KARAPETYAN, K.I.

2

KITAYGORODSKIY, S.A., AND STREKALOV, S.S., AND KARAPETYAN, K.I.

Universal relations between parameters of the turbulent air flow above the sea and the energy spectrum of windwaves.

Report to be submitted for the 13th General Assembly, INTL. Union of Geodesy and Geophysics (IUGG), Berkeley, Calif., 19-31 Aug 63

SHIRINYAN, K.G.; ADAMYAN, A.A.; KARAPETYAN, K.I.; KARAPETYAN, S.G.

Some characteristics of the distribution of trace elements in the recent volcanic products of Armenia. Zap.Arm.otd.Vses.min.ob-va no.2:27-56 '63. (MIRA 16:10)

ABOVYAN,S.B.; BAGDASARYAN, G.P.; KAZARYAN, G.A.; KARAPETYAN, K.I.; MALKHASYAN, E.G.; MELIKSETYAN, B.M.; MNATSAKANYAN, A.Kh.; CHIBUKHCHYAN, Z.O.; SHIRINYAN, K.G.; MELKONYAN, R.L., otv. red.; CHAKHALYAN, TS., tekhn. red.; NUNYAN, S., tekhn. red.

[Chemical composition of igneous and metamorphic rocks in the Armenian S.S.R.]Khimicheskie sostavy izverzhennykh i metamorficheskikh gornykh porod Armianskoi SSR. [By]S.B.Abovian i dr. Erevan, Izd-vo Akad. nauk Armianskoi SSR, 1962. 433 p. (MIRA 16:2)

1. Akademiya nauk Armyanskoy SSR, Erivan. Institut geologicheskikh nauk.
(Armenia--Rocks, Igneous--Analysis)
(Armenia--Rocks, Crystalline and metamorphic--Analysis)

USSR/Cultivated Plants - Commercial. Oil-Bearing. Sugar-Bearing. M

Abs Jour : Ref Zhur Biol., No 18, 1958, 82431

Author : Karapetyan, K.O.

Inst : Armenian Scientific Research Institute of Agriculture

Title : On the Problem of Pre-Planting Dipping of Cotton Seeds.

Orig Pub : Byul. nauchno-tekhn. inform. Arm. n.-i. in-t zemled., 1957, No 2, 7-9

Abstract : After warm air warming in the sun for 8-10 days and subsequent dipping in formalin, the cotton plant seeds were divided into 3 equal parts. One part was soaked in water for 24 hours, the other in 0.25% N_{aa} solution at 18-20° and the third was the control. The best germinating ability was found in the seeds with N_{aa} treatment. On plots planted with soaked (in water and N_{aa}) seeds, there were more plants affected with gummosis. The conclusion is

Card 1/2

KARAPETYAN, K.O., Cand Agr Sci--(diss) "Effect of the pre-~~planting~~ sowing treatment of seeds upon the yield of cotton." Yerevan, 1958. 14 pp Min of Agr USSR. Armenian Agr Inst), 150 copies (KL, 22-58,111)

-129-

SIMONOV, M.Z.; KARAPETYAN, K.S.

Plasters from diluted gypsum-clay mixtures and their volume variations. Izv.AN Arm.SSR.Ser.FMET nauk 5 no.1:71-79 '52.
(MLRA 9:7)

1.Institut stroitel'nykh materialov i sooruzheniy Akademii nauk Armyanskoy SSR.
(Plaster)

KARAPETYAN, K.S.

Creep of tufaceous concrete. Izv.AN Arm.SSR.Ser.FMET nauk 5 no.4: 69-75 '52. (MLRA 9:8)

1. Institut stroitel'nykh materialov i sooruzheniy AN Armyanskoy SSR. (Concrete)

KARAPETYAN, K.S.

Creep of concrete under high pressure. Izv.AN Arm.SSR.Ser.FMET nauk 6 no.2:79-89 Mr-Ap '53. (MLRA 9:8)

1. Institut stroitel'nykh materialov i sooruzheniy AN Armyanskoy SSR.

(Concrete)

KARAPETYAN, K. S.

Karapetyan, K. S.

"Experimental investigation of the creeping of light concrete on natural porous fill." Min Higher Education USSR. Yerevan Polytechnic Inst imeni K. Marks. Yerevan, 1956. (Dissertation for the Degree of Candidate in Technical Sciences).

Knizhnaya letopis'
No. 21, 1956. Moscow.

KARAPETYAN, K.S.

Effect of form dimensions of shrinkage and creep of concrete. Izv. AN Arm.SSR.Ser.FMET nauk 9 no.1:87-100 '56. (MLRA 9:8)

1. Institut stroitel'nykh materialov i vooruzheniy AN Armyanskoy SSR.

(Concrete) (Creep of materials)

KARAPETYAN, K.S.

124-57-2-2584D

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 149 (USSR)

AUTHOR: Karapetyan, K. S.

TITLE: Experimental Investigation of the Creep of Light-weight Concrete Based on Natural Porous Fillers (Eksperimental'noye issledovaniye polzuchesti legkogo betona na yestestvennykh poristykh zapolnitelyakh)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Yerevansk. politekhn. in-t (Yerevan Polytechnic Institute), Yerevan, 1956

ASSOCIATION: Yerevansk. politekhn. in-t (Yerevan Polytechnic Institute), Yerevan

1. Concrete--Creep

Card 1/1

KARAPETYAN, K. S.

KARAPETYAN, K.S.

Effect of anisotropy on the deformation of concrete creep. Izv.
AN Arm. SSR. Ser. fiz.-mat. nauk 10 no.6:59-74 '57. (MIRA 11:2)

1. Institut matematiki i mekhaniki AN ArmSSR.
(Creep of materials) (Concrete)

KARAPETYAN K.S.

97-58-5-5/14

AUTHOR: Simonov, M. Z., Professor, Corresponding Member of the AS, Armenian SSR, Matuzov, T.G., Candidate of Technical Sciences and Karapetyan, K.S. Candidate of Technical Sciences..

TITLE: Use of Fine, High Strength Concrete for Prestressed Reinforced Concrete Constructions (Primeneniye vysokoprochnykh melkozernistykh betonov dlya predvaritel'no napryazhennykh konstruktsiy.)

PERIODICAL: Beton i Zhelezobeton, 1958, No. 5, USSR, Pp 178-182.

ABSTRACT: Fine aggregate concrete based on quartz or pummice sands and Portland cement of 350 kg per cm^2 activity could produce high quality concrete suitable for prestressed constructions. Vibro-ground cement intensifies hardening of concrete in the initial stages and by that reduces the time during which reinforcement should be kept under tension. At the same time vibro-ground cement slightly increases shrinking. Fine aggregate concretes based on pit sand in comparison with concretes based on crushed sand have lower elasticity (35-50%) than values given in NiTU 123-55. These should be taken into account when evaluating deformations in prestressed constructions based on fine aggregates. Fine aggregate light concretes have slightly higher elasticity than light concretes based on porous sand and ballast. Shrinking of high

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97-58-5-5/14

Use of Fine, High Strength Concrete for Prestressed Reinforced Concrete Constructions.

quality fine aggregate concretes is many times higher than shrinking in concretes based on sand and ballast. Shrinking of fine aggregate concrete based on sand from pumice is 13% higher than shrinking in concretes based on fine aggregate and quartz sand. Calculations show that in prestressed constructions made from fine aggregate concrete where the grains do not exceed 5mm in size if no special gradation is performed and when 600kgs per m^3 cement is used the loss of pretensioning due to "sluggishness" could be higher than permissable values. High strength values of concrete are obtained by the use of cement with increased activity and slow mobility of concrete mix. Under these conditions the cement requirements are between 450-500kgs per m^3. Sizes of the aggregate depend on the proximity of the reinforcement bars and the thickness of the product. Careful granulation of aggregates is required. Table 1 gives values for hardening under controlled curing conditions during a three month period for concrete of various mixes and specific weights. Figure 1 illustrates graphs of the relationship of the strength of testing cubes made from fine concrete aggregate and the time. Table2 gives the values of the

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Use of Fine, High StrengthConcrete for Prestressed Reinforced Concrete Constructions.

moduli of elasticity and also strength values of test cubes of cube and prism shapes. Figure 2 illustrates graphs of the moduli of elasticity of test cubes made from fine aggregate concrete and their crushing strengths. Figure 3 is a graph of the relationship of shrinking values of testing cubes based on small aggregate concreteand the time (24 hours) Figure 4 illustrates a similar graph but taken over a period of 5 months. Figure 5 illustrates a graph of the "sluggishness" of fine aggregate concrete Table 3 gives values for the "sluggishness" of tested concretes during a period of 145 days when the concretes were subjected to central compression of 60kgs per cm^2. These values were compared with those of I.I. Ulitskiy and I.A. Rusinov as published in Beton i Zhelezobeton 1956. No. 12. According to K.S. Karapetyan (Izvestiya AN Arm SSR, 1952, Vol 5, No. 4) the tuff concrete Mark 110 is used when intensity of 20kgs per cm^2 is expected. Table 4 gives values of losses measured in set periods taking place in centrally loaded elements - 150kgs per cm^2 - during releasing of reinforcement.

Card 3/3

1. Concrete--Applications 2. Concrete--Properties

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16(1) SOV/22-12-4-4/9

AUTHOR: Karapetyan, K.S.

TITLE: The Influence of Aging of Concrete on the Connection Between Tensions and Deformations in Creeping

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1959, Vol 12, Nr 4, pp 57 - 88 (USSR)

ABSTRACT: The author has already stated in [Ref 6] that the limits within which the tensions and deformations of a creeping concrete are proportional, essentially depend on the age of the concrete. In the present paper the author investigates this question in detail. The strength test of cylindrical test pieces (R = 5 cm, H = 60 cm) and of cubic test pieces (10 × 10 × 10 cm) led among others to the following results: Up to the relative tension 0.95 the connection between tensions and deformations under creeping can be described by two linear processes; the transition from the first to the second process depends on the age τ of the concrete. If $\tau \leq 7$ days, then the transition takes place for the relative tension 0.75, lateron for 0.6 . The transition takes place by the formation of microcracks. Up to the relative tensions 0.9-0.95 the connection between tensions and deformations under creeping

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KARAPETYAN, K.S.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

134. A. A. Ilyushin (Moscow): Problems of the theory of plasticity under combined loading.

135. V. K. Kabulov (Tashkent): Elastic-plastic vibrations of rods of non-circular cross section.

136. V. B. Kalinin (Leningrad): The forced non-linear flexural vibrations of a homogeneous prismatic rod and a very long rectangular plate.

