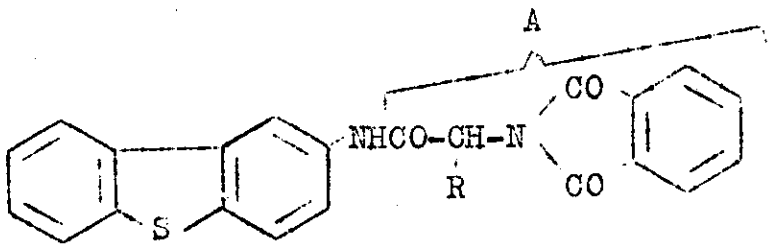
I- SUMMARY

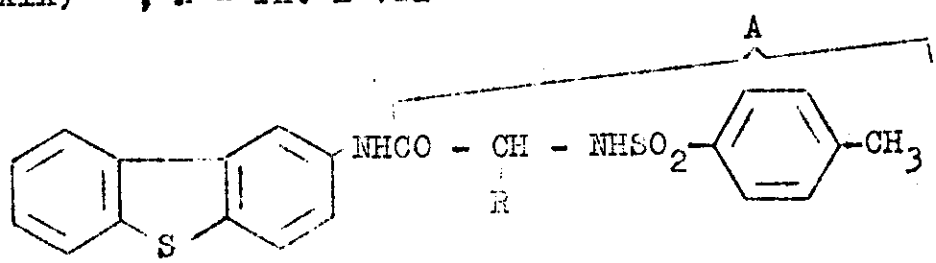
SUMMARY

Several 2N(Pht-amino acid)-aminodibenzothiophene and 2N(Tos-amino acid)-aminodibenzothiophene derivatives (XXVII-XXXVI) were prepared using the carbodiimide method in tetrahydrofuran as a solvent and the products obtained in (73 - 90 %) yield.



(XXVII - XXXI)

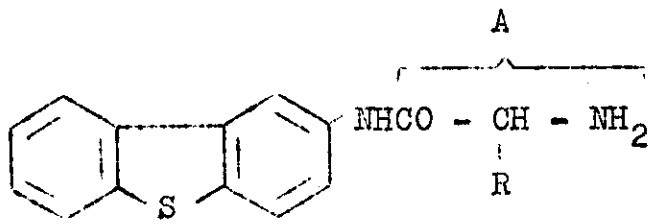
(XXVII) , A = Pht-Gly ; (XXX) , A = Pht-L-Leu
(XXVIII) , A = Pht-B-Ala ; (XXXI) , A = Pht-L-Phe
(XXIX) , A = Pht-L-Val



(XXXII - XXXVI)

(XXXII) , A = Tos-Gly ; (XXXV) ; A = Tos-L-Leu
(XXXIII), A = Tos-B-Ala ; (XXXVI), A = Tos-DL-Phe
(XXXIV) , A = Tos-D-Ala

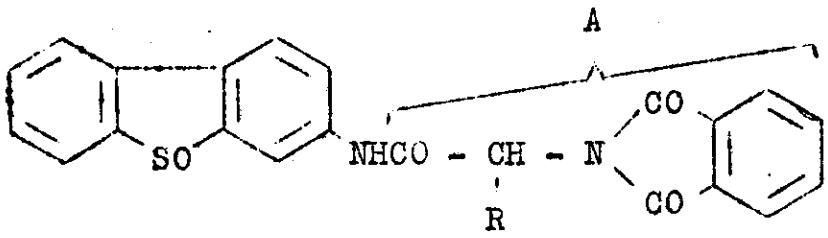
Cleavage of the phthalyl group in the synthesized phthalyl amino acid derivatives of 2-aminodibenzothiophene was carried out by the action of hydrazine hydrate on the corresponding Pht-amino acid derivatives in ethanol-acetic acid medium. The products (XXXVII-XLI) were obtained in (55 - 61 %) yield.



