C. A.* 29, 4350[8]). I (0.5 g.) was boiled for 5.5 hrs. with 25 cc. of *N* HCl; after cooling, the II (0.38 g.) was filtered off and the filtrate was neutralized with *N* NaOH and treated with 0.36 g. of $PhN_2H_3.HCl$ and 0.2 g. anhyd. NaOAc, yielding upon 12 hrs. standing 0.09 g. of the phenylhydrazone of β,β-dimethylpyruvic acid, m. 142-3° (decompn.) (cf. Abderhalden and Rossner, *C. A.* 21, 1966). II (0.395 g.), boiled 2 min. with 1.77 g. Ac_2O, yielded 0.24 g. of I, m. 101°; II (0.5 g.) heated 20 min. at 120-5° with 0.63 g. Bz_2O yielded 0.42 g. of I, m. 100.2°. When the sulfate of β-hydroxyvaline was heated for 75 min. at 120-5° with 4.6 g. Bz_2O, 70% of the β-hydroxyvaline was recovered, showing that no dehydration to I takes place when the formation of the *N*-benzyl deriv. of II and subsequent cyclization are prevented. α-Amino-β-hydroxybutyric acid (1 g.) gives 41% of the azlactone (III), m. 95°, when treated with Bz_2O. Hydrolysis of 0.15 g. of III with 4 cc. *N* NaOH at 80° gave 0.135 g. of α-(benzoylamino)crotonic acid, m. 192°. Digestion of 1.245 g. of α-(benzoylamino)-β-hydroxybutyric acid with 1.2466 g. Bz_2O at 110-25° gave 0.48 g. of III, m. 95°. Data are tabulated showing (1) the azlactone yields for various conditions of heating for the reaction of β-hydroxyvaline or β-hydroxy-α-aminobutyric acid with Bz_2O and (2) the extent of hydrolysis of the two lactones under various conditions.

G. W. Ayers

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1ST AND 2ND ORDERS — 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

10

Synthesis of β-hydroxynorvaline. M. M. Botvinnik, E. Morozova and G. Samsonova. *Compt. rend. acad. sci. U. R. S. S.* **30**, 133-6(1941)(in English).—β-Hydroxynorvaline was prepd. by methods similar to those used by West and Carter (*C. A.* **31**, 6199[9]) and by West, Krummel and Carter (*C. A.* **32**, 2907[9]). 2-Pentenoic acid (5 g.) was added gradually to 16 g. $Hg(OAc)_2$ in 75 cc. cold MeOH and the mixt. was shaken until complete soln. was attained, after which a fine cryst. ppt. formed (I) (85% yield) which m. 141.5° and was apparently a mixt. of $EtCH(OMe)CHCO_2Hg$ and $EtCH(OMe)CH(HgO_2CMe)$-CO_2H. A mixt. of 17.6 g. Br, 19.8 g. KBr and 35 cc. water was added to a soln. of 36 g. I and 19.8 g. KBr in 110 cc. water, the soln. was extd. with 50 cc. Et_2O, acidified (to Congo red) with 48% HBr, extd. with 650 cc. Et_2O, the combined exts. were dried over Na_2SO_4 and the Et_2O distd., leaving 20.5 g. of light-yellow liquid crude α-bromo-β-methoxyvaleric acid (II). Crude II (20.6 g.) was heated with 200 cc. 25% NH_4OH under pressure for 2 hrs., yielding, after several treatments with 48% HBr and evapn. *in vacuo* and with water and evapn. to dryness and, after addn. of NH_4OH, filtration, evapn. to dryness and addn. of 4 vols. of alc., 4.06 g. (28.2% yield based on the 2-pentenoic acid) of β-hydroxynorvaline (III), m. 231.2°. Br (128 g.) and 80 g. 2-pentenoic acid were added from separate dropping funnels to a stirred soln. of 130 g. powd. $AgNO_3$ in 800 cc. MeOH during 2 hrs. at 5-15°; after stirring an addnl. 2 hrs. and standing overnight the AgBr was filtered off and the soln. was made alk. to phenolphthalein by means of 2 *N* NaOH and then concd. *in vacuo*, extd. with Et_2O, acidified with 6 *N* H_2SO_4 and again extd. with Et_2O, the Et_2O soln. being dried over Na_2SO_4 and distd., yielding after fractionation *in vacuo* II, b_{10} 144-5°. This sample of II was converted by the above procedure into III, m. 230-1° (decompn.). *N*-Bz deriv. of III, m. 171°; *N*-phenylcarbamyl deriv. of III, m. 156-6.2° (yield 80%). G. W. Ayers

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINNIK, M. M.

"Action of Perbenzoic Acid on the Nitrogen Containing Compounds," Zhur. Obshch. Khim., 16, No.6, 1946

Lab. Chem. of Albumins

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINNIK, M. M. and NERSESOVA, Ye. N.

"On the Content of Oxyaminoacids in Proteins," Dokl. AN SSSR, 52, No.5, 1946

Moscow State U. im. Lomonosov

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BOTVINIK, M. M.

PA 55/4979

USSR/Chemistry - Amino Acids Nov 48
Chemistry - Oxyamino Acids

"Quantitative Reaction on Beta-Hydroxy-Alpha-Amino Acid and on Hydroxyalanine," M. M. Botvinik, A. Ya. Gaukhman, I. S. Severin, Lab Chem Albumin imeni Acad N. D. Zelinskiy, Moscow State U imeni M. V. Lomonosov, 2 pp

"Dok Ak Nauk SSSR" Vol LXIII, No 3

Ability of oxyamino acids, heated with acetic and benzoic anhydrides, to change into unsaturated azlactones is basic in working out qualitative reaction on beta-oxyamino acids and individual

55/4979

USSR/Chemistry - Amino Acids (Contd) Nov 48

oxyamino acids. Both reactions from all amino acids in albumens yield only cystine, which also turns into unsaturated azlactones. Submitted by Acad A. N. Nesmeyanov 7 Jul 48.

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BOTVINIK, M. M.: SHAPIRO, F. B.

Wool

Sulphur and nitrogen content in the wool of certain varieties of sheep. IZV. Turk. fil. AN SSSR no. 2, 1949

9. Monthly List of Russian Accessions, Library of Congress, November 1952 Uncl.

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BA

A II - 1

Reaction of acid halides of acylated amino-acids with hydroxy-compounds. M. M. Botvinik and I. S. Severin (*J. gen. Chem. USSR*, 1950, 20, 1062—1067 [U.S. transl., 1101—1107]).—The acid chlorides of acylated amino-acids react with hydroxy-acids and their esters to form deriv. at the hydroxyl group. This reaction does not take place (under the conditions investigated) with *N*-benzoyl deriv. of hydroxy-amino-acids. Upon heating in C_6H_6, the acid chlorides of hippuric acid and benzoylalanine form azlactones. By the same method, the acid chloride of phenylglycine is converted into *NN'*-diphenyldiketopiperazine. There is no reaction with the *N*-benzoyl deriv. of serine and threonine.