137. S. Kaliski (Warsaw): On a method of solving the equations of motion for an infinite anisotropic medium in the presence of a magnetic field.

138. S. N. Kan, V. A. Mikolai (Kharkov): An engineering method for the design of open prismatic shells.

139. I. I. Kandaurov (Leningrad): The distribution of vertical compressive stresses and strains in foundations in homogeneous or stratified soils.

140. B. Ia. Kantor (Kharkov): Bending of cantilever plates of variable stiffness.

141. K. S. Karapetyan (Erevan): The effect of aging and anisotropy on the creep of concrete.

142. L. M. Kachanov (Leningrad): On the time of rupture in creep.

143. L. M. Kachanov (Leningrad): On some variational principles and methods in the theory of plasticity.

144. K. A. Kerimov (Baku): A procedure of determining an impact tension diagram for large deformations.

145. N. A. Kil'chevskii (Kiev): Some generalizations of the formulation of elastostatic and elasto-dynamic contact problems and methods for their solution.

146. A. Kh. Kim (Minsk): The flow of a visco-plastic medium in a cone.

147. K. A. Kitover (Leningrad): On the elastic equilibrium of thin, infinite orthotropic plates.

148. K. V. Kovalev (Kharkov): Models of the influence surfaces for the intensity of the bending moment in thin plates and shells.

149. A. D. Kovalenko (Kiev): Shallow shells of revolution of variable thickness in a three-dimensional temperature field.

150. M. Kozarov (Sofia): Dynamic stability of cylindrical and spherical shells.

151. K. Kosarow (Sofia): The influence of initial imperfections of shape on the stability of thin elastic cylindrical sandwich shells under axial compression.

152. W. T. Koiter (Delft): Elastic stability and post-buckling behavior.

153. A. S. Kondratev (Kuibishev), Iu. P. Burkov (Orenburg): The effect of support elasticity on the natural vibrations of rods.

154. I. M. Kopyev, I. A. Oding (Moscow): Strength and plasticity of "whiskers".

155. B. G. Korenev (Moscow): The design of flexible plates and beams on elastic foundation.

156. M. S. Kornishin (Kazan): Bending of rectangular shallow shells with elastic ribs.

157. M. S. Kornishin (Kazan): On the solution of the nonlinear algebraic equations of shell theory.

158. V. G. Korotkin, D. M. Tarlakovskii (Leningrad): The one-dimensional problem of the consolidation of a sediment layer with variable specific weight and variable water permeability.

159. A. S. Kosmodamianskii (Saratov): The elastic equilibrium of anisotropic plate with a finite number of elliptical holes.

160. Iu. I. Kosterin (Iaroslavl), I. V. Kragelskii (Moscow): Rheological phenomena in dry friction.

161. Iu. V. Krotov (Stalinsk): Lateral stability of coupled arches with double curvature.

162. A. S. Kuznetsov (Leningrad): On the theory of plane plastic stress.

163. V. N. Kukudzhanov, L. V. Nikitin (Moscow): Propagation of elastic, visco-plastic waves in bars.

164. V. D. Kupradze (Tbilisi): The investigation of contact problems in the theory of elasticity by the method of singular integral equations.

165. S. V. Lanovskaia (Moscow): The investigation of the deformations of strains on models by the X-ray method.

166. A. Langenbach (Berlin): Application of the non-linear variational principle to some problems of the theory of elastic-plastic strains.

167. S. M. Levi (Moscow): The investigation of rheological properties of gelatin solutions.

SIMONOV, M.Z., doktor tekh.nauk, prof.; KARAPETYAN, K.S., kand.tekhn.nauk

Shrinkage and creep of lightweight concretes in prestressed construction elements. Bet. i zhel.-bet. no.10:450-454 O '60.
(MIRA 13:10)

(Prestressed concrete)

SIMONOV, M.Z.; KARAPETYAN, K.S.

Designing and manufacturing reinforded concrete trellis posts for vineyards. Izv. AN Arm.SSR.Ser.tekh.nauk 13 no.3:58-61 '60. (MIRA 14:1)

(Viticulture—Equipment and supplies)

KARAPETYAN, K.S.

Creep of concrete in torsion. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 15 no.6:23-37 '62. (MIRA 16:6)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Creep of concrete) (Torsion)

KARAPETYAN, K.S.

Effect of anisotropy on the creep of concrete in compression and tension depending on the stress value. Dokl. AN Arm. SSR 39 no.1:13-20 '63. (MIRA 17:8)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR. Predstavleno akademikom AN Armyanskoy SSR N.Kh.Arutyunyanom.

KARAPETYAN, K.S.

Effect of the scale factor on the creep of concrete due to compression or tension. Dokl. AN Arm. SSSR 38 no.3 :135-142 '64. (MIRA 17:6)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR. Predstavleno akademikom AN Armyanskoy SSR N.Kh.Arutyunyanom.

KARAPETYAN, K.S.; KOTIKYAN, R.A.

Effect of the scale factor on the shrinkage of concrete as dependent on the moisture content of the medium. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 17 no.2:91-103 '64.
(MIRA 17:9)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

KARAPETYAN, K.S.; KOTIKYAN, R.A.

Strength and deformability of concrete in the complex-stressed state. Dokl. AN Arm. SSR 39 no.4:201-206 '64. (MIRA 18:1)

1. Institut matematiki i mekhaniki AN ArmSSR. Predstavleno chlenom-korrespondentom AN ArmSSR S.A. Ambartsumyanom.

KARAPETYAN, K.S.

Effect of anisotropy on creep of concrete in compression and tension depending on the scalar factor. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 17 no.4:71-90 '64. (MIRA 17:11)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

KARAPETYAN, K.S.; KOTIKYAN, R.A.

Fundamental equation of creep in the theory of an elastic creeping body. Izv.AN Arm.SSR. Ser. fiz.-mat. nauk 17 no.5:47-50 '64. (MIRA 17:12)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

KARAPETYAN, K.S.

Effect of anisotropy on the creep of concrete as dependent on the duration of vibration of a concrete mixture. Dokl. AN Arm. SSR 40 no.4:197-203 '65. (MIRA 18:6)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR. Submitted December 28, 1964.

KARAPETYAN, K.S.

Effect of prolonged compression on the strength and deformability of concrete. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 17 no.6:83-101 '64. (MIRA 18:3)

1. Institut matematiki i mekhaniki AN ArmSSR.

KARAPETYAN, K.S.

Effect of anisotropy on the creep of concrete as dependent on the moisture content of the medium. Izv. AN Arm. SSR. Ser.fiz.-mat. nauk 18 no.2:58-73 '65. (MIRA 18:6)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

KARAPETYAN, K.S.

Effect of anisotropy on creep of concrete under compression as dependent on the height of the specimen. Dokl. AN Arm. SSR 40 no.5:279-283 '65. (MIRA 18:7)

1. Institut matematiki i mekhaniki AN ArmSSR. Submitted January 4, 1965.

KARAPETYAN, K.S.

Effect of the moisture content of the medium on the creep of concrete. Izv.AN Arm.SSR.Ser.fiz.-mat.nauk 18 no.3:64-73 '65 (MIRA 18:8)

1. Institut matematiki i mekhaniki AN ArmSSR.

KARAPETYAN, K.S.

Effect of anisotropy on the strength and creep of concrete as dependent on the quantity of cement used. Izv. AN Arm. SSR. Ser. fiz.-mat.nauk 18 no.5:48-64 '65.

(MIRA 18:12)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR. Submitted March 20, 1965.

PETROSYAN, G.P.; SAAKYAN, R.G.; KARAPETYAN, L.M.

Effect of the soda salinization of soil on the amino acid composition of grapevine leaves and shoots. Izv. AN Arm. SSR. Biol. nauki 17 no.5:19-27 My '64. (MIRA 17:9)

1. Institut pochovedeniya i agrokhimii Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov Armyanskoy SSR.

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ACC NR: AP5022422 SOURCE CODE: UR/0109/65/010/009/1594/1599

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B

AUTHOR: Geruni, P. M.; Karapetyan, K. Ye.; Tribunyan, G. G.

44 44 44

ORG: none

TITLE: Remote-region field of round and rectangular apertures

SOURCE: Radiotekhnika i elektronika, v. 10, no. 9, 1965, 1594-1599

25,44

TOPIC TAGS: antenna directional pattern, radio antenna, Fourier series, integration, integral equation, antenna directivity

ABSTRACT: By solving radiation integrals, formulas are developed which describe the remote-region directional pattern for a rectangular aperture with an arbitrary distribution of amplitudes and phases and for a circular aperture with an axisymmetrical distribution of amplitudes and phases. The distribution laws are approximated by a Fourier series and segments of straight lines; 3—4 expansion terms suffice for most practical calculations. In some particular

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cases, the distribution may be conveniently approximated by a polynomial. The formulas hold true when the phase distribution is close to uniform and has no nonmultiple-λ jumps. The formulas are intended for determining directional patterns from specified distributions of amplitudes and phases in the aperture, for synthesizing specified directional patterns, and kindred problems. "The authors wish to thank I. V. Vavilova for perusal of the material and valuable comments." Orig. art. has: 2 figures and 22 formulas.

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SUB CODE: 09,20 / SUBM DATE: 22Jun64 / ORIG REF: 005 / OTH REF: 001

Card 2/2 pw

SAAKYAN, R.G.; KARAPETYAN, L.M.

Nucleic acids in the grapevine. Dokl. AN SSSR 146 no.1:215-216
S '62. (MIRA 15:9)

1. Predstavleno akademikom N.M. Sisakyanom.
(Nucleic acids) (Grapes)

KARAPETYAN, M.