(XXXVII - XLI)

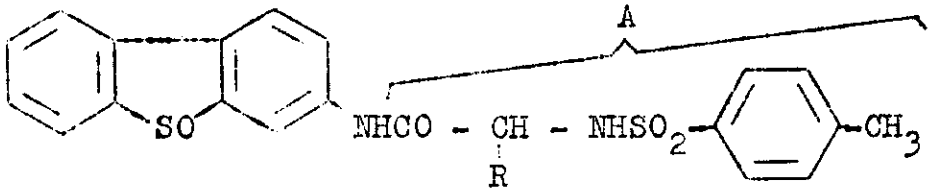
(XXXVII) , A = Gly-residue; (XL), A = L-Leu-residue
(XXXVIII), A = B-Ala-residue; (XLI),A = L-Phe-residue
(XXXIX) , A = L-Val-residue

Also, many of 3N(Pht-amino acid)-aminodibenzothiophene-5-oxide and 3N(Tos-amino acid)-aminodibenzothiophene-5-oxide derivatives (XLII-LI) were synthesized using the carbodiimide method in tetrahydrofuran as solvent and the products obtained in (60 - 90 %) yield.



(XLII - XLVI)

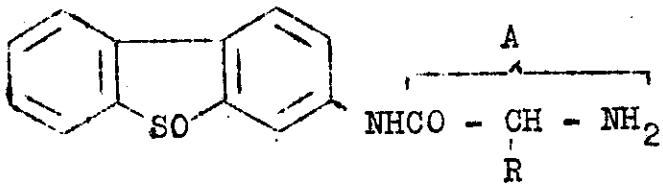
(XLII) , A = Pht-Gly ; (XLV) , A = Pht-L-Leu
(XLIII) , A = Pht-B-Ala ; (XLVI) , A = Pht-L-Phe
(XLIV) , A = Phe-L-Val



(XLVII - LI)

(XLVII) , A = Tos-Gly ; (L) , A = Tos-L-Leu
(XLVIII), A = Tos-B-Ala ; (LI) , A = Tos-DL-Phe
(XLIX) , A = Tos-D-Ala

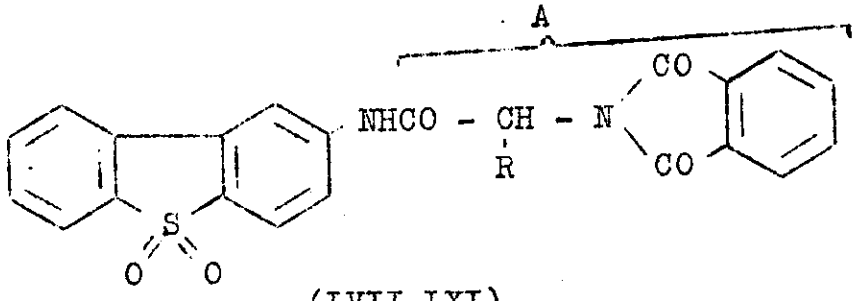
Cleavage of the phthalyl group in the synthesized phthalyl amino acid derivatives of 3-aminodibenzothiophene-5-oxide was carried out by the action of hydrazine hydrate on the corresponding Pht-amino acid derivatives in ethanol-acetic acid medium. The products (LII-LVI) were obtained in (56 - 65 %) yield.



(LII - LVI)

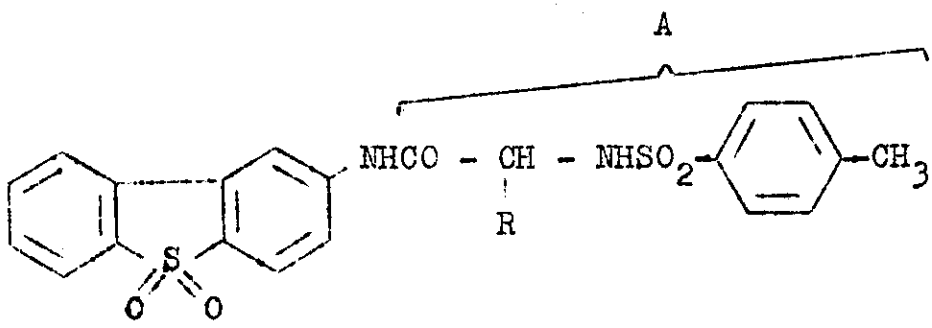
(LII) , A = Gly-residue ; (LV) , A = L-Leu-residue
(LIII), A = B-Ala-residue ; (LVI), A = L-Phe-residue
(LIV) , A = L-Val-residue