NHBz·CH_2·COCl (I) [from 2·5 g. of NHBz·CH_2·CO_2H (II)], Et lactate (b.p. 51—53°/10 mm.), and Et_2O (40 ml.) are heated in the apparatus of Gavrilov *et al.* (*ibid.*, 1948, 18, 960) on a water-bath for 10 hr.; HCl is evolved after the first hr. The white ppt. of hippuric acid, m.p. 184°, is filtered off. The filtrate is concentrated, giving a ppt. of *Et hippuryllactate* (1-carbethoxyethyl benzamidoacetate), $C_{15}H_{19}O_5N$ (19%), m.p. 108°. I (from 2 g. of II), OH·CH_2·CO_2H (1·6 g.), and Et_2O (25 ml.) are heated (as above) for 12 hr.; HCl is evolved after 2 hr. The filtered ppt. of hippuryl-glycolic acid (carboxymethyl benzamidoacetate), $C_{11}H_{11}O_5N$ (50%), m.p. 148—149°, is hydrolysed by boiling H_2O in 30 min. There is no reaction between I and benzoylserine (III) upon boiling in either Et_2O or C_6H_6. In xylene, I (from 1 g. of II) and III (0·95 g.), heated on a glycerine bath for 1·5 hr., give considerable tar. The products include II, but no III, so azlactone formation is assumed. The residue, after removal of xylene, and hydrolysis by heating, gives a reaction for $AcCO_2H$. There is no reaction between I and *N*-benzoylthreonine (IV) in either Et_2O or C_6H_6. NHPh·CH_2·COCl (from 1·6 g. of NHPh·CH·CO_2H), IV (0·9 g.), and C_6H_6 (40 ml.) are heated for 10 hr.; HCl is evolved copiously, and a sandy-grey ppt. of *NN'*-diphenyldiketopiperazine, $C_{16}H_{14}O_2N_2$ (0·8 g.), m.p. 281°, is obtained. When dil. H_2SO_4 is added, IV (0·7 g.) is obtained. I (from 2 g. of II) is heated in C_6H_6 (30 ml.) for 6—10 hr., and the ppt. of II is removed. The solution is concentrated, and NH_3Ph (1·5 ml.) is added, after which the mixture is heated, giving, on cooling, a ppt. of hippuryl anilide, $C_{15}H_{14}O_2N_2$, m.p. 212°. Benzoylalanine, m.p. 168°, is converted into the acid chloride, which is boiled in C_6H_6 for 10 hr. After concentrating, NH_3Ph is added, yielding a ppt. of benzoylalanine anilide, $C_{15}H_{14}O_2N_2$, m.p. 169°.

C. A. Finch.

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CA

11A

Amino acids in the silk fibroin of the mulberry and oak silkworms. E. P. Tsintsevich and M. M. Botvinik (Moscow State Univ.). *Zhur. Prikład. Khim.* 23, 790-3(1950); *J. Applied Chem. U.S.S.R.* 23, 793-6(1950)(Engl. translation).—While the ratio of NH_3 and NH_3 to total N (as a measure of the extent of hydrolysis) for fibroin (I) from mulberry silkworms (Central Asian Ascoli breed) is 90.8% after hydrolysis for 36 hrs. with 10-fold wt. of 25% H_2SO_4, for I from oak silkworms the ratio is only 39.0% though concd. HCl hydrolyzes the latter 97.3% (no temps. given in any case). Total N of the mulberry silkworm I was found to be 17.93%, dry basis, and values for the oak silkworm I prepns. varied from 18.45 to 18.98%. Amino acids of I from mulberry silkworm and oak silkworm I (expressed in percentage) were, resp.: glycine 35.5, 18.9-19.2; alanine 25.4, 34.6-35.8; serine 11.2, —; threonine 1.9, —; phenylalanine 1.3, 0.6-0.7; tyrosine 12.2, 9.2-9.6; tryptophan 0.6, 1.4-2.1; glutamic acid 0.8, 5.6; histidine 0.2, 0.8-1.9; lysine 0.3, and 7.6-7.9. James P. Danehy

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BoVINIK, M.

USSR

Synthesis and reactions of oxazolones. M. M. Bo vinik and S. M. Avaeva. *Uchenyi Zapiski, Moskov. Gosudarst. Univ. im. M. V. Lomonosova* No. 152, *Org. Khim.* No. 7, 288-99 (1950).—Treatment of glycine in *N* NaOH with *p*-$O_2NC_6H_4COCl$ gave 70% *p-nitrohippuric acid* (I), m. 129°. Heating 1.70 g. hippuric acid with 10 ml. Ac_2O on a steam bath gave, after removal of excess volatile materials *in vacuo*, 73.1% *2-phenyl-5-oxazolone*, m. 92°. Similarly I gave 60% *2-(p-nitrophenyl)-5-oxazolone*, m. 112-14°. Heating 2.7 g. 3,5-dinitrohippuric acid with 10 ml. Ac_2O as above gave 2.51 g. *mixed acetic 3,5-dinitrohippuric anhydride*, m. 96° to 104° in various runs; heated with EtOH it yields EtOAc. 2-Phenyl-5-oxazolone is 83% hydrolyzed after 30 min. in aq. Me_2CO at room temp.; the 2-(*p*-nitrophenyl) analog is 100% hydrolyzed in 22 min., while the mixed anhydride is 100% hydrolyzed in about 1.25 hr. Stirring 1 g. *p*-nitrohippuric acid with 1.42 ml. BzH in 2 g. Ac_2O and 0.36 g. NaOAc 2 hrs. gave 83% *2-(p-nitrophenyl)-4-benzylidene-5-oxazolone*, m. 206°, slowly hydrolyzed under the above conditions. Similarly was obtained 60-75% *3,5-dinitrophenyl-4-benzylidene-5-oxazolone*, m. 239° (decompn.), whose half-life in aq. Me_2CO is 4.3 hrs. 2-Phenyl-5-oxazolone and BzH gave 30% *2-phenyl-4-benzylidene-5-oxazolone*, m. 161°, which is not hydrolyzed under above conditions. When the mixed anhydride (above) is treated with BzH there is slowly formed 14% 2-(3,5-dinitrophenyl)-4-benzylidene-5-oxazolone, m. 238°; similar reaction in Ac_2O-NaOAc gave 50% yield. Refluxing glycine with 2-phenyl-5-oxazolone in Et_2O 3 hrs. gave 51% *hippurylglycolic acid*, m. 140-1°. Similarly was obtained 73% *p-nitrohippurylglycolic acid*, m. 170-1°. Heating *N*-benzoylphenylserine with 2-phenyl-5-oxazolone in Me_2CO 6 hrs. gave hippuric acid and 2-phenyl-4-benzylidine-5-oxazolone. Heating 2.1 g. K *p*-nitrohippurate with 0.9 g. NaOAc and 4 ml. Ac_2O 1.5 hrs. at 110° gave *p*-$O_2NC_6H_4CO_2H$. Stirring 3,5-dinitrohippuric acid (1 g.) with 1.7 ml. Ac_2O, 0.3 g. NaOAc and 2 ml. Me_2CO gave 3,5-dinitrohippuric acid.