New set of booklets on industrial production and technological processes. Prom.Arm. 6 no.2:73-75 F '63. (MIRA 16:5)
(Technical education)

KARAPETYAN, M. A.

Karapetyn, M. A. "The treatment of tumor of the bladder based on the findings of the urological department of the 1st Hospital and Roentgenological Institute," (Report), Trudy III Zakavkazsk. s"yezda khirurgov, Yerevan, 1948 (on cover: 1949), p. 127-134

SO: U-5240, 17 Dec. 53, (Letopis 'Shurnal 'nykh Statey, No. 25, 1949).

KARAPETYAN, M. A.

"The Electrical Aging of Rubber-Insulated Cables." Cand Tech Sci, Leningrad Polytechnic Inst imeni M. I. Kalinin, Min Higher Education USSR, Leningrad, 1955. (KL, No 9, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

[illegible]

KARAPETYAN, M.A.

Changes in electric characteristics of cables with rubber insulation caused by their thermal aging. Izv.AN Arm.SSR. Ser.tekh.nauk 10 no.4:69-74 '57. (MIRA 10:10)

1. Yerevanskiy politekhnicheskiy institut im. K.Marksa.
   (Electric cables) (Electric insulators and insulation)

SOV/144-59-12-18/21

AUTHOR: Karapetyan, M.A., Candidate of Technical Sciences, Dotsent

TITLE: An Instrument for Detecting Air Ionization in Three-Phase Transformers

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 12, pp 153-155 (USSR)

ABSTRACT: Various methods have been devised for detecting ionization in air voids in cables and capacitors. The best of these instruments comprise an electronic amplifier, a cathode ray oscillograph and a bridge whose measuring diagonal includes high-frequency filters. Ionization in voids is becoming more important in transformers particularly with the introduction of organic film insulation of high thermal stability. The first attempts to measure the ionization initiation voltage in transformers were made with the instrument described above. The bridge circuit serves to suppress the fundamental frequency in the measuring circuit and the filter blocks the voltages which are not due to high-frequency discharge currents in the insulation. The disadvantage of the equipment is that voltages higher than 10 kV cannot be applied and it is difficult to overcome

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An Instrument for Detecting Air Ionization in Three-Phase Transformers

this limitation when a bridge circuit is used. A method that may be employed when the secondary winding of the transformer is connected in delta is shown diagrammatically in Fig 1. The delta winding is opened at one corner and a transformer is connected in; higher harmonics that are three-fold multiples of the basic frequency flow through the primary of this transformer. If there is no ionization in the transformer the phase emf's do not contain these harmonics. To the secondary winding of the transformer are connected a filter, an amplifier and an oscillograph. A magnitude known as the "intensity of ionization" may then be determined and is defined. The optimum band pass width of the filter is discussed. If the secondary winding of the transformer is star-connected, the star point may be earthed through a resistance across which are connected the filter, amplifier and oscillograph. When ionization occurs in the transformer, high-frequency voltages appear between the star point and earth and are measured by the equipment. The intensity of ionization is again defined for this case. Similar considerations probably apply to the

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An Instrument for Detecting Air Ionization in Three-Phase Transformers

stator windings of alternators. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Yerevanskiy politekhnicheskiy institut (Yerevan Polytechnical Institute)

SUBMITTED: January 3, 1959

Card 3/3

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DADAYAN, G.A.; KARAPETYAN, M.A., red.; AVETYAN, E., tekhn. red.

[Mineral wealth of Armenia] Bogatstva nedr Armenii. Erevan,
Armgosizdat, 1963. 49 p. (MIRA 16:9)
(Armenia--Mines and mineral resources)

KARAPETYAN, M.B.

Scientific and practical conference of the Azerbaijani Scientific Pharmaceutical Society. Apt. delo 11 no.2:75-77 Mr-Ap '62. (MIRA 15:5)

(AZERBAIJAN--PHARMACEUTICAL SOCIETIES)

KARAPETYAN, M. G.

Organic Chem

Paths of synthesis of optically active analogs of D-threo-1- [redacted] S.S.S.R. 86, 505-8(1952).—Two synthetic paths for prepn. of analogs which contain substituents other than NO_2 are outlined. D- or L-*threo-1-(p-Nitrophenyl)-2-amino-1,3-propanediol* (I) treated with BzCl and 0.5*N* NaOH gave 70% of the corresponding *N-Bz derivs.* (II): D-form, m. 171° (from EtOH), $[\alpha]_D^{20}$ −120° (MeOH); L-form, m. 171°, $[\alpha]_D^{20}$ 121°; DL-form, m. 163° (from EtOH). These, reduced with H over active Ni at 20° and 50 atm., gave the corresponding *p-H_2N analogs* (III) in 95% yield; D-form, m. 171°, $[\alpha]_D^{20}$ −100° (MeOH); L-form, m. 171°, $[\alpha]_D^{20}$ 99°; DL-form, m. 152°. Diazotization of III at 0-5° in HCl or H_2SO_4 (3 hrs.) and treatment with the customary reagents gave the substituted derivs. as follows: CuCl gave 75% *L-p-Cl deriv.*, m. 172°, $[\alpha]_D^{20}$ 102°; the *D-isomer*, m. 172°, $[\alpha]_D^{20}$ −103°. KI in dil. soln. after 12 hrs. at 0°, followed by treatment at 20°, gave 50% *p-iodoanalog*: *D-form*, m. 179°, $[\alpha]_D^{20}$ −87°; *L-isomer*, m. 179°, $[\alpha]_D^{20}$ 86°; *DL-form*, m. 174°. Heating to 70-90° 0.5 hr. at pH 5-6 gave the *p-HO analog*: L-form, decomp. 196-8°, $[\alpha]_D^{20}$ 103°. CuCN at pH 7 and −5° gave 80% *P-NC* deriv.: L-form, m. 140°, $[\alpha]_D^{20}$ 130°; D-form, m. 140°, $[\alpha]_D^{20}$ −130°. Na_3AsO_3 with $CuSO_4$ at 15° gave 22% *p-H_2O_3As* deriv.: L-form, decomp. 148-8°, $[\alpha]_D^{20}$ 89°. Treatment with EtOH-Cu gave the *unsubstituted compd.*: L-form, m. 186°, $[\alpha]_D^{20}$ 99°. These compds. (V) on refluxing several hrs. with 20% HCl lost the *N*-Bz group and yielded *p-$ZC_6H_4CH(OH)CH(NH_2)CH_2OH$* of the threo type as follows (*Z shown*): *Cl*, 80%: L-form, m. 147°, $[\alpha]_D^{20}$ 35°; D-form, m. 147°, $[\alpha]_D^{20}$ −34°; *Iodo* 55%: L-form, m. 104°, $[\alpha]_D^{20}$ 24°; D-form, m. 104°; *CO_2H*, 65%: L-form, decomp. 348-9°, $[\alpha]_D^{20}$ 33°; D-form, decomp. 348-9°, $[\alpha]_D^{20}$ −33°. The former 2 substances heated briefly with Cl_2CHCO_2Me at 95°, or the last substance treated at −5° with $Cl_2CHCOCl$, gave the *N-dichloroacetyl derivs.* (*p*-substituent shown): *Cl*, 47%: L-form, m. 93°, $[\alpha]_D^{20}$ −9°; D-form, m. 93°, $[\alpha]_D^{20}$ 8°; DL-form, m. 120°; *Iodo*, 72%: L-form, m. 104°, $[\alpha]_D^{20}$ −11°; D-form, m. 104°, $[\alpha]_D^{20}$ 10°; DL-form, m. 123°; *CO_2H*, 70%: L-form, m. 191°, $[\alpha]_D^{20}$ −14°; D-form, m. 191°, $[\alpha]_D^{20}$ 12°. Racemates obtained by mixing the L- and D-forms of the *p*-Cl or *p*-iodo derivs. were identical with the Cl or iodo analogs of chloramphenicol, thus showing the preservation of threo-structure. The 2nd route was as follows. Hydrogenation of D- or L-I gave 90% of the corresponding *p-H_2N derivs.*: L-form, m. 133°, $[\alpha]_D^{20}$ 28°; D-form, m. 136°, $[\alpha]_D^{20}$ −29°. These with Cl_2CHCO_2Me in MeOH after 24 hrs. at 18-23° gave the *2-dichloroacetamido derivs.*, isolated as *HCl salts* in 25% yield: L-form, $[\alpha]_D^{20}$ −9°; D-form, $[\alpha]_D^{20}$ 8°. These diazotized rapidly and were converted conventionally to the following derivs.: *p-Cl*, identical with that described above; *p-CN*; 52%. L-form, m. 130°, $[\alpha]_D^{20}$ −17°; D-form, m. 136°, $[\alpha]_D^{20}$ 15° (hydrolyzed to the CO_2H analog, identical with that described above. *HO deriv.*, 46%: L-form, m. 156°, $[\alpha]_D^{20}$ 8°; D-form, m. 150°, $[\alpha]_D^{20}$ −8°. G. M. Kosolapoff