Also, coupling of 2-amino dibenzothiophene-5,5-dioxide and 3-aminodibenzothiophene-5,5-dioxide with different Pht- or Tos-amino acids using the carbodiimide procedure and tetrahydrofuran as solvent afforded the desired 2N(Pht- or Tos-amino acid)-aminodibenzothiophene-5,5-dioxide and 3N(Pht- or Tos-amino acid)-aminodibenzothiophene-5,5-dioxide derivatives (LVII-LXVI) and LXXII-LXXXI) and the products were obtained in (52 - 90 %) yield.



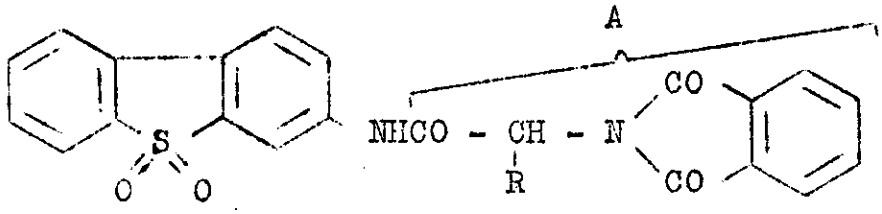
(LVII-LXI)

(LVII) , A = Pht-Gly ; (LX) , A = Pht-L-Leu
(LVIII), A = Pht-B-Ala ; (LXI), A = Pht-L-Phe
(LIX) , A = Pht-L-Val



(LXII - LXVI)

(LXII) , A = Tos-Gly ; (LXV) , A = Tos-L-Leu
(LXIII), A = Tos-B-Ala ; (LXVI), A = Tos-DL-Phe
(LXIV) , A = Tos-D-Ala



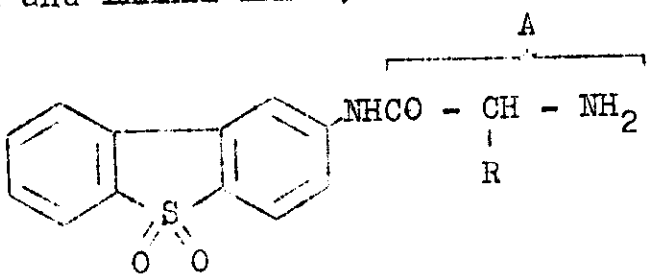
(LXXII-LXXVI)

(LXXII) , A = Pht-Gly ; (LXXV) , A = Pht-L-Leu
(LXXIII), A = Pht-B-Ala ; (LXXVI), A = Pht-L-Phe
(LXXIV) , A = Pht-L-Val

(LXXVII-LXXXI)

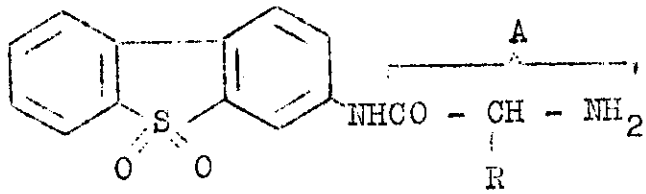
(LXXVII) , A = Tos-Gly ; (LXXX), A = Tos-L-Leu
(LXXVIII), A = Tos-B-Ala ; (LXXXI),A = Tos-DL-Phe
(LXXIX) , A = Tos-D-Ala

Cleavage of the phthalyl group in all of the synthesized phthalyl amino acid derivatives of 2-amino-dibenzothiophene-5,5-dioxide and 3-amino dibenzothiophene-5,5-dioxide was carried out by the action of hydrazine hydrate on the corresponding Pht-amino acid derivatives in ethanol-acetic acid medium. The products (LXVII-LXXI and LXXXII-LXXXV) were obtained in (55-65 %) yield.