G. M. Kosolapoff

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BOTVINIK, M. M. AVAYEVA, S. M. MISTRYUKOV, E. A.

Amino Acids

"Synthesis and Reactions of N-aminoacyl Derivatives of Ethanolamines."
Dokl. AN, SSSR 82, No 5, 1952

Laboratoriya Khimii Belka Akad. N. D. Zelinskogo Moskovskogo
Gosudarstvennogo Universiteta im. M. V. Lomonosova Recd. 26 Nov 1951

SO: Monthly List of Russian Accessions, Library of Congress, July 1952, UNCL

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CA

11-M

Hydrolysis of *O*-acylaminoacyl derivatives of serine (*O*-peptides) by enzymes. M. M. Botvinik and S. M. Avaeva. *Doklady Akad. Nauk S.S.S.R.* 84, 931-3(1952).—Hydrolysis by pancreatin and cryst. trypsin of the following *O*-peptides was studied by following the variation of pH (with periodic adjustment of pH by addn. of NaOH). The substrates were: $AcNHCH(CH_2Ph)CO_2CH_2CH(CO_2H)NHCOCH(CH_2Ph)NHAc$ (I) (m. 103-5°); $BzNHCH(CH_2Ph)CO_2CH_2CH(NHCOPh)CO_2H$ (II) (m. 171°); $o\text{-}C_6H_4(CO)_2NCH_2CO_2CH_2CH(CO_2Pr)NHCOCH_2N(CO)_2C_6H_4\text{-}o$ (III) (m. 171°); $BzNHCMe_2CO_2CH_2CH(CO_2Et)NHCOPh$ (IV) (m. 129°); $BzNHCH(CH_2Ph)CO_2CH_2CH(CO_2Et)NHBz$ (V) (m. 152°). The *O*-peptides of serine (I, II) are readily cleaved at the ester link with the rates of cleavage of the enzymes being about equal. The results, given graphically, indicate some 40% cleavage in the 1st hr. The cleavage of these products by alkali is accelerated by a rise in pH; thus II is cleaved 5% in 200 min. at pH 8 and 25% in but 60 min. at pH 10. IV, V, III, and *Et ester of benzoylserine* are unchanged in 3 hrs. by either the enzymes or alkali. The enzymes cleave only the ester link between the HO group of serine and under conditions of existence of free CO_2H group in the hydroxyamino acid. G. M. Kosolapoff

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BOTVINIK, M. M.

Synthesis of N,O-peptides of serine. M. M. Botvinik, S. M. Avaeva, and E. A. Mistryukov (Moscow State Univ.). Zhur. Obshchei Khim. 23, 971-6(1953).—Serine (6.25 g.) in 42 ml. 1.2N NaOH and 9.35 g. 2-methyl-4-benzylidene-2-oxazolin-5-one in 65 ml. Me_2CO were shaken 3 hrs., filtered from the unreacted oxazolinone, and the filtrate was evapd. [illegible] first an oil then a solid. The oil is dilined [illegible]

[illegible] indicating failure of the [illegible]

[illegible] with H_2O [illegible] with 0.025N [illegible] in dioxane with [illegible] in $CHCl_3$ 6 hrs. [illegible] of 0.87 g. H.

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Synthesis of derivatives of peptides of serine. M. M. Botvinik, S. M. Avaeva, and E. A. Mistryukov (Moscow State Univ.). *Zhur. Obshchei Khim.* 25, 1716-19 (1955). To 1.12 g. phthaloylglycine chloride in 5 ml. dioxane was added 0.83 g. serine iso-Pr ester-HCl, then 2 ml. $PhNEt_2$, and the mixt. was dild. after 50 min. with ligroine, yielding 1.27 g. (72%) *N-(phthaloylglycyl)serine iso-Pr ester*, m. 187°. Similarly was prepd. 54% *Me ester*, crystals from EtOH, m.p. not given. The latter (1.08 g.) kept 2 days in 5 ml. 33% $MeNH_2$-MeOH, evapd. *in vacuo*, and taken up in EtOH, gave on addn. of Et_2O 0.95 g. *$HOCH_2CH(CONHMe)NHCOCH_2NHCOC_6H_4CONHMe$-o*, m. 160°. *p-$MeC_6H_4SO_2NHCH_2CO_2H$* (4.7 g.) and 4.5 g. PCl_5 stirred 1 hr. in 20 ml. $C_2H_2Cl_4$ until soln. occurred, dild. with 20 ml. MePh, filtered, and the filtrate evapd. and rubbed with petr. ether yielded 63% *p-$MeC_6H_4SO_2NHCH_2COCl$*, which was directly used without purification; to 3.2 g. of the chloride in 20 ml. $C_2H_2Cl_4$ and 2.02 g. serine Me ester-HCl was slowly added with 6 ml. $PhNEt_2$ and after 1 hr. the mass was treated with petr. ether and H_2O and shaken 1 hr., giving a ppt. of 2 g. (46%) *N-(p-toluenesulfonylglycyl)serine Me ester*, m. 148-9° (from EtOH or H_2O). This kept in Me ester-MeOH in 2 days gave 75% corresponding *methylamide*, m. 145° (from H_2O). 2-Phenyl-4-benzyl-2-oxazolin-5-one (from 5.4 g. $PhCH_2CH(NHBz)CO_2H$) in 15 ml. $C_2H_2Cl_4$ was added slowly to 3.12 g. serine Me ester-HCl and 3.46 ml. Me_3NBu in 15 ml. $C_2H_2Cl_4$, the mixt. stirred 1 hr., shaken with 20 ml. H_2O, 10 ml. *N* HCl, and again with 10 ml. H_2O, the org. layer evapd. *in vacuo*, and the residue taken up in EtOH and dild. with H_2O, giving 43% *N-(benzoylphenylalanyl)serine Me ester*, m. 158-9°. The mother liquor yielded 28% product, m. 138-40°, which gives a m.p. depression with the above ester and appears to be a *diastereoisomer* of it. With $MeNH_2$-MeOH the ester yielded the corresponding *methylamide*, m. 210° (from 50% EtOH), after 24 hrs. at room temp. The 2nd isomer of the Me ester gave a corresponding *isomer* of the *methylamide*, m. 230°. G. M. K.

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Migration of the peptide residue in serine peptides.

