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Research on the reaction of furil with ammonium acetate

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Furil
Ammonium acetate
Heterocycles
Mechanism
Furan derivatives

ABSTRACT

The direct reaction of furil with ammonium acetate in refluxing glacial acetic acid under the absence of appropriate aldehydes was systematically studied. The principal product with furan rings and imidazole ring 2,4,5-tri(furan-2-yl)-1*H*-imidazole (**I**) was obtained in moderate yield, and two new byproducts containing furan rings were successfully purified by C18 reversed phase column. All compounds were characterized by elemental analysis, MS, IR, ^{1}H and ^{13}C NMR spectroscopy. The structure of **I** was further confirmed by the ^{13}C-^{1}H COSY spectroscopy. The putative reaction mechanism *via* stable 1,2-di(furan-2-yl)ethane-1,2-diimine, furan-2-yl-(2,4,5-tri-furan-2-yl-2*H*-imidazol-2-yl)-methanone and intermediate **5** traced by GC-MS was proposed.

Supplementary Material

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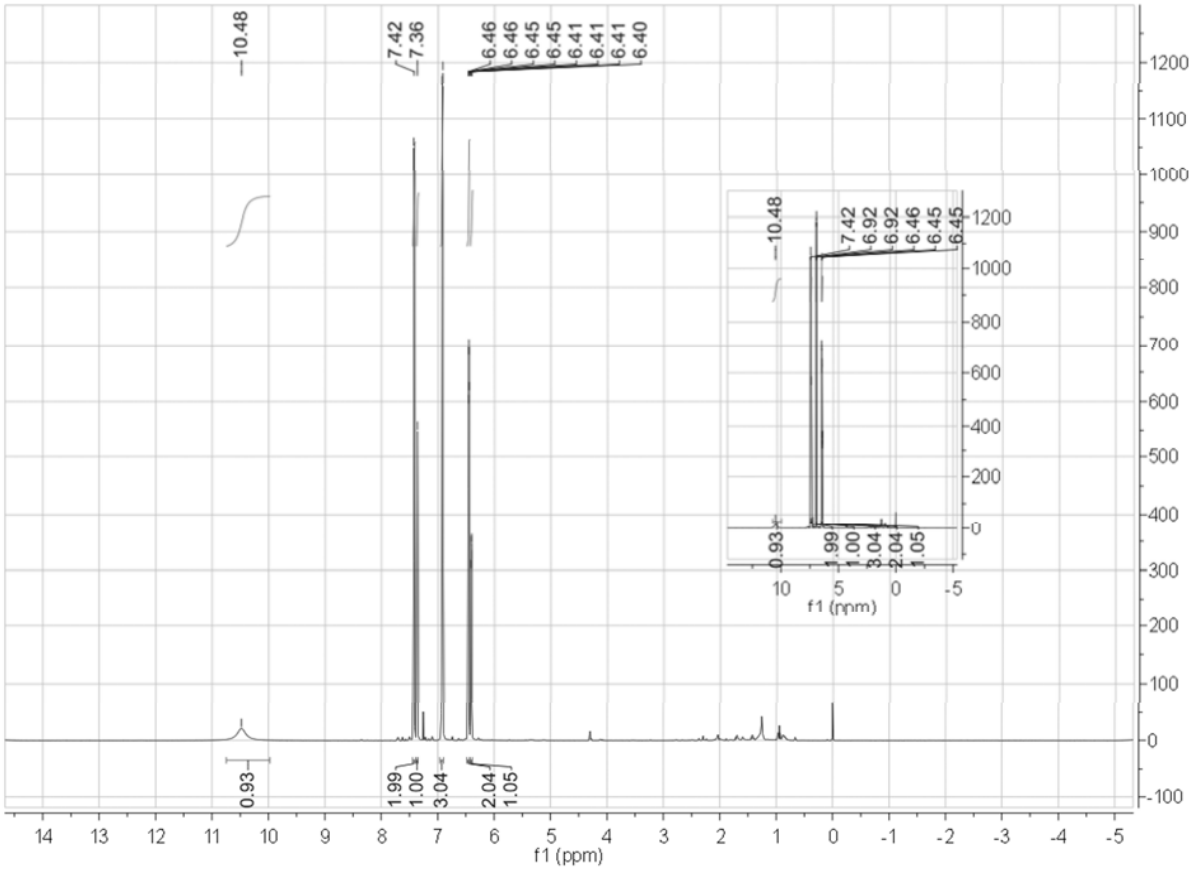
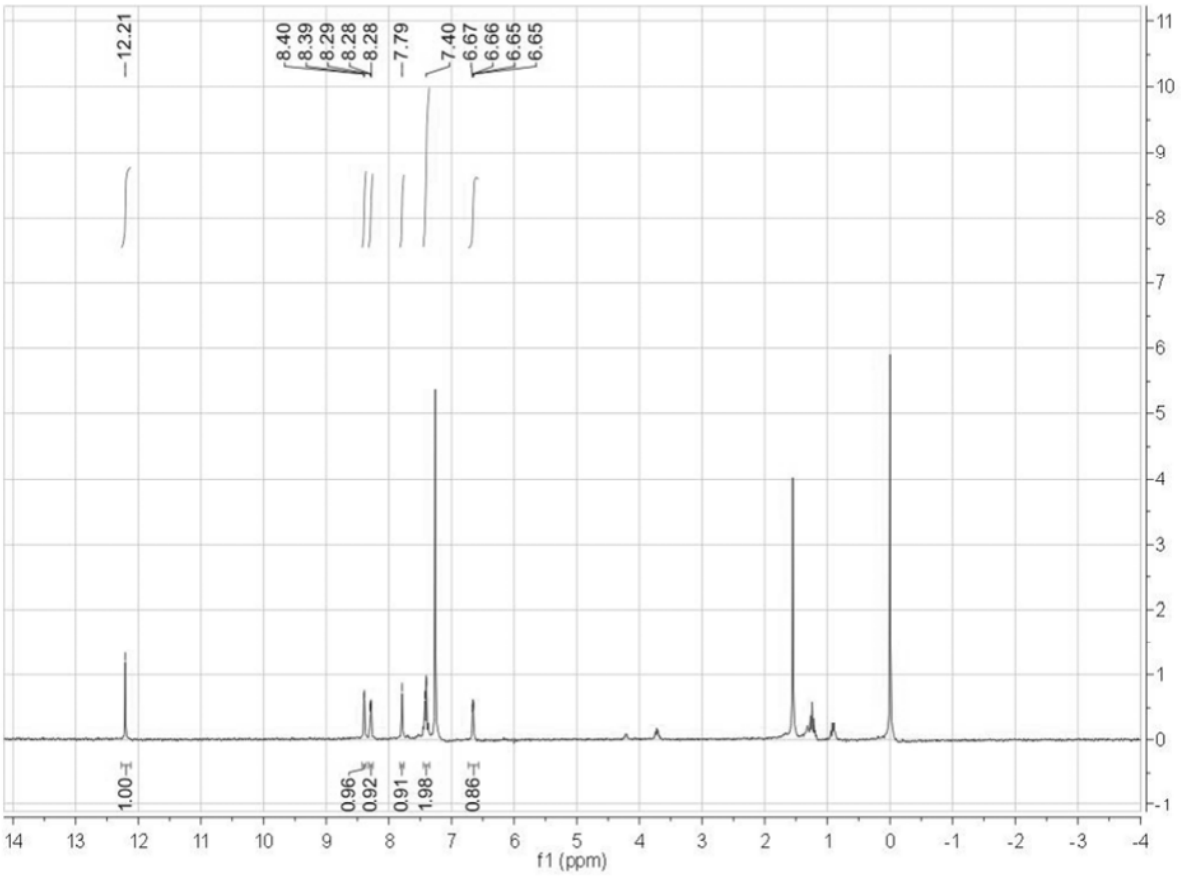
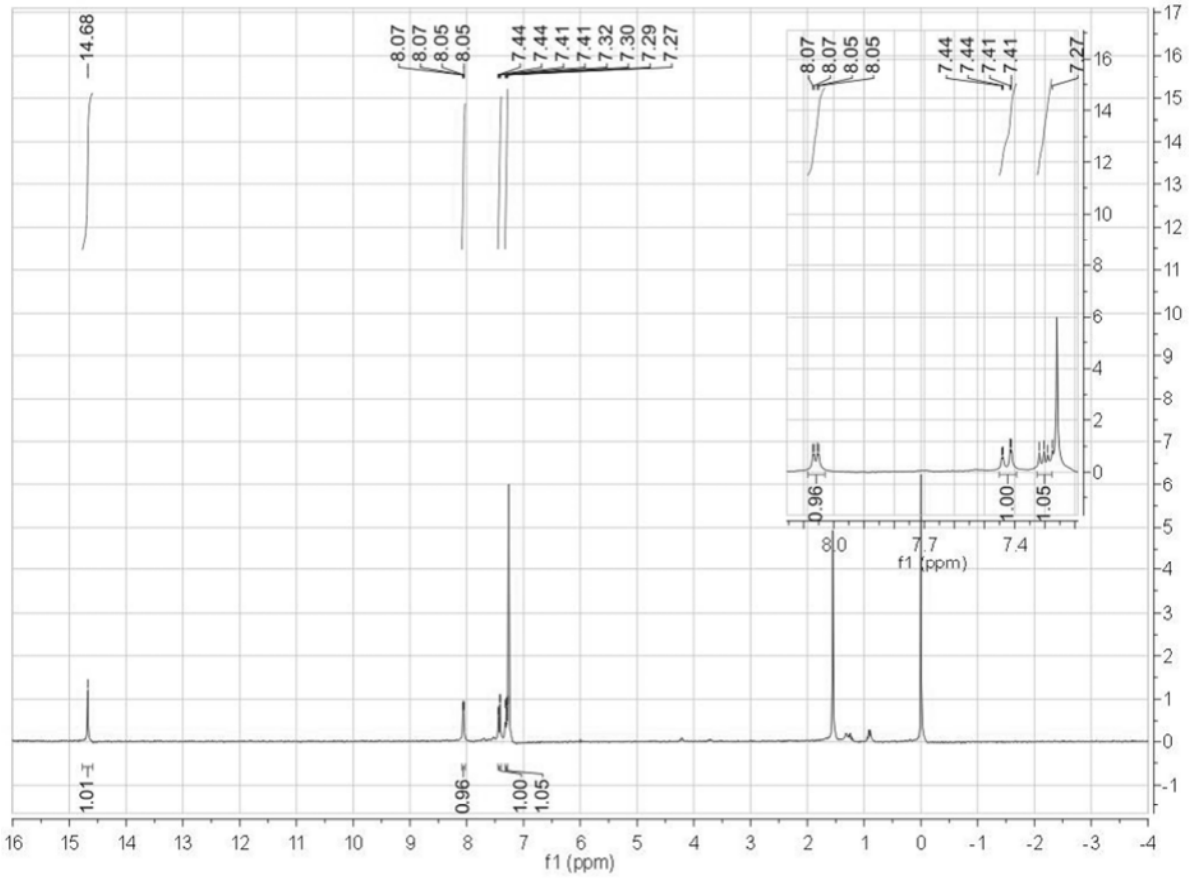
The [1]H-NMR of all compounds



