133-58-5-9/31

The Influence of the Weight of Ingots on the Quality of Structural Steels

were rolled on a blooming mill to a cross-section 250 x 250 mm and then on a mill 800 into semis 140 x 140 mm. Ingots weighing 1.18 t were rolled on a mill 800 into semis 140 x 140 mm. For the studies of the macrostructure and mechanical properties specimens were taken from semis 250 x 250 on the following distances from the top of ingots %:

Ingot 2.65 t	19, 58, 98
Ingot 4.5 t	19, 39, 58, 78, 98

The macrostructure of etched specimens was evaluated according to MAP-MChM scale. Thermal treatment of specimens for testing mechanical properties was done according to MPTU2333-49. The macrostructure of ingots is shown in Figs. 1-4. The results obtained indicated that: 1. Macrostructural defects in rolled steels were caused by defects in the cast structure of ingots. 2. Axial intercrystallite cracks in rolled steel 18KhNVA of a cross-section 250 x 250 from 4.5 t ingots remain unwelded during rolling in spite of a considerable degree of reduction (in steel 12Kh2N4A they are welded

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on both profiles 140 x 140 mm and 250 x 250 mm (from ingots of all weights). 3. The axial porosity and v-shaped cracks in ingots of steels 40KhNMA and 30KhGSA are welded during rolling. 4. The degree of development of segregation outside the central zone of ingots depends on the chemical composition of steel and increases with increasing weight of ingots, but does not exceed the degree permitted by MAP-MChM 1951. From the steels investigated the highest development of the segregation was observed in ingots of steel 30KhGSA. 5. The weight of ingot has no influence on the mechanical properties of steels. 6. The indices of mechanical properties of steels investigated were high with the exception of the top part of 4.5 ton ingot of steel 30KhGSA, where strength and plasticity indices were lower than is required by standards. It is concluded that: 1. Increasing the weight of ingots of 18KhNVA steel from 1.18 to 2.65 ton to 4.5 t is not advantageous, as this deteriorates the macrostructure of metal due to developing axial intercrystallite cracks which are not welded during rolling. 2. Steels 12Kh2N4A

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The Influence of the Weight of Ingots on the Quality of Structural Steels

and 40KhNMA can be cast into 4.5 ton ingots as their structure and mechanical properties remain satisfactory. 3. The problem of casting steel 30KhGSA into 4.5 t ingots requires further investigation.
There are 4 figures.

ASSOCIATION: Chelyabinskiy metallurgicheskiy zavod
(Chelyabinsk Metallurgical Works)

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KoLosov, M.I.

POVOLOTSKIY, D. Ya.; LUBENETS, I. A.; KOLOSOV, M. I.; FAYNSHTEYN, O. Ya.; MOROZOV, A. N.

Obeskremnivanie martenovskogo chuguna kislorodom.

report submitted for the 5th Physical Chemical Conference on Steel Production, 30 Jun 1959, Moscow.

KOLOSOV, M. I. Cand Tech Sci -- (diss) "Crystallization of dead melt and [redacted] conditions ~~of~~ for the production of sound ingots." Mos, 1959. 20 pp including cover (Glavniiproyekt under ~~the~~ Gosplan USSR. Central Sci Res Inst of Ferrous Metallurgy), 110 copies (KL, 43-59, 124)

KOLOSOV, M.I., inzh.; PISCHIKOV, M.M., kand.tekhn.nauk

Technical and economic efficiency in blast furnace smelting of ferrosilicon with use of oxygen. Izv.vys.ucheb.zav.; chern. met. 2 no.6:155-160 Je '59. (MIRA 13:1)

1. Nauchno-issledovatel'skiy institut metallurgii Chelyabinskogo sovnarkhoza. Rekomendovano kafedroy ekonomiki i organizatsii proizvodstva Moskovskogo instituta stali.

(Ferrosilicon)
(Oxygen--Industrial applications)

PHASE I BOOK EXPLOITATION SOV/4206

Kolosov, Mikhail Ivanovich, Anatoliy Il'ich Stroganov, and Isay Yakovlevich Ayzenshtok

Proizvodstvo sharikopodshipnikovoy stali (Production of Ball-Bearing Steel) Moscow, Metallurgizdat, 1960. 267 p. Errata slip inserted. 2,650 copies printed.

Ed.: A.I. Lebedev; Ed. of Publishing House: Ya. D. Rozentsveyg; Tech. Ed.: M.K. Attopovich.

PURPOSE: This book is intended for production engineers and scientific workers in metallurgy and machinery manufacture. It may also be used by students in advanced courses at schools of higher education specializing in metallurgy and machinery manufacture.

COVERAGE: The book deals with production techniques, basic quality requirements, and in-service conditions for ball-bearing steel. Melting, teeming, rolling, and heat treatment are discussed in detail, and an historical outline of the development of the manufacturing process for ball-bearing steel is presented.

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Production of Ball-Bearing Steel SOV/4206

Sources of impurities in steel (nonmetallic inclusions), methods of determining the presence of impurities, factors leading to the formation of defects, and methods of combatting defects are also investigated. Material used in the book is based on practices of the Chelyabinsk, Stalingrad, and Zlatoust Plants and the Serov and Kuznets Metallurgical Combines. The authors thank the following persons for their assistance: Engineers N.V. Keys, A.M. Khizhnyashenko, D.B. Royak, T.M. Malinovskaya, L.D. Kossovskiy, N.Ye. Mysina, N.K. Ipatov, N.S. Devchenko, D.G. Zhukov, V.F. Isupov, and Doctor of Technical Sciences I.N. Golikov. There are 191 references: 174 Soviet, 13 English, and 4 German.

TABLE OF CONTENTS:

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ADRIANOVA, V.P.; ANDREYEV, T.V.; ARANOVICH, M.S.; BARSKIY, B.S.; GROMOV, N.P.; GUREVICH, B.Ye.; DVORIN, S.S.; YERMOLAYEV, N.F.; ZVOLINSKIY, I.S.; KABLUKOVSKIY, A.F.; KAPELOVICH, A.P.; KASHCHENKO, D.S.; KLIMOVITSKIY, M.D.; KOLOSOV, M.I.; KOROLEV, A.A.; KOCHINEV, Ye.V.; LESKOV, A.V.; LIVSHITS, M.A.; MATYUSHINA, N.V.; MOROZOV, A.N.; POLUKAROV, D.I.; RAVDEL', P.G.; ROKOTYAN, Ye.S.; SMOLYARENKO, D.A.; SOKOLOV, A.N.; USHKIN, I.N.; SHAPIRO, B.S.; EPSHTEYN, Z.D.; AVRUTSKAYA, R.F., red. izd-va; KARASEV, A.I., tekhn.red.

[Brief handbook on metallurgy, 1960] Kratkii spravochnik metallurga, 1960. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 369 p. (MIRA 13:7)
(Metallurgy)

S/137/61/000/006/016/092
A006/A101

AUTHORS: Shved, F.I., Zhukov, D.G., Khizhnichenko, A.M., Kolosov, M.I.

TITLE: Increased silicochrome consumption for stainless steel melting

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 6, 1961, 42, abstract 6V299 ("Sb. nauchno-tekhn. tr. N.-i. in-t metallurgii Chelyab. sovnarkhoza", 1960, no. 2, 57 - 64)

TEXT: A technology was developed for melting stainless 1Х18Н9Т (1Kh18N9T) steel providing for the addition of a higher Si-Cr amount immediately after O_2 blast. It is shown that the addition of 25-35 kg/t Si-Cr 50 or 35-40 kg/t Si-Chr 40 causes an increase in the degree of Cr extraction from the slag and a reduced consumption of carbonless Fe-Cr. [Si] in the finished metal does not increase, since Si-Cr is added to the non-deoxidized bath. It is noted that a further reduction of [Si] in the finished metal is obtained by replacing Fe-Ti, introducing usually about 0.15% Si, by Ti metal waste. A nomogram was developed which may be used to determine the optimum consumption of deoxidizers per heat from the total consumption of O_2, the amount of Si and C in the charge and also from the basicity of the slag.