M. M. Botvinik, S. M. Avaeva, and E. A. Mistryukov (Moscow State Univ.). *Zhur. Obshchei Khim.* 24, [illegible] (1954); *cf. C.A.* 48, 12628[illegible]. Elim[illegible] 4[illegible]

Treatment of serine peptides contg. [illegible] with $SOCl_2$ or HCl in alc. or dioxane soln. [illegible] derivs. of alanine peptides which in aq. medium [illegible] initial compds. Under action of concd. HCl [illegible] to take place a migration of the peptide [illegible] since the *N*-peptides of serine are hydrolyzed more [illegible] than *O*-peptides. Treatment with H_2SO_4 [illegible] migration of the peptide link from N to O and [illegible] of the peptides. Heating 0.5 g. [illegible] serine iso-Pr ester 3 min. with 5 ml. $SOCl_2$ [illegible] with Et_2O *N-(benzoylphenylalanyl)*[illegible] *ester*, m. 157°; the same product form[illegible] placed by dry HCl in dry dioxane. H[illegible] 2 hrs. in aq. dioxane soln. gave the [illegible] m. 168°. *N-Benzoylphenylalanylserine* [illegible] hr. with $SOCl_2$ at 0° gave a product [illegible] on standing evolved SO_2 and gave AgCl [illegible] treated with H_2O it gave the initial amide. I taken up in hot AcOH and dild. with H_2O gave *N-(Benzoylphenylalanyl)-β-chloroalanine methylamide*, m. 109°; the same substance formed in reaction with $SOCl_2$ at 60°, PCl_5 in $CHCl_3$ at room temp., dry EtOH-HCl at 70°, or dry dioxane-HCl at room temp. The rate of hydrolysis of *N*- and *O*-peptides of serine with acetylphenylalanyl, phthalylglycyl, and benzoylphenylalanyl groups was detd. in concd. H_2SO_4 by periodic detn. of amino N; similarly hydrolysis was followed of *N*-(benzoylphenylalanyl)serine iso-Pr ester, *N*-(benzoylphenylalanyl)serine methylamide and *N*-(*p*-toluenesulfoglycyl)serine methylamide in H_2SO_4 of various concns. and in concd. HCl at 18-20°.

G. M. [illegible]

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Name: ROTVINIK, Mariya Moiseyevna

Dissertation: Studies in the Field of the β-Hydroxyamino Acids

Degree: Doc Chem Sci

Affiliation: [Not indicated]

Defense Date, Place: 14 May 56, Council of Moscow Order of Lenin and Order of Labor Red Banner State U imeni Lomonosov

Certification Date: 13 Oct 56

Source: BMVO 6/57

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Synthesis of N-benzoyl-O-peptides of th[illegible]

[illegible] with the acyl chloride [illegible] alkaline and PCl, heated [illegible] [illegible] gave a [illegible]

[illegible] (from aq. EtOH) Benzoylallothreon[illegible] 19.67 g with a suspension of the HCl salt [illegible]

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Avaeva, S.M., + Botvinik, ...

CH_2N_2 in Et_2O and treatment of the crude product with 30% $MeNH_2$ in MeOH gave 64% *N-benzoyl-iso-threonine methylamide* (I), m. 170-1° (from EtOAc [illegible] tioned 51% *N-benzoyl-iso-threonine methylamide* [illegible] I 0.9[illegible] g in dioxane was treated with [illegible]

[illegible]

pM mk

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BOLVINIK, M. M.

5

Synthesis of N-benzoyl-O-peptides of threonine and allothreonine and their methylamides. II. S. M. Alekseev and M. M. Botvinik. J. Gen. Chem. U.S.S.R. 26, 2086-11 (1956) (English translation). See C.A. 51, 4946c.

B. M. R.

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Enzymic hydrolysis of *N*-benzoyl-*O*-peptides of serine and threonine. S. M. Avaeva and M. M. Botvinik (State Univ., Moscow). *Zhur. Obshchei Khim.* 26, 3068–72 (1956); cf. *C.A.* 49, 10228a.—It was shown that *O*-peptides of *N*-benzoylserine, *N*-benzoyl-DL-threonine, and allothreonine, as well as their methylamides are cleaved by trypsin. The various peptides were dissolved in 5 ml. EtOH (sample wts. 50–170 mg.) and were titrated carefully with 0.1 *N* NaOH, mixed with 2 ml. phosphate buffer (pH 7.2), 5–6 ml. H_2O and 10 mg. trypsin was added. The alteration of pH of the soln. (measured potentiometrically) was used to follow the course of reaction and 0.1 *N* NaOH was added to restore the initial pH during the incubations which were run at 38°. The hydrolyzates were chromatographed on paper (developed by KI-$NaIO_3$-starch). The methylamides were examined similarly in 50% EtOH owing to low soly. in aq. systems. Runs were also made in aq. glycerol. The kinetic curves for the substances are shown. The following peptides were thus examined: *N*-benzoyl-*O*-benzoylphenylalanyl-DL-threonine, *N*-benzoyl-*O*-benzoylphenylalanyl-allothreonine, *N*-benzoyl-*O*-benzoylphenylalanylserine, *N*-benzoyl-*O*-benzoyl-norleucyl-DL-threonine, *N*-benzoyl-*O*-benzoylnorleucylallothreonine, *N*-benzoyl-*O*-benzoylvalyl-DL-threonine, *N*-benzoyl-*O*-benzoylvalylserine, and methylamides of: *N*-benzoyl-*O*-benzoylphenylalanyl-DL-threonine, *N*-benzoyl-*O*-benzoylphenylalanylallothreonine, *N*-benzoylnorleucyl-DL-threonine, *N*-benzoyl-*O*-benzoylvalyl-DL-threonine, *N*-benzoyl-*O*-benzoylphenylalanyl-DL-threonine, *N*-benzoyl-*O*-benzoylphenylalanylallothreonine, *N*-benzoyl-*O*-benzoylphenylalanylserine, *N*-benzoyl-*O*-benzoylnorleucyl-DL-threonine, *N*-benzoyl-*O*-benzoylnorleucylallothreonine, *N*-benzoyl-*O*-benzoylnorleucylserine, *N*-benzoyl-*O*-benzoylvalyl-DL-threonine, *N*-benzoyl-*O*-benzoylvalylallothreonine, and *N*-benzoyl-*O*-benzoylvalylserine. G. M. Kresokapoff

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Properties of O-peptides of β-hydroxyamino acids. Reaction of ammonolysis and aminolysis. M. M. Botvinik, S. M. Avaeva, M. I. Konovalova, and V. I. Ostrovskaya (State Univ., Moscow). *Zhur. Obshchei Khim.* 27, 1910-16 (1957); cf. C.A. 48, 8729e, 13028i; 51, 4946c.—Benzoylserine (4.7 g.) in dry dioxane treated with the HCl salt of 2-phenyl-4-isopropyloxazolinone prepd. from 4.8 g. benzoylvaline, stirred, kept overnight, and heated 8 hrs. at 50-5° yielded 55% *O-benzoylvalyl-N-benzoylserine*, m. 184-5° (aq. EtOH). Similarly 2-phenyloxazolinone HCl salt gave 82.3% *O-hippuryl-N-benzoylserine*, m. 181-1.5° (aq. Me_2CO). Various O-peptides were treated with NH_4OH of various concns. up to 25% and kept 1-24 hrs., yielding ppts. of amides of benzoylphenylalanine, benzoylvaline, and hippuric acid, the starting materials being O-benzoylphenylalanyl-N-benzoylserine, O-benzoylvalyl-N-benzoylserine, O-hippuryl-N-benzoylserine, o-benzoylphenylalanyl-N-benzoylthreonine, the amide of O-benzoylphenylalanyl-N-benzoylserine, O-benzoylphenylalanyl-N-benzoylethanolamine, and the Et ester of benzoylphenylalanine (I), resp. The yields of the amides from the 1st two peptides listed above decline rapidly with reduction of the concn. of NH_4OH, while the amide from the hippuryl deriv. is substantially independent of NH_4OH concn. The ammonolysis of I was very slow under these conditions. Heating O-hippuryl-N-benzoylserine with 8-27 moles $H_2NCH_2CO_2Et$ 24-77° 6-10 hrs. gave up to 92% ppt. of the salt of the 2 components, m. 145°, when the reaction was run in EtOAc; expts. in aq. Me_2CO gave only tars; omitting the sol-

