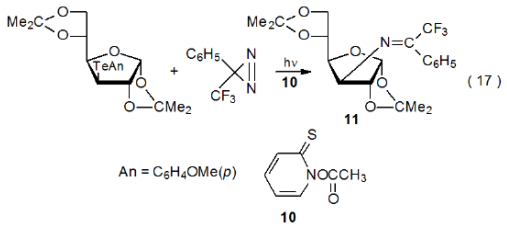
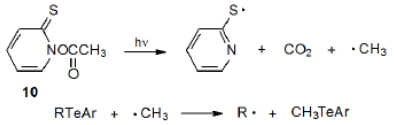
III. Azo Compounds

Azo compounds, in particular 2,2'-azobis(isobutyronitrile), are ubiquitous initiators in radical reactions, but they rarely participate in these reactions in other ways. One reaction that includes an azo compound in a role other than that as an initiator is shown in eq 17, where the imine **11** is produced by reaction of a carbohydrate radical with an azo compound.[52,53] The dimer **12** is a suggested intermediate in the proposed mechanism for this reaction, which is pictured in Scheme 7.[52,53] After radical reaction is complete, the imine **11** can be hydrolyzed to produce an aminodeoxy sugar.

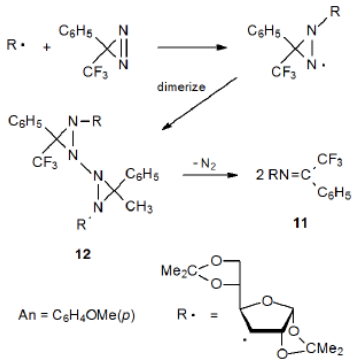


Scheme 7

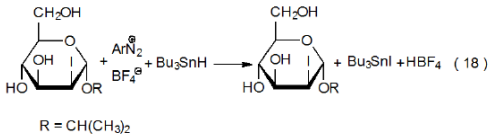
carbohydrate radical formation



radical addition to an azo compound



It is also possible to synthesize an azo compound in a radical reaction. Such a compound is formed when a carbohydrate radical, generated from a deoxyiodo sugar, adds to a diazonium salt (eq 18).[54] The propagation steps for a proposed mechanism for this reaction are shown in Scheme 8.[54]



Scheme 8