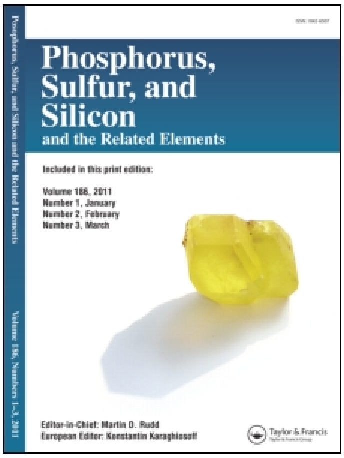

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Oxidation Reaction of 1,2,4,3-Triazaphospholo[4,5-A]Quinolines

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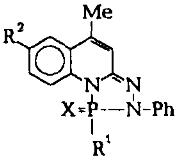
It is known that oxidation of 8n,π-electrons heterocycles in the series of 1,4-dihydro-1,2,4,5-tetrazines lead to formation of a stable radical cation salts. In this work the processes of chemical and electrochemical (in MeCN) oxidation of 1-X-1-R^1-2-phenyl-5-methyl-6-R^2-1,2-dihydro-1,2,4,3-triazaphospholo[4,5-a]quinolines **1-5** [1]



1 X=LP, R^1=Et_2N, R^2=H; **2** X=LP, R^1=Ph, R^2=H; **3** X=LP, R^1=Et_2N,R^2=Me; **4** X=LP, R^1=MeO, R^2=H; **5** X=S, R^1=Et_2N, R^2=H

- representatives of new annelic 8n,π-electrons heterocyclic systems are presented. For all compounds **1-5** multistep electrochemical oxidation is observed. Products of reversible single electron transfer in low potential range are radical cation, determined by cyclic voltametry method. Compounds of P(III) are oxidized more lightly then corresponding compounds of P(V) (ΔEp = 0.4 V). Similarly values of oxidation potentials of compounds **1-4** and 2-(2-phenylhydrazino)-4-methylquinoline, and also a strong influence of substituent R in 2-(2-R-hydrazino)-4-methylquinolines show that N-C=N-N fragment is reaction center in the processes of electrochemical oxidation. Lone pair (LP) phosphorus carry unimportant contribution in high occupied molecular orbital of 8n,π-electrons heterocycle, bat to a marked degree stabilizes radical cation and determines behaviour of molecule in chemical reactions. Triazaphospholoquinolines **1-4** are oxidized by oxygen and react with sulphur leading to the formation phosphoryl- and thiophosphoryl derivatives accordingly.

References

[1] B.I. Buzykin, R.M. Eliseenkova and T.A. Zyablikova, *Zh. obshch. khim.*, **66**, 512, (1996).