V. Shumskiy

[Abstracter's note: Complete translation]

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S/133/60/000/007/004/016

AUTHORS: Kolosov, M.I., Candidate of Technical Sciences; Stroganov, A. I., Candidate of Technical Sciences; Keys, N.V., Engineer; Bogatenkov, V.F., Candidate of Technical Sciences; Vainshteyn, O.Ya., Engineer; Danilov, A.M., Engineer; Zverev, B.F., Engineer; Antropova, N.G., Engineer; Khryunkina, V. A., Engineer

TITLE: The Use of Silicochrome 1 When Smelting Steel 18 in Open Hearth Furnaces

PERIODICAL: Stal', 1960, No. 7, pp. 607 - 608

✓

TEXT: In the Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant) and in the Zlatoustovskiy metallurgicheskiy zavod (Zlatoustovsk Metallurgical Plant) in melting low-carbon chrome steels: 18ХГТ (18 KhGT), 17ХН2 (17KhN2), 20ХН(20KhN), 12 - 20ХН3А(12-20Kh2N3A), 12-20Х2Н4А (12-20Kh2N4A) and medium carbon chrome-containing steels: 35-45ХН(35-45KhN), 33-37ХС(33-37KhS), 30-35ХГСА(30-35KhGSA), 30ХГТ(30KhGT) five types of silicochrome were applied having the following Cr, Si and C content (in %):

Silicochrome 12 - 20 40 - 50

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S/133/60/000/007/004/016

The Use of Silicochrome When Smelting Steel in Open Hearth Furnaces

Cr	49 - 56	29 - 39
Si	15 - 19	40 - 54
C	2.75 - 4.50	0.12 - 0.20

When using 12 - 20 type silicochrome 7 - 20 kg/t were added, whereas of the 40 - 50 type silicochrome about 4.5 kg/t (in the ChMZ) and about 2.3 kg/t (in the ZMZ) and for 30 - 35 KhGSA 6.5 kg/t were added. When applying silicochrome, steels of the required composition could be produced without any difficulty and the duration of the preliminary deoxidation could be reduced by 5 - 9 min in both plants, (i.e., by 0.3 - 1.5% of the melting time). The amount of chrome, manganese and silicon scale is practically the same as for the conventional method (in Zlatoustovsk: Cr 18%, Mn 20%, Si 32%, in Chelyabinsk: Cr 19%, Mn 25%, Si 38%). The lower amount of chrome scale in the ZMZ can be explained by the higher residual chrome content of the metal before deoxidation: 0.13 - 0.31% as compared to the values obtained in the ChMZ : 0.06 - 0.13%. In order to obtain an optimum economical effect, when melting medium-carbon chrome steel, the amount of 20 type silicochrome should be 11 - 13 kg/t in the ChMZ and 8.5 - 9.5 kg/t in the ZMZ and the silicon used in conventional melting be replaced by blast-furnace ferrosilicon. When

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The Use of Silicochrome When Smelting Steel in Open Hearth Furnaces

melting low-cabon steels, 12 - 13 kg silicochrome per ton should be used when the chrome content of the steel is below 0.9% and 15 - 17 kg of silicochrome per ton when it is above 9%. The use of silicochrome of the 40 and 50 typesis economical only in the melting process of low-carbon steels. The holding time of the bath after adding 20 type silicochrome, when melting steels of a chrome content below 0.9% is only 15 - 20 min and for steels with a chrome content above 0.9% it is 20 - 30 min, on account of the decrease in weight of cold additives in the furnace (15 - 20 kg/t) and a more rapid absorption of silicochrome as compared to ferrochrome. The initial cost of steel when using silicochrome in the melting process was decreased in both plants by a total of 2 - 2.5 million roubles per annum, from 2 roubles/ton for the 40Kh type steel to 20.4 roubles/ton for the 20Kh type steel in Chelyabinsk and from 1.1 rouble/ton for the 30KhSA type steel up to 12.6 roubles/ton for 20Kh steel in Zlatoustovsk. There is 1 table.

ASSOCIATIONS: Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii (Chelyabinsk Scientific Research Institute of Metallurgy); Chelyabinskiy, Zlatoustovskiy metallurgicheskie zavody (Chelyabinsk and Zlatoustovsk Metallurgical Plants)

Card 3/3

KOLOSOV, M.I.; MOROZOV, A.N.; PISCHIKOV, M.M.

Research by plant laboratories and institutes in 1959. Stal' 20 no.6:568 Je '60.
(MIRA 14:2)
(Chelyabinsk--Steel--Metallurgy)

KOLOSOV, M. I.

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PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii. (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

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Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

KOLOSOV, Mikhail Ivanovich; SMIRNOV, Juriy Dmitriyevich; STROGANOV, Anatoliy Il'ich; TSIPUNOV, Aleksey Georgiyevich; BOREVSKIY, Vladimir Moiseyevich; SVET, Ye.B., red.; KOLBICHEV, V.I., tekhn. red.

[Interchangeable equipment for the pouring of steel] Smennoe oborudovanie dlia razlivki stali. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1961. 55 p. (MIRA 17:3)

STROGANOV, Anatoliy Il'ich; KOLOSOV, Mikhail Ivanovich; LEBEDEV, S.I., red.; POZDNYAKOVA, G.L., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Production of quality and high-quality steel in basic open-hearth furnaces] Proizvodstvo kachestvennoi i vysokokachestvennoi stali v osnovnykh martenovskikh pechakh. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 416 p. (MIRA 14:12)

(Steel—Metallurgy) (Open-hearth furnaces)

S/133/61/000/001/002/016
A054/A033

AUTHORS: Kolosov, M.I., Candidate of Technical Sciences; Stroganov, A.I., Candidate of Technical Sciences; Vaynshteyn, O.Ya., Engineer; Keys, N.V., Engineer; Khryukina, V.A., Engineer

TITLE: Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

PERIODICAL: Stal', 1961, No. 1, pp. 25 - 28

TEXT: In the 18KhGT grade steel defects in the form of blisters and twists were found, mainly in the top part of the ingot, resulting in 7% rejects. The defects in the ingot body were most probably due to pouring in such a way that in the ingot mold top a skin was formed at the walls. When 5-ton ingots were cast the defects decreased due to the shorter pouring time resulting in a smaller temperature difference between the beginning and the end of the casting process. An efficient measure to prevent these defects was topping the ingots at 19% of their height instead of 17%. Another type of defect is the "tongue" observed on the face of the ingot when cutting the hot metal. In the 5-ton and 6.2-ton ingots this type of defect increased to 25%. When investigating these "tongues" on

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A054/A033

Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

etched longitudinal and lateral macrosections and on the longitudinal hardened fracture, it was found that they were actually laminations of the central zone of the ingot. Macrostructural tests revealed at the place of laminations an accumulation of non-metallic impurities, extending along the axis of lamination. Moreover, investigations of the longitudinal hardened fracture showed that this lamination is an internal defect of the metal connected with the crystallization of the ingot. Therefore, tests were made to determine the character of crystallization and the structure of 18-30KhGT grade steel ingots. The crystallization process was studied in 6.2-ton ingots by the tilting method, radiometry and temperature tests. In the radiometric method (Ref. 1, M.I. Kolosov, A.N. Morozov, et al.: "Rate and Sequence of the Crystallization of Killed Steel Ingots". In the collection: "The Application of Radioactive Isotopes in Ferrous Metallurgy", Chelyabinsk, 1957), the Fe^{59} radioactive isotope was applied. The metal temperature during crystallization was recorded at distances 665, 1,125 and 1,425 mm from the riser, with platino-rhodium-platinum thermocouples, protected by double-wall quartz tubes between which graphite rings were fitted at each level. During crystallization a double-phase zone formed along the axis of the ingot. The considerable toughness of the 18-30KhGT steels makes the feeding of the central part

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of the ingot difficult, causing the origination of a porous zone. As the location of this central porous zone coincides with the lamination in the rolled product it can be assumed that lamination is caused by the porosity of the metal. In the places of lamination considerable amounts of non-metallic impurities were found impeding the scalding of the lamination even at greater reductions. Based on the tests two methods were found to prevent lamination: 1) reducing the porosity of the central part of the ingot and 2) reducing the quantity of non-metallic impurities. 1) In order to reduce the central porosity, the process of feeding the central area of the ingot had to be improved. Measures were taken to increase the time during which the metal is liquid in the hood of the riser. It was found, however, that neither the application of "lunkerite" with an aluminum content of 28% instead of 14%, added in quantities of 3 - 4 kg/ton instead of 1.5 - 2 kg/ton, nor the use of lunkerite containing 35 - 50 % magnesium powder (1.5 - 2.0 kg/ton) yielded a considerable improvement of the macrostructure. Thus it was not possible to improve the feeding of the ingot with liquid metal by increased heating of the top. Better results were obtained in this respect when the riser hood was insulated by asbestos sheets (10mm thick) between its casing and lining and by winding