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Chemistry of chloromycetin (levomycetin). II. Study of the paths of synthesis and synthesis of optically active analogs of chloromycetin. M. M. Shemyakin, E. M. Bamdas, E. I. Vinogradova, M. G. Karapetyan, M. N. Kolosov, A. S. Khokhlov, Yu. B. Shvetsov, and L. A. Shchukina (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* 23, 1854-67 (1953); cf. *Doklady Akad. Nauk S.S.S.R.* 79, 601(1951); *C.A.* 48, 640c.—Two general paths of synthesis of optically active analogs of chloromycetin of type $p\text{-}XC_6H_4CH(OH)\text{-}CH(NHCOCHCl_2)CH_2OH$ with various groups X are described; both methods start with substances of known spatial structure which is unchanged during the synthesis. It was shown that the method of Long and Troutman (*C.A.* 44, 568*i*) in a number of instances can yield analogs of chloromycetin that belong to the *threo* series. Benzoylation of D- (I), L- (II), and DL-forms (III) of *threo-1-(p-nitrophenyl)-2-amino-1,3-propanediol* with BzCl in 0.5*N* KOH and Et_2O gave 70-5% yields of the *N-Bz derivs.* of: I, m. 171-2°, $[\alpha]_D$ −120.5° (MeOH); II, m. 171-2°, $[\alpha]_D$ 121.5°; III, m. 182-3°. Hydrogenation of these in EtOH over Raney Ni at 75-80° and 40-50 atm. H initially gave 91-5% corresponding *p*-amino analogs of the *N*-Bz derivs. of: I, m. 170-1°, $[\alpha]_D$ −100.5°; II (IV), m. 170-1°, $[\alpha]_D$ 99.5°; III, m. 151-2°. IV (6 g.) in 60 ml. 5% H_2SO_4 was diazotized with 20% $NaNO_2$ at 0-5° (excess HNO_2 being destroyed by urea), the soln. treated with 60 ml. EtOH and 6 ml. concd. H_2SO_4 and followed at 0-5° by 0.75 g. Cu bronze; after the reaction subsided, the mixt. was heated to 50-60° until the reaction was complete (0.5 hr.) and the filtrate was adjusted to pH 5.5-6.0 with 20% NaOH; EtOH was removed *in vacuo*, the residue extd. with EtOAc, the ext. washed with dil. NaOH and H_2O, dried, clarified with C concd., and cooled yielding 55% L-*threo-1-*[illegible] *amino-1,3-propanediol*, m. 184-6°, $[\alpha]_D$ 95.[illegible] the diazo deriv. with H_3PO_2 gave a product identical with the [illegible] above but which required more extensive purification. The diol warmed with Ac_2O-pyridine gave the O,O-[illegible] deriv., m. 146-8° (from 50% EtOH). When IV was diazotized in 17% HCl at 0-5° and treated at 0° with CuCl, there was obtained 75% L-*threo-1-(p-chlorophenyl)-2-benzoylamino-1,3-propanediol*, m. 171-2°, $[\alpha]_D$ 102.4°; similarly the D-*threo* compd., (m. 171-2°, $[\alpha]_D$ −102.8°) was obtained from D-*threo* analog of IV. In a few instances the D- and L-derivs. were obtained which m. 156°, but showed the same optical activity as the specimens described above and gave the same aminodiols on hydrolysis of the Bz groups. Diazotization in dil. H_2SO_4 and treatment with KI gave the *p-iodo analogs*: D-*threo*, m. 178-9°, $[\alpha]_D$ −87.3°; L-*threo*, m. 178-9°, $[\alpha]_D$ 88.2°; DL-*threo*, m. 173.5-4.5°. If the diazotized L-*threo* compd. in dil. H_2SO_4 was neutralized with $NaHCO_3$ to pH 6 and heated to 70-80°, there was obtained 40% L-*threo p-HO analog*, m. 106-8° (decompn.), $[\alpha]_D$ 103°. Treatment of the diazotized soln., after adjustment to pH 5.5-6, with $Cu_2(CN)_2$ soln. under MePh gave the corresponding *p-cyano analog*: D-*threo*, m. 139-40°, $[\alpha]_D$ −130.4°; L-*threo*, m. 139-40°, $[\alpha]_D$ 129.8°. IV (2.8 g.) in 14 ml. 10% H_2SO_4 was diazotized at 0-5° with 20% $NaNO_2$, neutralized with $CaCO_3$ to Congo red, filtered, and the filtrate treated with 1.5 g. $Na_3Co(NO_2)_6$ and cooled to 3-5°; after 15 min. the soln. was decanted from the ppt. and this was treated with cooling with 0.4 g. Cu_2O suspended in 1 $NaNO_2$ and 1 g. $CuSO_4.5H_2O$ in 6 ml. H_2O; after 10-12 hrs. the mixt. was extd. with EtOAc and the washed and dri ext. gave after evapn. and extn. with H_2O the *p*-O_2 *analog* of IV: this was identical with II. Treatment of th

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zotized and neutralized (pH 6.5) soln. of IV with As_2O_3 and $CuSO_4$ similarly gave *p-arsono analog* of IV: L-*threo*, m. 142-3° (decompn.), $[\alpha]_D$ 88.5°. Treatment of diazotized IV with 2-$C_{10}H_7OH$ in cold NaOH-Na_2CO_3 gave the red *1-(2-hydroxynaphthyl)azo deriv.*: L-*threo*, decomp. 224-6° (from MeOH), $[\alpha]_D$ 180°. Hydrolysis of the corresponding benzoyl derivs. by heating 4 hrs. with 20% HCl gave 68% D-*threo-1-(p-chlorophenyl)-2-amino-1,3-propanediol* (V), m. 145-7°, $[\alpha]_D$ −13.6°; L-*threo analog*, m. 145-7°, $[\alpha]_D$ 23.0°; DL-*threo analog*, m. 123-8°, was obtained by mixing the 2 forms. The *p*-iodo derivs. were hydrolyzed by refluxing with 10% HCl 10 hrs.: D-*threo-1-(p-iodophenyl)-2-amino-1,3-propanediol* (VI), m. 103-4°; similarly was obtained the L-*threo analog*, m. 103-4°, $[\alpha]_D$ 23.0°; DL-*threo analog*, m. 180-1°. The cyano derivs. were hydrolyzed 20 hrs. with 20% HCl yielding *p-carboxy analogs*: D-*threo-1-(p-carboxyphenyl)-2-amino-1,3-propanediol* (VII), decomp. 348-9°, $[\alpha]_D$ −32.4°; L-*threo analog*, decomp. 348-9°, $[\alpha]_D$ 33.0°. These are inner salts and are insol. in org. solvents, but are sol. in alk. solns. or in acids; they are not dichloroacetylated with Cl_2CHCO_2Me, but are acylated by the acyl chloride in presence of K_2CO_3. Heating 2.9 g. Cl_2CHCO_2Me with 2.7 g. D-*threo*-V to 90° 5 min., rubbing the mixt. 3 times with 5-ml. portions of heptane, dissolving the residue in 2-3 ml. $(CH_2Cl)_2$, adding 3 ml. heptane and allowing the mixt. to stand overnight gave 47% D-*threo-2-(dichloroacetamido) analog* of V, m. 92-3°, $[\alpha]_D$ 8.2°; similarly was obtained the L-*threo analog*, m. 92-3°, $[\alpha]_D$ −9°; mixing these gave the DL-*threo analog*, m. 119-20°. Similarly was obtained 2-*(dichloroacetamido) analog* of VI: D-*threo form*, m. 103-4°, $[\alpha]_D$ 9.7°; L-*threo form* (VIII), m. 103-4°, $[\alpha]_D$ −10.8°; DL-*threo form* was obtained by mixing the D- and L-forms, m. 122-3°. VII treated with $Cl_2CHCOCl$ in the presence of aq. K_2CO_3 and Et_2O gave 71% 2-*(dichloroacetamido) analog*, m. 100-1°, $[\alpha]_D$ 12.0°; L-*threo form*, m. 10[illegible] 1°, $[\alpha]_D$ −13.9°; mixing these gave the DL-*form*, m. 18[illegible]. Hydrogenation of D- or L-*threo* forms of II in EtOH over Raney Ni at 75-80° and 40-53 atm. H gave [illegible] *amino analogs*: D-*threo form*, m. 135-6°, $[\alpha]_D$ −2[illegible]°; L-*threo form*, m. 135-6°, $[\alpha]_D$ 27.5°. Treatment of these with Cl_2CHCO_2Me in abs. MeOH 24 hrs. at 18-23° gave *1-(p-aminophenyl)-2-(dichloroacetylamido)-1,3-propanediol*, isolated as *HCl salts* (from MeOH-Et_2O): D-*threo form*, $[\alpha]_D$ 8.1°; L-*threo form*, $[\alpha]_D$ −[illegible].5°; these do not melt, but slowly decomp. on heating. Hydrogenation over Raney Ni at atm. pressure of D- and L-*threo*-1-(*p*-nitrophenyl)-2-(dichloroacetamido)-1,3-propanediols and treatment of the products with alc. HCl gave 86-9% *HCl salts* of the *p-amino analogs*, with 23-7% original nitro derivs. being recovered. Diazotization of D- or L-*threo-1-(p-aminophenyl)-2-(dichloroacetamido)-1,3-propanediols* (IX) in 5% HCl with aq. $NaNO_2$ gave ppts. of the corresponding *diazonium chlorides*: D-*threo*, 44%, $[\alpha]_D$ 0.5°; L-*threo*, $[\alpha]_D$ −0.8°; these decomp. on heating, but do not melt. Treatment of the diazotized soln. with Cu_2Cl_2 gave 45% VIII (from $(ClCH_2)_2$ and heptane), identical with the previous prepn. If the diazotized soln. in dil. H_2SO_4 is heated to 70-90° after adjustment to pH 5.5, there is formed *p-HO analog*: D-*threo form*, decomp. 160-1.0°, $[\alpha]_D$ −8.1°; L-*threo form*, decomp. 160-1.0, $[\alpha]_D$ 7.80°; mixing these gave the DL-*form*, m. 138-40°. Treatment of the diazotized soln. with $(CuCN)_2$ as described above gave the *p-cyanophenyl analogs*: [illegible] −17.0°; mixing these gave the [illegible] *form*, m. 136.5-6.5°, $[\alpha]_D$

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DL-*form*, m. 123.5–3.5°. Hydrolysis with HCl gave the *p-carboxy deriv.* Treatment of the diazotized and neutralized soln. with As_2O_3 and $CuSO_4$ similarly gave the *p-arsonophenyl deriv.* in 10% yield; D-*threo form*, $[\alpha]^{20}_{D}$ 8.8°; L-*threo form*, $[\alpha]^{20}_{D}$ −7.8°; neither shows a definite decompn. temp. IX.HCl (D- or L-*threo* forms) diazotized as usual in dil. HCl and treated with *o-$O_2NC_6H_4OH$* in the presence of NaOH and Na_2CO_3 at 15–20° 2 hrs. gave on acidification the *3-nitro-4-hydroxyphenylazo deriv.*, purified by pptn. from $(CH_2Cl)_2$ with heptane, followed by crystn. from 30% AcOH: D-*threo form*, m. 157–9°, $[\alpha]^{20}_{D}$ 21.3°; L-*threo form*, m. 157–9°, $[\alpha]^{20}_{D}$ −22°; mixing these gave the DL-*form*, m. 153–5°. IX.HCl (D- or L-*threo* forms) (2.3 g.) in 15 ml. MeOH was treated with 0.8 g. AcONa in 10 ml. MeOH and filtered; at 5° the soln. was treated with 0.95 g. *p*-$ONC_6H_4NO_2$ in 15 ml. AcOH; after 10–12 hrs. there was obtained 58% *p-nitrophenylazo deriv.*, D-*form*, m. 173–4°, $[\alpha]^{20}_{D}$ −69.2°; L-*threo form*, m. 173–4°, $[\alpha]^{20}_{D}$ 64.9°; mixing these gave the DL-*threo form*, m. 171–2°. A small amt. of *p,p'-dinitroazoxybenzene*, m. 191–2° was isolated from the reaction mixt. Condensation of IX with *p-$O_2NC_6H_4CHO$* in the presence of KOAc in MeOH gave the *p-nitrobenzylidene deriv.*: D-*threo form*, m. 164–6° (decompn.; from EtOH), $[\alpha]^{20}_{D}$ −18.8°; L-*threo form*, decomp. 165–7°, $[\alpha]^{20}_{D}$ 19.7°; mixing these gave the DL-*form*, m. 155–7° (decompn.).

