USSR

RYABOV, V. R., et al, Avtomaticheskaya Svarka, No 2, Feb 71, pp 18-23

by X-ray analaysis. The introduction of nickel and chromium was found to delay the growth of the calorized diffusion layer.

Conferences

USSR

UDC 621.791.008.1

YUMATOVA, V. I.

"Fourth All-Union Conference on the Welding of Heterogeneous Metals"

Kiev, Avtomaticheskaya Svarka, No 6, 1970, pp 75-76

Abstract: This is a report on the conference held at the Electric Welding Institute imeni Ye. O. Paton and attended by 280 representatives from 160 scientific and production organizations in the nation. The conference was opened by D. A. Dudko, Corresponding Member of the USSR Academy of Sciences. Problems concerning the further development of heterogeneous metal welding technology were dealt with in reports by Academician B. Ye. Paton, Doctor of Technical Sciences D. M. Rabkin, and Candidate of Technical Sciences V. R. Ryabov. A great deal of interest was aroused by a report of Candidate of Technical Sciences V. A. Masterov on the use of statistical theory of decay for estimating the durability of bimetallic alloys. Some of the other subjects covered include a method of contact welding of alumium with steel and copper, the determination of the anti-corrosion capability of welding steel and aluminum in distilled water at high temperatures, investigation of the structure and chemical composition of the titanium-steel bimetal, and the interaction of hard niobium with molten steel under electron-beam welding.

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USSR

UDC: 51

TRUBIN, V. A., YUN, G. N.

"Synthesis of an Airline Network in the Process of Choosing the Optimum Type of Passenger Aircraft"

Upravlyayushchiye sistemy i mashiny, 1972, No 1, pp 55-59 (from RZh-Kibernetika, No 5, May 73, abstract No 5V725 by the authors)

Translation: The paper deals with the multiple-extremum problem of choosing a network of airlines which minimize overall transportation and operating expenses assuming predetermined passenger traffic. An algorithm is proposed for solving the problem.

1/1

USSR

UDC 512.25/.26+519.3:330.115

YUN, G. N.

"Solution of Generalized Distribution Problem Using the Ukrainian Civil Aviation Administration as an Example"

Mat. Metody Issled. i Optimiz. Sistem. Vyp 4 [Mathematical Methods of Investigation and Optimization of Systems, No 4 -- Collection of Works], Kiev, 1970, pp 54-61, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V506).

Translation: An algorithm based on the idea of generalized gradient descent of N. Z. Shor (RZhMAT, 1968, 3V376), its block diagram and an ALGOL program are presented.

YUNAKOV, F. I.

CLARK

JPRS 55918

9 May 1972

UDC 621.391.1

THE PROBLEM OF COMPRESSION OF LITERAL MESSAGES

[Article by O. L. Smirnov and F. I. Yunakov, Moscow, Problemy Peredachi Informatsii, Russian, Vol 8, No 1, 1972, signed to press 18 Nov 1970, pp 99-100].

The problem is stated of ordering of words in dictionary $A=\{a_i\}$ in alphabet q so as to allow minimization of the mean length of the code for literal coding of the first r words and arbitrary coding of the remaining words. A method is suggested for solving the problem, related to running through all possible ordering versions.

Suppose messages from a certain set of words $A=\{a_i\}$, $i=1,2,\ldots,N$ in alphabet q are being transmitted, and transmission is performed using 2 symbols "0" and "1." An example of such methods used is the text of telegrams utilizing the words of the Russian language. Proper transmission requires coding of all words in set A by a certain binary code V satisfying the following natural limitations:

Two different messages must be coded by different binary sequences. (1)

If the messages are coded word by word by a certain code $V(A)=\{a_{i_1}a_{i_2}\ldots\}$, in which each word a_i from set A corresponds to binary word V_i from set V, with known frequencies p_i of appearance of each of the words, any code $V(z)$ can be set in correspondence with the quantity

$$L(V)=\sum_{i=1}^{N}p_i|V_i|.$$

called the mean code length.

1 $|x|$ here and subsequently represents the length of word x.

USSR UDC 616.981.452-022.39:595.775.1]-078.7+576.851.45.095.38:576.895.775

CHERCHENKO, I. I., OGANYAN, Ye. F., YUNDIN, Ye. V., ANANYAN, Ye, L., KHANGULYAN, E. K., GOLUBEV, P. D., and GONCHAROV, A. I., Scientific Research Antiplague Institute of the Caucasus and Transcaucasus and Armenian Antiplague Station, Ministry of Health USSR

"Experience in Serological Examinations of Fleas of Rodents for Plague"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 1, 1973, p 137

Abstract: The minimum number of infected fleas required for a positive serological result is not more than 5 in a mixture with 25 noninfected specimens. The results of serological tests are available within 24 hrs after infection of the test fleas if they are kept at 25°C in a 2% NaCl solution containing 0.002% gentian violet and 1% formalin which effectively extracts plague pathogen PI antigen from the tissue of the insects and preserves it for at least 45 days. The solution with or without the fleas can be used for the serological test which involves neutralization of antibodies with standard plague antigenic erythrocyte diagnosticum. The method was verified in field work. In the summer of 1969, 85 samples containing a total of 2,397 fleas collected from field mice and their holes in Transcaucasia were analyzed with both methods in parallel. The serological method detected antigen PI in 57 samples, while the 1/2

USSR

CHERCHENKO, I. I., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 1, 1973, p 137

bacteriological method yielded cultures of plague pathogen in only 21 samples. In summer 1971, positive results were obtained by the serological method in 24% of samples of fleas collected from gophers in the Caucasian Mountains. Subsequently, the bacteriological method used in October 1971 yielded positive results for the first time in that region. The faster and more sensitive serological method is recommended for territorial surveys of plague pathogen.

USSR

UDC: 547.947.1

VACHNADZE, V. Yu., MALTSKOV, V. M., IL'YASOVA, Kh. T., MUDZHIRI, K. S., YUNISOV, S. Yu. "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSSR Academy of Sciences; Institute of Pharmacochemistry imeni I. G. Kutateladze, Georgian SSR Academy of Sciences

"Qualitative Characteristics of Alkaloids of Some Species of the Genus Vinca"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 72 76

Abstract: A comparative study is made of qualitative color reactions of 38 indole alkaloids with the reagents ceric ammonium sulfate and ferric chloride in thin layer analysis on silicagel G and silufol to determine the relation between chemical structure and the type of alkaloid coloring. The alkaloid color observed after 24 hours of contact with the reagents was the criterion. The results of the study show the feasibility of predetermining the principal chromophore of the alkaloids (α-methylenindoline, indoline, indole or hydroxyindole) according to color reactions with ceric ammonium sulfate and ferric chloride.

1/1

Foundry

USSR

UDC 669.71.042.62

KUZNETSOV, V. S., YUNISOV, S. Ya., PETUKHOVA, T. A.

"Calculation of the Process of Formation of a Casting During Casting in a Roller Crystallizer"

Tr. N.-i. i Proekt. In-ta Splavov i Obrabotki Tsvet. Met. [Works of Scientific Research and Planning Institute for Alloys and Processing of Nonferrous Metals], No 35, 1971, pp 80-89, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G210 by the author(s).

Translation: The process of formation of a thin flat casting of Al of great length in a roller crystallizer with a stable process is studied. An analytic study of the process of solidification of the casting is presented. 3 Figures; 6 Biblio. Refs.

1/1

USSR

UDC 612.273.2+612.275]-019+615-001.12-092-092.9

YUNKIN, I. P. Chair of the Physiology of Underwater Swimming Military Medical Academy imeni S. M. Kirov, Leningrad

"Correlation of the Resistance of Animals to Hypoxia and Decompression Sickness"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5, Sep/Oct 70, pp 71-73

Abstract: Sensitivity to decompression sickness varies greatly within a given species. A study was conducted to determine the relationship between an individual's sensitivity to decompression sickness and that to hypoxic hypoxia, using mice as the experimental animals. An oxygen deficiency factor (hypoxic factor) was determined for each animal by enclosing it in a 1.2 liter glass flask and letting it breath air initially and then a N_2/O_2 mixture containing 4.6% O_2. Four to six days later, selected animals from the extreme sensitivity groups were tested for their resistance to decompression sickness. The sickness was less pronounced in mice which were resistant to oxygen deficiency; it developed more slowly and was less severe, and the mortality rate was lower for these animals than for the sensitive animals. The experiments showed the significance of the hypoxic factor in the pathogenesis of decompression sickness. It is hoped that , on the basis of the hypoxic factor, suitable methods can be developed for the selection of divers.

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1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A NEW VARIANT OF THE DEEP GEOLOGICAL STRUCTURE OF THE SEA OF OKHOTSK FLOOR. DEEP GEOLOGICAL STRUCTURE OF SEA OF OKHOTSK FLOOR -U-
AUTHOR--YUNOV, A.YU.

