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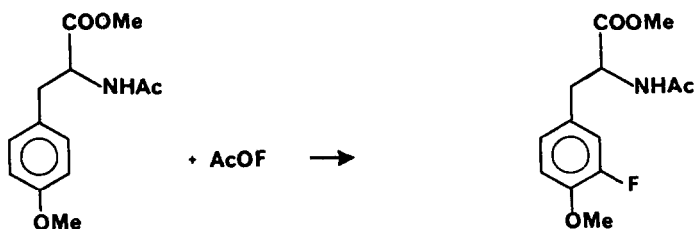
RECENT DEVELOPMENTS OF ACETYL HYPOFLUORITE, A MILD CARRIER OF ELEMENTAL FLUORINE

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Acetyl hypofluorite-AcOF, was first synthesized from elemental fluorine in our laboratory about 4 years ago. It seems to be the mildest reagent among those possessing the fluoroxy moiety, making it a useful tool for fluorination of activated aromatic rings and various double bonds. Since its reactions are very fast and since it is produced directly from elemental fluorine, AcOF is a key reagent in the synthesis of ¹⁸F containing molecules used for the rapidly developing Positron Emitting Tomography-PET.

We have studied the scope of the reaction of AcOF with certain biologically interesting compounds as tyrosine, hexestrol and unsaturated steroids. The reactions are regio and stereospecific and form fluorinated compounds in good yield.



We have studied also the reaction of AcOF with aliphatic mercury compounds. It is well known that mercuric acetate in alcoholic solution adds to olefins in an anti mode to produce β -mercuric ethers. When these compounds were treated with AcOF, fluorodemercuration with retention of configuration took place to produce, stereospecifically, β -fluoro ethers in good yields. Such compounds are difficult to obtain by other methods.