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Chemistry of chloromycetin (levomycetin). VI. Synthesis of new optically active analogs of chloromycetin (levomycetin). M. M. Shemyakin, M. N. Kolosov, M. G. Karapetyan, E. M. Bamdas, Yu. B. Shvetsov, E. I. Vinogradova, and L. A. Shchukina. *Zhur. Obshchei Khim.* 25, 1199–1206(1955); cf. *C.A.* 49, 946b, 14674e.—Diazotization of 10 g. D- or L-*threo*-p-$H_2NC_6H_4CH(OH)CH(CH_2OH)$-$NHCOCHCl_2$ (I) in 10% H_2SO_4 at 0–3° with $NaNO_2$, treatment with 40–50 g. SO_2 in 200 g. 25% H_2SO_4, satn. at −10° with SO_2 with slow addn. of 10 g. powd. Cu at −5- to −10° followed by filtration, extn. of the filtrate with EtOAc, and evapn. of the dried ext. gave 53–8% p-$HO_2SC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ (further purification by treatment with AcOH); D-*threo isomer*, softens at 125–7°, $[\alpha]_D^{17}$ −40.6° (Me_2CO); L-*threo isomer*, softens at 125–6°, $[\alpha]_D^{23}$ 45.2° (Me_2CO). The sulfinic acid (1 g.) in 2 ml. H_2O treated with 0.25 g. $NaHCO_3$ in 0.5 ml. H_2O and 0.5 g. $AgNO_3$ gave the ppt. of Ag sulfinate, which dried rapidly *in vacuo* and darkness at 30°, then shaken in the dark with MeI gave 65% p-$MeO_2SC_6H_4CH(OH)CH(CH_2OH)NH$-$COCHCl_2$: D-*threo isomer*, m. 165–6°, $[\alpha]_D^{17}$ 13.2° (EtOH); L-*threo isomer*, m. 165–6°, $[\alpha]_D^{17}$ −13.2° (EtOH). Treatment of the sulfinic acid with aq. $NaHCO_3$, filtration, and filtered and recrystd. from C_6H_6 gives 1.4 g. BzC(:NOH)-CH_2OH (I), leaves, m. 106.5–8.0°. I (500 mg.) in 10 ml. MeOH reduced with Pd-C and H 30 min. at 25°, and the product concd. and recrystd. from MeOH-AcOEt gives 250 mg. *dl*-PhCH(OH)CH(NH_2)Me.HCl (II), leaves, m. 190–2°. II (40 mg.) in 0.4 ml. water and 0.4 ml. C_6H_6 benzoylated with 30 mg. BzCl and 10% NaOH and the product recrystd. from water give *dl*-PhCH(OH)CH(NH-Bz)Me (III), needles, m. 142–4°. Catalytic reduction of 300 mg. I in 18 ml. *N* HCl with 150 mg. 10% Pd-C at 10° (117.6 ml. H absorbed in 1 hr.), the product concd. *in vacuo*, washed with AcOEt, the aq. layer concd., the residue in MeOH treated with Et_2O, the NH_4Cl filtered off, the filtrate concd., the residue in 0.5 ml. C_6H_6 benzoylated with 0.25 g. BzCl and 10% NaOH yields 110 mg. of a mixt. (IV) of *dl*-*N*-benzoylnorephedrine and its ψ-isomer, leaves, m. 130–3°; IV heated 5 min. with 1 ml. 10% HCl and the product recrystd. from MeOH-Me_2CO give 80 mg. *dl*-1-

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and p-$O_2NC_6H_4COCl$ gave 95% *p-$O_2NC_6H_4CONHC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 203-4° (decompn.), $[\alpha]_D^{28}$ −29.3°. Treatment of p-$HOC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ with Me_2SO_4 in the presence of aq. NaOH at 25-30° gave 23% *p-$MeOC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 101-2°, $[\alpha]_D^{28}$ −34.2° (Me_2CO); L-*threo isomer*, m. 101-2°, $[\alpha]_D^{28}$ 33.2° (Me_2CO); DL-*threo form*, m. 107-7.5°. p-$HO_2CC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ treated with aq. $NaHCO_3$, followed by $AgNO_3$, and the dried Ag salt treated with MeI 8 hrs. gave 80% *p-$MeO_2CC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 128-9°, $[\alpha]_D^{18}$ −29.0° (Me_2CO). I.HCl treated with KOAc in MeOH, followed by BzH, kept 1 hr. at 20° and heated to reflux, gave after diln. with H_2O 71% *p-$PhCH:NC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 153-4°, $[\alpha]_D^{18}$ −47.5° (Me_2CO); L-*threo isomer*, m. 153-4°, $[\alpha]_D^{18}$ 46.8° (Me_2CO); DL-*threo form*, m. 146-7°. I.HCl in MeOH with KOAc, followed by PhNO in AcOH gave after 13 hrs. at 15-20° and diln. with H_2O 40% *p-$PhN:NC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 144-5°, $[\alpha]_D^{18}$ −59.1° (Me_2CO); L-*threo isomer*, m. 144-5°, $[\alpha]_D^{18}$ 57.1° (Me_2CO); DL-*threo form*, m. 150-1°. I.HCl with NaOAc in MeOH, followed by m-$ONC_6H_4NO_2$ in AcOH 20 hrs. at 4-5° gave 78% *p-(m-$O_2NC_6H_4N:N)C_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. about 100°, $[\alpha]_D^{18}$ −41.2° (Me_2CO); the product crystallizes with 1.5 moles solvent (CCl_4 or C_6H_6). I.HCl diazotized in aq. HCl and treated with PhOH in aq. NaOH-Na_2CO_3 gave 52% *p-(p-$HOC_6H_4N:N)C_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$*: D-*threo isomer*, m. 179-81°, $[\alpha]_D^{18}$ −59° (Me_2CO); L-*threo isomer*, m. 179-81°, $[\alpha]_D^{18}$ 57.4° (Me_2CO); DL-*threo form*, m. 171-2°. Also in *J. Gen. Chem. U.S.S.R.* 25, 1147-51(1955)(Engl. translation).

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Title : Relation between structure and antimicrobic activity of chloromycetin (levomycetin) and the mechanism of its reaction

Periodical : Dok. AN SSSR 102/5, 953-956, Jun 11, 1955

Abstract : It is shown that the high selectivity of the biological effect of chloromycetin on microbes is determined simultaneously by the following factors: 1) strong polarizing effect of the p-nitrophenyl radical, the geometrical dimensions of which are of no importance; 2) strong polarising effect of the dichloroacetyl radical, which should satisfy even the most specific geometrical requirements; and 3) defined geometrical dimensions and corresponding conformation of the aminopropanediol group. The relation between the structure and biological activity of chloromycetin is explained.

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Chemistry of chloromycetin (levomycetin). VIII. Dependence of antimicrobic activity of chloromycetin on its structure and the mechanism of action of chloromycetin. M. M. Shemyakin, M. N. Kolosov, M. M. Levitov, K. I. Germanova, M. G. Karapetyan, Yu. B. Shvetsov, and E. M. Bamdas. *Zhur. Obshchei Khim.* 26, 773-82(1956); cf. *C.A.* 49, 16049b; 50, 8291c.—Biol. tests of several *N*-acyl derivs. of chloromycetin against *Staphylococcus aureus*, *Escherichia coli*, *Bacillus subtilis*, and *Vibrio fluorescens* were performed. The results indicate that the *p*-nitrophenyl group is important to the activity of the drug both through its electronic behavior and its polarizing action on the rest of the mol.; the geometric dimensions of this part of the mol. are not important in contrast to the import of geometric dimensions in the aminopropanediol portion of the mol. The NO_2 group can be shifted without loss of activity to other conjugated locations, and compds. with *p*-$O_2NC_6H_4$-N:N— or *p*-$O_2NC_6H_4CH$:N— linkages are highly active; compds. without the NO_2 group or those with it in unconjugated locations (*p*-$O_2NC_6H_4CONH$—) are inactive or weakly active. The biol. activity of chloromycetin analogs drops off in the series of the *p*-phenyl substituents: NO_2, CN, CO_2Me, Cl, SO_2Me, SO_2NH_2. Geometry and polarization in chloromycetin are discussed at length. New analogs were prepd. By heating 6 g. DL-*threo*-1(*p*-nitrophenyl)-2-amino-1,3-propanediol (I), 7.2 g. Me γ,γ,γ-trichlorocrotonate, and 4 ml. iso-AmOH to 110° 5 min., followed by treatment with