(LXVII - LXXI)

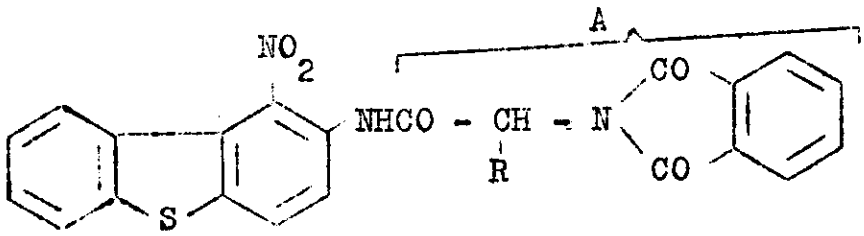
(LXVII) , A = Gl-residue ; (LXX), A = L-Leu-residue
(LXVIII), A = B-Ala-residue; (LXXI), A = L-Phe-residue
(LXIX) , A = L-Val-residue



(LXXXII - LXXXV)

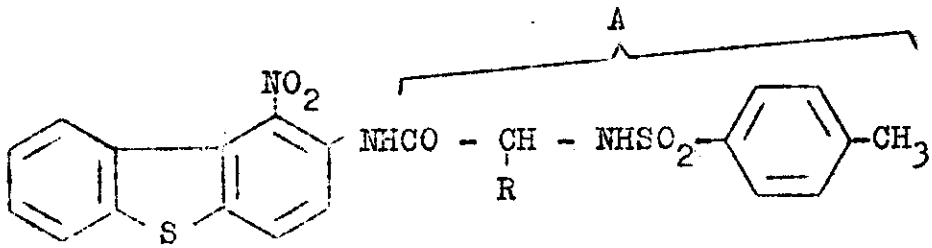
(LXXXII) , A = Gly-residue ; (LXXXIV), A = L-Val-residue
(LXXXIII), A = B-Ala-residue; (LXXXV), A = L-Phe-residue

Synthesis of 1-nitro-2N(Pht- or Tos-amino acid)-aminodibenzothiophene derivatives (LXXXVI-XCV) were obtained with great success using the carbodiimide procedure and tetrahydrofuran as solvent. The products (LXXXVI-XCV) were obtained in (53 - 90%) yield.



(LXXXVI - XC)

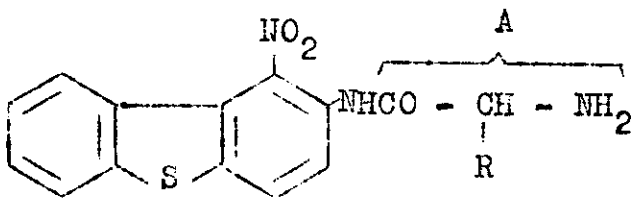
(LXXXVI) , A = Pht-Gly ; (LXXXIX), A = Pht-L-Leu
(LXXXVII) , A = Pht-B-Ala ; (XC) , A = Pht-L-Phe
(LXXXVIII), A = Pht-L-Val



(XCI - XCV)

(XCI) , A = Tos-Gly ; (XCIV), A = Tos-L-Leu
(XCII) , A = Tos-B-Ala ; (XCV) , A = Tos-DL-Phe
(XCIII), A = Tos-D-Ala

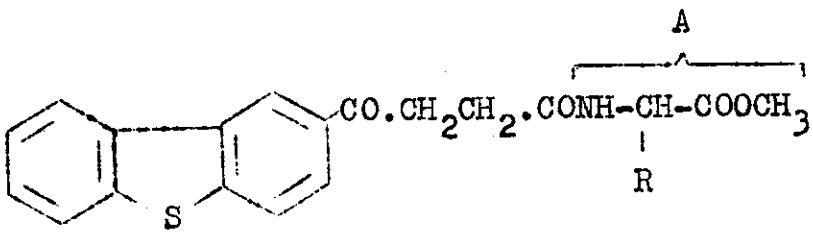
Cleavage of the phthalyl group in the synthesized phthalyl amino acid derivatives of 1-nitro-2-amino dibenzothiophene was carried out by the action of hydrazine hydrate on the corresponding Pht-amino acid derivatives in ethanol-acetic acid medium. The products (XCVI-XCVIII) were obtained in (55 - 70 %) yield.