COUNTRY OF INFO--USSR, SEA OF OKHOTSK

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL 191, NO 4, 1970, PP 893-896
DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--BATHYMETRIC CHART, GEOMORPHOLOGY, MAP, SEA FLOOR, STRUCTURAL GEOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1193 STEP NO--UR/0020/70/191/004/0893/0896

CIRC ACCESSION NO--AT0133198
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0133198
ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. GEOPHYSICAL INVESTIGATIONS MADE DURING RECENT YEARS ON WESTERN KAMCHATKA AND IN THE SEA OF OKHOTSK, TOGETHER WITH THE COMPILATION OF MORE PRECISE BATHYMETRIC AND GEOMORPHOLOGICAL MAPS, HAVE YIELDED MUCH NEW INFORMATION ON THE STRUCTURE OF THE NORTHEASTERN SECTOR OF THIS REGION. FIGURE 1 IN THE TEXT IS THE LATEST VERSION OF A SCHEMATIC MAP OF DEPTHS OF THE BASEMENT SURFACE FOR THE SEA OF OKHOTSK PLATFORM. THE MAP CLEARLY SHOWS THE INHERITED DERYGINSKIY DOWNWARP AND THE PARTIALLY INHERITED, PARTIALLY NEWLY FORMED TINRO DOWNWARP; THE LATTER INCLUDES THE ICHINSKIY AND SEVERO OKHOTSKIY DOWNWARPS, COMPENSATED BY SEDIMENTS. THE NORTHEASTERN PART OF THE TINRO DOWNWARP (INCLUDING THE SEVERO OKHOTSKIY AND ICHINSKIY PALEODOWNWARPS) EXTENDS INTO SHELIKHOVSKIY GULF, EVIDENTLY CONNECTING WITH THE PENZHINSKY DOWNWARP. THE DERYUGINSKIY AND TINRO DOWNWARPS BELONG TO THE MARGINAL (ARISING AS A RESULT OF OROGENIC MOVEMENTS) SAKHALIN AND KAMCHATKA FOLDED SYSTEMS IN THE ADJACENT SUBSIDED OR UPLIFTED (AND BROKEN INTO BLOCKS BY FAULTS) SECTORS OF THE SEA OF OKHOTSK PLATFORM. THE ARCHED UPLIFT OF THE HETEROGENEOUS BASEMENT OF THE PLATFORM HAS A COMPLEX STRUCTURE, HAS IRREGULAR OUTLINES AND IS BROKEN INTO A NUMBER OF LOCAL UPLIFTS AND BASINS. A CONSIDERABLE PART OF THE SEVERO OKHOTSKIY DOWNWARP IS COMPLETELY COMPENSATED BY SEDIMENT AND CONSTITUTES A SHALLOW PART OF THE SHELF. BOTH THE DERYUGINSKIY A: TINRO DOWNWARPS ARE MAJOR PETROLEUM AND GAS BASINS WHICH SUPPLY THE PETROLEUM AND GAS REGIONS OF NORTHERN SAKHALIN AND WESTERN KAMCHATKA.
FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF MARINE GEOLOGY AND GEOPHYSICS.

UNCLASSIFIED

EFF3 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SEISMIC DATA ON STRUCTURE OF SEDIMENTS IN TATAR STRAIT, SEISMIC DATA ON STRUCTURE OF THE SEDIMENTARY LAYER IN THE SOUTHERN PART OF THE
AUTHOR-(05)-MILASHIN, A.P., SIPLATOV, V.A., YUNOV, A.YU., VOLKOV, A.P., TABOYAKOV, A.YA.
COUNTRY OF INFO--USSR

SOURCE--GELENDSHIK; MOSCOW, GEOTEKTONIKA, NO 1, 1970, PP 117-120

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--TECTONICS, SEISMIC SURVEY, SEDIMENTARY ROCK LAYER, MARINE GEOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0052 STEP NO--UR/9066/70/000/001/0117/0120

CIRC ACCESSION NO--AP0108425
UNCLASSIFIED

2/3 009 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0108425

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TECTONICALLY, THE REGION OF TATAR STRAIT, BEING A CONTINUATION OF THE DEEP WATER SEA OF JAPAN BASIN, IS SITUATED IN THE TRANSITION ZONE FROM THE ASIATIC CONTINENT TO THE PACIFIC OCEAN. DURING THE SUMMER AND AUTUMN OF 1966 THE DIVISION OF MARINE GEOPHYSICAL WORK OF THE ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF GEOPHYSICS FOR THE FIRST TIME CARRIED OUT MARINE SEISMIC STUDIES IN THE TATAR STRAIT BY THE METHOD OF CONTINUOUS PROFILING BY THE REFLECTED WAVES METHOD. MOST OF THE WORK WAS DONE ON THE SAKHALIN ISLAND SHELF IN THE SECTOR BETWEEN CAPE LAMANON AND THE SOUTHEASTERN SHORES OF DELANGL' GULF. WITHIN THIS AREA THREE SEISMIC PROFILES INTERSECT TATAR STRAIT FROM SAKHALIN TO THE ASIATIC CONTINENT IN A LATITUDINAL DIRECTION (FIG. 1 IS A MAP OF THE WORK AREA.) THE COLLECTED DATA INDICATE THAT THE STRUCTURE OF THE UPPER PART OF THE SEDIMENTARY COMPLEX IS CHARACTERIZED FOR THE MOST PART BY TWO GROUPS OF DEPOSITS. TH AREA CAN BE DIVIDED INTO EASTERN AND WESTERN PARTS ON THE BASIS OF THE SEISMIC DATA. THE EASTERN PART, CORRESPONDING IN GEOMORPHOLOGICAL RESPECTS TO THE SHELF NEAR SAKHALIN, IS CHARACTERIZED BY WELL EXPRESSED DISLOCATION OF THE DEPOSITS. THE DURATION OF THE SEISMIC RECORD HERE VARIES FROM 1.4-2.0 SEC, LESS FREQUENTLY 2.5 SEC, IN SYNCLINAL DOWNWARDS TO 0.7-0.9 SEC AND COMPLETE DISAPPEARANCE IN ANTICLINES. THE WESTERN PART CORRESPONDS TO THE ABYSSAL SECTOR AND THE EASTERN SLOPE OF THE STRAIT. THE SEISMIC RECORD IS CHARACTERIZED BY A GREAT DURATION, UP TO 3.0-3.5 SEC. THE STRUCTURE OF THIS REGION IS DESCRIBED IN DETAIL.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--020CT70

1/3 010

TITLE--CRUSTAL THICKNESS ON KAMCHATKA -U-

AUTHOR-(02)-PAVLOV, YU.A., YUNOV, A.YU.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 191, NO. 1, 1970, PP. 194-196

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST, OCEAN, LAND, MAP, VOLCANO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0020/70/191/001/0194/0196

PROXY REEL/FRAME--1990/0266

CIRC ACCESSION NO--AT0108572

UNCLASSIFIED

2/3 010 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AT0108572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIGURE 1 IN THIS ARTICLE IS A MAP OF CURSTAL THICKNESS ON KAMCHATKA SHOWING ISOLINES OF CRUSTAL THICKNESS, ACTIVE AND EXTINCT VOLCANOES. THE MAP IS BASED ON DATA COLLECTED BY THE KAMCHATKA TERRITORIAL GEOLOGICAL ADMINISTRATION. CRUSTAL THICKNESS ON KAMCHATKA VARIES FROM 24 TO 32 KM. THERE IS A MARKED DIFFERENCE IN THICKNESS OF THE CRUST AND RELIEF OF ITS BOTTOM IN THE WESTERN AND EASTERN REGIONS OF THE PENINSULA. IN THE EAST AND SOUTH A THICKNESS FROM 24 TO 30 KM IS CHARACTERISTIC; THE SHARPEST GRADIENTS OF CHANGE ARE OBSERVED IN THESE AREAS. THE ZONE OF EASTERN KAMCHATKAN PENINSULAS FORM A UNIFIED STRUCTURAL ZONE WITH THE LESSER KURILE RIDGE AND THE VITYAZ' RIDGE. THE BOTTOM OF THE CRUST PLUNGES IN A WESTWARD DIRECTION, IN THE CENTRAL PARTS OF KAMCHATKA ATTAINING A DEPTH OF 32-33 KM; WESTWARD IT AGAIN EXPERIENCES IN INSIGNIFICANT SMOOTH RISE. THE CENTRAL ZONE OF MAXIMUN CRUSTAL THICKNESS SPATIALLY CONINCIDES WITH THE CENTRAL KAMCHATKAN RANGE. IN GENERAL, THE PENINSULA IS CHARACTERIZED BY A LONGITUDINAL NNE ZONALITY OF ISODEPTHS OF BOTTOM OF THE CRUST. THERE IS A RISE IN THE CRUST UNDER MOUNTAIN STRUCTURES ON THE EASTERN PENINSULAS AND AT THE SOUTHERN TIP OF KAMCHATKA. THIS IS EVIDENCE OF THE ABSENCE OF "ROOTS" UNDER THEM AND A MARKED DEVIATION FROM ISOSTASY. HOWEVER, "ROOTS" ARE OBSERVED UNDER THE CENTRAL KAMCHATKAN RANGE AND IN PART UNDER THE EASTERN RANGE. NEVERTHELESS, CRUSTAL THICKNESS IS OBVIOUSLY INADEQUATE FOR ISOSTATIC EQUILIBRIUM OF THESE MOUNTAINOUS STRUCTURES.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710017-8"

3/3 010 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AT0108572

ABSTRACT/EXTRACT--THE ASYMMETRY OF CRUSTAL STRUCTURE ON KAMCHATKA IS EVIDENTLY DUE TO THE HETEROGENEITY OF THE "OCEANIC" AND "CONTINENTAL" BLOCKS OF THE EARTH'S CRUST, WITH KAMCHATKA BEING SITUATED ON THE CONTACT BETWEEN THE TWO. THE TRANSVERSE ZONALITY IN KAMCHATKAN STRUCTURE IS REFLECTED IN THE RELIEF OF THE BOTTOM OF THE CRUST. A DEPENDENCE BETWEEN THE SPATIAL DISTRIBUTION OF ACTIVE AND EXTINCT VOLCANOES AND CRUSTAL THICKNESS IS DEMONSTRATED.

UNCLASSIFIED

USSR

UDC 621.315.592

KYUREGYAN, A. S., LAZAREVA, I. K., STUCHEBNIKOV, V. M., YUNOVICH, A. E.

"Photoluminescence of Gallium Antimonide at a High Excitation Level"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 242-247

Abstract: The radiation recombination in GaSb under laser excitation was investigated. With an increase in the excitation power to 10^3-10^5 watts/cm^2, new shortwave bands appear in the spectra. The width of the forbidden band of GaSb defined by the peak energy of the interband (exciton) radiation is 0.813 $\pm$ $\pm$ 0.003 electron volts at 12° K and 0.800 $\pm$ 0.005 electron volts at 80° K. In the case of weak alloying of the GaSb with tellurium, recombination occurs in the spectra with the participation of natural acceptors (0.034 and 0.070 electron volts), deep acceptors (0.10 and 0.13 electron volts) and a shallow donor (0.01 electron volts). The effect of the temperature variation, degree of alloying and excitation level on the form of the photoluminescent spectra is discussed. The results are compared with data obtained by one of the authors [V. M. Stuchebnikov, Author's Review of Candidates Dissertation of Moscow State University, Moscow, 1969] for a comparatively low excitation level by a He-Ne-laser.

