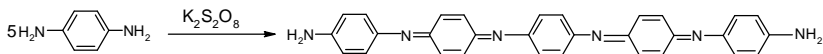


ONE STEP SYNTHESIS OF OXIDIZED FORM OF NH₂/NH₂ CAPPED ANILINE PENTAMER BY OXIDATIVE CONDENSATION OF P-PHENYLENEDIAMINE

N. Martikyan, N. Durgaryan, A. Durgaryan

*Yerevan State University Armenia A. Manoogian 1, 375025, Yerevan;
durgaran@ysu.am*

We have worked out a new and useful method of synthesizing N,N'-disubstituted quinonediimines using oxidative condensation of p-phenylenediamine (PPDA) in organic medium [3]. Because the oxidative condensation reaction of PPDA proceeded by a step-growth polymerization mechanism, the molecular mass of the obtained compound can be regulated by varying the PPDA/potassium peroxydisulphate molar ratio. Particularly, N,N'-bis(4'-aminophenyl)-1,4-benzoquinone diimine was the main product of the condensation of PPDA using molar ratio PPDA/potassium peroxydisulphate 4:1. The other – insoluble in methanol fraction, was formed as a result of the reaction, as well. This work has been focused on investigation of the structure of this compound. According to scheme of the reaction, 1,4-di[N(4'-aminophenyl)-1',4'-benzoquinonediimine-N'-yl]benzene – pentamer of aniline with capped NH₂/NH₂ groups, expected to be formed.



Using UV, PMR and IR spectral methods we prove the structure of this compound. It was worth to mention, that this compound had not been synthesized yet and only one possible five-step, complicated method for its synthesis on the base of the reaction of p-phenylenediamine and 4-brom-N-diphenylmethylenedianiline was proposed in literature [1]. As there is possibility of self condensation of terminal amino groups with quinonediimine groups, acetylation of obtained pentamer was carried out to obtain more stable compound. Electric conductivities of as-synthesized and doping with iodine compound were investigated and compared with that of pernigraniline.

References

[1] Y.Wang, etc., *J. Am. Chem. Soc.* 2010, 132, 10365-10373.