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7

Properties of O-peptides of β-hydroxyam[illegible]
[illegible] synthesis of peptides from [illegible]

[illegible]

phenylalanylserine and $H_2NCH_2CO_2Et$, in 147-8[illegible]
enzymic reaction (above) is run with a drop of [illegible]
the above reaction fails, [illegible]
[illegible]
above but with 8 mg [illegible]
[illegible]
alanylglycine, in 145-6°. Reaction [illegible]
benzoyl-O-(benzoyl-or-phenylalanyl)-[illegible]
[illegible] $H_2NCH_2CO_2Et$ [illegible]
[illegible]

[illegible]

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AUTHORS: Botvinik, M. M., Avayeva, S. M. SOV/ 79-28-6-21/63

TITLE: On the Fermentative Synthesis of N-Peptides of Orthopeptides of β-Oxyamino Acids (O fermentativnom sinteze N-peptidov iz o-peptidov β-oksiaminokislot)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1534-1539 (USSR)

ABSTRACT: In the investigation of the characteristic features of N-peptides of serine and threonine the authors showed that (Ref 1) they are not only capable of an inter- but also of a mutual molecular regrouping (see scheme 1). In the conversion of the O-peptides of the N-benzoyl serine and threonine with ammonia the reaction takes place immediately, however, the process with the esters of the amino acids and peptides takes place slowly also at higher temperature, and in a small yield. The reaction in the presence of chemotrypsine, however, takes easily place under the final formation of peptide derivatives of the L-series. It may be assumed that a reaction in which the O-peptides of the β-oxyamino acids occur as transporting media of the amino acid radicals in the fermentative synthesis of the peptides is of interest as the possibility of similar

Card 1/3

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

processes in nature exists. In the present paper the investigations in this direction are extended to a number of other compounds. The authors used: N-benzoyl-O-benzoylphenylalanyl serine, N-benzoyl-O-benzoylglycyl serine and N-benzoyl-O-benzoylphenylalanyl threonine. The ethyl esters of glycine, phenylalanine, glycylglycine and leucylglycine served as acceptors of the acylamino acid radicals. All initial products were racemic. In all cases optically active peptides were obtained. The results are given in a table and differ from those described in other publications. The experiments were carried out with esters of the amino acids in which β-oxyamino acids occurred as alcohol radicals, as the compounds to be investigated are closer to the natural ones. The esters used were those of the benzoyl derivatives, not of the amino acids themselves, which limits the reaction at the stage of the dipeptides. The reactions took place within shorter time with a smaller percentage and a smaller amount of ferment. There are 1 figure, 1 table, and 8 references, 5 of which are Soviet.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

On the Fermentative Synthesis of N-Peptides of Orthopeptides of β-Oxy-amino Acids SOV/79-28-6-21/63

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 3, 1957

1. Peptides--Synthesis

Card 3/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

5(3) SOV/20-123-2-21/50

AUTHORS: Botvinik, M. M., Ostoslavskaya, V. I.

TITLE: Fermentative Synthesis of Optically Active Peptides From the Glycol Esters of D,L-Amino Acids (Fermentativnyy sintez opticheski deyatel'nykh peptidov iz glikolevykh efirov D,L-aminokislot)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 285-288 (USSR)

ABSTRACT: Recently the first mentioned author proved (Ref 1) that the esters of the benzol-phenyl alanine and of the β-oxy-amino acids (so-called O-peptides) are capable of reacting with the esters of the amino acids and peptides in the presence of chymotrypsin under the formation of new optically active N-peptides. The reaction takes place selectively. Such a reaction can be used for the synthesis of peptides that are relatively hard to access. As the use of serine-O-peptides is too expensive for this purpose, the ethyl ester of the acylated amino acids, however, react only little, the authors investigated the use of easily accessible oxy-acid esters of glycolic and lactic acid. Glycolic- and lactic-acid esters were used as suppliers of the

Card 1/3

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

SOV/20-123-2-21/50

Fermentative Synthesis of Optically Active Peptides From the Glycol Esters of D,L-Amino Acids

acyl-amino acid: hippuro-glycolic, benzoyl-D,L-phenyl-alanine-glycolic, benzoyl-D,L-phenyl-alanine-lactic, and carbo-benzyl-oxy-D,L-phenyl-alanine-glycolic acids. The acceptors were: ethyl ester of glycine, of L- and D,L-leucine, of L- and D,L-phenyl-alanyl-glycine, of L- and D,L-leucyl-glycine, and finally the ester and amide of glycylglycine. In all cases a formation of the esters or amides of the acylated N-peptides of L-phenyl-alanine took place. In those cases where optically active amino-acid esters or peptides served as acceptors the corresponding optically active L,L-peptides were formed; if, however, the esters of racemic amino acids or peptides served as acceptors, the main mass of the isolated substance formed the same L,L-peptide. In one of the produced esters the carbobenzyl-oxy group was separated by hydration. The produced dipeptide ester hydrochloride was introduced into this reaction as an acceptor. In this way the ethyl ester of the carbobenzyl-oxy-L-phenyl-alanyl-L-phenyl alanyl-glycine was synthesized. This reaction can be extended to the synthesis of peptides with a longer chain. The yields of the esters of the carbobenzyl-oxypeptides

Card 2/3

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

SOV/20-123-2-21/50

Fermentative Synthesis of Optically Active Peptides From the Glycol Esters of D.L-Amino Acids

amount to 30-60%, as calculated with respect to the L-antipode. As these substances mostly are precipitated from the reaction solution their purification does not offer any difficulties. The extract from the pancreas is sufficient for this reaction, instead of a crystallized chymotrypsin. An experimental part with the usual data follows. There are 1 table and 5 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 8, 1958. by A. N. Nesmeyanov, Member, Academy of Sciences, USSR

SUBMITTED: April 26, 1958

Card 3/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AVAYEVA, S.M.; BOTVINIK, M.M.; KARA-MURZA, S.N.

Enzymatic synthesis of benzoyl-phenylalanine peptides through serine and threonine O-peptides. Vop.med.khim. 5 no.2:102-106 Mr-Ap '59. (MIRA 12:5)

1. The "N.D.Zelinskiy" Laboratory for Protein Chemistry, Moscow State University.

(PEPTIDES,
synthesis of benzoyl-phenylalanine peptides with serine & threonine O-peptides (Rus))
(PHENYLALANINE,
same)
(AMINO ACIDS,
same)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; ABAYEVA, S.M.; KOKSHAROVA, L.M.; OLADKINA, V.A.