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USSR

UDC: 537.534.8

ARIFOV, U. A., KHADZHIMUKHAMEDOV, Kh. Kh., YUNUSOV, A. I., Institute of Electronics, Academy of Sciences of the Uzbek SSR, Tashkent "Order of the Red Banner of Labor" State University imeni V. I. Lenin

"Channeling of Light Ions in Tungsten, Molybdenum, and Copper Single Crystals"

Tashkent, IAN Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1971, pp 60-63

Abstract: The paper presents the results of an investigation of the scattering factor of ions as a function of type, ion energy, and diameter; the mass of the target atoms and crystal lattice parameters in the case of the friable face (112) of single crystals of tungsten, molybdenum, copper, and silicon. Currents were measured by the method of double modulation at 300°K. Lithium, sodium, potassium, rubidium, and cesium atoms were studied. The values found for the ratio of the greatest diameter of the channeled ion to the width of the channel of the crystal face were found to be 0.77 for sodium bombardment of copper, 0.78 for lithium bombardment of tungsten, and 0.79 for lithium bombardment of molybdenum. The corre-

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ARIFOV, U. A. et al., IAN UzSSR, Ser. Fiz.-Mat. Nauk, No 3, 1971, pp 60-63

sponding figure for lithium cations and copper is 0.53, which means that the scattering factor for copper is somewhat lower than for silicon in spite of the larger mass of copper atoms. An anomaly in the curve for the scattering factor as a function of the ion mass is observed which depends on the geometry of the crystal lattice of the target. Scattering of heavy ions by light targets is attributed to multiple collisions between the ion and the surface atoms. A complete interpretation of the results would require calculations which account for the increasing transparence of the crystal face as the energy increases. In particular, single collisions predominate at energies greater than 1 keV, while multiple paired collisions are the rule at lower energies. Three figures, bibliography of nine titles.

2/2

USSR

UDC: 537.534.8

ARIFOV, U. A., KHADZHIMUKHAMEDOV, Kh. Kh., YUNUSOV, A. I., Institute of Electronics, Academy of Sciences of the Uzbek SSR, Tashkent "Order of the Red Banner of Labor" State University imeni V. I. Lenin

"Scattering of Alkali Ions by the Surface of NbTi and SiC Targets"

Tashkent, IAN UzSSR, Seriya Fiziko-Matematicheskikh Nauk, No 4, 1971, pp 55-57

Abstract: The authors investigate scattering of alkali ions by the surface of NbTi alloy, the binary compound α-SiC, and their components in the bombardment ion energy region E_0 = 12-30 keV. The experiments were done in a working vacuum of $(1-5)\cdot10^{-7}$ mm Hg. The targets were hardened either by electron bombardment from the back side or by heating the substrate. The ion beam currents were of the order of a microampere. Measurements were taken by the oscillographic method and by the galvanometric method (for small secondary currents). The coefficient of ion scattering by face (0001) of α-SiC was studied as a function of the type and energy of

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ARIFOV, U. A. et al., IAN UzSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1971, pp 55-57

the primary ions. Scattering by the components of the alloy was found to be lower than for the alloy itself. In the case of NbTi, scattering by niobium alone gave a higher coefficient, and titanium alone gave a lower coefficient of scattering than the alloy. Analysis of the results shows that the value of the scattering coefficient decreases with a reduction in the mass of the atoms in the target and an increase in the mass of the bombarding ions. The experimental data are approximated by the empirical formula

$$K_p = \gamma m_1 \left(\frac{m_2}{E_0}\right)^n,$$

where K_p is the scattering factor, γ is an empirical constant, m_1 is the mass of the atoms in the target, m_2 is the mass of the bombarding ions, and the exponent n is a function of the atomic number of the ion. Three figures, bibliography of five titles.

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USSR

UDC 612.015.31+612.014.4

YUNUSOV, A. Yu., MAKHMUDOV, E. S., and ISLAMGALIYEVA, F. , Physiology Division Academy of Sciences, Uzbek SSR, Tashkent

"Water-Electrolyte Metabolism in Persons From Different Climatic Zones After Exposure to High Temperatures"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 8, 1971, pp 1,198-1,202

Abstract: Various indexes of water-electrolyte metabolism were studied in local inhabitants in Tashkentskaya Oblast in Central Asia and in persons who had come there from temperate and cold regions of the Soviet Union. The measurements were made during the summer when temperatures of 28 to 34° and relative humidity of 30 to 40% prevailed. Newly arrived individuals from temperature regions consumed 68.6% more liquid than did the local inhabitants, lost more than twice as much extrarenal water, and exhibited a slight decrease in diuresis and sharp decrease in sodium (by 46.5%) and potassium (by 34.6%) content in the urine. The amount of sodium and potassium in sweat was, respectively, six times and twice as high as in the local inhabitants. Blood sodium increased while blood potassium decreased. These differences in metabolic indexes were much more pronounced in those who had come from cold regions. But after the individuals remained in the Tashkent area for over one

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USSR

YUNUSOV, A. Yu. et al., Fiziologicheskiy Zhurnal SSSR, No 8, 1971, pp 1,198-1,202

year, all the above indexes decreased (an indication of adaptation to the new conditions), but not to the level characteristic of the local population.

USSR

YUNUSOV, A. Yu., (Editor), Department of Physiology, Academy of Sciences Uzbek SSR

Funktsii organizma v zharkom klimate (Functions of the Organism in a Hot Climate), Tashkent, "FAN" Uzbekskoy SSR, 1970, 318 pp

In this book new data are introduced on the physiology of digestion, salt-water balance and metabolism, and the bioelectrical activity of the nervous system under conditions of the single and multiple action upon the organism of high temperature in the ambient medium. Light is shed on the questions of interdependence and autoregulation of functions, the character and peculiarities of distribution of water and salt in the organism, and the role of the autonomic nervous system in regulating salt-water balance. Problems such as the adaptation of the organism to high temperature, the sequence of inclusion, and the characteristics of the regulation of functions in this process are also covered. This collection is intended for a wide circle of biologists and physicians.

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YUNUSOV, A. Yu., "FAN" Uzbekskoy SSR, 1970, 318 pp

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YUNUSOV, A. Yu., "FAN" Uzbekskoy SSR, 1970, 318 pp

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YUNUSOV, A. Yu., "FAN" Uzbekskoy SSR, 1970, 318 pp

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YUNUSOV, A. Yu., "FAN" Uzbekskoy SSR, 1970, 318 pp

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YUNOSOV, A. Yu., "FAN" Uzbekskoy SSR, 1970, 318 pp

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USSR UDC 591.81:612.014

YUNUSOV, A. YU. and GITELMAN, YE. I., Department of Physiology, Academy of Sciences UzbekSSR

"Some Aspects of Cellular Mechanisms in the Change of Functions of an Organism Under Different Temperature Conditions"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 2, 1971, pp 27-29

Abstract: Tissue permeability of neutral red (introduced intra-abdominally) was studied in test animals (white rats) which had been kept in a temperature chamber at various temperatures (from 20 to 50°C at 3° intervals). It was found that tissues from the organs studied have a different level of permeability: liver > kidney > intestine > musculus intercostalis > femoral muscle > skin. This is an indication that there are topographic features of tissue permeability. The one of kidney, muscular intercostalis, and skin is reduced by 15, 27, and 16%, respectively, when the environmental temperature is 23°C. At 26°C, the permeability of liver, femoral muscle, and intestine was reduced by 24, 51, and 17%, respectively. That of kidney and musculus intercostalis was even further reduced (by 41 and 61%). Data of this type were collected

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USSR

UDC 591.81:612.014

YUNUSOV, A. YU. and GITELMAN, YE. I., Department of Physiology, Academy of Sciences UzbekSSR

"Some Aspects of Cellular Mechanisms in the Change of Functions of an Organism Under Different Temperature Conditions"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 2, 1971, pp 27-29

Abstract: Tissue permeability of neutral red (introduced intra-abdominally) was studied in test animals (white rats) which had been kept in a temperature chamber at various temperatures (from 20 to 50°C at 3° intervals). It was found that tissues from the organs studied have a different level of permeability: liver > kidney > intestine > musculus intercostalis > femoral muscle > skin. This is an indication that there are topographic features of tissue permeability. The one of kidney, muscular intercostalis, and skin is reduced by 15, 27, and 16%, respectively, when the environmental temperature is 23°C. At 26°C, the permeability of liver, femoral muscle, and intestine was reduced by 24, 51, and 17%, respectively. That of kidney and musculus intercostalis was even further reduced (by 41 and 61%). Data of this type were collected

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USSR UDC 591.1:591.54

YUNUSOV, A. Yu. (deceased), RAKHIMOV, K., and SAFAROVA, S., Division of Physiology, Academy of Sciences Uzbek SSR

"The Enzyme Activity of the Contents of the Rat Intestine During Repeated Exposure of the Animals to High Temperatures and Solar Irradiation"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 39-40

Abstract: Rats were exposed daily for two hours during 30 days to high temperatures (35-40°) and intensive solar irradiation under the conditions prevalent in Jun-July in Tashkent. As shown by investigations of the contents of the small intestine, the amylolytic and lipolytic activities in the intestine decreased under the effect of exposure of the animals to heat and solar radiation. The amylase content in the intestine, after decreasing to 51.0 ± 6.2% of that for controls on the first day of the experiment, dropped to a minimum of 38.5 ± 4.2% on the 5th day and then gradually increased. It amounted to 48.8 ± 6.2, 59 ± 7.3, 84.6 ± 10.2, and 81.6 ± 10.0% on the 10th, 15th, 20th, and 30th day, respectively. The lipase content was 23.0 ± 1.6% of that for controls after a single exposure and then became 28.4 ± 2.4, 37.0 ± 4.3, 39.3 ± 5.6, 42.0 ± 6.4, and 41.9 ± 6.3% on the 5th, 10th, 15th, 20th, and 30th day, respectively. The increase in the secretion of digestive enzymes after an 1/2

USSR

YUNUSOV, A. Yu, et al., Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 39-40

initial decrease indicated adaptation of the animals to the heat and irradiation. During the first 10 days of the experiment, the body temperature of the animals during exposure reached 41.5-42.0°. Profuse salivation and lack of motor coordination developed. During the period from the 10th to the 30 day, the body temperature did not rise above 39.5-40°, salivation was moderate, and motor coordination was not disturbed.