[1]H-NMR of 2,4,5-tri(furan-2-yl)-1H-imidazole

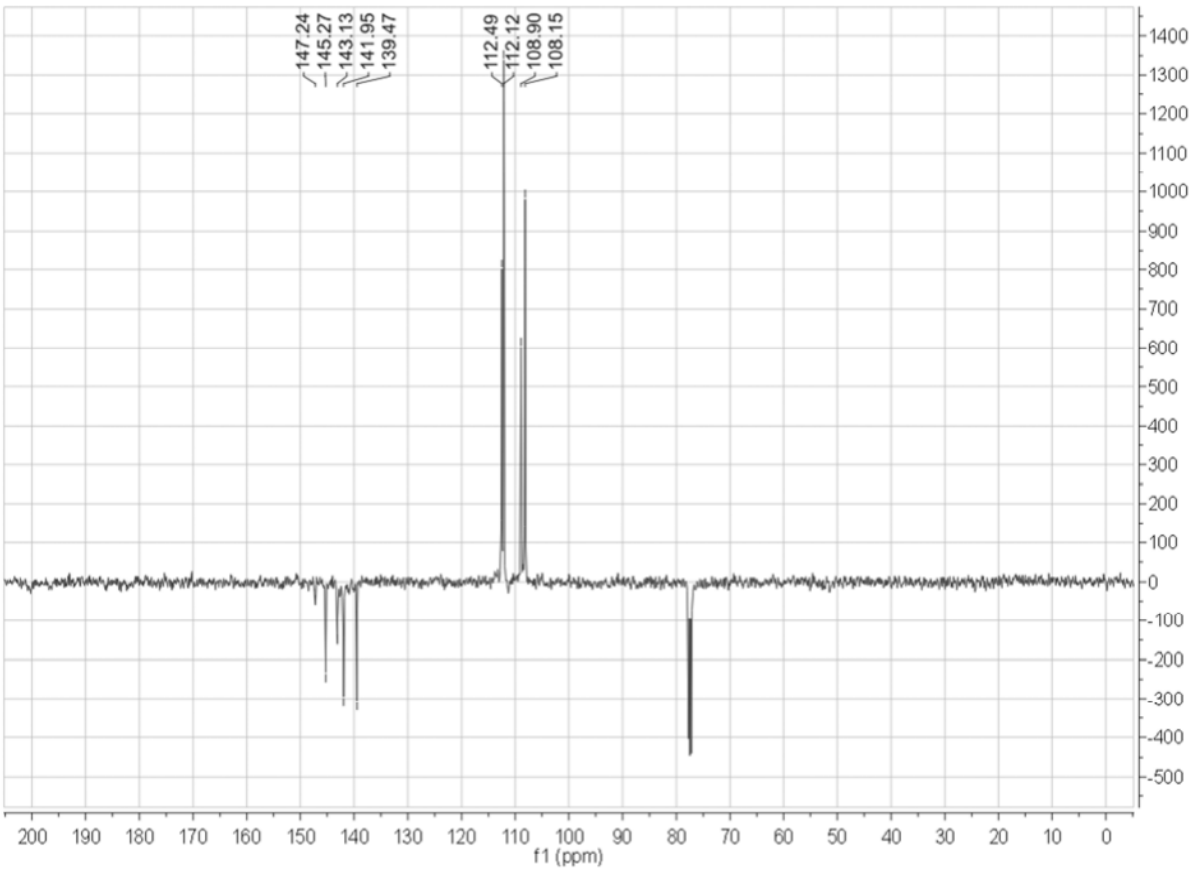


^{1}H-NMR of 1,2-di(furan-2-yl)-2-iminoethanone