Synthesis of O-dipeptidyl derivatives of acylserine and glycolic acid. Zhur. ob. khim. 30 no.12:3877-3883 D '60. (MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet.
(Serine) (Glycolic acid)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; AVAYEVA, S.M.; KOKSHAROVA, L.M.; OLADKINA, V.A.

Lability of the O-peptide bond in O-dipeptidyl derivatives of serine and glycolic acid. Zhur. ob. khim. 30 no.12:3883-3890 D '60. (MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet.
(Glycolic acid) (Serine)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; KURANOVA, I.P.

Fermentation synthesis of optically active peptides from racemic amino acids. Part 3: Synthesis of L-tryptophan peptides from carbobenzoxy-D,L-tryptophylglycolic acid. Zhur.ob.khim. 32 no.1: 16-19 Ag '60. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Peptides) (Tryptophan) (Glycolic acid)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; ANDREYEVA, A.P.

Interaction between N-benzoyl(O-benzoylphenylalanyl-C^{14}) serine and proteins. Dokl.AN SSSR 133 no.1:98-101 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova. Predstavleno akademikom A.N.Nesmeyanovym.
(Serine) (Proteins)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; ANDREYEVA, A.P.

Reaction of N-benzoyl-O-(benzoylphenylalanine-C^{14})serine with ribonuclease. Dokl.AN SSSR 133 no.2:359-361 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova. Predstavleno akademikom A.N. Nesmeyanovym.
(Serine) (Ribonuclease)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

KOCHETKOV, Nikolay Konstantinovich; TORGOV, Igor' Vladimirovich, doktor khim. nauk; BOTVINIK, Mariya Moiseyevna, doktor khim. nauk; SHPANOV, V.V., red. izd-va; LAUT, V.G., tekhn. red.

[Chemistry of natural compounds; carbohydrates, nucleotides, steroids, proteins] Khimiia prirodnykh soedinenii; uglevody, nukleotidy, steroidy, belki. Moskva, Izd-vo Akad. nauk SSSR, 1961. 558 p. (MIRA 14:8)

1. Chlen-korrespondent AN SSSR (for Kochetkov).
(Carbohydrates) (Nucleotides) (Steroids) (Proteins)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; OSTOSLAVSKAYA, V.I.; IVANOV, L.L.

Synthesis of esters of acylated amino acids and glycolic acid.
Zhur. ob. khim. 31 no.1:42-45 Ja '61. (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Glycolic acid)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; KOKSHAROVA, L.M.

Intramolecular rearrangement of o-carbobenzoxyphenylalanyl-N-(glycyl)-serine. Zhur.ob.khim. 31 no.6:2078-2079 Je '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Serine) (Amino acids)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; OSTOSLAVSKAYA, V.I.; IVANOV, L.I.; GORSHENINA, G.K.

Fermentation synthesis of optically active peptides from recemic amino acids. Part 2. Zhur.ob.khim. 31 no.10:3234-3242 O '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Peptides) (Amino acids)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; ANDREYEVA, A.P.

Formation of an N-peptide bond in the interaction of o-(benzoylphenylananyl-1C^{14})N-benzoylserine with insulin. Biokhimiia 27 no.6:969-976 N-D '62. (MIRA 17:5)

1. Gosudarstvennyy universitet imeni Lomonosova, Moskva.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; TROSHKO, Ye.V.; GORSHKOVA, T.A.

Determination of amino acid esters by the hydraxamic reaction. Part 1. Zhur.ob.khim. 32 no.5:1382-1389 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Hydroxamic acid)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; TROSHKO, Ye.V.

Paper chromatography of amino acid esters and their detection in a form of hydroxamates. Part 2. Zhur.ob.khim. 32 no.5:1389-1390 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Hydroxamic acid) (Paper chromatography)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; PODVYAZNYY, V.P.; KOKSHAROVA, L.M.

Synthesis of N- and N,O-peptide series of serine XXXI. Zhur.ob. khim. 32 no.5:1619-1622 My '62. (MIRA 15:5)
(Serine) (Peptides)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; KURANOVA, I.P.

Reaction of p-nitrophenyl ester of carbobenzoxy-D-phenylalanine with chymotrypsin. Dokl. AN SSSR 143 no.5:1094-1097 Ap '62. (MIRA 15:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom A.N.Nesmeyanovym.

(Alanine) (Esters) (Trypsin)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; ANDREEVA, A.P. [Andreyeva, A.P.]; KOSHAROVA, L.M.

New reactions of O-peptides of β-hydroxy amino acids: Formation of N-peptide bonds by reaction of O-aminoacyl derivates. Coll Cz Chem 27 no.9:2244-2245 S '62.

1. Moscow State University, U.S.S.R. (for Botvinik). 2. Institute for Chemistry of Natural Products, Academy of Sciences of U.S.S.R. (for Kosharova).

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

CHICHIBABIN, Aleksey Yevgen'yevich. Prinimali uchastiye: REUTOV, O.A.; KITAYGORODSKIY, A.I., prof.; LIBERMAN, A.L., doktor khim. nauk; BAGDASAR'YAN, Kh.S., doktor khim. nauk; PLATE, N.A., kand. khim. nauk; KOLOSOV, M.N., kand. khim. nauk; BOTVINIK, M.M., doktor khim. nauk; STEPANOV, V.M., kand. khim. nauk; MEL'NIKOV, N.N., prof.; DEREVITSKAYA, V.A., doktor khim. nauk; LIBERMAN, A.L., red.; SERGEYEV, P.G. [deceased]; ROMM, R.S., red.; SHPAK, Ye.G., tekhn. red.

[Basic principles of organic chemistry] Osnovnye nachala organicheskoi khimii. Izd.7. Pod red. P.G.Sergeeva i A.L. Libermana. Moskva, Goskhimizdat. Vol.1. 1963. 910 p. (MIRA 16:10)

1. Chlen-korrespondent AN SSSR (for Reutov).
(Chemistry, Organic)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AVAYEVA, S. M.; BOTVINIK, M. M.; SYROMYATNIKOV, I. F.

"Serylpyrophosphates and serylphosphates."

report submitted for 7th European Peptide Symp, Budapest, 3-8 Sep 64.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M. M.; KOSHELEVA, M. I.

"Reactions of N-imidazolyl derivatives of histidine and histidine peptides with serine hydroxyl."

report submitted for 7th European Peptide Symp, Budapest, 3-8 Sep 64.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AVAYEVA, S.M.; BOTVINIK, M.M.; SYROMYATNIKOVA, I.F.

Synthesis of substituted diseryl pyrophosphates. Zhur.ob.khim. 33 no.2:709-710 F '63. (MIRA 16:2)
(Serine) (Pyrophosphates)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

SYROMYATNIKOV, I.A., doktor tekhn. nauk, prof.; LITVAK, L.V., kand. tekhn. nauk; BOTVINNIK, M.M., doktor tekhn. nauk; GORODSKIY, D.A., doktor tekhn. nauk

Concerning [kand. tekhn. nauk] N.R. Ipatenko's article "Automatic excitation control of a synchronized induction motor." Elektrotekhnika 34 no.11:70-72 N '63.