2/2

USSR

UDC 678.13+677.37

YUNUSOV, R., YUNUSOV, L. YU., and AYKHODZHAYEV, B. I., Tashkent Institute of Textile and Light Industry

"Production of Grafted Copolymers of Natural Silk from Some Monomers"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 5, 1970, pp 91-93

Abstract: The copolymer grafting was carried out by placing raw silk in a glass or stainless steel vessel and covering it with an emulsion consisting of 0.006-0.15% hydrogen peroxide, 1-3% of the monomer, and 0.25% emulsifier (alkanon-OS2). This mixture was heated for varying time periods at 80°, then the fiber was taken out, washed thoroughly and dried down to a constant weight. When styrene was used as the monomer, optimal conditions were as follows: duration of the process - 15 min, emulsion consisting of 0.009% hydrogen peroxide, 2.7% styrene and 0.25% emulsifier. In general it was found that copolymers may be grafted on silk using such monomers as styrene, butylmetacrylate, methylmetacrylate, and the conditions reported for styrene. Grafting of these copolymers does not affect the appearance nor the mechanical properties of silk fibers.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PREPARATION OF GRAFT COPOLYMERS OF NATURAL SILK -U-

AUTHOR-(03)-YUNUSOV, R.YU., YUNUSOV, L.YU., AIKHODZHAYEV, B.I.

COUNTRY OF INFO--USSR

SOURCE--IZB. KHIM. ZH. 1970, 14(1), 43-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NATURAL FIBER, GRAFT POLYMERIZATION, METHACRYLIC ACID, ACETATE, ACRYLONITRILE, AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1594 STEP NO--UR/0291/70/014/001/0043/0045

CIRC ACCESSION NO--AP0125216

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125216

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 2 CONSTITUENTS OF THE NATURAL SILK (FIBROIN AND SERICIN (SILK GELATIN)) CONTAIN FREE CO SUB2 H GROUPS AND FROM SALTS WITH FE PRIME3 POSITIVE. THE IMMERSION OF SILK IN 1-2PERCENT FE SUB2 (SO SUB4) SUB3 SOLN. AT ROOM TEMP., FOLLOWED BY GRAFTING WITH METHACRYLIC ACID (I) OR VINYL ACETATE (II) IN THE PRESENCE OF H SUB2 O SUB2 AND THE REMOVAL OF I OR II HOMOPOLYMERS GAVE GRAFTED SILK CONTG. SMALLER THAN OR EQUAL TO 25PERCENT I OR SMALLER THAN OR EQUAL TO 5PERCENT II UNITS. THE ATTAMPTED GRAFTING OF SILK WITH H SUB2 C:CHCN OR H SUB2 C:CHCONH SUB2 WAS NOT SUCCESSFUL. ONLY SERICIN REACTS; THE REMOVAL OF IT FROM SILK LEFT FIBROIN, WHICH COULD NOT BE GRAFTED WITH ANY OF THE ABOVE 4 MONOMERS.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEHYDROGENATION OF CYCLOHEXANE UNDER PULSED AND FLOW CONDITIONS -U-

AUTHOR-(02)-SAFAYEV, A.S., YUNUSOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 261-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC DEHYDROGENATION, CYCLOHEXANE, CATALYST ACTIVITY, CHROMATOGRAPHY, ALUMINUM, MOLYBDENUM, NICKEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0535 STEP NO--UR/0195/70/011/001/0261/0263

CIRC ACCESSION NO--AP0119454

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0119454 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGE IN CATALYTIC ACTIVITY OF A AL-NI-MO CATALYST IN THE INITIAL STAGE OF CYCLOHEXANE DEHYDROGENATION WAS STUDIED BY USING PULSE CHROMATOG. AFTER AN INTRODUCTION OF 9-10 PULSES OF CYCLOHEXANE (SIMILAR TO 0.04 WT. PERCENT OF CATALYST), THE ACTIVITY OF THE CATALYST BECAME CONST. THE DEHYDROGENATION ALSO WAS STUDIED IN A FLOW SYSTEM. UNDER THESE CONDITIONS, THE DEHYDROGENATION GAVE A LOWER YIELD OF PRODUCTS AND HAD TO BE PERFORMED AT HIGHER TEMPS. FACILITY: SREDNEAZIAT. NAUCH.-ISSLED. INST. NEFTEPERERAB. PROM., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 632.3

TKACHENKO, M. P., and YUNUSOV, M. R., All Union Institute of Plant Protection and the Union of Scientific Research Institutes of Chemistry

"Effectiveness of Topsin Against the Verticillium Wilt of the Cotton Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 8 (118), 1973, pp 43-44

Abstract: The systemic fungicides topsin NF-35 (thiophonate) and topsin NF-44 (methylthiophonate) were found to be highly toxic against the verticillium wilt of the cotton plants. Both preparations exhibited systemic action (they were absorbed through the roots, passed through the plants fighting their infections). In the lysimeters these preparations lowered the disease to 0-9%, improving the yield of the crop. In field trials topsin NF-44 lowered the infection of the cotton plants by 30%, their yield increasing by 46%. The discrepancy between the field and laboratory results is due to the insufficient depth of the penetration of this fungicide in field trials.

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USSR

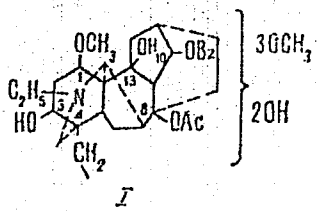
UDC: 547.944/945

SULTANKHODZHAYEV, M. N., YUNUSOV, M. S., YUNUSOV, S. Yu., "Order of the Red Banner of Labor Institute of the Chemistry of Plant Materials, Uzbek SSR Academy of Sciences

"Alkaloids of Aconitum Karakolicum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 127 128

Abstract: Two new alkaloids have been isolated from the alkaloid sum of Aconitum karakolicum collected in two different locales of Kirgizia. The first, from aconite tubers taken from the Terskey Alatau Mountains, has an empirical formula $C_{34}H_{47}O_{12}N$, melting point of 195-196°C (acetone), and is given the name "aconifin". Mass spectral analysis suggests the following partial structure:



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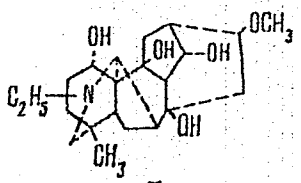
USSR

SULTANKHODZHAYEV, M. N., et al, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 127 128

The second alkaloid was isolated from tubers collected in the Kungey Altau Mountains and has an empirical formula $C_{22}H_{35}O_5N$ and melting point of 222-224°C (acetone). The base has been given the name "karakolidine". Chemical analysis and IR and NMR spectroscopy suggest the following structure:



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USSR

UDC: 621.315.592

AZIMOV, S. A., YUNUSOV, M. S., TURSUNOV, N. A., and SULTANOV, N. A.
S. V. Starodubtsev Physicotechnical Institute, Tashkent

"Some Characteristics of Silicon With Palladium Doping"

Leningrad, Fizika i Tekhnika Poluprovodnikov, No 8, 1972, pp 1438-1441

Abstract: The purpose of the experiments described in this paper is to acquire more detailed information concerning the electrophysical characteristics of silicon doped with palladium. Subject specimens were n-type silicon monocrystals with resistivity of 1-2000 ohm·cm and p-type silicon with a resistivity of 10-10,000 ohm·cm, having a dislocation density of $10^4/cm^2$ and an oxygen content of $1-5\cdot10^{16}$ atoms/cc. The palladium with which the crystals were doped was 99.998% pure, and the doping was done by diffusion saturation in the interval of 1100-1250° C and in the time intervals of 30 minutes to 20 hours in quartz ampoules in an atmosphere of pure argon. The effect of the palladium on the electrical characteristics of the silicon, the solubility of the palladium in the silicon, and the effect of thermal processing were investigated.

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USSR

UDC: 621.315.592

AZIMOV, S. A., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1438-1441

Various characteristics of the doped crystals are plotted. The authors express their thanks to G. Yuldashev for his assistance with the experiments.

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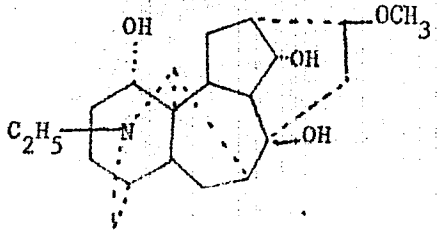
USSR UDC 547.944/945

SULTANKHODZHAYEV, M. N., YUNUSOV, M. S., and YUNUSOV, S. YU., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. Sc. UzSSR

"Karacoline -- a Novel Diterpene Alkaloid From Aconitum Karacolicum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 399-400

Abstract: A new alkaloid -- Karacoline -- was isolated from the tubers of Aconitum Karacolicum with a m.p. 183-184°. This alkaloid contains an N-ethyl, a tertiary C-methyl, a methoxyl and three hydroxyl groups. Its triacetate melts at 165-169°, and the diacetate has a m.p. 119-122°. The following formula is postulated for the new compound:



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USSR UDC 547.944/945

TEL'NOV, V. A., YUNUSOV, M. S., and YUNUSOV, S. YU., Red Banner of Labor
Institute of Plant Chemistry, Uzbek Academy of Sciences

"Alkaloids of Aconitum Tranzscheli and A. Anthroideum"

Tashkent, Khimiya Prorodnykh Soyedineniy, No 3, 1971, p 383

Abstract: Alkaloid content of these two unstudied plant species was determined from samples collected in the Pamir-Altay (roots of Aconitum Tranzscheli) and on the Dzhungarskiy Ala-Tau Range (early vegetation of A. a.), the former yielding 0.9% alkaloids of the dry sample, the latter 0.3%.