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Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

asbestos cores, 22 mm thick, or asbestos sheets around the ingot molds, at a distance of 500 mm from the top, fixed with sheet iron. The riser hoods were also mounted on asbestos disks. The longitudinal templates taken from ingots melted in insulated ingot molds showed a satisfactory density and the axial porosity found in conventional ingots was absent. The products rolled from ingots produced with the insulation method (140 x 140 mm section) were also free from lamination. 2) The second method to prevent lamination, i.e., the reduction of non-metallic impurities was tested with 3 kinds of deoxidizing agents: a) Silicomanganese in the furnace and 45% solution of ferro-silicium in the ladle (conventional method); b) 15 - 17 kg/ton AMS alloy in the furnace and 45% solution of ferrosilicium in the ladle; c) manganese silicate in the furnace and calcium-silicon in the ladle. The best results were obtained with method b) (3.05% rejects due to lamination and 0.06% rejects due to macrostructure, while the corresponding figures for method a) are 5.05% and 0.5% and for method c) 17.0%) (see table). To improve the steel quality, further tests were carried out in 1958 - 1959 to study preliminary oxidation with silicochromium, instead of AMS, the use of titanium-containing scrap instead of ferro-titanium for alloying and the optimum metal temperature prior to deoxidation, ensuring a satisfactory macrostructure and metal surface. By employing titanium-containing scrap the temperature drop in the ladle decreased
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Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

and the toughness of steel was reduced. Rejects due to surface defects were 0.13% instead of 0.24% in the conventional melts. There are 2 figures, 1 table and 1 Soviet reference.

ASSOCIATIONS: Nauchno-issledovatel'skiy institut metallurgii, Chelyabinskiy metallurgicheskiy zavod (Scientific Research Institute of Metallurgy, Chelyabinsk Metallurgical Plant)

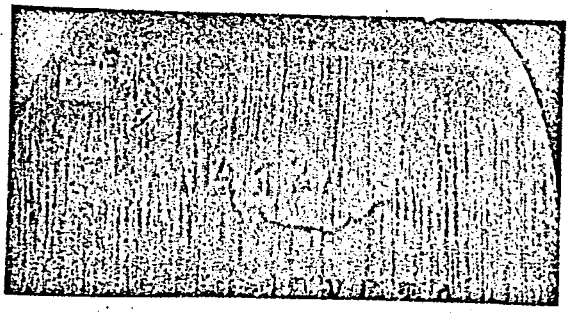

Figure 1: "Tongue" defect in 18KhGT steel ingot

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S/133/61/000/002/010/014
A054/A033

AUTHORS: Shved, F.I., Engineer and Kolosov, M.I., Candidate of Technical Sciences

TITLE: On Spotty Liquation in 38ХМЮА (38KhMYuA) Brand Steels

PERIODICAL: Stal', 1961, No. 2, pp. 164-167

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TEXT: According to certain research workers, spotty inhomogeneity in steel is caused by the segregation of phosphorus, sulfur, carbon and also by the separation of hydrogen and its penetration into the crystallizing metal. In order to establish the effect of these factors on spotty liquation the control data of 428 smelts of 38KhMYuA steel were studied at the Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant) in the course of 1957-1959. The relation between spotty liquation and the P and S content of the metal was plotted and is given in fig.1. It shows that the increase in the concentration of the elements referred to raises metal rejects on account of spot formation. Fig.2 shows the accumulative effect of P + S. To elimin-

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On Spotty Liquation in 38XMЮA (38KhMYuA) Brand Steels

Before tapping	0.010	0.008
In the finished metal	0.003	0.003

A relation was observed between the hydrogen content (6-9 cu cm/100 gr) of the 38KhMYuA grade steel smelted in arc furnaces and spotty liquation. A similar relation was established for converter and open hearth steels with a hydrogen concentration 3-5 cu cm/100 gr. Although the relationship between hydrogen content and spotty liquation could not be established beyond doubt by the authors, it was assumed that spotty liquation was caused by the absorption of the mother lye in the cavity of blisters, lifted in the ingot top by hydrogen separated during crystallization. In this case the defects that form in the metal should be in direct proportion to the H-content and liquifying mixtures. The higher the H-content, the greater the chance will be for its separation in the form of blisters at relatively low levels of the ingot, and the greater will be the deterioration by spotty liquation, in the ingot. Apart from the marked effect of S, P and H on spotty liquation, the effect of other factors in this respect is relatively unimportant. In castings with a

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A054/A033

On Spotty Liquation in 38ХМЮА (38KhMYuA) Brand Steels

high P, S. and H content, spotty liquation was observed in all the ingots of one casting plate, regardless of pouring speed, while with a low P, S, and H-content no spotty liquation was found, irrespective of the pouring rates. In general, spotty liquation appears in all ingots of a casting plate, produced at identical temperature and pouring rates. However, in ingots poured at higher temperatures, spotty liquation increased at higher pouring rates, while in ingots of lower temperature this took place at lower pouring rates (fig.6). All other conditions being equal, a minimum of spotty liquation will be found at an optimum heat content of the metal in the ingot mold, towards the end of pouring. There are 6 figures and 10 references, 9 Soviet, 1 Non-Soviet.

ASSOCIATION: Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii (Chelyabinsk Scientific Research Institute of Metallurgy)

Card 4/7

BOGATENKOV, V.F.; VAYNSHTEYN, O.Ya.; ZVEREV, B.F.; KOLOSOV, M.I.; LUBENETS, I.A.; MOROZOV, A.N.; POVOLOTSKIY, D.Ya.; STROGANOV, A.I.

Desiliconization of open-hearth pig iron in the mixer. Izv. vys. ucheb. zav.; chern. met. 4 no.8:32-36 '61. (MIRA 14:9)

1. Chelyabinskiy metallurgicheskiy zavod, Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Chelyabinskiy politekhnicheskiy institut.

(Cast iron--Metallurgy)

KOLOSOV, M.I., kand.tekhn.nauk; STROGANOV, A.I., kand.tekhn.nauk; KEYS, N.V., inzh.; BOGATENKOV, V.F., kand.tekhn.nauk; VAYNSHTEYN, O.Ya., inzh.; DANILOV, A.M., inzh.; ZVEREV, B.F., inzh.; ANTROPOVA, N.G., inzh.; KHRYUKINA, V.A., inzh.

Use of silicon-chromium in open-hearth smelting of steel. Stal' 20 no.7:607-608 Jl '61. (MIRA 14:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii; Chelyabinskiy i Zlatoustovskiy metallurgicheskiye zavody.
(Steel—Metallurgy) (Silicon-chromium alloys)

BOGATENKOV, V.F.; VAINSTEIN, O.I. [Vavnshteyn, O. Ya.]; ZVEREV, B.F.; KOLOSOV, M. I.; LUBENET, I. A. [Lubenets, I.A.]; MOROZOV, A. N.; POVOLOTKY, D.I. [Povolotskiy, D.Ya.]; STROGANOV, A.I.

Desilicification of Martin iron in mixers. Analele metalurgie 16 no.1: 21-27 Ja-Mr '62.

STROGANOV, A.I., kand.tekhn.nauk; BOGATENKOV, V.F., kand.tekhn.nauk; KOLOSOV, M.I., kand.tekhn.nauk; ZVEREV, B.F., inzh.; DAVIDYUK, V.N., inzh.; POPOV, R.V., tekhnik

Heat balance of the riser head of an ingot. Stal' 22 no.1:27-29 Ja '62. (MIRA 14:12)
(Steel ingots) (Heat—Transmission)

KOLOSOV, Mikhail Ivanovich; STROGANOV, Anatoliy Il'ich; SMIRNOV, Yuriy Dmitriyevich; SVET, Ye.B., red.

[Selecting a method of steel pouring] Vybor sposoba razlivki stali. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo 1962. 54 p. (MIRA 17:2)

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dried alfalfa plant. For the purpose of fattening, the chickens of the early all-purpose breeds, mostly the New Hampshires, are used.

rd 1/1

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

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

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

KOLOSOV, M. N.

KOLOSOV, M. N. - "Synthesis of Eserine-Like Compounds." Sub 14 Apr 52, Moscow Inst of Fine Chemical Technology imeni M. V. Lomonosov. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

SHEMYAKIN, M. M.; KHOKHLOV, A. S.; KOLOSOV, M. N.

Carbohydrates

Mechanism of certain transformations and means of biogenesis of carbohydrates with a branched carbon chain. Dokl. AN SSSR 85 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1953, Uncl.
2

KOLOSOV, M. N.