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EtOAc, gave 17% DL-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-trichlorocrotonylamino)-1,3-propanediol*, m. 165–6° (from $ClCH_2CH_2Cl$). I (6 g.) in 350 ml. Et_2O and 190 ml. 0.5*N* KOH treated with 6.1 g. $CCl_3CH_2CH_2COCl$ (b_{14} 97°) 0.5 hr. gave 87% DL-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-trichlorobutyrylamino)-1,3-propanediol*, m. 116–17° (from $(CH_2Cl)_2$). D- or L-form of I (9 g.) similarly treated with $CHCl_2CH:CHCOCl$ (b_{11} 79–81°, n_D^{20} 1.5165) gave 70–5% D-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-dichlorocrotonylamino)-1,3-propanediol*, m. 84–5° (from EtOAc and $(CH_2Cl)_2$), $[\alpha]_D^{18}$ −70.8° (Me_2CO); L-*threo analog*, m. 84–5°, $[\alpha]_D^{18}$ 67.6° (Me_2CO); DL-*analog*, prepd. by mixing the 2 isomers, m. 144–5°. I (6 g.) in 300 ml. dry dioxane was treated at 12–15° with 2.45 g. $CCl_2:CHCH_2COCl$ over 0.5 hr.; after 0.5-hr. shaking the mixture was filtered and concd. *in vacuo*, treated with EtOAc, washed with dil. H_2SO_4 and 20% NaCl, and evapd., yielding 88% DL-*threo-1(p-nitrophenyl)-2-(γ,γ-dichlorovinylacetamido)-1,3-propanediol* (II) *hydrate* (from heptane and $(CH_2Cl)_2$ or EtOAc-$ClCH_2CH_2Cl$), m. 72–3°; the water of hydration is lost at 100° *in vacuo*. This (0.2 g.) in dry dioxane treated with 2 drops dry Et_3N and kept 45 hrs. gave 90% DL-*threo-1-(p-nitrophenyl)-2-(γ,γ-dichlorocrotonylamino)-1,3-propanediol*, m. 144–5°, identical with the above described. Refluxing II with 20% HCl 2 hrs. gave 87% $CCl_2:CHCH_2CO_2H$ and 91% I. G. M. Kosolapoff

2/2

Karapetyan, M.G.

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Initial stages of synthesis of tetracyclines. M. M. Shemyakin, M. N. Kolosov, M. G. Karapetyan, and E. S. Chaman. *Doklady Akad. Nauk S.S.S.R.* 117, 66 [illegible]. Initial steps of the syntheses of the tetracycline group antibiotics are reported. Condensation of 1,4-naphthoquinones with butadiene and its derivs. at 100° gave the following (I) (R, R¹, R² given): *H, MeO, H*, 88%, m. 143-4°; *MeO, H, H*, 91%, m. 12?-3° (λ 229 and 336 mμ); *AcO, H, H*, 91%, m. 113.5-14.5° and 135.5-0.5°. The condensation of 5-methoxynaphthoquinone with CH₂:CHC(OMe):CH₂ was run in C₆H₆ under CO₂ 12 hrs. at 100° yielding [illegible] which were proved by oxidation to the dimethoxyanthraquinones, and hydrolysis to the *dihydroxyanthraquinones*, identified as the [illegible] derivs., m. 197-8°, and 204-5°, resp. I in C₆H₆ gradually treated with strong cooling with MeMgI (not over 25% excess) yielded II (R, R¹ given): *H, H*, 70%, m. 135-?° (λ 24? and 3?? mμ); *MeO, H*, 12%, m. 184-6° (λ 256 and 317 mμ). I (*MeO, MeO, H*) gave 2 products, II (*MeO, MeO*), 12%, m. 191-?° and IIa, ??%, m. 137.5-8.5°. The structures were proved by conversion to 1,? and 1,10-hydroxymethoxydihydroanthracenes whose infrared spectra showed typical chelation of HO with MeO groups. Use of excess MeMgI and reversal of the order of addn. gives III (R and R¹ given): *H, H*, m. 106-7° (λ 238, 256, 285, and 297 mμ); *H, MeO*, 40%, m. 171-2°; *MeO, H*, 49%, m. 139-40° (λ 272 and 279 mμ). The ketols and the glycols were stable in air in contrast to the I

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KoLosov, M.N.; KaKaPetYAN. M

this indicates a trans structure of the former compds. owing to epimerization of 1 of the asym. centers. The C-10-asym. center can be examd. on the basis of the postulates of Cram and Elhafez (*C.A.* 48, 2045e), which lead to the Me group being cis in respect to the H on C-10a. Thus, II correspond geometrically to the natural tetracycline antibiotics. This is confirmed by acidic treatment of III which leads to their dehydration. Heating with aq. alc. HCl 0.5 hr. at 60° leads to dehydration to the following IV (*R* and *Z* given): H, CH:CH, 83%, m. 117-19° [*acetate*, m. 153-6°; *Me ether*, m. 97-9° (λ 250, 288, 297 mμ)]; *MeO*, *CH:CH*, 90%, m. 115-16° (λ 241, 311, 321 and 339 mμ) [*dihydro deriv.*, m. 107.5-8° (λ 237, 312, 324, and 330 mμ)]. III (*R* = *MeO*, *R'* = *H*) gave 90% V (*R* = *MeO*, *Z* = *CH:CH*), m. 115-

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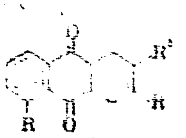
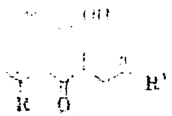
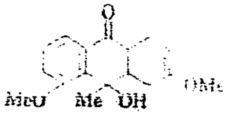


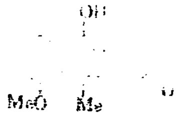
(I)



(II)



(IIa)



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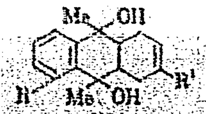
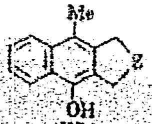
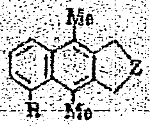


(III)



(IV)



(V)

Kolosov, M.N.; Karapetyan, M.G. [illegible]

16.5° (λ 241, 266, 300, 310, and 333 mμ). The [illegible] and the glycols, which are really enol deriv[illegible] are st[illegible] by HCl under the above conditions yielding [illegible] sponding ketones of the tetrahydro[illegible]. Thus II ($R = R^1 = MeO$) gave IV ($R = MeO$, $Z =$ [illegible]), m. 136–7°, while IIa gave IIb, m. 1[illegible]–3°. III ($R = H$, $R^1 = MeO$) gave 94% IV ($R = H, Z = CH_3CO$), m. 120–1°. If the substance, however, is shaken in Et_2O with [illegible] HCl at 20° only the MeO group of ring C is attacked. Thus, III ($R = H$, $R^1 = MeO$) gave 53% 2-exo-9,10-dihydroxy-9,10-dimethyl-1,2,3,4,4a,9,9a,10-octahydrophenanthrene, m. 135–6°.

G. M. Kosolapoff

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MT

SHEMYAKIN, M.M.; SHCHUKINA, L.A.; VINOGRADOVA, Ye.I.; KOLOSOV, M.N.; VDOVINA, R.G.; KARAPETYAN, M.G.; RODIONOV, V.Ya.; RAVDEL', G.A.; SHVETSOV, Yu.B., BAMDAS, E.M.; CHAMAN, Ye.S.; YERMOLAYEV, K.M.; SEMKIN, Ye.P.

Research data on sarkomycin and its analogues. Part 1: Synthesis of dihydrosarkomycin and its antipode. Zhur. ob. khim. 27 no.3:742-748 Mr '57. (MIRA 10:6)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Sarkomycin)

SOV/79-28-8-15/66

AUTHORS: Shemyakin, M. M., Kolosov, M. N., Karapetyan, M. G., Rodionov, V. Ya.

TITLE: Investigations on Sarcomicin and Its Analogs (Issledovaniya v oblasti sarkomitsina i yego analogov) II. Synthesis of the Sarcomicin Isomer (II. Sintez izomera sarkomitsina)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2068-2074 (USSR)

ABSTRACT: In connection with a previous publication on sarcomicin (Ref 1) the authors worked on synthesizing this antibiotic (Formula I) and its ethyl ester isomer (II), which differs from sarcomicin in the positions of its methylene groups. Although sarcomicin has a simple structure its synthesis is especially difficult because it is easily oxidized and has a tendency to polymerize and to form isomers. Therefore, an energetic reaction cannot be carried out, and only mild reagents and lowered reaction temperatures can be used. Since the characteristic β-methylene-γ-keto-acid group in sarcomicin cannot stand strong treatment the splitting of quarternary ammonium salts of the type

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$-COCH(CH_2\overset{+}{N}R_3)-$ seemed to be a promising synthetic method. One can synthesize in various ways the compounds of type (III) necessary for producing sarcomicin. The simplest way to synthesize these compounds was to use the easily obtainable cyclopentanone-3-carbonic acid (IV), by introducing the dialkyl aminomethyl group into the 2 position by the Mannich reaction and then halogenalkylating the resulting tertiary amine. The synthesis of the isomer of the antibiotic sarcomicin (which is used against malignant tumors) was accomplished in this way. The starting material was cyclopentanone-3-carbonic acid. This compound was condensed with formaldehyde and piperidine. The next steps were esterification and iodomethylation, and the end-product was then converted to the corresponding quarternary ammonium salt. The splitting of the salt yielded the ester of the iso-sarcomicin. There are 10 references, 2 of which are Soviet.

ASSOCIATION: Institute biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR)

Investigations on Sarcomicin and Its Analogs. SOV/79-28-8-15/66
IV. Synthesis of the Sarcomicin Isomer

SUBMITTED: March 18, 1957

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SOV/79-29-6-13/72

5 (3)

AUTHORS: Shemyakin, M. M., Kolosov, M. N., Arbuzov, Yu. A., Karapetyan, M. G., Chaman, Ye. S., Onishchenko, A. A.