Three individual alkaloids were separated from a 4.95-gram alkaloid mass derived from A. a.: condelphine (5.1% of the mass); a base $C_{31}H_{35}O_7N$; named anthorodine; and a base $C_{20}H_{25}O_3N$ (1.4% of the mass).

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UDC 547.943

USSR

IBRAGIMOVA, M. U., YUNUSOV, M. S., and YUNUSOV, S. Yu., "Red Banner of Labor Order" Institute of Plant Chemistry, Uzbek SSR Academy of Sciences

"Alkaloids of Corydalus Pseudoadunca and C. Gortschakovii"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 438-440

Abstract: From C. pesudoadunca taken during the fruitbearing and budding stages, and C. gortschakovii in the blossoming stage, 11 alkaloids were isolated by conventional methods. The alkaloids from C. pseudoadunca in the fruitbearing stage included d-bicuculline, d-β-hydrastine, coramine, protopine, l-adlumidine (determined by IR), and l-scoulerine (IR). These same alkaloids were found in the extract of C. pseudoadunca in the budding stage, although in different concentrations. From C. gortschakovii, the alkaloids isolated were isocorydine, l-adlumine, d-bicuculline, protopine, sendaverine (IR), and a base melting at 240-242°. UV and IR data, melting points and gram amounts were also included in the report.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--STRUCTURE OF TALATISAMINE -U-

AUTHOR-(02)-YUNUSOV, M.S., YUNUSOV, S.YU.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOED. 1970, 6(1), 90-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, NUCLEAR MAGNETIC RESONANCE, AMINE DERIVATIVE, BENZENE DERIVATIVE, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0173 STEP NO--UR/0393/70/006/001/0090/0094

CIRC ACCESSION NO--AP0130932

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0130932
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NMR AND MASS SPECTRAL INVESTIGATION OF THE TITLE COMPD. (I), ITS DI AC, BZ, BENZOYLACETYL, AND 18 OXO DERIVS., AND ITS PYROLYTIC PRODUCTS (PYROACETYLTALATISAMINE, ISOPYROACETYLTALATISAMINE, AND DEMETHOXYPYROTALATISAMINE) SUGGESTED THE STRUCTURE FOR I. FACILITY: INST. KHIM. RAST. VESHCHESTV, TASHKENT, USSR.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECT OF GAMMA RAYS ON THE VOLT AMPERE CHARACTERISTICS OF DIODES -U-

AUTHOR-(03)-MIRSAGATOV, SH.A., ISANUKHAMEDOVA, D.K., YUNUSOV, M.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK UZB. SSR, SER. FIZ.-MAT. NAUK 1970, 14(2), 57-9

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, SEMICONDUCTOR DIODE, SILICON CARBIDE, GAMMA IRRADIATION, ATOMIC DEFECT, ACTIVATION ENERGY, CARRIER DENSITY, CAPTURE CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1871 STEP NO--UR/0166/70/014/002/0057/0059

CIRC ACCESSION NO--AP0137068

UNCLASSIFIED

2/2 042 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137068

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VOLT AMPERE CHARACTERISTICS OF 2 TYPES OF SIC DIODES WERE STUDIED BY HIGH GAMMA RAY DOSES, 10 PRIME4 -10 PRIME9 R, AND BY CURRENTS OF 10 PRIME9 -10 PRIME NEGATIVE1 A IN BOTH DIRECTIONS. DEFECTS WERE FOUND WITH ACTIVATION ENERGIES OF FORMATION OF 0.03 PLUS OR MINUS 0.08 AND 0.3 EV. THE DIFFERENCES BETWEEN THEORETICAL AND EXPTL. VALUES IN CROSS SECTIONS OF THE DEFECTS ARE SUBSTANTIATED THROUGH THE DIMINISHING OF EQUIL. CARRIER CONCN. OR THROUGH VARIOUS INACCURACIES. FACILITY: FIZ.-TEKH. INST. IM. STARODUBTSEVA, TASHKENT, USSR.

UNCLASSIFIED

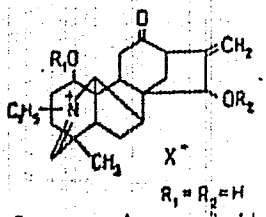
USSR

YUNUSOV, M.S., RASHKES, YA.V., YUNUSOV, S.YU., SAMATOV, A.S., Order of Labor Red Banner Institute of Chemistry, of Plant Substances, Tashkent, Academy of Sciences Uzbek SSR

"Mass Spectra of Alkaloids of the Songorine Type. Structure of Songoramine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1970, pp 101-107

Abstract: Analysis of alkaloid mixtures extracted from the tubers of Aconitum karakolicum which grow in the upper regions of the Tyup River (Terskey Altau Range) showed aconitine, songorine and an alkaloid with a melting point of 211-212°C. This base is identified as songoramine. Astudy was made of the mass spectra of songorine, dihydrosongorine, their diacetates, N-desethylsongorine, deutero analogs of songarine and dihydrosongorine. Analysis of chemical and spectral data shows that songoramine has the following structure:



Diagrams are given showing the fragmentation of songorine and its derivatives.
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UDC 547.944/945

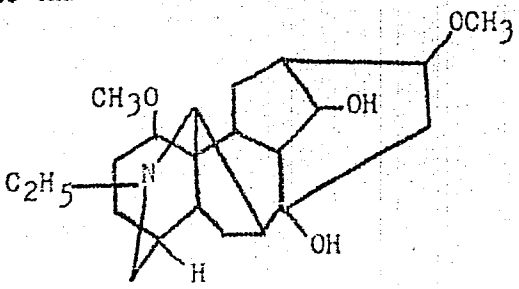
USSR

MURAV'YEVA, D. A., PLEKHANOVA, T. I., and YUNUSOV, M. S., Pyatigorsk Pharmaceutical Institute of the Order of Labor Red Banner Institute of Chemistry of Natural Products, Academy of Sciences UzSSR

"Novel Diterpene Alkaloid From Aconitum Nasutum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1972, pp 128-129

Abstract: A new alkaloid was isolated from Aconitum nasutum Fisch et Rchb., which the authors named aconasine. Its melting point is 148°, it is soluble in methanol, chloroform, slightly soluble in benzene, acetic anhydride and acetone, and insoluble in ether and hexane. The following structure has been assigned to this alkaloid:



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USSR

UDC 547.944/945 + 543.51

YUNUSOV, M. S., RASHKES, YA. V., and YUNUSOV, S. YU., Order of the Labor Red Banner Institue of the Chemistry of Natural Products, Academy of Sciences UzSSR

"Fragmentation Features of Ring A Substituents of Lycoctonin Alkaloids On Electron Impact"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1972, pp 85-87

Abstract: By studying mass-spectroscopic fragmentation of lycoctonin alkaloids it was established that the ease with which a substituent at C-1 is eliminated depends on its configuration, increasing with the size of the substituent. Changing the orientation of a C-1 substituent from α to β stabilizes the molecular ion and as a result the peak at M-17 is decreased, while the one at M-15 is increased. Temperature changes have little or no effect on the intensity of various peaks. Mass spectral data of carbinolamine esters of three diterpene alkaloids useful in characterizing the substituent at C-4 are reported.

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USSR

UDC 539.293:621.382/383

ADIROVICH, E. I., ARONOV, D. A., and YUNUSOV, N., Physicotechnical Institute imeni S. V. Starodubtsev, Academy of Sciences Uzbek SSR

"On the Theory of an Optoelectronic Regenerative p-n-p Structure"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 1, 1972, pp 50-57

Abstract: The article develops the theory of a monoblock regenerative optron based on three-layer (p-n-p) transistor structures. A p-n-p structure with a radiative p-n junction as emitter and a photosensitive collector junction is considered. The current-voltage characteristic of such an optron is considered. It is shown that the shape of the current-voltage characteristic (particularly its characteristic points) can be controlled by varying the series resistance of the structure. The IV characteristic can be controlled also by external illumination, the spectral composition of which corresponds to the absorption in the collector junction.

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USSR

UDC: 51:155.001.57:681.3.06

YUNUSOV, R.

"Recognition of Informative Features From the Level of a Standard"

V sb. Vopr. kibernetiki (Problems of Cybernetics--collection of works), vyp. 43, Tashkent, 1971, pp 65-71 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1009)

Translation: Methods are considered for recognizing objects from the level of a standard for informative features. Various algorithms are proposed for standards constructed on the basis of some teaching sequence. The proposed algorithms have been successfully used for experimental medical diagnosis on the BESM-6 computer. A. Khalamayzer.

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USSR

KAMILOV, M. M., YUNUSOV, R.

"Search for the Optimal Value of the ε Threshold in the Refinement of Subdivisions"

Vopr. Kibernetiki [Problems of Cybernetics -- Collection of Works], No 51, Tashkent, 1972, pp 78-81 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V710, by the authors).

Translation: Selection of the optimal value of the ε threshold in refinement of subdivisions produced using taxonomy algorithms, it is suggested, can be performed using aerational local search procedures in a grid. An example of realization of a search system for the two-dimensional case is presented.

USSR

UDC 678.13+677.37

YUNUSOV, R., YUNUSOV, L. YU., and AYKHODZHAYEV, B. I., Tashkent Institute of Textile and Light Industry

"Production of Grafted Copolymers of Natural Silk from Some Monomers"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 5, 1970, pp 91-93

Abstract: The copolymer grafting was carried out by placing raw silk in a glass or stainless steel vessel and covering it with an emulsion consisting of 0.006-0.15% hydrogen peroxide, 1-3% of the monomer, and 0.25% emulsifier (alkamon-OS2). This mixture was heated for varying time periods at 80°, then the fiber was taken out, washed thoroughly and dried down to a constant weight. When styrene was used as the monomer, optimal conditions were as follows: duration of the process - 15 min, emulsion consisting of 0.009% hydrogen peroxide, 2.7% styrene and 0.25% emulsifier. In general it was found that copolymers may be grafted on silk using such monomers as styrene, butylmetacrylate, methylmetacrylate, and the conditions reported for styrene. Grafting of these copolymers does not affect the appearance nor the mechanical properties of silk fibers.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PREPARATION OF GRAFT COPOLYMERS OF NATURAL SILK -U-

AUTHOR-(03)-YUNUSOV, R.YU., YUNUSOV, L.YU., AIKHODZHAYEV, B.I.