21 Sep 52

USSR/Chemistry - Antibiotics

"Ways of Synthesizing Optically Active Analogs of D-threo-1-(p-nitrophenyl)-2-dichloracetylamino-1,3-propanediol,"M.M. Shemyakin, E. M. Bamdas, Ye. I.Vinogradova, M.G. Karapetyan, M.N. Kolosov, A.S.Kokhlov, Yu.B.Shvetsov and L.A.Shchukina, Lab of Org Chem, Inst of Biol and Med Chem.Acad Med Sci USSR

DAN SSSR, Vol 86, No 3, pp 565-568

Of the four stereoisomers of 1-(p-nitropheny)-2-dichloracetylamino-1,3-propanediol, only one (the d-threo-isomer) is antibacterially active (chloromycetin,chloramphenicol, levomycetin). To learn the relationship between the structure of these compds and antibacterial activity, more analogs of these compds must be synthesized. Two ways of synthesis have been worked out at present. D-or 1-threo-1-(p-nitrophenyl)-2-amino-1,3-propanediol (I) is converted into the N-benzoyl derivative (II) which is reduced to the corresponding amino compd (III). This is diazotized into (IV). The diazo group is then substituted in several different ways to from an optically active compd (V). The benzoyl group is then removed from (V) to from the aminodiol (VI) which is dichloracetylated into (VII). The other synthesis also starts with (I) which is reduced to the diamino compound (VIII). This is N-dichloracetylated into the hydrochloride (IX) which is diazotized into (X). (X) is converted into (VII) in the same way as (IV) was into (V). /Reaction schemes are shown in the original paper./ Presented by Acad V.M. Rodionov 14 Jul 52

PA 247T11

KOLOSOV, M.N.

USSR/Chemistry - Alkaloids Sep 53

"Synthetic Investigations in the Series of Derivatives of Indole. I. Synthesis of Urethans of 1-Methyl-5-Oxyindoline and 1,3-Dimethyl-5-Oxyindoline (Dehydrophysostigmol)," M.N. Kolosov and N.A. Preobrazhenskiy, Moscow Inst of Fine Chem Technology im M.V. Lomonosov

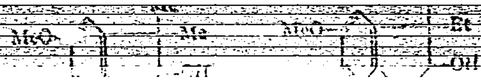
Zhur Obshch Khim, Vol 23, No 9, pp 1563-1569

Analogs of the alkaloid eserine (physostigmine) were synthesized: methylurethan of 1-methyl-5-oxyindoline, and methylurethan and dimethylurethan of 1,3-dimethyl-5-oxyindoline (dehydrophysostigmol).

268T34

Kolosov, M. N.

The synthesis of indole derivatives. II. Synthesis of methylurethans of 1,3,3-trimethyl-5-hydroxyindoline and [illegible] 5-hydroxyindoline. M. N. Kolosov [illegible]



[illegible]

G. M. Kosolapoff

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; KARAPETYAN, M.G.; KOLOSOV, M.N.; KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research on the chemistry of chloromycetin (levomycetin). Part 2. Study of the course of synthesis and the synthesis of optically-active analogs of chloromycetin (levomycetin). Zhur.ob.khim. 23 no.11:1854-1867 N '53.
(MIRA 6:11)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.
(Chloromycetin)

4

1/2

Synthetic studies in the series of indole derivatives. II. Synthesis of urethans of 1,3-dimethyl-3-(2-dimethylaminoethyl)-5-hydroxyindolin-2-one (dihydroeserolinemethine) [illegible] 1,3-dimethyl-3-(3-dimethylaminopropyl)-5-hydroxy[illegible] dihydrohomoeserolinemethine. M. N. [illegible] Preobrazhenskii, M. [illegible]

[illegible] from [illegible] 20 g. [illegible] H [illegible] MeOH [illegible] with [illegible] 135-40° over Raney Ni gave 88% [illegible] 5-methoxyindolin-2-one, b. 201-2° [illegible] EtOH [illegible] 17 g. [illegible] [illegible] with [illegible]

5-methoxyindolin-2-one, b. 210-15°; the same product, b. 140-3°, formed in 83% yield when 20 g. I and 1 ml. abs. EtOH were added to [illegible] Na in MePh re-fluxed [illegible] and [illegible]

[illegible] M [illegible] treated with [illegible]

1/2 M.N. Kolosov &

one-HCl, m. 211-12°; *picrate*, m. 163.5-4°; the HCl salt treated with calcd. amt. of MeONa, followed by MeI gave the *methiodide*, m. 201-2° (from abs. EtOH). Both the methiodide and the HCl salt showed miotic threshold level at 1:5000 concn. in tests with rabbits. I (72 g.) and 3.6 g. 40% $Me_3(PhCH_2)NOH$ in 215 ml. dry dioxane was treated with 20.4 g. $CH_2:CHCN$ at 15°, then stirred 4 hrs. at room temp., yielding after evapn. 88% *1,3-dimethyl-3-(β-cyanoethyl)-5-methoxyindolin-2-one*, m. 89-90°, b_1 178-80°. This hydrogenated over Raney Ni in the presence of $EtOH-NH_3$ as described above gave 96% *1,3-dimethyl-3-(γ-aminopropyl)-5-methoxyindolin-2-one*, b_1 167-70°; *picrate*, m. 162-3°; *HI salt*, m. 185.5-6.0°. The base heated with 40% formalin and 60% HCO_2H at 115-20° gave 82% *1,3-dimethyl-3-(γ-dimethylaminopropyl)-5-methoxyindolin-2-one*, b_2 162-4°; *picrate*, m. 139-40°; *HI salt*, m. 181-1.5° This heated with 60% HBr 2 hrs. at 140-5° gave 52% *1,3-dimethyl-3-(γ-dimethylaminopropyl)-5-hydroxyindolin-2-one*, m. 147-8°; *picrate*, m. 184.5-5.0°; *HI salt*, m. 160-2°. The base treated with MeONa, followed by Me_2NCOCl as described above gave 78% *dimethylcarbamate of 1,3-dimethyl-3-(γ-dimethylaminopropyl)-5-hydroxyindolin-2-one-HCl*, m. 103-5°; *picrate*, m. 134-5°. The HCl salt had miotic threshold at 1:500 diln. G. M. Kosolapoff

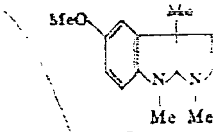
Kolosov, M.N.

USSR

Synthetic studies in the indole series of derivatives. IV. Synthesis of esermetol, homoesermetol, and homoeseroline [illegible]

[illegible] was heated with 9 g. MeI 1 hr., the process being [illegible] and the resulting mixt. [illegible] treated with [illegible]

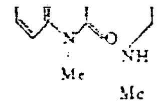
[illegible] esermetol [illegible] pure, [illegible] HI salt m. 167°, picrate,



(I)

m. 160°. The base with MeI gives an oily methiodide which heated with alc. picric acid yields orange picromethylate, m. [illegible] changed (tested as picrate) on heating with p-MeC$_6$H$_4$SO$_2$Cl in pyridine, or with MeOCOCl in aq. KOH-CHCl$_3$. To 2 g. I in Et$_2$O was added 2.6 g. MeI, and [illegible] and the [illegible]

base, [illegible] ethyl-5-methoxyindolin-2-one [illegible] 198 [illegible] Treatment [illegible]



(II)

picrate m. 180-80.5° (from [illegible]) [illegible] 14.9 g. HI salt) reduced as above with Na in BuOH to 70% homoesermetol [1,9,11-trimethyl-6-methoxypiperido(2,3-b)indoline], m. 88-9°, [illegible] 161.3° [illegible] HBr salt, m. 150.5-60.5°, picrate m. [illegible]

Kolosov, M. N.

