SYNTHESIS AND TRANSFORMATIONS OF 3,8,10-TRINITRO-6H-DIBENZO[b,d]PYRAN-6-ONE IN DMSO AND DMF

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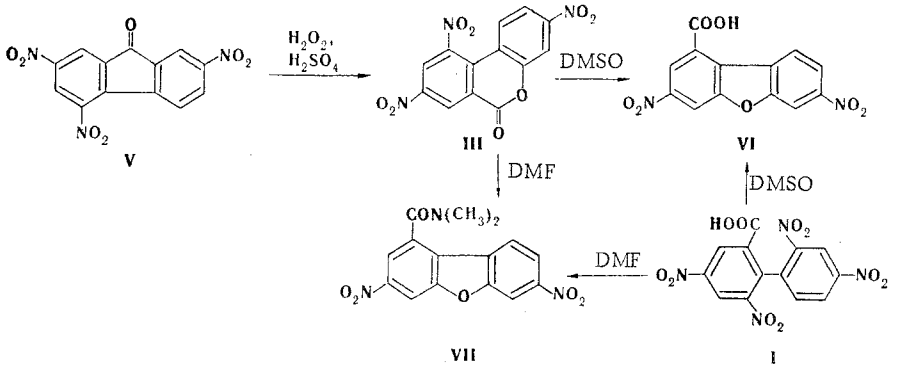
It was recently reported that 3,8,10-trinitro- (III) and 1,3,8,10-tetranitro-6H-dibenzo[b,d]pyran-6-one (IV), respectively, are formed in high yields when 2',4,4',6-tetranitro-2-carboxybiphenyl (I) and 2',4,4',6,6'-pentanitro-2-carboxybiphenyl (II) are heated in DMSO or DMF [1]. In an investigation of the reaction of acids I and II in DMSO and DMF over a broad range of temperatures we were unable to detect III and IV in the reaction solutions. It was demonstrated that the reaction products are dibenzofuran derivatives, and it was assumed that cyclization proceeds via double intramolecular nucleophilic displacement of the o-nitro groups with the intermediate formation of unstable lactones III and IV [2]. To confirm the assumption of the possibility of the realization of this transformation through III and IV we developed a method for the preparation of one of them (III) by the action of 30% hydrogen peroxide on 2,4,7-trinitrofluorenone (V) in sulfuric acid [the product was obtained in 76% yield and had mp 240.5-241.5°C (from acetic acid) and R_f 0.4 (Silufol UV-254, benzene). IR spectrum: 1750 (C=O); 1535 and 1360 cm^{-1} (NO_2)]. The results of elementary analysis were in agreement with the calculated values.



It was established that the same compounds as those obtained from acid I, viz., 3,7-dinitrodibenzofuran-1-carboxylic acid (VI) and its dimethylamide VII, are formed when lactone III is heated under the conditions in [2].

LITERATURE CITED

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