COUNTRY OF INFO--USSR

SOURCE--IZB. KHIM. ZH. 1970, 14(1), 43-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NATURAL FIBER, GRAFT POLYMERIZATION, METHACRYLIC ACID, ACETATE, ACRYLONITRILE, AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1594

STEP NO--UR/0291/70/014/001/0043/0045

CIRC ACCESSION NO--AP0125216

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125216

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 2 CONSTITUENTS OF THE NATURAL SILK (FIBROIN AND SERICIN (SILK GELATIN)) CONTAIN FREE CO SUB2 H GROUPS AND FROM SALTS WITH FE PRIME3 POSITIVE. THE IMMERSION OF SILK IN 1-2PERCENT FE SUB2 (SO SUB4) SUB3 SOLN. AT ROOM TEMP., FOLLOWED BY GRAFTING WITH METHACRYLIC ACID (I) OR VINYL ACETATE (II) IN THE PRESENCE OF H SUB2 O SUB2 AND THE REMOVAL OF I OR II HOMOPOLYMERS GAVE GRAFTED SILK CONTG. SMALLER THAN OR EQUAL TO 25PERCENT I OR SMALLER THAN OR EQUAL TO 5PERCENT II UNITS. THE ATTAMPTED GRAFTING OF SILK WITH H SUB2 C:CHCN OR H SUB2 C:CHCONH SUB2 WAS NOT SUCCESSFUL. ONLY SERICIN REACTS; THE REMOVAL OF IT FROM SILK LEFT FIBROIN, WHICH COULD NOT BE GRAFTED WITH ANY OF THE ABOVE 4 MONOMERS.

UNCLASSIFIED

UDC: 547.944/945

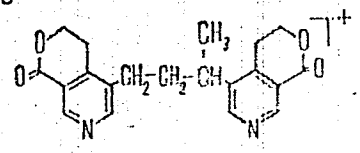
USSR

RAKHMATULLAYEV, T. U., YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSR Academy of Sciences

"Alkaloids of Gentiana Olivieri"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 64-67

Abstract: The chloroform part of a mixture of alkaloids of Gentiana olivieri was treated with chloroform; the sum was not completely dissolved. Gentiananin was isolated from the undissolved portion. The chloroform soluble part of the alkaloid sum was treated with a phosphate buffer with resultant separation into fractions by strength of alkalinity. The resultant bases are identified as gentioflavin, gentiananin and a new base $C_{20}H_{20}N_2O_4$ which the authors call "oliveramine". Analysis of UV, IR, NMR and mass spectra suggest that the most probable structure of this compound is



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USSR

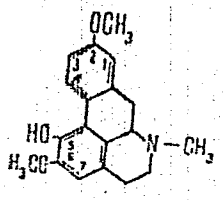
UDC: 547.944/945

ZIYAYEV, R., ABDUSAMATOV, A., YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSR Academy of Sciences

"Lirinin -- a new Alkaloid From Liriodendron Tulipifera"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 67 72

Abstract: A new alkaloid which the authors have named "lirinin" was isolated from the alkaloid sum (chloroform extraction) of leaves of the tulip tree (Liriodendron tulipifera) with empirical formula $C_{19}H_{21}O_2N$, melting point 152-154°C (alcohol), $[\alpha]_D^{22}$ -- 55°C (c 0.089, chloroform). Analysis of UV, IR, NMR and mass spectra shows that lirinin has the structure of 5-hydroxy-2,6-dimethoxyaporphine



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USSR

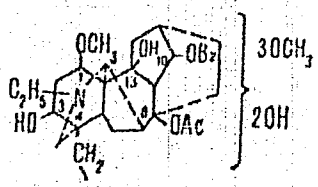
UDC: 547.944/945

SULTANKHODZHAYEV, M. N., YUNUSOV, M. S., YUNUSOV, S. Yu., "Order of the Red Banner of Labor Institute of the Chemistry of Plant Materials, Uzbek SSR Academy of Sciences

"Alkaloids of Aconitum Karakolicum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 127 128

Abstract: Two new alkaloids have been isolated from the alkaloid sum of Aconitum karakolicum collected in two different locales of Kirgizia. The first, from aconite tubers taken from the Terskey Alatau Mountains, has an empirical formula $C_{34}H_{47}O_{12}N$, melting point of 195-196°C (acetone), and is given the name "aconifin". Mass spectral analysis suggests the following partial structure:



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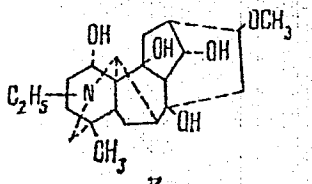
SULTANKHODZHAYEV, M. N., et al, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 127 128

The second alkaloid was isolated from tubers collected in the Kungey Altau Mountains and has an empirical formula $C_{22}H_{35}O_5N$ and melting point of 222-224°C (acetone). The base has been given the name "karakolidine". Chemical analysis and IR and NMR spectroscopy suggest the following structure:



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USSR UDC: 547.944/945

KHODZHAYEV, V. G., MAYEKH, S. Kh., YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSR Academy of Sciences

"Investigation of Alkaloids of Thalictrum Longipedunculatum. Structure of Thalicsin"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1973, pp 441-442

Abstract: An attempt is made to determine the structure of thalicsin isolated from the aerial part of Thalictum longipedunculatum. Elementary analysis gives the empirical formula $C_{21}H_{19}O_6N$, but according to the mass-spectrometrically determined molecular weight the formula should be $C_{21}H_{19}O_5N$. An analysis of the UV, IR, NMR and mass spectra and a comparison with the properties of thaliglucinone shows that the correct empirical formula is $C_{21}H_{19}O_6N$ with probable structure

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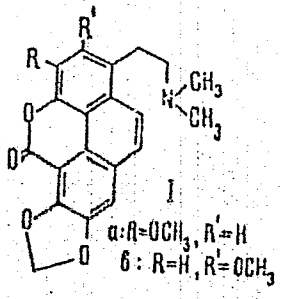
KHODZHAYEV, V. G., et al., Khimiya Prirodnykh Soyedineniy, No 3, 1973, pp 441-442



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a: $R=OCH_3$, $R'=H$
б: $R=H$, $R'=OCH_3$

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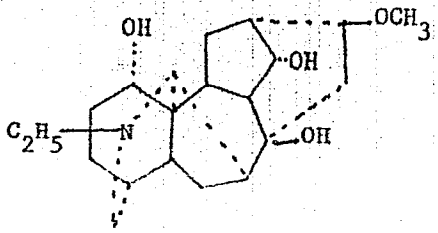
SULTANKHODZHAYEV, M. N., YUNUSOV, M. S., and YUNUSOV, S. YU., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. Sc. UzSSR

"Karacoline -- a Novel Diterpene Alkaloid From Aconitum Karacolicum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 399-400

Abstract: A new alkaloid -- Karacoline -- was isolated from the tubers of Aconitum Karacolicum with a m.p. 183-184°. This alkaloid contains an N-ethyl, a tertiary C-methyl, a methoxyl and three hydroxyl groups. Its triacetate melts at 165-169°, and the diacetate has a m.p. 119-122°. The following formula is postulated for the new compound:



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USSR UDC 547.944

ARIPOVA, S. F., MALIKOV, V. M., and YUNUSOV, S. YU., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. UzSSR

"Convolvulus Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 401-402

Abstract: Routine treatment of the roots of Convolvulus erinacius Ldb. yielded cuscohygrine, and when the plant portion of the Convolvulus subhirsutus Rgl. et Schmalh was worked up - only convolvine was isolated.

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RAKHMATULLAYEV, T. U., and YUNUSOV, S. YU., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. Sc. UzSSR

"Alkaloids of Dipsacus Azureus"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, p 400

Abstract: Studying the alkaloid content in the seeds of Dipsacus azureus Schrenk, a compound was isolated from the chloroform extract with a m. p. 130-131°. On the basis of physical properties (UV, IR, NMR, and Mass-spectrometry) this compound was identified as Canthleyine.

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UBAYDULLAYEV, K., BESSONOVA, I. A., and YUNUSOV, S. YU., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. Sc. UzSSR

"Haplophyllum Pedicellatum, H. Obtusifolium and H. Bucharicum Alkaloids. Structure of Bukharamine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 343-346

Abstract: From the overground portion of H. pedicellatum Bge. haplopine and robustin were isolated; H. obtusifolium yielded skimmianin and evoxin. From the mother liquids of all alkaloids of the overground portion of H. bucharicum Litv. it was possible to isolate γ-fagarin, benzamide and a new alkaloid -- bukharamin - an α,β -substituted derivative of α,β-dihydrofuranoquinolone-4, m.p. 223°. It is optically inactive, dissolves well in methanol, chloroform, and with heating in acids. The roots of H. bucharicum contain six known alkaloids: dictamin, skimmianin, γ-fagarin, robustin, haplopin, and bukharain.

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RAKHMATULLAYEV, T. U., and YUNUSOV, S. Yu., Order of the Labor Red Banner Institute of the Chemistry of Natural Products, Acad. Sc., UzSSR

"Gentiana Olivieri Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 350-353

Abstract: From the ether extracts of Gentiana Olivieri, the following alkaloids were isolated in routine manner: gentiotibetine, gentiananine, gentianine, oliverine, and a base with a m.p. 253-254°. A condensation product of gentianine with chloroform was isolated from chloroform residue; its m.p. was 134-135°C.

