

SYNTHESES AND REACTIONS OF 3,4-DIHYDRO-2H-PYRANS BEARING TRIFLUOROMETHYL GROUP

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Vinyl ethers **1** reacted with trifluoroacetic anhydride to yield trifluoroacetylated compounds **2** and **3** in high yields. The reactions of β -acylenamine **4** with Grignard reagents afforded trifluoroacetylated compounds **5** in good yields.

Hetero-Diels-Alder reactions of monoacylated compounds **2** and **5** with vinyl ethers proceeded at 120-130°C to afford dihydropyran deriv. **6** and **7** respectively. The similar reactions of β,β -diacylated compounds **3** with vinyl ethers and ethyl vinyl sulfide occurred easily at rt-40°C to give dihydropyran deriv. **8** in high yields. Moreover, reactions of aryl vinyl ethers **1** (R^1 =Aryl) with trifluoroacetic anhydride at 30-40°C gave directly dihydropyran deriv. **9**.

Dihydropyran deriv. **9** reacted with aqueous ammonia at room temperature in acetonitrile to give pyridine deriv. **10** in 94% yield. The reaction of **9** with methylamine and dimethylamine afforded dihydropyridine deriv. **11** which showed strong fluorescence, and 1,3-butadiene deriv. **12** in high yields, respectively. Dihydropyran deriv. **9** reacted also with methylhydrazine to yield pyrazole deriv. **13** in 74% yield. Moreover, the reaction of **9** with acetylacetone in the presence of sodium metal afforded triene **14** in 74% yield.

The ring-opening reaction of 4-ethoxy-2-ethylthio deriv. of **8** using trifluoroacetic acid yielded easily 1,3-butadiene deriv. **15** in 81% yield. 2,4-Diethoxy deriv. of **6** gave stable 2-trifluoromethylpyrilium ion **16** in trifluoroacetic acid containing small amounts of trifluoroacetic anhydride.

