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M 77-61-78

439315 (9)

Quarterly ~~(12)~~ REPORT ON no. 2, Feb - 30, 1962

(10)

CONTRACT NO DA 92 / . 557 & FECS & 35675

INCLUSIVE DATES February 1, 1962 TO April 30, 1962

AD No. DDC FILE COPY

SUBJECT OF INVESTIGATION

EXPLORATION OF NEW CHEMOTHERAPEUTICS
FOR
INFECTIOUS DISEASES

RESPONSIBLE INVESTIGATOR

(5) 178 800

(10) by

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Office of the Chief of Research and Development
United States Army
APO 343

439315

D-I-S-T-R-I-B-U-T-I-O-N

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EXPLORATION OF NEW CHEMOTHERAPEUTICS
FOR
INFECTIOUS DISEASES

Fundamental Studies on Protomycin, an Antiamoebic
Antibiotic and Cephalomycin, an Antiviral Anti-
biotic

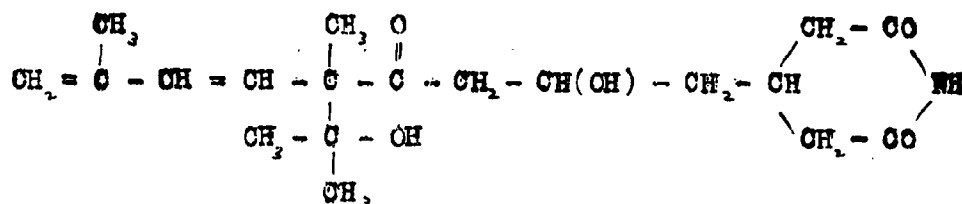
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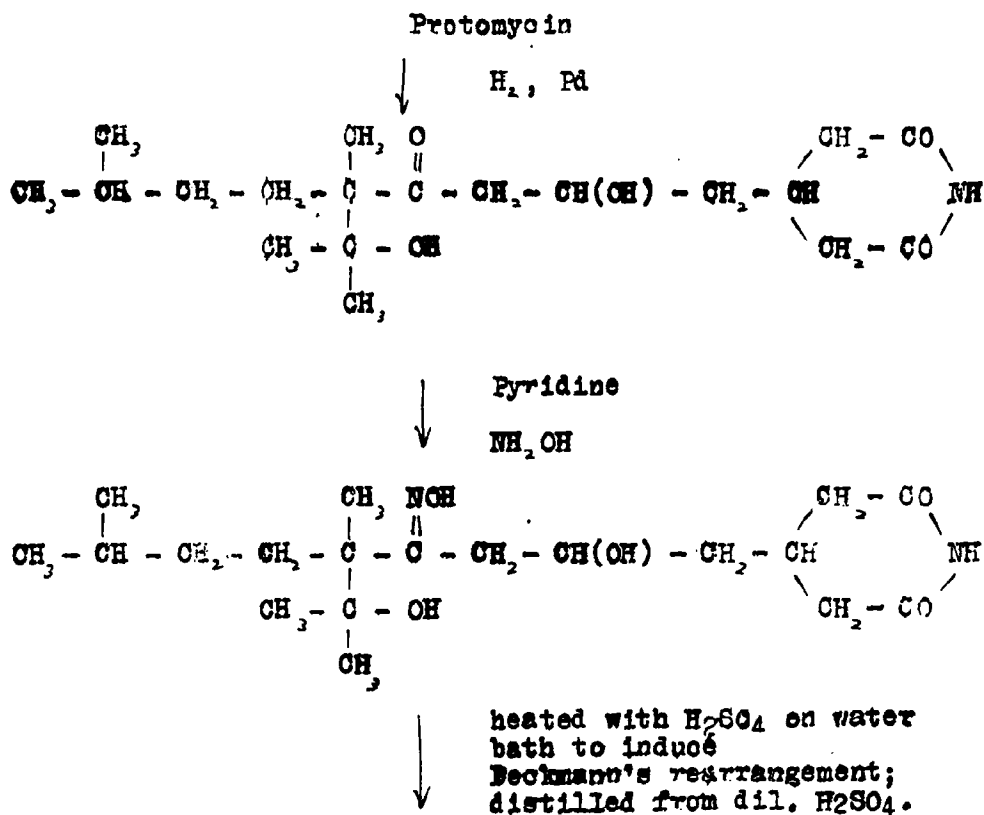
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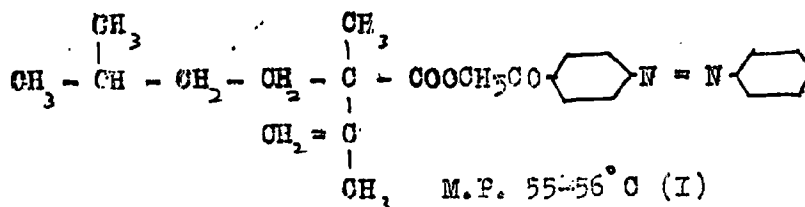
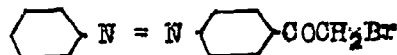
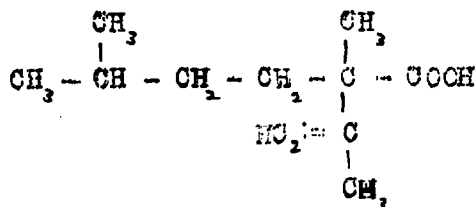
1. Protomycin

In the preceding quaternary report, we have proposed the structure for protomycin.

