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Novel Method for Selective Deprotection of Poly Aryl Methyl Ethers by Antimony (V) Chloride

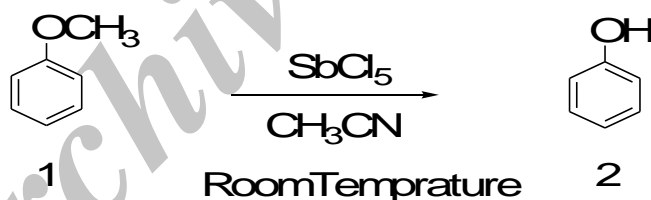
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The O-dealkylation of ethers, or ether cleavage, remains an integral functional group deprotection step to unmask a hydroxyl group. The reagent selectivity relative to other types of hydroxyl protecting groups will be highlighted, as this remains a key factor in the choice of reagent, especially in poly functional molecules [1]. Methyl ethers of both aliphatic and aromatic moieties are one of them, but a major drawback involved in this is their robustness and the difficulties encountered during their cleavage [2]. Aromatic methyl ethers are more easily cleaved than their aliphatic counterparts [3]. The choice of reagent capable of cleaving the alkyl aryl ether bound is very important.

We have found that the demethylation of aryl methyl ethers can be selectively achieved by the treatment of antimony pentachloride in acetonitrile in excellent yields. The above studies prompted us to select the use of SbCl_5 in CH_3CN anhydrous under room temperature to probe the scope of the demethylation reaction. SbCl_5 as Lewis acid can play certainly different role on poly-substituted ethers compounds. In this case, SbCl_5 selectively deprotect one of the several methoxy groups on substrate. Under the relatively mild reaction conditions, the methyl group can be readily cleaved to afford clean phenol-derived product excellent yields. The versatile by-products can be conveniently removed by column chromatography.



References

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