(XCVI - XCVIII)

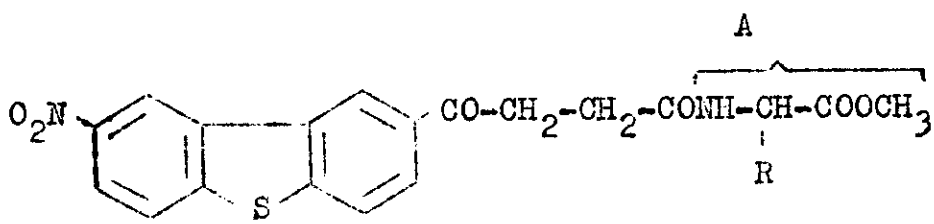
(XCVI) , A = Gly-residue; (XCVIII), A = L-Phe-residue
(XCVII), A = L-Val-residue

Also, several B-(2-carbonyldibenzothiophene)propionyl amino acid methyl ester and B-(8-nitro-2-CO-dibenzothiophene)propionyl amino acid methyl ester derivatives (XCIX-CIII and CXIV-CXVIII) were prepared using the carbodiimide method in tetrahydrofuran as a solvent and the products obtained in (70 - 90 %) yield.



(XCIX - CIII)

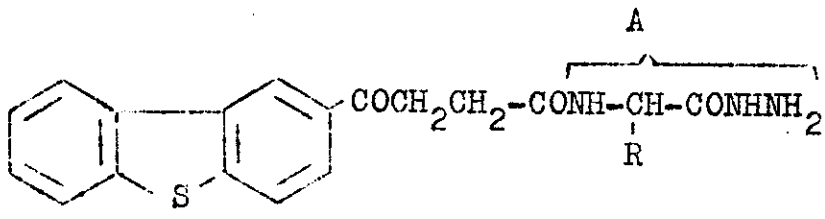
(XCIX) , A = L-Ser-OMe ; (CII), A = L-Tyr-OMe
(C) , A = L-Leu-OMe ; (CIII),A = L-Phe-OMe
(CI) , A = L-Val-OMe



(CXIV-CXVIII)

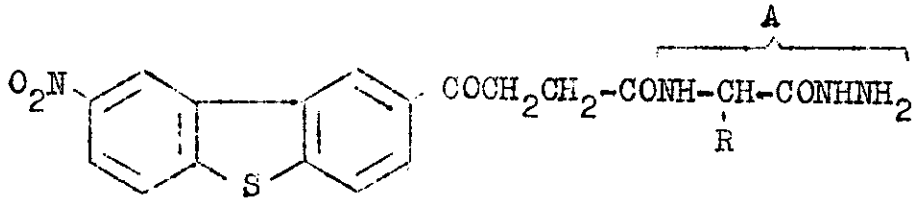
(CXIV) , A = L-Ser-OMe ; (CXVII) , A = L-Tyr-OMe
(CXV) , A = L-Leu-OMe ; (CXVIII), A = L-Phe-OMe
(CXVI) , A = L-Val-OMe

The hydrazides of the amino acid methyl ester derivatives which allude to previously were performed by standing its ethanolic solutions with few drops of hydrazine hydrate in refrigerator for 24 hours, where the hydrazides (CIV-CVIII and CXIX-CXXIII) precipitated in (50 - 78 %) yield.



(CIV - CVIII)

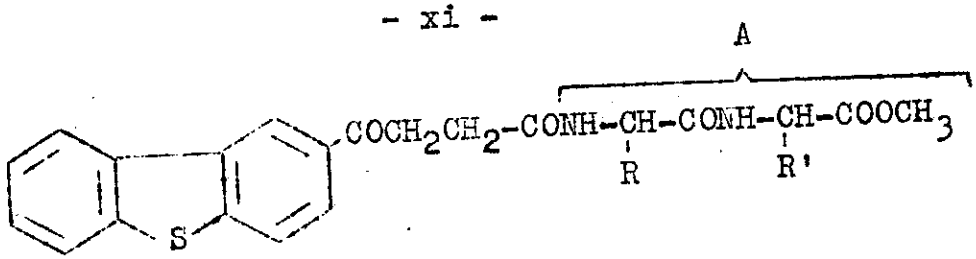
(CIV) , A = L-Ser-N_2H_3 ; (CVII) , A = L-Tyr-N_2H_3
(CV) , A = L-Leu-N_2H_3 ; (CVIII), A = L-Phe-N_2H_3
(CVI) , A = L-Val-N_2H_3