(MIRA 17:2)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M. M.; KARA-MURZA, S. N.; AVAYEVA, S. M.; NIKITIN, V. Ya.

Infrared spectroscope study of the mechanism underlying the formation of p-nitrophenyl esters of benzoyl amino acids and acyl peptides by the carbodiimide method. Dokl. AN SSSR 156 no. 1:88-91 My '64. (MIRA 17:5)

1. Moskovskiy gosudarstvennyy univeristet. Predstavleno akademikom A. N. Nesmeyanovym.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AVAYEVA, S. M.; BOTVINIK, M. M.; SYROMYATNIKOVA, I. F.

Seryl phosphates and pyrophosphates. Part 1: Synthesis of P P -di(benzyl ester of N-carbobenzoxyseryl)-P P-dibenzylpyrophosphate and P P-di(methylamide of N-benzoylseryl)-P P-dibenzylpyrophosphate. Zhur. ob. Khim. 34 no.6:1749-1754 Je '64. (MIRA 17:7)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AVAYEVA, S. M.; BOTVINIK, M. M.; VAFINA, M. G.; MATYAZH, L. F.

Seryl phosphates and pyrophosphates. Part 2: Behavior of bis (methyl ester of N-carbobenzoxyseryl)-phenyl phosphate in HBr solution in organic solvents. Zhur. ob. Khim. 34 no.6:1754-1757 Je '64. (MIRA 17:7)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; TROSHKO, Ye.V.

Determinations of esters of acylated peptides by means of the hydroxamic reaction. Zhur.ob.khim. 33 no.12:3813-3819 D '63. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, M.M.; KONOVALOVA, I.M.

Reactions of N-imidazolacyl derivatives of histidine with serine derivatives. Zhur. ob. khim. 35 no.6:1123 Je '65.

(MIRA 18:6)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

L 27289-66

ACC NR: AP6016874 SOURCE CODE: UR/0189/65/000/003/0078/0082

AUTHOR: Avayeva, S. M.; Botvinik, M. M.; Syromyatnikova, N. F.; Grigorovich, V. I. B

ORG: Department of Organic Chemistry, Moscow State University (Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta)

TITLE: Seryl-phosphates and pyrophosphates

SOURCE: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 3, 1965, 78-82

TOPIC TAGS: organic synthetic process, serine, polypeptide, hydorlysis, organic phosphorus compound, ester

ABSTRACT: The synthesis of $p1p2$-di(benzyl ester-carbobenzoxyglycylseryl)-$p1p2$-dibenzylpyrophosphate and study of its hydrolysis are described. In continuation of previous investigations, this paper reported the synthesis of a new compound which incorporates a pyrophosphate group and a dipeptide of serine. The benzyl ester of N-carbobenzoxyglycylserine was boiled together with NaI in absolute acetone to remove one benzyl group. Since the monosodium salt of the benzyl ester of N-carbobenzoxylglycyl-O-(benzylphospho)-serine formed is quite soluble in acetone and does not precipitate in the reaction mixture, the reaction was continued somewhat longer than usual. Upon boiling of the reaction mixture for four hours, the yield of the sodium salt of the benzyl ester of N-carbobenzoxyglycyl-O-(benxylphospho)-serine was 85%. The properties of the compound were studied, including its hydrolysis at 21° in neutral and in weakly alkaline media at pH 6.8 and 8.5, with the formation of the benzyl ester of N-carbobenzoxylglycyl-O-(benzylphospho)-serine. Orig. art. has: 1 figure and 1 table. [JPRS]

SUB CODE: 07 / SUBM DATE: 22Jul64 / ORIG REF: 003 / OTH REF: 002

Card 1/1

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

ACC NR: AP7003669

SOURCE CODE: UR/0079/66/036/008/1509/1510

AUTHOR: Avayeva, S. M.; Kara-Murza, S. N.; Botvinik, M. M.
ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Synthesis of o-pyrophospho-D,L-serine and glycyl-o-pyrophospho-d,l-serine

SOURCE: Zhurnal obshchey khimii v. 36, no. 8, 1966, 1509-1510
TOPIC TAGS: organic synthetic process, phosphorylation, pyridine, chromatography

ABSTRACT: Two methods of synthesizing serylpyrophosphates were developed: carbodiimide and acid chloride methods. In both cases benzyl esters of N-carbobenzoxy- and N-carbobenzoxyglycyl-O-benzylphospho-D,L-serine were the starting materials. In the carbodiimide method, the reaction was conducted in acetone at room temperature, with a fivefold excess of the dibenzylphosphoric acid and a tenfold excess of N,N'-dicyclohexylcarbodiimide. In the acid chloride method, phosphorylation was carried out at -40°, with a sixfold excess of dibenzyl chlorophosphate in acetone in the presence of an amount of pyridine equimolar to the chlorophosphate. Ion-exchange chromatography on the resin Dowex 1 x 2 was used to separate the reaction products. The yields of the serine pyrophosphates were 40-50% in the carbodiimide method and 60-70% in the acid chloride method. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 27Jan66 / ORIG REF: 003 / OTH REF: 002

Card 1/1 jb

UDC: 547.466

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BOTVINIK, O. I.

Botvinik, O. I. "An experimental administration of vitamin D_2 for lupus vulgaris," Vestnik venerologii i dermatologii, 1949, No. 2, p. 35-39

SO: U-4934, 29 Oct. 53, (Letopis 'Zhurval 'nykh Stately, No. 16, 1949).

Hosp. Surgeon, Clinic Skin + Venereal Diseases, 1st Moscow Med. Inst.

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BOTVINIK, O. I.

1674. Vitamin D2 Pri Lechenii Tuberkuleznoy Volchanki. M., 1954. 9s. 20sm (1-Y Mosk. Ordena Lenina Med. In-T). 100 EKZ. B. TS.-(54-52901)

SO: Knizhnaya Letopis', Vol. 1, 1955

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BOTVINIK S.A.

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11 E

The influence of mixed cultivation on the biology of B. dysenteriae Shiga and Bac. typhi abdominalis. S. A. Botvinik. Z. *Mikrobiol., Epidemiol. Immunitatsforsch.* (U. S. S. R.) 1939, No. 5, 66-9 (in English, 69).—Joint cultivation of *B. pyocyaneus* (I) with *B. dysenteriae* Shiga (II) resulted in the complete suppression of the growth of II. No depressing influence of I was observed on *Bac. typhi abdominalis*. The 2-week-old mucous filtrates of I react in the same way, while nonmucous filtrates have no effect on either I or II. S. A. K.

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BOTVINIK, S.A., dotsent, zavedmyushchiy; POPKOVA, N.F.; KUROCHKIN, I.D.; POSTROMA, Ye.V.