TITLE: Investigations in the Field of Tetracyclines (Issledovaniya v oblasti tetratsiklinov). IV. Investigation of Different Syntheses of the Tricyclic System DCB of the Tetracyclines (IV. Izucheniye putey sinteza tritsiklicheskoy sistemy DCB tetratsiklinov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1831 - 1842 (USSR)

ABSTRACT: The structure of the well-known tetracyclines (I) has a specific characteristic which indicates the ways and methods necessary for carrying out the complete synthesis of compounds of this type. On the basis of certain theoretical considerations the authors tried to synthesize such ketols of the hydroanthracene series of type (III) and (IV) in which two rings had to similar with respect to structure and spatial arrangement to the rings D and C of the tetracyclines. The third ring had to offer the structural conditions for the subsequent building-u of the ring A and for the introduction of the necessary func-

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Investigations in the Field of Tetracyclines. SOV/79-29-6-13/72
IV. Investigation of Different Syntheses of the
Tricyclic System DCB of the Tetracyclines

tional groups of the ring B of the tetracyclines. The adopted method of synthesizing these compounds consisted in the condensation of the 1,4-naphthoquinones with butadiene or its derivatives and the transformation of the resultant adducts (II) into the ketols (III) which, on their part, can easily be hydrolyzed to give the oxy-diketones (IV). The first step, the diene synthesis, takes place readily by heating naphthoquinone with the diene. By condensation of the 5-methoxy-naphtho-quinone with 2-methoxy-butadiene two isomeric adducts - (II d) and (II e) in the ratio 4 : 1 - are formed. The second step, the selective transformation of the C_9-keto group of the adducts (II) into the tertiary methyl carbinol grouping meets with some difficulties, it was however possible to carry out the reaction by means of magnesium methyl halide. The third step of the synthesis of the compounds (IV), the hydrolysis of the enol-methoxyl up to the keto group is only possible when using dilute acids. The synthesis of the tricyclines (XV) was thus performed on the basis of naphthoquinones, in which two rings are analogous with the rings D and C of the natural tet-

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Investigations in the Field of Tetracyclines. SOV/79-29-6-13/72
IV. Investigation of Different Syntheses of the
Tricyclic System DCB of the Tetracyclines

racyclines with respect to structure and spatial arrangement. The presence of the reactive double bond, the enol grouping or the carbonyl group in the third ring of the compounds (XV) offers further possibilities for the introduction of substituents and for the building up of the fourth ring of the tetracyclines. There are 12 references, 4 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR i Institut organicheskoy khimii Akademii nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR, and Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: June 9, 1958

Card 3/3

KARAPETYAN, M. G.

5(3)
SOV/20-128-1-30/58

AUTHORS: Shemyakin, M. M., Academician, Kolosov, M. N., Arbuzov, Yu. A., Hsieh Yü-yüan, Sheng Huai-yü, Skloborskiy, K. A., Karapetyan, M. G., Gurevich, A. I.

TITLE: Intermediate Stages in the Synthesis of Tetracyclines

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 113-116 (USSR)

ABSTRACT: In 1956 the authors synthesized tricyclic ketols of kind (I) (Ref 1). They are similar to tetracyclines (III) as far as the structure of two rings is concerned. In the third ring they have a reactive double linkage in position 2,3. The present paper investigates the addition of heterogeneous reagents to the 2,3-double linkage of compounds (I) for introducing active groups into their molecules. The active groups are necessary for establishing a γ-grouping (II) in the B-ring and for a further extension of the A-ring of tetracyclines by a method previously elaborated. Investigations have shown that compounds (I) with typical electrophilic reagents such as Hal_2, RCO_3H and HOHal react readily. Thus, corresponding

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halogen derivatives, epoxides, hydrine halides, and halogen ketones with good yields are formed. Constants and analytical results of synthesized compounds are given in table 1. The synthesis of tricyclic ketols with active groups in the D-ring made by the authors provides the possibility of building up the A-ring of tetracyclines. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR).
Institut biologicheskoy i meditsinskoy khimii AMN SSSR (Institute of Biological and Medical Chemistry, AMN USSR)

SUBMITTED: June 4, 1958

Card 2/2

KOLOSOV, M.N.; DOBRYNIN, V.N.; GUREVICH, A.I.; KARAPETYAN, M.G.

Tetracyclines. Report No.16: Absolute configuration of tetracyclines.
Izv. AN SSSR. Otd.khim. nauk no.4:696-701 Ap '63. (MIRA 16:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Tetracycline)

GUREVICH, A.I.; KARAPETYAN, M.G.; KOLOSOV, M.N.; KOROBKO, V.G.;
ONOPRIYENKO, V.V.; SHEMYAKIN, M.M., akademik

Synthesis of hydronaphthacenes related to anhydrotetracyclines. Dokl. AN SSSR 155 no.1:125-127 Mr '64. (MIRA 17:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

GUREVICH, A.I.; KARAPETYAN, M.G.; KOLOSOV, M.N.; ONOPRIYENKO, V.V.;
SHEMYAKIN, M.M.

New method of synthesizing tetracycline ring A. Izv. AN.SSSR.
Ser.khim. no. 5:945 My '64. (MIRA 17:6)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

SHEMYAKIN, M.M.; KOLOSOV, M.N.; SE YUY-YUAN' [Hsieh Yü-yüan]; KARAPETYAN, M.G.;
SHEN' KHUAY-YUY [Shên Huai-yü]; GUREVICH, A.I.

Tetracyclines. Report No.21: Synthesis of 2- and 3-substituted 10-keto-9-hydroxy-9-methyl-1,2,3,4,4a,9,9a,10-octahydroanthracenes. Izv. AN SSSR. Ser. khim. no.6:1013-1024 Je '64. (MIRA 17:11)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

SHEMYAKIN, M.M.; KOLOSOV, M.N.; KARAPETYAN, M.G.; SE YUY-YUAN' [Hsieh Yü-yüan]; ONOPRIYENKO, V.V.

Tetracyclines. Report No.22: Stereochemistry of 2-, and 3-substituted 10-keto-9-hydroxy-9-methyl-1,2,3,4,4a,9,9a,10-octahydroanthracenes. Izv. AN SSSR. Ser. khim. no.6:1024-1035 Je '64. (MIRA 17:11)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

KOLOSOV, M.N.; POPRAVKO, S.A.; KOROBKO, V.G.; KARAPETYAN, M.G.; SHEMYAKIN, M.M.

Tetracyclines. Part 30: Construction of a tricyclic system DCB of tetracycline antibiotic. Zhur. ob. khim. 34 no.8:2547-2553 Ag '64. (MIRA 17:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

GUREVICH, A.I.; KARAPETYAN, M.G.; KOLOSOV, M.N.; KOROBKO, V.G.; SHEMYAKIN, M.M.

Tetracyclines. Part 42: Synthesis of 11,12α-dideoxy-4-dedimethylamino-5α,6-anhydrotetracycline. Zhur. ob. khim. 35 no.4:668-673 Ap '65. (MIRA 18:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

NAZAROVA, Taisiya Fedorovna; KARAPETYAN, Margarita Karpovna;
ROZENTUL, Lidiya Moiseyevna; MASHKILLEYSON, A.L., red.;
MATVEYEVA, M.M., tekhn. red.

[Physical therapy in cosmetics; practical manual for physicians] Fizioterapiia v kosmetike; prakticheskoe posobie dlia vrachei. Moskva, Medgiz, 1963. 114 p. (MIRA 16:6)

(PHYSICAL THERAPY) (COSMETICS)

KARAPETYAN, M.K.; ROZENTUL, L.M.

Treatment of warts with liquid nitrogen. Vest. derm. i ven. 37 no.6:73-75 Je '63. (MIRA 17:6)

1. Fizioterapevticheskoye otdeleniye Instituta vrachebnoy kosmetiki (dir. A.F. Akhabadze) Ministerstva zdravookhraneniya RSFSR.

RUBTSOVA, L.K.; POCHAPINSKIY, V.I.; LYUOSEV, V.A.; GUBINSKAYA, Ye.I.;
KARAPETYAN, M.K.; ZALEM, Z.Ya.

Experimental and clinical studies on ointments containing tetracycline. Antibiotiki 10 no.5:472-475 My '65. (MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskovskiy oblastnoy nauchno-issledovatel'skiy klinicheskiy institut imeni Vladimirskogo i Institut vrachebnoy kosmetiki, Moskva.

KARAPETYAN, M.M.; TOROSYAN, A.S.

[redacted]

ZP-1 protective device used in the 1000 volt circuits of mobile substations for electric tractor units. Izv.AN Arm.SSR.Ser.FMET nauk 9 no.8:55-67 '56. (MLRA 10:2)

1. Laboratoriya elektrotekhniki AN Armyanskoy SSR.
(Electric controllers)

SOV/112-58-2-2132

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 55 (USSR)

AUTHOR: Grdzelyan, R. A., Dzhandzhugazov, N. G., Karapetyan, M. M., and Torosyan, A. S.

TITLE: A Measuring Circuit for Studying AC Corona Losses (Izmeritel'naya skhema dlya issledovaniya poter' energii na koronu peremennogo toka)

PERIODICAL: Izv. AN Arm. SSR, Ser. tekhn. n., 1957, Vol 10, Nr 1, pp 17-29

ABSTRACT: A circuit for measuring corona loss under high mountain conditions (1,100 m and 2,000 m above sea-level) for 220-kv lines is described. Power was measured by a special milliwattmeter with a maximum sensitivity of 0.1 w/m(?). Its voltage winding can be fed either from a capacitive no-loss voltage divider through a 3-stage amplifier of high imput impedance and with voltage and current feedback, or from a resistive voltage divider through a transformer having very low inductance and no-load current. Possible errors are analyzed and found to be ±5%. A circuit alignment is also indicated.

N.N.T.

Lab of Electrical Engineering, Acad Sci ArSSR

Card 1/1

KARAPETYAN, M.M.

Problems of wave processes in mobile electrified installations.
Izv.AN Arm.SSR. Ser.tekh.nauk 10 no.4:33-42 '57. (MIRA 10:10)

1. Laboratoriya elektrotekhniki AN Armyanskoy SSR.
(Electric waves) (Electric engineering)

GRDZELYAN, P.A.; KARAPETYAN, M.M.; STEPANYAN, N.P.; TOROSYAN, A.S.