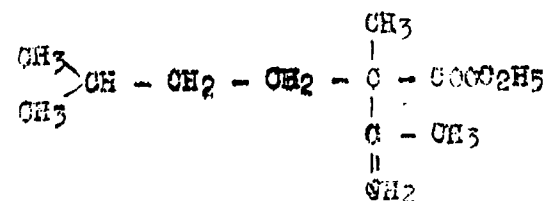
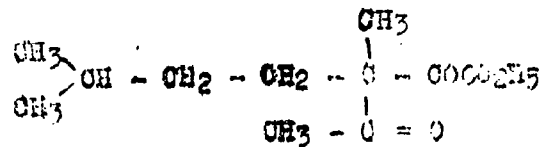
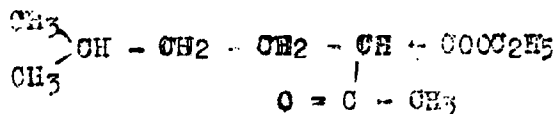
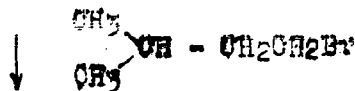
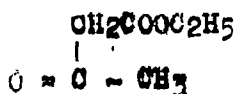


To prove this structure, an acid obtained by the following sequence of reactions remained still to be identified:

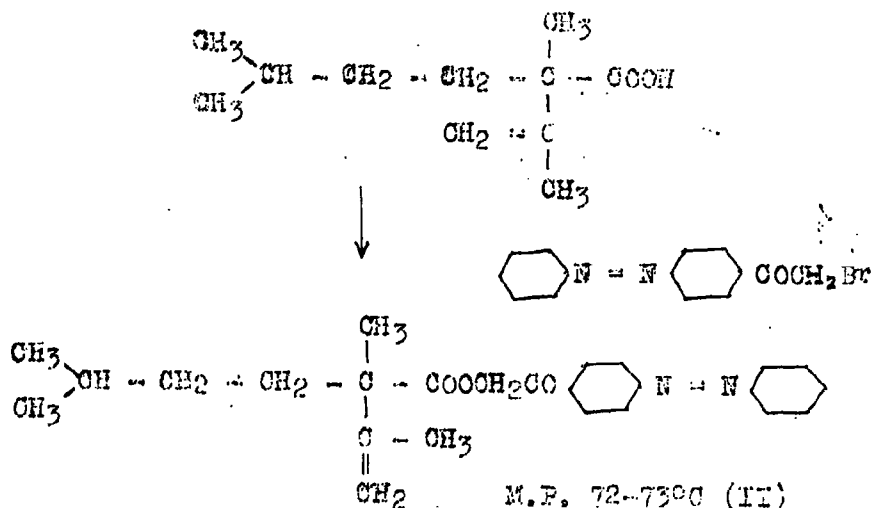




The corresponding acid ester was synthesized by the following sequence of reactions:



hydrolysis



Although mixed melting point of the products (I) and (II) was 55-56° C at several different proportions and their infrared spectra were almost identical each other except three absorption bands, we undertook the resolution of racemate (II) into optically active components. While the experiment is still under continuance, we obtained a fraction with M.P. 62-63° C from (II) with (M.P. 72-73° C).

2. Cephalomycin

Cephalomycin was separated into fractions by the chromatography on DEAE-cellulose. The most active component eluted with 0.4% NaOH was assayed for amino acid constitution by DNP method. The result was as follows;

Amino Acids	Molar ratio	Amino Acids	Molar ratio
valine & leucine	2.7	proline	4.8
alanine	1.45	arginine	?
serine	0.95	histidine	?
glutamic & aspartic acid	4.9	methionine	?
threonine	0.90	phenylalanine	0.34
cystine	0.02	glycine	1.25

Protomycin was treated with pronase, a proteolytic enzyme selectively acting on L-amino acid moiety, to evaluate liberated amino acids. Because the protomycin is quantitatively hydrolysed with pronase, D-amino acid was supposed not to exist. Glycine, alanine, serine and threonine were detected as N-terminal groups by DNP-method.