Early and accelerated methods of laboratory diagnosis of dysentery. Second report. Zhur.mikrobiol.epid.i immun. no.9:34-37 S '53. (MLRA 6:11)

1. Kafedra mikrobiologii Yaroslavskogo meditsinskogo instituta.

(Dysentery)

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EXCERPTA MEDICA Sec 4 Vol 12/7 Med. Micro. July 59

2035. REACTION OF PRECIPITATION WITH HAPTEN IN THE DIAGNOSIS OF SCLEROMA (Russian text) - Botvinik S. A. Dept. of Microbiol., Med. Inst. Vitebsk; Dept. of Microbiol., Med. Inst., Minsk - ZDRAVOOKHR. BELOR. 1957, 6 (41-42)

A report on the precipitation reaction with a hapten from the nasal mucosa of scleroma patients. Sera were obtained by immunization of rabbits with live or formolized cultures. With nasal material from 47 patients, a positive reaction was found in only 5 patients. To improve this method the nasal swabs were placed in broth for 18 hours. A positive result was obtained in 13 out of 50 patients. By using agar cultures a positive result was obtained in 51 out of 62 patients.

Guseva - Moscow

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BOTVINIK, S.A.

Survival and variability of Frisch-Volkovich bacilli in water. Zhur. mikrobiol., epid. i immun. 41 no.3:99-102 Mr '64. (MIRA 17:11)

1. Vitebskiy meditsinskiy institut.

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BOTVINIK, S.A.; GURKOVA, E.A.

Dependence of antagonistic properties of Escherichia coli on the level of their sensitivity to levomycetin. Antibiotiki 10 no. 10:900-904 O '65. (MIRA 18:12)

1. Kafedra mikrobiologii (zav. Ye.A. Leplya) Vitebskogo meditsinskogo instituta. Submitted Febr. 27, 1965.

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BOTVINIK, S.V., insh.

Making and testing prestressed reinforced concrete poles for 35kv overhead electric transmission lines. Nov. tekh. i pered. op. v stroi. 20 no.3:22-26 M '58. (MIRA 11:3)
(Electric lines--Poles)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

AFANAS'YEV, Yu.N., insh.; BOTVINIK, S.V., insh.

Precast reiforced concrete elements for industrial construction manufactured on multiple-hollow units. Prom.stroi. 40 no.11:14-19 '62. (MIRA 15:12)

(Precast concrete)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, Ye. (Novgorod)

For the farm workers. Mest.prom. i khud.promys. 2 no.9:11 S '61. (MIRA 14:11)

1. Glavnyy inzhener oblastnoy mestnoy promyslennosti Novgorodskoy oblasti.

(Novgorod--Agricultural machinery)

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BOTVINIK, Ye.

Thanks to specialization. Mest.prom.i khud.promys. 3 no.12: 24-25 D '62. (MIRA 16:2)

1. Glavnyy inzh. Novgorodskogo oblmestproma.
(Industrial organization)

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BOTVINIK, YE.S.

BOTVINIK, Ye.S.

Ust'-Izhora Veneer Mill. Der. prom. 6 no.11:21-25 N '57. (MIRA 10:11)

1. Ust-Izhorskiy fanernyy zavod.
(Ust'-Izhora--Veneers and veneering)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, Yefim Solomonovich; DMITRIYEV, Oleg Aleksandrovich; GEL'MAN, Moisey Isaakovich; TUPITSIN, Yuriy Semenovich; EL'BERT, Aleksandr Aronovich; VARAKSIN, F.D., red.; LEBEDEVA, I.D., red. izd-va; PARAKHINA, N.L., tekhn. red.

[Use of the continuous method for the manufacture of particle boards]Proizvodstvo struzhechnykh plit nepreryvnym sposobom. Moskva, Goslesbumizdat, 1961. 98 p. (MIRA 15:2)
(Hardboard) (Assembly-line methods)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, Ye.S.; SAMUSENKO, N.P.

Ust-Izhora plywood factory is a pioneer in the use of new equipment and techniques. Der.prom. 10 no.9:15-17 S '61. (MIRA 14:10)
(Ust-Izhora--Plywood industry)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINIK, Ye.S.; EL'BERT, A.A.

From the practices of producing boards from woodchips by a continuous method. Der. prom. 12 no.1:18-21 Ja '63. (MIRA 16:5)
(Hardboard)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206620004-1

BOTVINNIKOV, O.K.

BOTVINNIKOV, O.K.

A

Some anomalous phenomena in glass near its softening point. O. K. BOTVINNIKOV. *Keram. i Steklo* 6, 431-4(1930).—B. reviews the existing literature on anomalous phenomena in glass near its softening point and describes his investigations. The results are: (1) At certain temps. lying below the softening point of glass, an anomalous change in the coeff. of cubic expansion of glass was observed; this interval coincides with the corresponding intervals for specific heat and viscosity. (2) Three transition points were found for all glasses; this fact disagrees with the investigations of M. O. Samsonn and others, who found only 2.

M. V. KONDOIDY

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

19

Beryllium glass transparent to x-rays. O. K. Botvinkin. *Keram. i Stekla* 7, No. 4, 25(1931).—B. describes investigations made to prep. Be glass transparent to x-rays. The glass compn. is: B_2O_3 80, Li_2O 10 and BeO 10%; its sp. gr. is 2.20. Such a glass of 0.4 mm. thickness has a transparency of 90.08%. M. V. Kondoidy

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

17

Study of the reaction: $NaCl + NaHSO_4 + SiO_2 = Na_2SiO_3 + SO_2 + HCl$. O. K. Botvinkin and T. E. Golba. *Keram. i Steklo* 9, No. 1, 21(1933).—The use of NaCl and $NaHSO_4$ for glass melting is discussed. A mixt. of corresponding substances in equiv. mol. proportion was heated in an elec. furnace. The reaction was investigated in temp. intervals between 150° and 900°, and from 1000° to 1300°. The possibility of producing Na silicates ($Na_2O \cdot 2SiO_2$) from $NaHSO_4$, NaCl and SiO_2 was proved by this expt.

M. V. Kondoidy

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

19

The rate of solution of wollastonite in sodium silicates in relation to temperature. O. K. Botvinkin and A. A. Gurevich. *Monograph on Physics and Phys. Chem. of Glass* (Moscow) 1933, 34; *J. Soc. Glass Tech.* 18, 302A.—A study was made of the soln. of synthetic wollastonite in a pure glass of the compn. $Na_2SiO_3 + 0.7SiO_2$, corresponding to the eutectic mixt. according to G. W. Morey and F. C. Kracek. The wollastonite, ground in an agate mortar, was added to the molten Na silicate in a quantity of 3 g. per 20 g. of melt. The crucible contents were immediately stirred with a Pt spatula and maintained at a const. temp. The times of complete soln. (in min.) and temps., resp., were: 1440, 1035°; 600, 1125°; 300, 1162°; 120, 1210°; 60, 1240°; 30, 1300°. The following formula is proposed for the process of soln.: $\log t = A - B \log T$, where t = time of complete soln. in min., T = abs. temp., A and B = consts. relative to solvent and dissolved substance. In the present case $A = 100{,}647$ and $B = 31{,}100$.

G. G.

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