DR-34. QUATERNARY AMMONIUM DERIVATIVES OF 2-AMINOTHIOPHENE-3-CARBOXYLATES WITH ANTIMICROBAL ACTIVITY

D. S. Khachatryan[1], A. V. Kolotaev[1], V. N. Osipov[1], V. A. Yashkir[2], K. R. Matevosyan[3]

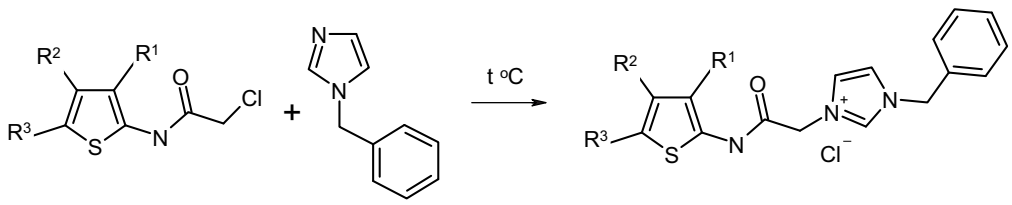
[1] National Research Center «Kurchatov Institute» – IREA, Bogorodsky val, 3, Moscow, 107076, Russia

[2] Scientific Centre for Expert Evaluation of Medicinal Products of the Ministry of Health of Russia, Petrovsky boulevard, 8, bld. 2, Moscow, 127051, Russia

[3] Mendeleev University of Chemical Technology of Russia, Miusskaya pl., 9, Moscow, 125047, Russia

E-mail: derenik-s@yandex.ru

It is known that quaternary ammonium salts (QAS) (eg. Benzalkonhlorides [1], Cetavlon, Cetrimide, Miramistin) exhibit antimicrobial and antibacterial properties. Known effect on Mycobacterium QAS limited inhibition of their growth [2]. Recently, this class of compounds found cytostatic activity that caused the interest for their use as anticancer agents [3] that the mechanism of biological action belong to the class of alkylating agents. Us introduce new interest to obtain new quaternary ammonium salt of 2-aminothiophene-3-carboxylic acid, obtained by reacting the corresponding alkyl chlorides with N-benzylimidazole in an organic solvent under heating at Menshutkin reaction [4]. Initial alkyl chlorides obtaine by acylation with chloroacetyl chloride derivatives of 2-aminothiophene-3-carboxylic acid obtained in known manner by Gevald reaction of a karbonil compounds (aliphatic aldehydes and ketones), activated nitriles and sulfur in the presence of a secondary amine [5].



$R^1 = CO_2Alk, CO_2NHR, CN$; $R^2, R^3 = Ar, H, Alk, -(CH_2)_n-$

All obtained 11 compounds were characterized by NMR and elemental analysis.

Determination of antimicrobial activity (minimum inhibitory concentration – MIC) data salts carried out by means serial twofold dilutions in liquid medium. Concerning Gram negative bacteria *Escherichia coli ATCC 8739* five compounds most active (1 : 3200), and *Pseudomonas aeruginosa ATCC 9027* – only compound KOA 256 (1 : 800). The best results for a given seria of salts obtained against Gram-positive bacteria *Bacillus subtilis ATCC 6633* and *Staphylococcus aureus ATCC 6538* (seven highly active compounds, 1 : 3200). In relation to the molds *Aspergillus brasiliensis ATCC 16404* seven active compounds (1 : 3200), whereas by yeast fungi *Candida albicans ATCC 10231* is active only three compounds. Compound KOA 256 showed multi-active on all strains of microorganisms, and compounds KOA 207 и d04605 showed high activity (1 : 3200) in 5 strains of microorganisms (*E. coli*, *S. aureus*, *B. subtilis*, *A. brasiliensis*, *C. albicans*). Thus, these compounds are of interest for further study and can be actual for the treatment of microbial infections.

References

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