^{1}H-NMR of 1,2-di(furan-2-yl)ethane-1,2-diimine

The ^{13}C-NMR of all compounds



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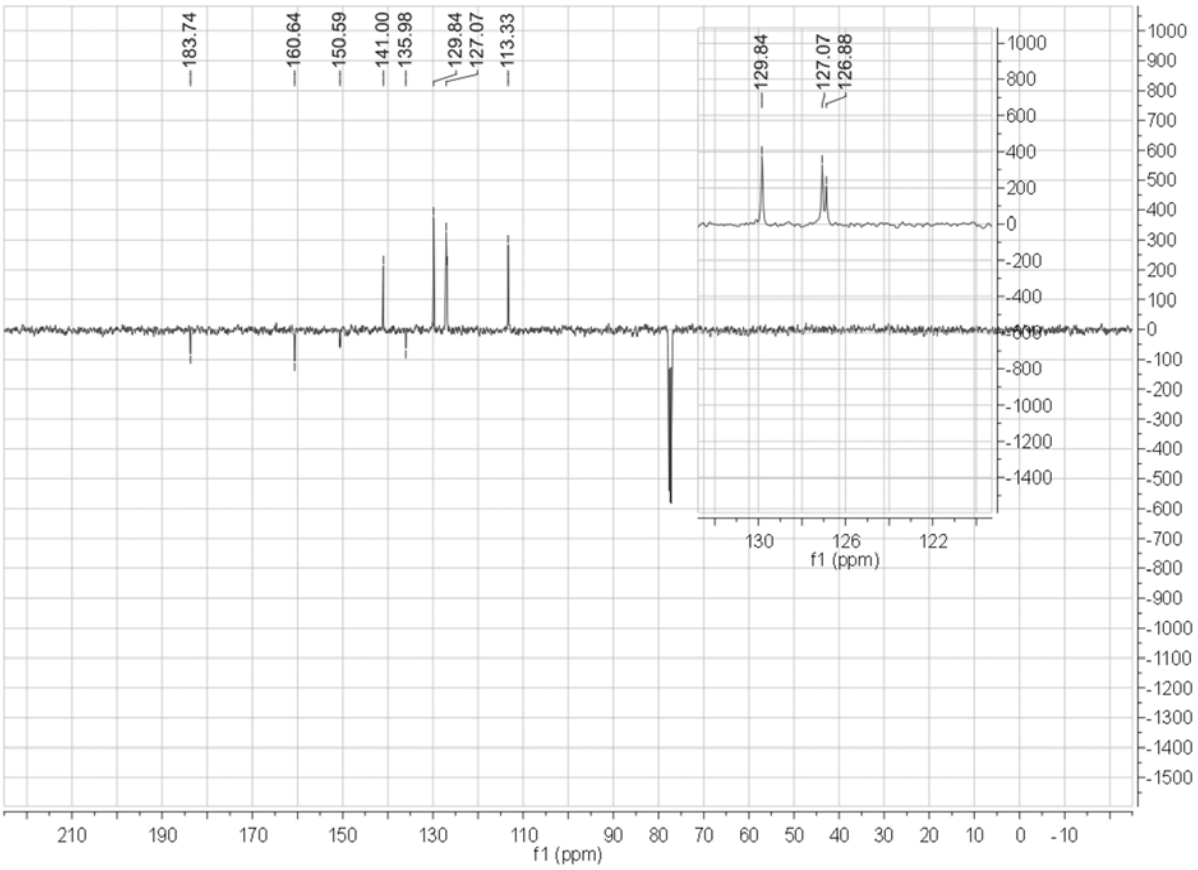