(CXIX - CXXIII)

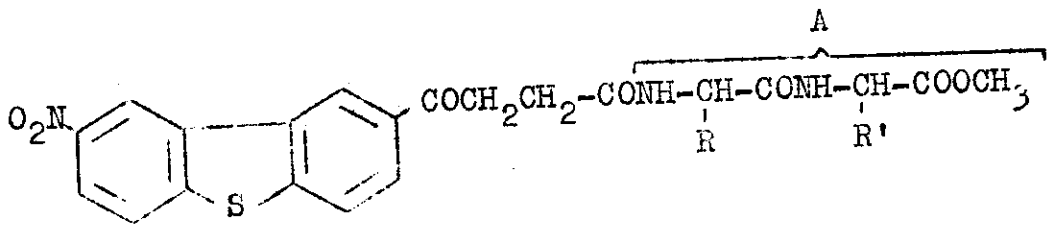
(CXIX), A = L-Ser-N_2H_3 ; (CXXII) , A = L-Tyr-N_2H_3
(CXX) , A = L-Leu-N_2H_3 ; (CXXIII), A = L-Phe-N_2H_3
(CXXI), A = L-Val-N_2H_3

Coupling of the synthesized hydrazides, which allude to previously, with different amino acid methyl ester using the azide method afforded the dipeptides (CIX-CXIII, CXXIV and CXXV) in (55 - 65 %) yield.



(CIX - CXIII)

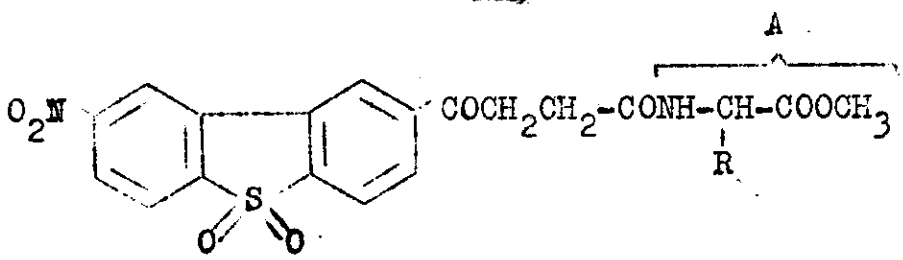
(CIX) , A = L-Ser-L-Leu-OMe
(CX) , A = L-Tyr-L-Leu-OMe
(CXI) , A =L-Tyr-L-Phe-OMe
(CXII), A = L-Phe-L-Leu-OMe
(CXIII),A = L-Phe-L-Tyr-OMe



(CXXIV - CXXV)

(CXXIV) , A = L-Leu-L-Phe-OMe
(CXXV) , A = L-Val-L-Leu-OMe

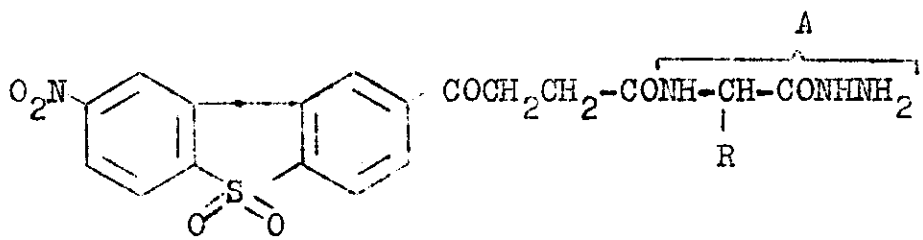
Synthesis of B-(8-nitro-2-CO-dibenzothiophene-5,5-dioxide) propionyl amino acid methyl ester derivatives (CXXVI-CXXX) were prepared using the dicyclohexylcarbodiimide procedure (DCCD) and tetrahydrofuran-triethylamine medium. All of these methyl esters were obtained in (80 - 87 %) yield.