Chemistry of chloromycetin (levomycetin). VI. Synthesis of new optically active analogs of chloromycetin (levomycetin). M. M. [illegible], M. N. Kolosov, M. G. [illegible], E. M. Bamdas, Yu. B. Shvetsov, E. I. [illegible] and I. A. Shchukina. *Zhur. Obshchei Khim.* [illegible] 40 [illegible] 14674e.—Diazotiza- [illegible]

[illegible] the filtrate [illegible]

[illegible] Me, gave [illegible]% p-MeSO$_2$C$_6$H$_4$CH(OH)CH(CH$_2$OH)NH[illegible]CH$_3$, D-*threo* isomer, m. 165–6°, $[\alpha]_D^{25}$ 13.2° (EtOH); L-*threo* isomer, m. 165–6°, $[\alpha]_D^{25}$ −13.2° (EtOH). Treatment of the sulfinic acid with aq. NaHCO$_3$, filtration, ad [illegible]

filtered and recrystd. from C$_6$H$_6$ gives 1.4 g. BzC(:NOH)-CH$_2$OH (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. D-PhCH(OH)CH(CH$_2$NH$_2$)Me.HCl (II), leaves, m. [illegible] II [illegible] and [illegible] ml. C$_6$H$_6$ [illegible]

⑥

Inst. Biol. & Med. Chem., AMS USSR

М.М. ШЕМЯКИН

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.; [α] −29.3°. Treatment of p-HO[illegible] $NHCOCHCl_2$ with Me_2SO_4 in the presence of aq. NaOH at 25–30° gave 25% p-$MeOC_6H_4CH(OH)$[illegible]$NHCOCHCl_2$: D-*threo isomer*, m. 101–2°, [illegible] 31.2° (MeOH); L-*threo isomer*, m. 101–2° [illegible] $CH(CH_2OH)NHCOCHCl_2$ treated with aq. Na[illegible] [illegible] isomer m. 125.9°, [α] −29.5° [illegible] I.HCl treated with KOAc in MeOH, followed by PhCHO, 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°, $[\alpha]^{18}_{D}$ −47.5° (Me_2CO); L-*threo isomer*, m. 153–4°, $[\alpha]^{18}_{D}$ 45.6° (Me_2CO); DL-*threo form*, m. 146–7°. I.HCl in MeOH with KOAc, followed by PhNO in AcOH gave after 12 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°, $[\alpha]^{18}_{D}$ −59.1° (Me_2CO); L-*threo isomer*, m. 144–5°, $[\alpha]^{18}_{D}$ 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-$O_2NC_6H_4N:NC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ [illegible] (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 [illegible] gave [illegible] p-p-HOC_6H_4- [illegible] mer, m. [illegible] (Me_2CO); L-*threo isomer*, [illegible]

2/2

KOLOSOV, M. N.

USSR/Chemistry - Antibiotics

Card [illegible] Pub. 22 - 27/54

Authors : Shemyakin, M. M., Memb.Cor.Acad. of Sc., USSR; Koloscv, M. N.; Levitov, M. M.; Germanova, K. I.; Karapetyan, M. G.; Shvetsov, Yu. B.; and Bamdas, E.M

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 polarizing 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.

Institution : Acad. of Med. Sc., USSR, Inst. of Biol. and Med. Chem.

Submitted : January 27, 1955

Kolosov - M. N.

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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, 16019*h*; 50, 3291*c*.—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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SHEMYAKIN, M.M. ...

EtOAc, gave 17% DL-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-trichlorocrotonylamino)-1,3-propanediol*, m. 105-6° (from ClCH$_2$CH$_2$Cl). I (6 g.) in 350 ml. Et$_2$O and 190 ml. 0.5*N* KOH treated with 6.1 g. CCl$_3$CH$_2$CH$_2$COCl (b$_6$ 97°) 0.5 hr. gave 87% DL-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-trichlorobutyrylamino)-1,3-propanediol*, m. 116-17° (from (CH$_2$Cl)$_2$). D- or L-form of I (9 g.) similarly treated with CHCl$_2$CH:CHCOCl (b$_{16}$ 79-81°, n_D^{20} 1.5155) gave 70-5% D-*threo-1(p-nitrophenyl)-2-(γ,γ,γ-dichlorocrotonylamino)-1,3-propanediol*, m. 84-5° (from EtOAc and (CH$_2$Cl)$_2$), $[\alpha]_D^{18}$ -71.8° (Me$_2$CO); L-*threo analog*, m. 84-5°, $[\alpha]_D^{18}$ 67.8° (Me$_2$CO); DL-*analog*, prepd. by mixing the 2 isomers, m. 44-5°. I (6 g.) in 300 ml. dry dioxane was treated at 12-15° with 2.45 g. CCl$_2$:CHCH$_2$COCl over 0.5 hr.; after 0.5-hr. shaking the mixture was filtered and concd. *in vacuo*, treated with EtOAc, washed with dil. H$_2$SO$_4$ and 20% NaCl, and evapd., yielding 88% [illegible]-*threo-1(p-nitrophenyl)-2-(γ,γ-dichlorovinylacetamido)-1,3-propanediol* (II) *hydrate* (from heptane and (CH$_2$Cl)$_2$ or [illegible] ClCH$_2$CH$_2$Cl), m. 72-8°; the water of hydration is [illegible] 100° in vacuo. This (0.5 g.) in dry dioxane treated with 2 drops dry Et$_3$N and kept 45 hrs. gave 80% 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$_2$CO$_2$H and 91% I. G. M. Kosolapoff

2/2

Kolosov, M.N.

USSR/ Physical Chemistry - Molecule. Chemical Bond. B-4

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7233

Author : Shigorin, D.N., Shemyakin, M.M., Shchukina, L.A., Kolosov, M.N., and Mendelyevich, F.A.

Inst : Academy of Sciences USSR

Title : On the Nature of the Intramolecular Hydrogen Bond

Orig Pub : Dokl. AN SSSR, 1956, Vol 108, No 4, 672-675

Abstract : The IR spectra of molecules with intramolecular hydrogen bonds (HB) involving different degrees of participation of the π-electrons of the C.O group and of the multiple bonds conjugated with it have been investigated. The frequency of the valency vibrations of the O-H groups (the first number in parentheses, in cm^{-1}) and their shift towards longer wavelengths in comparison to the unassociated OH groups (second number in parentheses) as well as the BH energy (Badger and Bauer, J. Chem. Phys., 1937, 5, 839) (third number in parentheses in kcal), the

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USSR/ Physical Chemistry - Molecule. Chemical Bond.

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7233

fractional contribution of π-electron interaction energy to the total BH energy in percent (fourth number in parentheses), and the interatomic O...H distance calculated from standard bond dist. and the bond angles (fifth number in parentheses in A.U.) have been determined for the following compounds: the vapor of the nonomethyl ether of ethylene glycol (I) at 120-122°(3665, 0, 0, 0, -); I in CCl_4 (II), in the ratio 1:400 (3605, 60, 0.96, 0, 1.80); phenol in II, 1:400 ratio (3605, 0, 0, 0, -); guaiacol in II, 1:400 (3530, 55, 0.90, 0, 2.20); oxyoctenol in II, 1:400 (3475, 147, 2.38, 59.7, 1.95); benzoin in II, 1:400 (3468, 147, 2.39, 60.0, 1.95); 2-hydroxy-1, 4-naphthoquinone in II, 1:400, 3398 (187, 3.07, 68.7, 2.25); 2-benzyl-3-hydroxy-1, 4-naphthoquinone in II, 1:600 (3395, 190, 3.11, 69.1, 2.25); 2-(β-naphthyl)-3-hydroxy-1, 4-naphthoquinone in II, 1:600 (3370, 215, 3.52, 72.7, 2.25); γ-methyltropinone in II, 1:400 (3116, 504, 8.19, 88.2,

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. (MLRA 10:6)

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

(Sarkomycin)

SOV/62-58-6-34/37

AUTHORS: Shemyakin, M. M., Kolosov, M. N.,
Arbuzov, Yu. A., Onopriyenko, V. V.,
Shatenshteyn, G. A.