Features in calculating yearly losses of electric energy to the corona of mountain transmission lines. Izv.AN Arm.SSR. Ser.tekh.nauk 12 no.6:3-14 '59. (MIRA 13:6)

1. Institut elektrotekhniki AN Armyanskoy SSR.
(Electric lines) (Corona (Electricity))

KARAPETYAN, M.M.

Atmospheric overvoltages in mobile electrified equipment. Izv. AN Arm. SSR. Ser. tekh. nauk 13 no.4:17-36 '60. (MIRA 13:11)

1. Institut elektrotekhniki AN Armyanskoy SSR.
(Electric machinery) (Electric protection)

KARAPETYAN, M.M.

Lightning protection network for mobile electrified equipment with 6-10 kv. ratings. Trudy LPI no.242:218-225 '65. (MIRA 18:8)

KARAPETYAN, M.V.

Conference of the readers of "Konservnaia i ovoshchesushil'naia promyshlennost'" journal in Moscow. Kons.i ov.prom. 18 no.2:14 F '63. (MIRA 16:2)

(Canning industry—Periodicals)

N

COUNTRY : USSR
CATEGORY : Weeds and Weed Control

ABS. JOUR. : RZhBiol., No.14 1958, No. 63656

AUTHOR : Matevosyan, A., Karapetyan, E.
INST. : -
TITLE : The Influence of Dodder on the Decline in the Yield of Alfalfa Seeds and Hay.

ORIG. PUB. : Khlopkovodstvo, 1958, No. 1, 24-25

ABSTRACT : No abstract.

Card: 1/1

KARAPETYAN, N., dots.

Crotilin, a new herbicide. Nauka i pered. op v sel'khoz. 9 no.6: 45 Je '59. (MIRA 12:9)

1. Armyanskiy sel'skokhozyaystvennyy institut.
(Herbicides)

CHAYLAKHYAN, M.Kh.; MEGRABYAN, A.A.; KARAPETYAN, N.A.; KALADZHYAN, N.L.

Effect of growth promoting substances on tubercle formation and the growth of alfalfa plants. Dokl. AN Arm. SSR 36 no.3: 189-192 '63. (MIRA 16:10)

1. Institut mikrobiologii AN Armyanskoy SSR.

KARAPETYAN, N. A.

USSR/Biology - Plant Diseases Nov/Dec 53

"Effect of Antagonists and Their Antibiotic Substances on the Microorganism That Causes Gummosis of Cotton Plants," R. O. Mirzabekyan and N. A. Karapetyan, Sector of Microbiol, Acad Sci USSR; Inst Microbiol, Acad Sci USSR

Agrobiol, No 6 (84), pp 55-62

Microbiol antagonists from the soil, antibiotic substances of which exert an antibacterial action on the causative factor of the gummosis Pseudomonas

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malvacearum, protect cotton plants against that infection. Soviet scientists have made some study of the action of antagonists on phytopathogenic microorganisms, particularly on those that cause fungus diseases in crops. Of all antagonists that have been isolated actinomycete strains Nos 4, 5, 15, 13, and 15(H) have proved to be the most effective against Pseudomonas malvacearum. The antibiotic from No 15(h) is easily absorbed by all organs of cotton plants and protects them from initial infection with gummosis. No 15(H) antibiotic has been obtained from the Inst of Microbiol, Acad Sci USSR.

KARAPETYAN, N A

MEGRABYAN, A.A.; KARAPETYAN, N.A.

Bactericidal. effect of legume seeds and sprouts on nodule bacteria.
Izv. AN Arm.SSR. Biol. i sel'khoz. nauki 11 no.2:57-62 F '58.
(MIRA 11:3)

1. Sektor mikrobiologii AN ArmSSR.
(Legumes) (Micro-organisms, Nitrogen-fixing) (Bactericides)

CHAYLAKHYAN, M.Kh.; MEGRABYAN, A.A.; KARAPETYAN, N.A.; KALADZHYAN, N.L.

Growth promoting substances in secretions of nodule-forming bacteria. Dokl. AN Arm. SSR 40 no.5:307-314 '65. (MIRA 18:7)

1. Institut mikrobiologii AN ArmSSR. 2. Chlen-korrespondent AN ArmSSR (for Chaylakhyan). Submitted September 15, 1964.

KARAPETYAN, N.G.; BOSHNYAKOV, I.S.; KHAYKINA, Kh.S.; AYIRYAN, L.S.

Use of chloroprene-nitrile latex for the manufacture of benzene and oil-resistant gloves. Kauch. i rez. 20 no.1:42-43 Ja '61.
(MIRA 14:3)

(Clothing, Protective) (Rubber goods) (Chloroprene)

34937
S/138/62/000/003/001/006
A051/A126

15.9402

AUTHORS: Karapetyan, N. G., Khaykina, Kh. S., Bosnyan, I. S., Kalantaryan, L. K., Melikyan, A. M.

TITLE: Adiabatic polymerization of monomers

PERIODICAL: Kauchuk i rezina, 1962, no. 3, 1 - 4

TEXT: Monomer polymerization was conducted under adiabatic conditions, i. e., without heat elimination (the experiments were begun in 1949). The latter yields rubbers of varied properties in addition to other technological advantages. Properties can be regulated by an appropriate change in the polymer portion, produced at raised or reduced temperatures, or by selecting the conditions of polymerization. The required chloroprene concentrations in the emulsion, needed to conduct polymerization at various temperatures, are calculated according to the following formula:

$$Q = (t_2 - t_1) \cdot \frac{100}{x} \cdot C_1 \qquad (1)$$

where t_2 and t_1 are the emulsion temperatures at the end and beginning of the process, respectively; Q - the heat of polymerization of 1 kg monomer, cal.;

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A051/A126

Adiabatic polymerization of monomers

x - the monomer concentration in the emulsion, %; C_1 - the latex specific heat. The copolymerization of chloroprene with other monomers almost completely eliminates the tendency of the rubber to crystallize under normal conditions. A study of the molecular-fractional composition of the polymers, produced by monomer polymerization under isothermal and adiabatic conditions revealed that the adiabatic chloroprene rubber was less polydispersed than the serial type: a smaller range of molecular weights, a greater portion of molecular weight parts, close to the average molecular weight, with a small decrease in the latter. The improved molecular-fractional composition of the chloroprene rubber is explained by a lower polymerization temperature at a low transformation depth, and a somewhat raised temperature at high transformation depth. Mixing was found to reduce the molecular weight of the polymer, maintaining the same nature of weight distribution of the molecular weights. In the last few years, the Yerevan' Plant of Synthetic Rubber has manufactured test batches of chloroprene rubber by the adiabatic method, yielding favourable results when employed in the cable-manufacturing industry. The adiabatic method of polymerization is also recommended for polymerization of other monomers, both in emulsions as well as solutions. There are 6 figures.

X

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S/138/62/000/003/001/00
51/A126

Adiabatic polymerization of monomers

ASSOCIATION: Yerevanskiy zavod sinteticheskogo kauchuka im. S. M. Kirova
(Yerevan' Plant of Synthetic Rubber, im. S. M. Kirov)

X

Card 3/3

PETROSYAN, V.P.; KARAPETYAN, N.G.; BOSHNYAKOV, I.S.; ZHAMKOCHAN, S.G.

Effect of the structure of polychloroprene on its dielectric properties. Izv. AN Arm. SSR. Khim. nauki 16 no.5:429-436 '63. (MIRA 17:1)

1. Yerevanskiy gosudarstvennyy universitet i Yerevanskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskogo kauchuka.

KARAPETYAN, N.G.; TARKHANYAN, A.S.; LYUBIMOVA, A.N.

Hydration of vinylacetylene to methyl vinyl ketone by means of sulfuric acid solutions of cuprous oxide. Part 1: Solubility of vinylacetylene in sulfuric acid solutions of cuprous oxide. Izv. AN Arm.SSR.Khim.nauki 17 no.4:398-406 '64. (MIRA 18:6)

1. Yerevanskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskogo kauchuka im. akad. S.V.Lebedeva.

CHUKHADZHYAN, G.A.; VOSKANYAN, S.M.; MIGRANYAN, T.Sh.; KARAPETYAN, N.G.

Copolymers of acetaldehyde. Izv. AN Arm.SSR.Khim.nauki 17 no.4:466 '64. (MIRA 18:6)

1. Yerevanskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskogo kauchuka im. S.V.Lebedeva.

L 62135-65 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EPR/EWP(j)/T
Pc-4/Pr-4/Ps-4 RPL WW/EM/RM
ACCESSION NR: AP5016943 UR/0303/65/000/003/0015/0018
667.633.263.3

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B

AUTHOR: Yeliseyeva, V.I.; Karapetyan, N.G.; Boshnyakov, I.S.; Margaryan, A.S.

TITLE: Emulsion copolymers of chloroprene with acrylates

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 3, 1965, 15-18

TOPIC TAGS: chloroprene, acrylic acid, methacrylic acid, latex film, methyl methacrylate, emulsion copolymer

ABSTRACT: The authors worked out a method for the preparation of colloidally stable latexes based on copolymers of chloroprene with lower esters of acrylic and methacrylic acid. It was shown that latexes with the widest range of the elastic modulus of the polymer can be obtained by copolymerizing chloroprene with methyl methacrylate. The kinetics of this copolymerization were studied, the copolymerization constants of the monomers were determined, and the probable composition of the copolymer was calculated from these constants. It was found that the methyl methacrylate links of the macromolecules consist primarily of a single monomer unit, whereas the chloroprene links are made up of various quantities of monomeric units. By varying the initial ratio of chloroprene to methyl methacrylate, one can obtain latexes which yield films having

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varying degrees of elasticity. Electron-microscopic analysis showed that the latex is characterized by a relative monodispersity; its average particle size (770 A) is much less than that of ordinary methyl acrylate latexes (about 2000 A). A 64% saturation of the surface of latex particles by the emulsifier was found. The absorption of water by films of the copolymer latexes was also studied as a function of time, temperature of film formation, and content of methyl methacrylate. Orig. art. has: 4 figures, 1 formula and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, MT

NO REF SOV: 006 OTHER: 012

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