(CXXVI - CXXX)

(CXXVI) , A = L-Ser-OMe ; (CXXIX), A = L-Tyr-OMe
(CXXVII), A = L-Leu-OMe ; (CXXX) , A = L-Phe-OMe
(CXXVIII),A = L-Val-OMe

The hydrazides (CXXXI-CXXXIV) of the amino acid methyl ester derivatives which allude to previously were easily performed by the action of hydrazine hydrate on the corresponding methyl esters in ethanol.

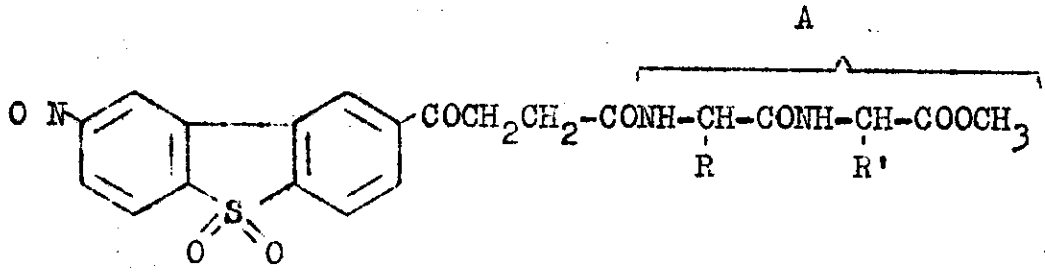


(CXXXI - CXXXIV)

(CXXXI) , A = L-Ser-N_2H_3 ; (CXXXIII), A - L-Val-N_2H_3
(CXXXII), A = L-Leu-N_2H_3 ; (CXXXIV) , A = L-Tyr-N_2H_3

Coupling of (CXXXI) and (CXXXIV) with different amino acid methyl ester using the azide method afforded

the dipeptides (CXXXV - CXXXVIII) in (55 - 65 %) yield.



(CXXXV - CXXXVIII)

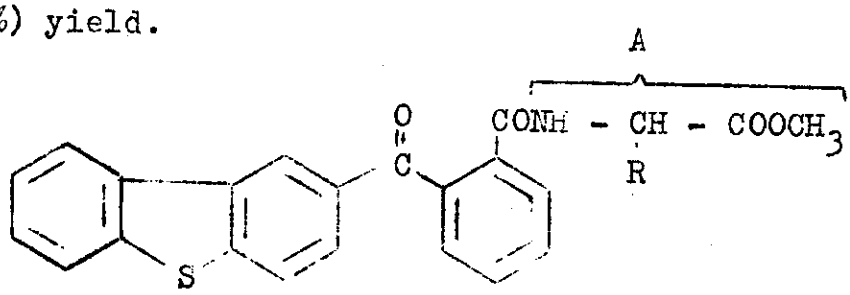
(CXXXV) , A = L-Ser-L-Leu-OMe

(CXXXVI) , A = L-Ser-L-Phe-OMe

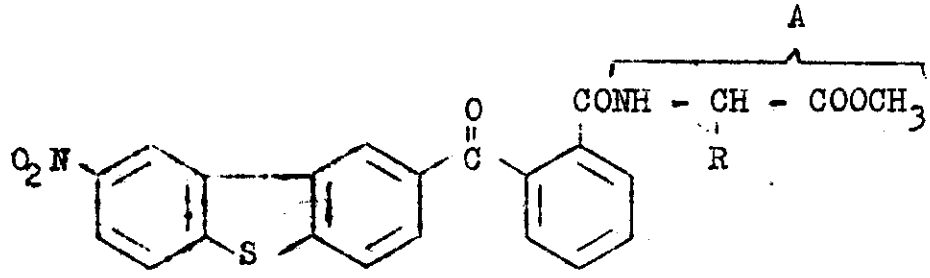
(CXXXVII) , A = L-Tyr-L-Ser-OMe

(CXXXVIII), A = L-Tyr-L-Phe-OMe

Also, several ortho-(2-carbonyldibenzothiophene)-benzoyl amino acid methyl ester and ortho-(8-nitro-2-CO-dibenzothiophene)-benzoyl amino acid methyl ester derivatives (CXXXIX - CXLIII and CLIX - CLXIII) were prepared using the DCCD method and tetrahydrofuran-triethylamine medium. All of these methyl esters were obtained in (80 - 90 %) yield.