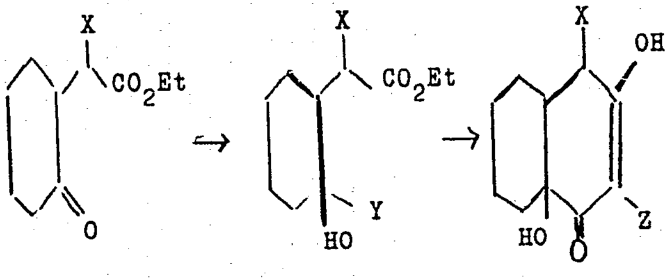
TITLE: The Course Taken by the Synthesis of Ring A of Tetracyclic Compounds (Put' sinteza kol'tsa A tetratsiklinov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 794-795 (USSR)

ABSTRACT: Already in 1957 the authors of this report described the synthesis of tricyclic compounds in which 2 rings, with respect to their structure, resemble rings D and C of tetracyclinic compounds. The third ring, which corresponds to ring B, contains a binary compound or a potential carbonyl group. At present the authors are studying the possibility of synthetizing ring A and describe this synthesis. The group CHX . CO_2 is introduced into the initial ketone, ketone ester is ethylated, ethynyl carbinol (formula III) $Y=C\equiv CH$ is hydrated in the neutral medium and oxy-ketoester (formula II; $Y=Ac$) is cyclized into an oxy-diketone (formula III; $Z=H$). (Formula III; $Z=CONHR$). The scheme has the following form:

Card 1/3

The Course Taken by the Synthesis of Ring A of Tetracyclic Compounds SOV/62-58-6-34/37



(I) (II) (III)

There are 2 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR i Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR. (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR and Institute of Biological and Medico-chemistry of the Academy of Medical Sciences of the USSR)

Card 2/3

AUTHORS: Shigorin, D. N., Shemyakin, M. M., Kolosov, M. N. SOV/62-58-9-22/26

TITLE: Intermolecular Interactions Between Acetylene and Its Derivatives (Mezhmolekulyarnyye vzaimodeystviya u atsetilena i yego proizvodnykh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 9, pp 1133 - 1134 (USSR)

ABSTRACT: Considering the peculiarities of the chemical structure of acetylene and its derivatives the authors considered it possible that these compounds might be able to form complexes with one another and with solvents. These complexes could result from the hydrogen bridge bonds $R-C \equiv C-H.X$ ($X= O<$, $O = C<$, $N<$, $-C \equiv C$, and so forth). The study of the infrared absorption spectra showed frequency changes in the $\equiv C-H$ and $-C \equiv C-$ groups of acetylene and its derivatives in dissolving in acetone, ether, pyridine, and dioxane, in sublimating from the crystalline to the vapor state and in solutions of CCl_4. This probably means that the acetylene molecule forms complexes with the molecules

Card ~~1/3~~

Intermolecular Interactions Between Acetylene and Its Derivatives SOV/62-58-9-22/26

of the solvent by forming hydrogen bonds. The union of the acetylene molecules and the homologs and derivatives of acetylene is apparently possible because of the electron shift in the $\equiv C-H$ and $-C\equiv C-$ bonds (which also belong to many other molecules). For this reason intermolecular electron orbitals are hypothesized. The authors discovered a new phenomenon in intermolecular interaction. It was shown experimentally that the formation of hydrogen bridge bonds and π complexes among the molecules of acetylene and its derivatives is possible. It was demonstrated that the hydrogen of the $\equiv C-H$ group exchanges with deuterium in the dissolution of $R-C\equiv CH$ compounds in CH_3OD or C_2H_5OD. For $R-C\equiv CD$ in CCl_4 the following frequencies were found:

$\nu(\equiv C-D) = 2600\ cm^{-1}$; $\nu(-C\equiv C-) = 1957\ cm^{-1}$. There is 1 table.

~~Card 2/3~~

Physics Chem Inst. im L. Ya. Karpov
Inst. Biol & Med Chem. Acad Med Sci USSR

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

~~Card 1/3~~

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

$-COCH(CH_2\overset{+}{N}R_3)-$ 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: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR)

Card [illegible]

5 (3)

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

SOV/79-29-6-13/72

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 be 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-up of the ring A and for the introduction of the necessary func-

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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-

Investigations in the Field of Tetracyclines.
IV. Investigation of Different Syntheses of the
Tricyclic System DCB of the Tetracyclines

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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

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SOV/20-128-1-30/58

5(3)

AUTHORS: Shemyakin, M. M., Academician, Kolosov, M. N., Arbuzov, Yu. A., Hsieh Yü-yüan, Sheng Huai-yü, Sklobovskiy, 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 halogen derivatives, epoxides, hydrine halides, and halogen

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SOV/20-128-1-30/58

Intermediate Stages in the Synthesis of Tetracyclines

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 B-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

5 (3)

SOV/20-128-4-30/65

AUTHORS: Shemyakin, M. M., Academician,
Kolosov, M. N., Arbuzov, Yu. A.,
~~Berlin, Yu. A.~~

TITLE: Investigation of the Methods of Ring Synthesis of A-Tetracyclines - Method of Introducing the N,N-Dimethylglycine Residue Into the Cyclohexanone Ring

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 744 - 747 (USSR)

ABSTRACT: For a further utilization of the tricyclic oxydiketones of type (I), described by them, in the synthesis of tetracyclines (II), the authors developed a general method of transformation of cyclohexanones (III) via keto-ester (IVa) into compounds (V). The (Va) have a characteristic oxydiketone-carboxamide system of the A-ring of tetracyclines (Ref 2). To build up the A-ring itself in a similar way (this ring having a Me_2N-group in position 4 (Vb)), the method of introducing the N,N-dimethylglycine residue into the cyclohexanone ring (III) had first to be developed, and the reactivity of dimethyl-amino-keto esters of type (IVb) had to be investigated. The present paper deals with

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these problems. A model synthesis and some transformations of the simplest compound of type (IVb) - the ester of threo-2-keto-cyclo-hexyl-N,N-dimethyl glycine (XIIa) - are described. The above-mentioned introduction into the cyclohexanone ring has to be carried out under such conditions and by such methods as are also applicable to the case of tricyclic oxydiketones (I). This method is described. The authors ascribed a threo-configuration to the dimethyl-amino-keto ester obtained. This was also confirmed by further transformations (XVIII) and (XIVa). Table 1 shows the compounds obtained, their constants, as well as the composition found analytically and by computation (VIa - XXII). The dimethyl-amino-keto ester (XIIa) synthesized by the authors was also investigated with respect to the introduction of an ethinyl residue into the molecule. This is necessary for building up the "lower" part of the A-ring of tetracyclines by the method developed previously (Ref 2). It was shown that (XIIa) easily reacts with $HC \equiv CNa$ in liquid NH_3 at - 50° to form an acetylene-oxy ester in a 60% yield. The latter is supposed to

Investigation of the Methods of Ring Synthesis of A-Tetracyclines - Method of Introducing the N,N-Dimethylglycine Residue Into the Cyclohexanone Ring

SOV/20-128-4-30/65

have a spatial structure similar to (XIIIb). It shows a pronounced tendency towards lactonization to (IX), and is - in this respect - similar to the threo-transamino-oxy esters (XVI). By the effect of $(AcO)_2Hg$ in EtOH at 20°, it is epimerized to an erythro isomer (XVII). In contrast to the initial compound, the latter shows no tendency to lactonise, and is not changed by distillation even at 100°. There are 1 table and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR). Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR)

SUBMITTED: June 27, 1959

Card 3/3

Kolosov, M.N.

PHASE I BOOK EXPLOITATION SOV/4186

Akademiya nauk SSSR

Stroyeniye veshchestva i spektroskopiya (Structure of Matter and Spectroscopy) Moscow, Izd-vo AN SSSR, 1960. 113 p. Errata slip inserted. 2,300 copies printed.

Ed.: K. V. Astakhov, Professor; Tech. Ed.: T. P. Polenova.

PURPOSE: This collection of articles is intended for physicists and chemists interested in spectroscopic methods of research on the structure of molecules and related problems.

COVERAGE: The articles contained in this collection were taken from the editorial files of the Zhurnal fizicheskoy khimii (Journal of Physical Chemistry) and are concerned with spectroscopic methods in research on the structure of molecules, the hydrogen bond, isotopic effects, problems in magnetochemistry, the structure of aqueous solutions of electrolytes, and the chemistry of complex compounds. References accompany individual articles.

Pivovarov, V. M., and N. D. Ordyntseva. Features of Spectroscopic Manifestation of Hydrogen Bond in n-Nitroaniline Molecules 20

The authors thank Ya. S. Bobovich and V. S. Neporent for their interest.

Sheynker, Yu. N., and Ye. M. Peresleni [Khimiko-farmatsevticheskiy institut im. S. Ordzhonikidze (Chemical Pharmaceutical Institute imeni S. Ordzhonikidze)]. Tautomerism of Certain Derivative Heterocyclic Compounds. XI. The Deutero-effect at Tautomeric Equilibrium and Spectra of N-Deutroacylated Heterocyclic Amines 28

Shigorin, D. N., M. M. Shemyakin, M. N. Kolosov, and T. S. Ryabchikova [Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute imeni L. Ya. Karpov) and Institut biologicheskoy i meditsinskoy khimii AMN SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences USSR)]. Intermolecular Interaction and Oscillation Spectra of Acetylene Compounds 36

Izmail'skiy, V. A., and V. Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V. P. Potemkina-Moscow Pedagogical Institute im. V. P. Potemkin] Absorption Spectra of Derivatives of N-[β- (4-Nitrophenyl)-Ethyl]- Aniline 41

Izmail'skiy, V. A., and V. Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V. P. Potemkina (Moscow Pedagogical Institute imeni V. P. Potemkin)]. Absorption Spectra of Derivatives of N-[β-(2,4-Dinitrophenyl)-Ethyl]-Aniline 53

Rabinovich, I. B. [Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskiy (Gor'kiy State University imeni N. I. Lobachevskiy)]. Effect of Displacement of Hydrogen by Deuterium on the Molal Volume of Liquids 62

Card 3/6

10

KOLOSOV, M. N. (Dr)

"Studies on Synthetic routes to Tetracycline."

report to be submitted for the Symposium on the Chemistry of Natural Products, Intl. Union of Pure and Applied Chem. (IUPAC), Melbourne, Canberra, and Sydney. Australia, 15-25 Aug 60

Inst. of the Chemistry of Natural Compounds, Moscow.