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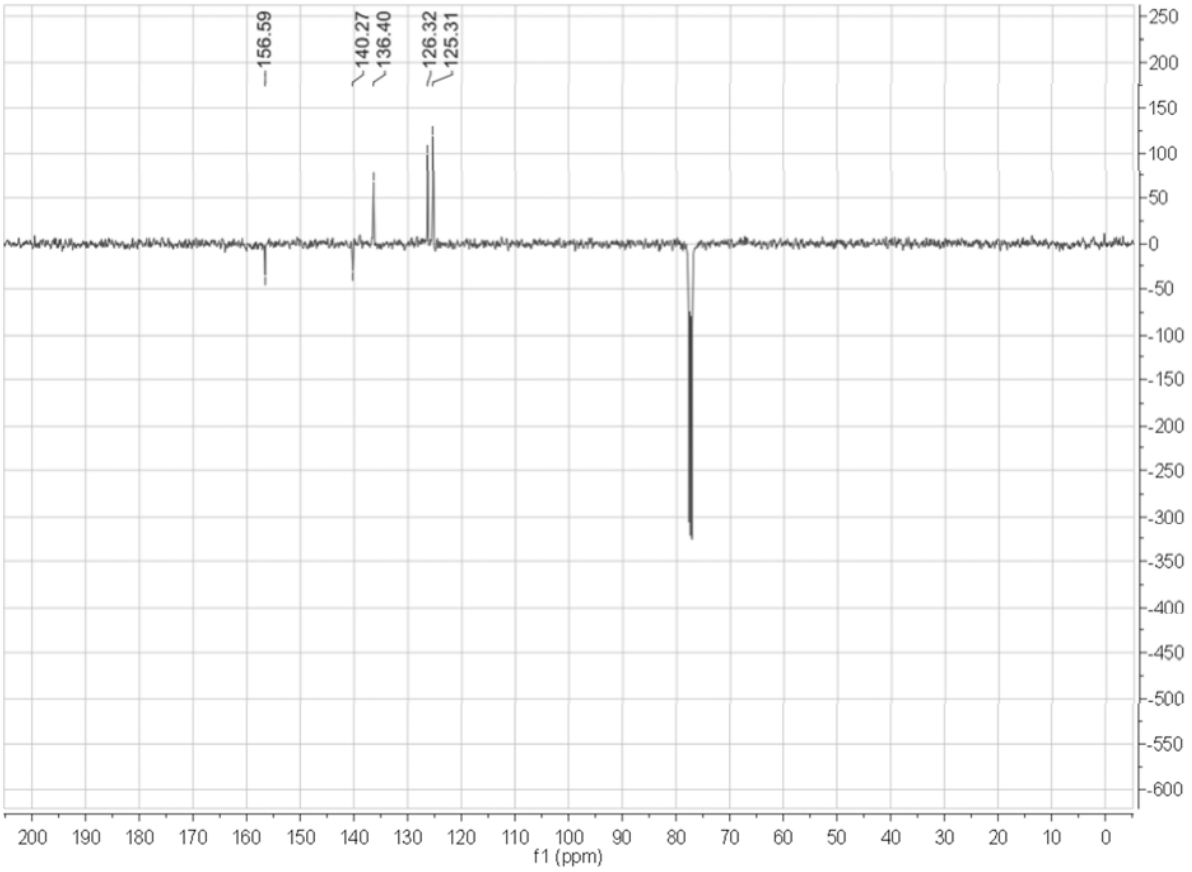

^{13}C-NMR of 1,2-di(furan-2-yl)ethane-1,2

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