(CXXXIX - CXLIII)

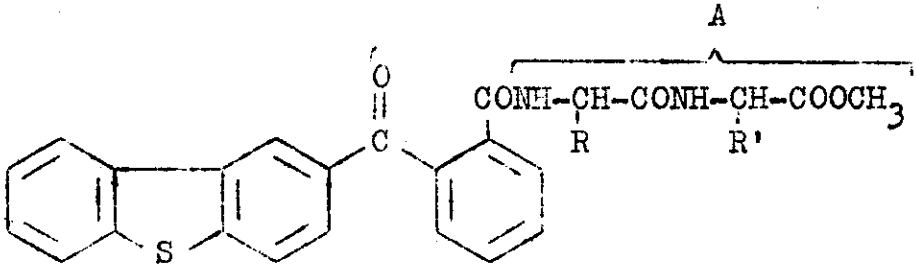


(CLIX - CLXIII)

(CLIX) , A = L-Ser-OMe; (CLXII), A = L-Tyr-OMe
(CLX) , A = L-Leu-OMe; (CLXIII), A = L-Phe-OMe
(CLXI) , A = L-Val-OMe

The hydrazides (CXLIV-CXLVIII and CLXIV-CLXVIII) of the amino acid methyl ester derivatives which allude to previously were easily performed by the action of hydrazine hydrate on the corresponding methyl esters in ethanol.

Coupling of the synthesized hydrazides which allude to previously with different amino acid methyl ester using the azide method afforded the dipeptides (CXLIX - CLVIII and CLXIX - CLXXI) in (55 - 65 %) yield.



(CXLIX - CLVIII)

(CXLIX) , A = L-Ser-L-Leu-OMe

(CL) , A = L-Ser-L-Tyr-OMe

(CLI) , A = L-Leu-L-Tyr-OMe

(CLII) , A = L-Leu-L-Phe-OMe

(CLIII) , A = L-Val-L-Leu-OMe

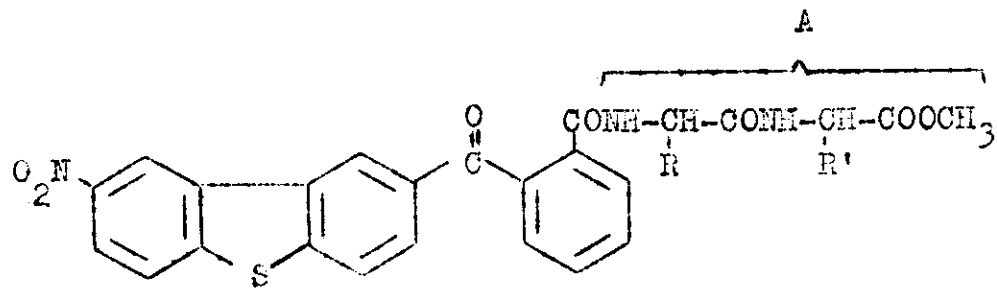
(CLIV) , A = L-Val-L-Phe-OMe

(CLV) , A = L-Tyr-L-Leu-OMe

(CLVI) , A = L-Tyr-L-Phe-OMe

(CLVII) , A = L-Phe-L-Leu-OMe

(CLVIII) , A = L-Phe-L-Tyr-OMe



(CLXIX - CLXXI)

(CLXIX) , A = L-Ser-L-Tyr-OMe

(CLXX) , A = L-Tyr-L-Leu-OMe

(CLXXI) , A = L-Tyr-L-Phe-OMe

All of the synthesized compounds are completely isolated, purified and recrystallized. Their yields,

m.p. crystallization solvent, chromatographic and electrophoretic studies, optical relations and elemental analysis are recorded. The IR, UV and NMR spectra for the above compounds are also reported and discussed.

The biological activities of all the synthesized compounds (XXVII -CLXXI) were tested against different types of gram positive and gram negative micro-organisms. Some of the synthesized amino acid derivatives were found to possess high biological activities.