5.3610

77885
SOV/79-30-2-36/78

AUTHORS: Shemyakin, M. M., Arbuzov, Yu., Kolosov, M. N., Shamenshteyn, G. A., Onoprienko, V. V., Konnova, Yu. V.

TITLE: Investigation in the Field of Tetracyclenes. VI. Carboxyamidation of Dimedone With Isocyanates

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 542-545 (USSR)

ABSTRACT: Carboxyamidation of dimedone with carbonic acid derivatives was done by one of the following variants. There are 5 references, 3 Soviet, 1 German, 1 U.S. The U.S. reference is: R. L. Frank, H. K. Hall, J. Am. Chem. Soc., 72, 1645 (1950).

ASSOCIATION: Institute of Organic Chemistry, Academy of Sciences, USSR (Institut organicheskoy khimii Akademii nauk SSSR)

SUBMITTED: February 25, 1959

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Investigation in the Field of Tetracyclenes. VI. Carboxyamidation of Dimedone With Isocyanates

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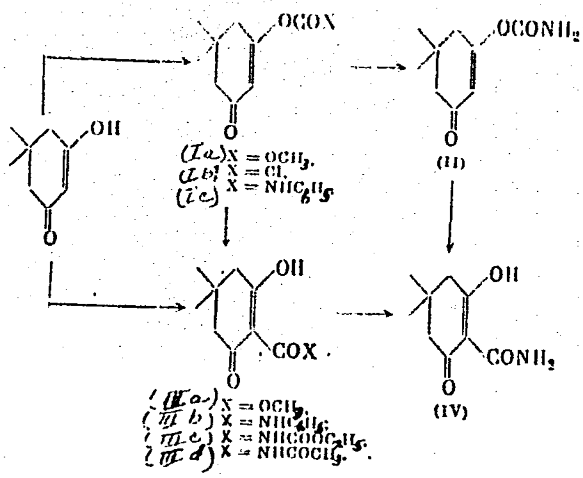

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Investigation in the Field of Tetracyclones. VI. Carboxyamidation of Dimedone With Isocyanates

77885
SOV/79-30-2-36/78

Some Properties of Obtained Products

Nr	Starting material	Obtained product	Yield in %	bp/mm pr	n_D^{20}
1	Na-enolate of dimedone (I) + dry ether + chloroformic acid	Ia	76	120-122/14	1.4784
2	I + phosgene	3-chloro-5,5-dimethylcyclohex-2-en-1-one	79	78/7	1.4953
3	I + phenyl isocyanate + + dimethylformamide	IIIb	75	mp 92-93	
4	I + carbethoxy cyanate	IIIc	94	mp 65-66	
5	IIId + NH_4OH + CH_3OH	IV	97		

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77886
SOV/79-30-2-37/78

AUTHORS: Shemyakin, M. M., Kolosov, M. N., Arbuzov, Yu. A., Onoprienko, V. V., Sieh Yü-yüan

TITLE: Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 545-556 (USSR)

ABSTRACT: Synthesis of compound IX can be divided into three parts: (1) construction of the upper parts of the A ring (Ia (Ib) or IIa (IIb) $\longrightarrow$ (V)); (2) construction of its lower parts (V $\longrightarrow$ VI $\longrightarrow$ VII); and cyclization with subsequent introduction of carboxamide group (VII $\longrightarrow$ VIII $\longrightarrow$ IX).

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Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

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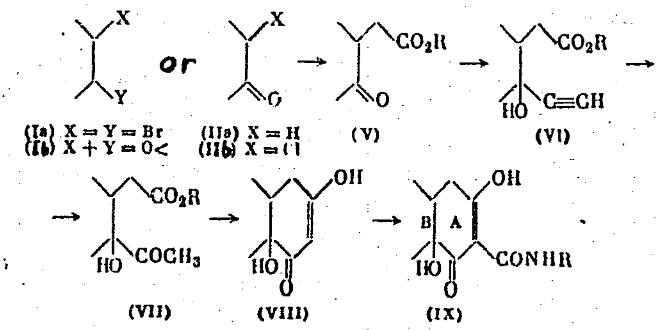

The following compounds can be used for construction of the upper ring: dibromides (Ia); epoxides (Ib); ketones (IIa); and haloketones (IIb). The third way(IIa) is simpler.

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Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

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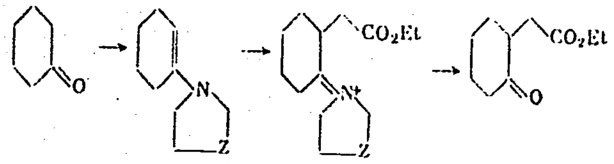

(X) (XI) (XII)

Z = CH_2, $(CH_2)_2$, or OCH_2.

The fourth way (IIb) puts the carbomethoxy group exclusively in a certain position of cyclohexane ring.

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Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

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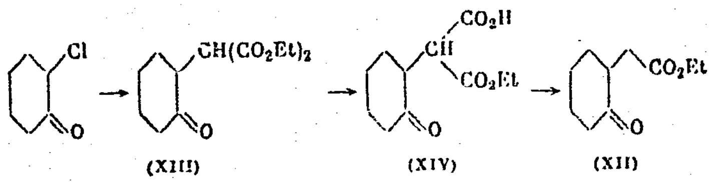
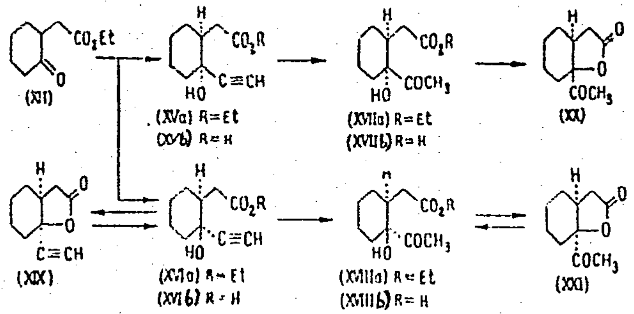


Construction of lower parts of the A ring includes ethynylation of V and hydration of the triple bond of the obtained ethynyl carbinol (VI).



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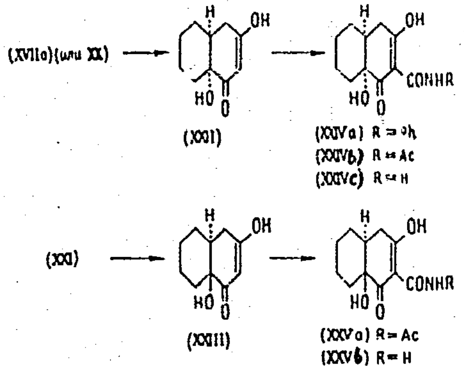
Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

Na-enolates of hydroxydiketones react in dimethylformamide with excess of the corresponding isocyanate (carboxyamidation of hydroxydiketones XXII and XXIII).



Investigation in the Field of Tetracyclines. VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

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SOV/79-30-2-37/78

Some Properties of Obtained Products

Nr	Starting Material	Obtained Product	Yield (%)	bp/mm pr	$n_D^{(x)}$
1	Cyclohexanone + secondary amine* toluenesulfonic acid + benzene	X	-	-	-
2	X + bromoacetic ester + hydrolysis with aqueous methanol	XII	-	121-122°/7	x = 18 1.4592
3	Sodium malonic ester + 2-chlorocyclohexanone + malonic ester + benzene	XIII	70	151-153°/3	x = 20 1.4595

* = piperidine, pyrrolidine, morpholine.