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KHASHIMOV, A. M., SHAKIROV, R., and YUNUSOV, S. Yu., Order of the Red Banner of Labor Institute of Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Study of Alkaloids from the Above-Ground Part of Veratrum Lobelianum. Structure of Veralosinine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 779-784

Abstract: A study was made of the alkaloids of the above-ground part of veratrum lobelianum, and the structure of veralosinine was corrected. When separating the benzene fraction of the total above-ground part of veratrum lobelianum with an acetate buffered solution with pH 5.8-3.6, alkaloids with a melting point of 156-158° and 180-183° were isolated from the fraction with pH 5.8-5.6 and veratroyl zygadenin with a melting point of 263-265° was isolated from the fraction with pH 5.4-5.2. The infrared spectra for the diketone from a mixture of tetrahydroveralosidines and the diketone from a mixture of tetrahydrosoladines are presented for comparison. They show that the tetrahydoveralosidine and tetrahydrosolasedine are not identical. Solasodine and veralosidine were subjected to acetolysis and acetylation to further study the structure of veralosidine. Data are presented showing that

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KHASHIMOV, A. M., et al., Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 779-784

in veralosidine, the B/C and C/D rings are trans-linked. The second hydroxyl group is located at the C_{16} and is α-oriented. The structure of veralosinine is thus established as C_{16}-α-acetylveralosidine.

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UDC 547.944/945

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SAMIKOV, K., SHAKIROV, R., YUNUSOV, S. Yu., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids from Veratrum Lobelianum. Structure of Germinalin"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 790-793

Abstract: A study was made of the alkaloids of the above-ground part of Veratrum lobelianum grown in Dzhergalan. The bases were extracted from the plant gathered at the beginning of vegetation by the usual chloroform method. The procedure is presented for obtaining a base with the composition $C_{39}H_{61}O_{12}N$ with a melting point of 156-158° from the benzene-ethanol eluate of the fraction with pH 8.0-6.6 identical to the base from the above-ground part of V. lobelianum gathered in Kar-Kara [A. M. Khashimov, et al., KhPS, No 6, 779, 1971]. Veralosin, veralosinine, veratroylzygadenin and the new alkaloid germinalin were also isolated. The new alkaloid was studied by nuclear magnetic resonance and infrared spectra and by acetylation. Its structure was established as 3β(l)-2-methylbutyl, 15α-(d)-2-methyl-2-butyroxy-, 16β acetylgermin.

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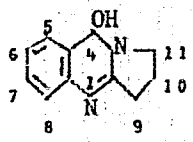
TELEZHENETSKAYA, M. V., KHASHIMOV, KH. N., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Peganol, a New Alkaloid from Peganum Harmala"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 849-850

Abstract: By continuing the separation of the mixture of bases isolated from Peganum harmala in the flowering stage and the beginning of fruiting [Kh. N. Khashimov, et al., KhPS, 456, 1969], a substance was obtained with a melting point of 178-180 degrees, optically inactive, with the composition $C_{11}H_{12}N_2O$, M 188 (mass spectrometry) -- the new base peganol. The results of ultraviolet, infrared and nuclear magnetic resonance spectral studies are analyzed. The structure of peganol is



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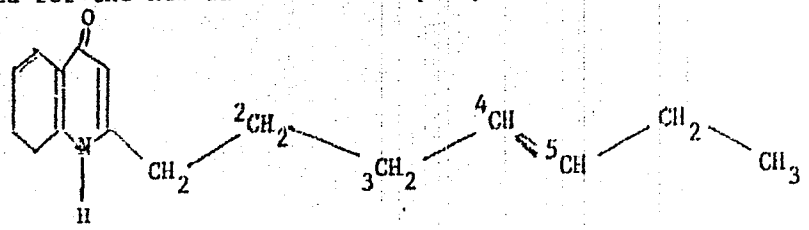
UDC 547.944/945

GULYAMOVA, D. H., BESSONOVA, I. A., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids of Haplophyllum Acutifolium"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 850-851

Abstract: A study was made of the above-ground part of Haplophyllum acutifolium (Rutaceae family) gathered during the fruiting period in the vicinity of Kora-Kola near Palvan-Zau in the Turkmen SSR. Infrared, ultraviolet and nuclear magnetic resonance spectral data are presented for the alkaloids extracted from this plant. From these data and electron bombardment data the following structure is proposed for the new alkaloid 2-heptenyl-4-quinolone:



The new base has mp 122-123°.

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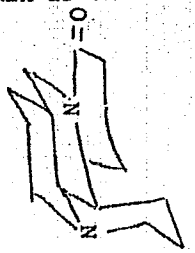
ZUNNUNZHANOV, A., ISKANDAROV, S., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Darvasamin, a New Alkaloid from Leontice Darvasica"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 851-852

Abstract: The separation of the mixture of alkaloids from the above-ground part of Leontice darvasica was continued after separation of taspin, N-methylcytisine and darvasin [S. Iskandarov, et al., KhPS, 132, 1969]. Infrared and nuclear magnetic resonance spectral data are presented for the new alkaloid which was isolated -- darvasamin with a melting point of 102° the composition $C_{15}H_{24}N_2O$, $[\alpha]_D$ + 72°. Darvasamin is the first natural isomer of cis-series matrine:



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ZIYAYEV, R., ABDUSAMATOV, A., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids of Verbascum Songoricum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 853-854

Abstract: A study was made of Verbascum songoricum Shrenk. (Scrophulariaceae family) gathered at Chimgan of Tashkent Oblast during various periods of vegetation and each organ separately. The total alkaloids in percent by weight of the dry plant are presented for each of the organs. Ultraviolet, infrared and mass spectrographic data show that anabasin, plantagonin, acetamide and a base with a melting point of 195-196° were isolated. This is the first time anabasin was isolated from Scrophulariaceae.

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SHAKIROV, R., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids of Veratrum Lobelianum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 852-853

Abstract: The study of alkaloids from the above-ground part of Veratrum lobelianum was continued. The experimental procedure and results of infrared and ultraviolet spectral analysis and other test reactions are presented. The known alkaloids germerin, veratroyl-zygadenin, jervine, and pseudojervine and the new alkaloids veralosinin and three bases II (composition $C_{32}H_{51}O_9N$ with a melting point of 157-159°, $[\alpha]_D$ + 8.2°), V (melting point 220-221°, $[\alpha]_D$ - - 173.17°) and VII (with a melting point of 275-277°, $[\alpha]_D$ - 54.11°) were isolated.

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UDC 547.944/945

ZHAREKEYEV, B. KH., TELEZHENETSKAYA, M. V., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"A Study of the Alkaloids of Malacocarpus Crithmofolius"

Tashkent, Khimiya Prirodnykh Soyedinenii, No 4, 1971, pp 538-539

Abstract: Malacarpus crithmofolius (Retz.) of the family Zygophylaceae, has so far not been studied chemically.

The authors collected specimens in the budding stage from the Ustyurt Plateau, Karakalpakskaya ASSR, in May 1970. This raw material was first moistened with soda solution or ammonia, then extracted with chloroform. A total of 0.064% alkaloids was found in the leaves, and 0.88% in the stems (percent of dry wiehgt). The composition of the alkaloid $C_{10}H_{14}N_2$, and its mass and magnetic-resonance spectra, suggested that the base extracted from Malacocarpus crithmofolius was the same substance as this alkaloid. The infrared spectra of the two confirmed this view.

It is concluded that the extracted base is simply the dextrorotatory form of anabasine, extracted for the first time from vegetable material.

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USSR UDC 547.944/945

TKESHELASHVILI, E. G., ISKANDAROV, S., MUDZHIRI, K. S., and YUNUSOV, S. YU., Institute of Pharmacolofy imeni I. G. Kutateladze, Georgian Academy of Sciences, and Red Banner of Labor Institute of Plant Chemistry, Georgian Academy of Sciences

"Alkaloids of Leontuce Smirnovii"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1971, pp 539-540

Abstract: Leontuca Smirnovii (Berberidaceae family), widely distributed in the Georgian SSR, is a very rich source of alkaloids, chloroform extraction of the root mass yielding 4%. Paper and thin-layer chromatography have revealed the presence of eight different alkaloids in this plant.

The authors were able to separate chemically three of these alkaloids from the oots of L. S., belonging to the diphenyl, pavine and quinolizidine groups. Treating a chloroform extract with 5% sulfuric acid produced grayish sulfate crystals, which charred above 360°C; direct comparison of the melting points of mixed samples and infrared spectra of the base with those of taspine, established the identity of the two.

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UDC 547.944/945

NINOVA, P., ABDUSAMATOV, A., and YUNUSOV, S. YU., Higher Medical Institute, Sofia, and Red Banner of Labor Institute of Plant Physiology, Uzbek Academy of Sciences

"Alkaloids of Verbascum Nobile"

Tashkent, Khimiya Prirodnykh Soyedinenly, No 4, 1971, p 540

Abstract: Verbascum nobile Vel., of the Scrophulariaxeae family, is endemic along the Strum River in southwestern Bulgaria; it has a fairly high alkaloid content.

A chloroform extract, following processing, yielded 0.5% ether-soluble, and 0.6% chloroform-soluble alkaloids (percent of dry plant weight). the other portion of the mixture was divided into 10 fractions on the basis of basicity. Three individual bases, the third with melting point of 100°C, were separated. The first ($C_{25}H_{42}N_4O_4$), with melting point 74-75°C, was named verbasine; the second ($C_{27}H_{44}N_4O_4$), with melting point 125-126°C, was named verbascine.

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UDC 547.944/945

KHODZHAYEV, B. U., SHAKIROV, R., and YUNUSOV, S. Yu., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"Alkaloids of Buxus Sempervirens"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1971, pp 542-543

Abstract: Buxus sempervirens L. (box tree), now cultivated in the USSR, contained alkaloids which have so far gone completely unstudied.

Using the chloroform method, the authors determined the alkaloid content to various organs of this tree, samples being taken from three cultivation sites.

Four substances were distinguished on the basis of chemical reactions, nuclear magnetic resonance, and mass-s spectrometric and infrared data. Precise identification has not been made.

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UDC 547.944/945

ABDUSAMATOV, A., RASHIDOV, M. U., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"The Structure of Pediculidine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1971, pp 304-306

Abstract: The alkaloids of a 1968 sample of Pedicularis olgae, obtained at Sagyrdasht, Tadzhik SSR, were extracted with chloroform (they made up 0.59% of the dry dample). The picrate of this base was then extracted from the ether portion and studied chromatographically (on aluminun oxide). A base of composition $C_{10}H_9NO$ with melting point of 74-75°C was extracted; this alkaloid was named pediculidine.

