

**REACTION OF CHLOROBUTANOYLFERROCENE WITH
2,4-DINITROPHENYLHYDRAZINE**

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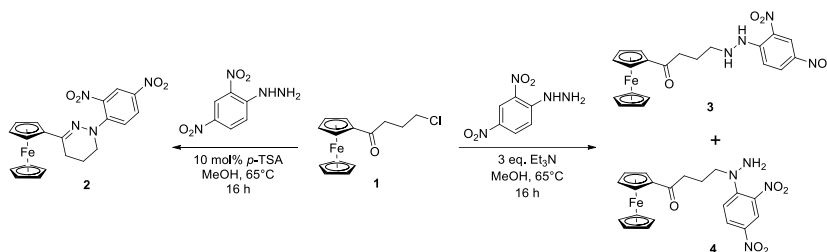
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To date, important compounds incorporating a substituted 1,4,5,6-tetrahydropyridazine moiety include agents such as the natural antibacterial drugs, as well as a progesterone receptor ligands and a cannabinoid receptor antagonists CB1 [1]. On the other hand, a recent review [2] shows the structures of dozens of promising ferrocene-containing drug candidates against various types of cancer, malaria, pathogenic bacteria and fungi, viral diseases, and much more. In our work, we found a way to combine such important pharmacophore fragments as ferrocene and tetrahydropyridazine in one molecule.

During our work on ferrocenyl-1,4,5,6-tetrahydropyridazine synthesis we discovered unusual behavior of 2,4-dinitrophenylhydrazine in the reaction with ferrocenyl γ -chloroketone **1**. Reaction pathway depends on whether acid or base was used. In the presence of 10 mol% *p*-TSA expected 1,4,5,6-tetrahydropyridazine derivative **2** was obtained. However, when triethylamine was used as a base, N-alkylation of 2,4-dinitrophenylhydrazine takes place with the formation of products mixture **3** and **4**.



Difference between products **2** and **3**, **4** was confirmed using TLC, melting point, ¹H and ¹³C NMR spectroscopy. Products **3**, **4** appear on LCMS as very close peaks in 1:2 ratio with the same molecular weight. Unfortunately, we were not able to separate compounds **3** and **4**, thus they were characterized as a mixture. In contrast, unsubstituted phenylhydrazine gives desired 1-phenyl-3-ferrocenyl-1,4,5,6-tetrahydropyridazine when *p*-TSA or NaOAc was used. With triethylamine as a base the reaction does not proceed.

We continue to work on the synthesis of new tetrahydropyridazines with alkyl and aryl substituents. The results will be reported in due course.

References

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