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New Method for Synthesis of 7-Amino-6-nitrobenzodifuroxan

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Abstract: 7-Amino-6-nitrobenzodifuroxan (ANBDF) was synthesized from 3,5-dichloroaniline and chloroacetyl chloride through acetylation, nitration, azidation-denitrogenation and hydrolysis at mild conditions with high yields. The yields of acetylation, nitration, azidation-denitrogenation and hydrolysis were 97.7%, 70.0%, 82.5%, and 80.0% respectively. The denitrogenation was completed at 80 °C while others were finished from 0 °C to room temperature. The optimal reaction conditions of temperature, time, and ratio of substrate and other reactants were also studied. The structures of ANBDF and its precursors were characterized by means of ¹H NMR, FTIR, MS and elemental analysis. ANBDF is a stable and insensitive explosive with the melting point 204-205 °C.

Key words: organic chemistry; 7-amino-6-nitrobenzodifuroxan; benzofuroxans; synthesis; insensitive explosive; characterization



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