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Investigation in the Field of Tetracyclines. VII

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Nr	Starting Material	Obtained Product	Yield (%)	bp/mm pr	$n_D^{(x)}$
4	Saturated $HC \equiv CH$ solution in liquid ammonia + Na + XII + abs. ether + NH_4Cl	mixture of XV-a and XVI-a	85	83-84°/0.02	x = 18 1.4831
5	Mixture of XVa and XVI-a are hydrolyzed with NaOH	XV-b + mother liquid	71	mp 101-2°	-
6	the above mother liquid (5) + 0.1N H_2SO_4	XIX	24	63-64°/0.04	x = 21 1.4926
7	XIX is hydrolyzed with 0.1 N NaOH, acidified with 1 N H_2SO_4, and extracted with $CHCl_3$	XVI-b	-	-	-

Investigation in the Field of Tetracyclines. VII.

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Nr	Starting Material	Obtained Product	Yield (%)	bp/mm pr	$n_D^{(x)}$
8	Mixture of XVa and XVIa + anhydrous alcohol + mercuric acetate	mixture of XVII-a and XVIII-a	66	90-92°/0.03	$x = 17$ 1.4735
9	Mixture of XVa and XVIa + mercuric salt of p-toluenesulfonamide + alcohol	mixture of XVII-a and XVIII-a	41	-	-
10	Mixture of XVIIa and XVIIIa + alcohol + hydrolysis with 0.4 N NaOH	XVII-b + mother liquid	72	mp 115-6°	-
11	The above mother liquid (10) is boiled with 1 N H_2SO_4	XXI	24	72-73°/0.03	-

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Investigation in the Field of Tetracyclines. VII

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Nr	Starting Material	Obtained Product	Yield (%)	bp/mm pr	$n_D^{(x)}$
12	XXI is hydrolyzed with 0.1 N NaOH	XVIII-b	96	mp 98-100°	-
13	XVII-b is heated at 150°/15 mm	XX	91	70-71°/0.12	$x = 22$ 1.4828
14	XVIII-b + Na_2CO_3 + $AgNO_3$ + ethyl iodide	XVII-a	90	91-92°/0.03	$x = 19$ 1.4737
15	XVII-b or XVIII-b is distilled at 130°/0.07	XVIII-b trans in the form of lactone	88	-	-

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Investigation in the Field of Tetracyclines, VII

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Nr	Starting Material	Obtained Product	Yield (%)	bp/mm pr	n_D (x)
16	XVII-b or XXVIII-b + 0.1 N H_2SO_4 after 2 hours	XVIII-b in the form of lactone	100	-	-
17	XVII-a + 0.5 N sodium ethoxide in alcohol	XXII (cis)	95	mp 181-182°	-
18	XXII (cis) + dimethylformamide + phenylisocyanate	XXIV-a	46	-	-
19	XXIV-b + NH_3 + CH_3OH	XXIV-b (cis)	75	mp 153-154°	-
20	XXV-a + ammonolyse	XXV-b (trans)	65	mp 160-161°	-

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Investigation in the Field of Tetracyclines, VII. Study of the Synthetic Routs to the A Ring of Tetracyclines

77886
SOV/79-30-2-37/78

There are 2 tables; 22 references; 4 Soviet, 7 U.S., 2 French, 4 U.K., 2 German, 2 Swedish, 1 Japanese. The 5 most recent U.S. references are: A. P. Doershuk, B. A. Bitler, J. R. D. McCormic, J. Am. Chem. Soc., 77, 4687 (1955); M. S. Newman, C. A. Vander Werf, ibid, 67,233 (1945); C. Stephens, K. Murai, H. Rennhard, L. Conover, K. Brunungs, ibid, 80, 5324 (1958); A. Segre, R. Viterbo, G. Parisi, ibid, 79, 3503 (1957); G. Stork, R. Terrell, J. Szmuszkovicz, ibid, 76, 2029 (1954).

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

SUBMITTED: February 25, 1959

Card 11/11

SHEMYAKIN, M.M., akademik; ARBUZOV, Yu.A.; KOLOSOV, M.N.; OVCHINNIKOV, Yu.A.

Study of the synthetic paths used in building the ring system of BA tetracyclines. Dokl.AN SSSR 133 no.5:1121-1124 Ag '60.
(MIRA 13:8)

1. Institut khimii prirodnykh soyedineniy Akademii nauk SSSR i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Tetracycline)

SHEMYAKIN, Mikhail Mikhaylovich; KHOKHLOV, Aleksandr Stepanovich; KOLOSOV, Mikhail Nikolayevich; BERGEL'SON, Lev Davydovich; ANTONOV, Vladimir ~~Konstantinovich; SHVETSOV~~, Yu.B., red. izd-va; DOROKHINA, I.N., tekhn. red.

[Chemistry of antibiotics] Khimiia antibiotikov. Izd.3., perer. i dop. Moskva, Izd-vo Akad. nauk SSSR. Vol.1. 1961. pp.1-774. Vol.2. 1961. pp. 780-1550. (MIRA 14:8)
(ANTIBIOTICS)

ARBUZOV, Yu.A.; KOLOSOV, M.N.; OVCHINNIKOV, Yu.A.; SHEMYAKIN, M.M.

New reaction of halo lactones. Izv. AN SSSR. Otd. khim. nauk no.2: 377 F '61. (MIRA 14:2)

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

ARBUZOV, Yu.A.; KIRYUSHKIN, A.A.; KOLOSOV, M.N.; OVCHINNIKOV, Yu.A.; SHEMYAKIN, M.M.; akademik

Ways of constructing a ring system of BA tetracyclines. Synthesis of esters of substituted 2-oxocyclohexylacetic acids. Dokl.AN SSSR 137 no.5:1106-1109 Ap '61. (MIRA 14:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Tetracycline) (Cyclohexaneacetic acid)

ARBUZOV, Yu.A.; BERLIN, Yu.A.; VOLKOV, Yu.P.; KOLOSOV, M.N.;
OVCHINNIKOV, Yu.A.; SE YUY-YUAN' [Hsieh Yü-yüan];
TAO CHZHEN-E [T'ao Chêng-ê]; SHEMYAKIN, M.M.

Study of the ways of synthesizing tetracyclines. Antibiotiki 6 no.7:585-594 Jl '61. (MIRA 15:6)

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

ARBUZOV, Yu.A.; VOLKOV, Yu.P.; KOLOSOV, M.N.

Structural and steric directivity of the reaction involved in the reduction of 1,4,4a,9a-tetrahydroanthraquinones by aluminum hydride. Dokl.AN SSSR 144 no.3:555-558 My '62. (MIRA 15:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Anthraquinone) (Aluminum hydrides) (Stereochemistry)

KOLOSOV, M.N.; BERLIN, Yu.A.

Tetracyclines. Part 12: Method of introducing a N,N-dimethylglycine radical into the cyclohexanone ring. Zhur.ob.khim. 32 no.9:2893-2905 S '62. (MIRA 15:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Cycline) (Cyclohexanone)

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

Absolute configuration of tetracycline antibiotics. Izv.AN SSSR.Otd. khim.nauk no.9:1697 S '62. (MIRA 15:10)

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

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)

KOLOSOV, M.N.; GUREVICH, A.I.; SHVETSOV, Yu.B.

Tetracyclines. Report no.17:Asymmetrical synthesis of (-)-3-methyl-phthalide-3-carboxylic acid. Izv. AN SSSR. Otd.khim. nauk no.4:701-705 Ap '63. (MIRA 16:3)

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(Phthalidecarboxylic acid)

KOLOSOV, M.N.; POPRAVKO, S.A.; SHEMYAKIN, M.M., akademik

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(ANTIBIOTICS) (TRICYCLINE)

BOLESOV, I.G.; KOLOSOV, M.N.; SHEMYAKIN, M.M., akademik

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(Tetracycline)

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Inst of Chemistry of Natural Substances, AS USSR, Moscow; *Inst for Search for New Antibiotics, AMS USSR, Moscow.

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KOLOSOV, M.N.; SHEMYAKIN, M.M.

Tetracyclines. Report No.19: Synthesis of 2- and 3-substituted 10-keto-9-hydroxy-1,2,3,4a,9,9a,10-octahydroanthracenes. Izv. AN SSSR. Ser.khim. no.3:482-491 Mr '64. (MIRA 17:4)

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Tetracyclines. Report No.20: Configuration of 2- and 3-substituted 10-keto-9-hydroxy-1,2,3,4,4a,9,9a,10-octahydroanthracenes and the stereochemistry of the reduction of naphthoquinone-butadiene adducts with aluminum hydride. Izv. AN SSSR. Ser.khim. no.3: 492-501 Mr '64. (MIRA 17:4)

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SHEN' KHUAY-YUY [Shen Huai-yü]; GUREVICH, A.I.

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