Infrared, ultraviolet and nuclear magnetic resonance and mass spectra were used to determine the structure of the new alkaloid.

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UDC 944/945

ABDUSAMATOV, A., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"Pediculinin — A New Alkaloid from Pedicularis Olgae"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1971, pp 306-309

Abstract: A new alkaloid, pediculinin ($C_{10}H_{13}NO$, melting point 133-134°C), was obtained from the chloroform portion of an extract of Pedicularis olgae. A tentative structural formula is proposed.

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UDC 547.944/947

KHASHIMOV, KH. N., TELEZHENETSKAYA, M. V., SHARKHIMOV, N. N., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"Dynamics of the Accumulation of Alkaloids in Peganum Harmala"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1971, p 382

Abstract: This is a continuation of S. YU. YANUSOV's earlier work (1970) on the little-known process of alkaloid accumulation in Peganum harmala, a tall, perennial, deep-rooted grass. Samples were collected in Bukharskaya and Samarkandskaya oblasts. Above-ground portions of the plant were tested o for alkaloid content in the vegetation, budding, flowering, fruit-bearing and terminal periods. There was a steady diminution, in that order, for above-ground portions, and also for roots, except that in the latter there was a slight upswing during the terminal period. Seeds collected following the terminal period showed a high alkaloid content (5.0%, as against a maximum 2.17% for the leaves and stalks), 84% of their alkaloids mass consisting of a mixture of harmine and harmaline. Pods yielded 1.08% of their dry weight in an alkaloid mass from which harmine and vasicinone were extracted. All yields were found to vary in connection with the age of the individual plant and growing site.

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Alkaloids

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SHAYMARDANOV, R. A., ISKANDAROV, S., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"New N-Substituted Derivatives of Cytisine"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1971, pp 383-384

Abstract: Thanks to its wide distribution and strong physiological activity, cytisine is a favorable basis for producing various N-substituted derivatives which may be of value in determining the connection between structure and physiological activity.

Continuing the work of earlier researchers begun on this basis, the authors obtained derivatives of cytisine and N-(β-oxy, γ-aminopropyl) cytisine, with dialkyl esters of phosphorous acid (2 moles of cytisine were dissolved in a chloroform-CCl_4 mixture, to which was added 1 mole of the dialkyl ester of phosphorous acid). From the resulting precipitate (cytisine chlorohydrate) by various additions (methanol, ammonia, and dialkyl esters of phos. acid) were then produced seven N-substituted derivatives -- $C_{15}H_{23}N_2PO_4$, $C_{17}H_{27}N_2PO_4$, $C_{19}H_{31}N_2PO_4$ (two compounds, the dibutylphosphate and the diizobutylphosphate), $C_{14}H_{21}N_3O_2$, $C_{20}H_{34}N_3PO_5$, and $C_{22}H_{38}N_3PO_5$.

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SHAYMARDANOV, R. A., et al., Khimiya Prirodnykh Soyedineniy, No 3, 1971, pp 383-384

For these seven compounds, yield factors as well as molecular weights, and several other physical constants, and molecular structures, were determined.

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UDC 547.944/945

TEL'NOV, V. A., YUNUSOV, M. S., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"Alkaloids of Aconitum Tranzscheli and A. Anthroideum"

Tashkent, Khimiya Prorodnykh Soyedineniy, No 3, 1971, p 383

Abstract: Alkaloid content of these two unstudied plant species was determined from samples collected in the Pamir-Altay (roots of Aconitum Tranzscheli) and on the Dzhungarskiy Ala-Tau Range (early vegetation of A. a.), the former yielding 0.9% alkaloids of the dry sample, the latter 0.3%.

Three individual alkaloids were separated from a 4.95-gram alkaloid mass derived from A. a.: condelphine (5.1% of the mass); a base $C_{31}H_{35}O_7N$; named anthorodine; and a base $C_{20}H_{25}O_3N$ (1.4% of the mass).

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UDC 547.944/945

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"Study of the Alkaloids Thermopsis Alterniflora"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 2, 1971, pp 169-174

Abstract: The above-ground portion of Thermopsis alterniflora collected on the 16 April 1968, when it just began to bloom, was studied. Chloroform extraction gave a 3.35% total content of alkaloids consisting of citizine, N-methylcitizine, pachycarpine, termopsin, and a new alkaloid alteramine. On the basis of physical properties and IR spectra alteramine is believed to be 11-allyl-N-methylcitizine.

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Alkaloids

USSR

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"Derivatives and Stereochemistry of Matrin Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 2, 1971, pp 174-179

Abstract: α-Substituted derivatives of isomeric matrins were synthesized and studied by IR, NMR, mass spectroscopy and ORD. Soforidin dissolved in a mixture of $SOCl_2$ and SO_2Cl_2 was refluxed for 1 hr. The solvent was removed, the residue treated with a 5% ammonia solution, and extracted with ether and chloroform. Chromatography over silica gel gave dichlorosoforidin, m.p. 128-130°, $[\alpha]_D$ = +19°. Analogously the dichloroleontin, m.p. 158-159° and dichloromatrin were obtained. To prepare dichloroisosoforidin, m.p. 152°, $[\alpha]_D$ = -114.8° the above reaction had to be extended to 3 hrs. Shaking the dichloroalkaloids dissolved in alcohol with PtO_2 produced monochloro derivatives: monochlorosoforidins: A- an oil, $[\alpha]_D$ = +17° and B- a solid, m.p. 140-141°, $[\alpha]_D$ = +30°; monochloroleontin, m.p. 139-140°, $[\alpha]_D$ = -17°, α-monochloromatrin, m.p. 106-107°, $[\alpha]_D$ = +29° and monochloroisosoforidin chlorohydrate, m.p. 273-275°. Monochloroisosoforidin itself is an oil

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ISKANDAROV, S., et al., Khimiya Prirodnykh Soyedineniy, No 2, 1971, pp 174-179

$[\alpha]_D$ = -75°, which could be converted to dehydroisosoforidin by a reaction with sodium iodide and lithium carbonate in dimethylformamide; the product had a m.p. 97-98°, $[\alpha]_D$ = +50°.

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"Polybuffer Separation of Vinca Erecta Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 713-717

Abstract: The complex alkaloid mixture from vinca erecta was separated by alkalinity on a special polybuffer separating unit. The mixture of alkaloids in an organic solvent was passed in sequence through a number of phosphate buffer solutions with different pH values arranged in order of increasing pH. The use of this method results in distribution of the alkaloids into fractions containing 3-6 bases apiece. The following bases were isolated in addition to previously identified alkaloids: ervincidine, apovincamine, (+)-quebrachamine, dl-eburnamine, (-)-1,2-dehydroaspidospermidine and copsanone. This is the first time that these bases have been derived from this plant. Ten or twelve other unidentified alkaloids were also detected by thin-layer chromatography. The region of passage of some alkaloids into the buffer solutions is established.

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"11-Hydroxypleiocarpamine -- a New Alkaloid from Vinca Erecta"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 717-719

Abstract: A study of the aerial part of Vinca erecta Rgl. et Schmalh. collected 1-15 June 1965 near Sagyrdasht in the Tadzhik SSR during the fruit-bearing phase showed that the alkaloid sum in this plant is 0.53%. The sum was separated into phenol and non-phenol parts. Vincamine, vincanine, vinervinine, ervamine and aquammicin were isolated from the nonphenol fraction. The phenol sum yielded vincanidine, aquammine and a base (I) with a melting point of 228-229°C. This base dissolves readily in alcohol, chloroform, methanol, acetone and alkalis, and dissolves poorly in ether and benzene. Spectral and chemical analysis revealed that this alkaloid is a hydroxyl derivative of pleiocarpamine first isolated from the plant Pleiocarpa mutica Benth. By analogy with other alkaloids of similar structure, position 11 is assumed most likely for the hydroxyl group, and the structure of 11-hydroxypleiocarpamine (I) is proposed.

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"Pegamine, a New Alkaloid from Peganum Harmala"

Tashkent, Khimiya Prirodnykh Soyedinenly, No 4, 1970, pp 453-455

Abstract: The total alkaloid content of Peganum harmala was found to be 2.17 percent and consisted of peganine, vasicinone, harmine, desoxypeganine, desoxyvasicinone, and a new alkaloid melting at 160-161°, which the authors named pegamine. The structure of the compound was ascertained from spectral data, including UV, IR, and mass spectra. A scheme for the mass spectral fragmentation of the compound was proposed.

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"Investigation of Alkaloids of Kirgiz Opium"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 711-713

Abstract: The authors studied raw opium and the mother liquor after separation of morphine and narcotine. The raw opium was extracted by water and then by acid. The following alkaloids were chromatographically isolated from the alkaloid sum (21.8%): morphine, codeine, thebaine, papaverine, narcotine, cryptopine, protopine, and also a base with a melting point of 267-268°C, and another with a melting point of 263°C. The latter two resemble alkaloids of the morphine type with respect to UV and mass-spectrometric data. Another non-phenol base with a melting point of 138-139°C was isolated by chromatography on silica gel from alcohol-ammonia mother liquors remaining after extraction of morphine and narcotine. This base was identified as levocanadine. This is the first time that this alkaloid has been isolated from opium.

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USSR

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"Alkaloids of Corydalus Pseudoadunca and C. Gortschakovii"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 438-440

Abstract: From C. pesudoadunca taken during the fruitbearing and budding stages, and C. gortschakovii in the blossoming stage, 11 alkaloids were isolated by conventional methods. The alkaloids from C. pseudoadunca in the fruitbearing stage included d-bicuculline, d-β-hydrastine, coramine, protopine, l-adlumidine (determined by IR), and l-scoulerine (IR). These same alkaloids were found in the extract of C. pseudoadunca in the budding stage, although in different concentrations. From C. gortschakovii, the alkaloids isolated were isocorydine, l-adlumine, d-bicuculline, protopine, sendaverine (IR), and a base melting at 240-242°. UV and IR data, melting points and gram amounts were also included in the report.

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