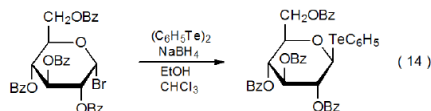
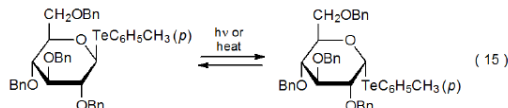


### III. Tellurides

The organotellurium compounds that are used as radical precursors in carbohydrate chemistry usually are synthesized by a nucleophilic displacement reaction such as that pictured in eq 14.<sup>79</sup>

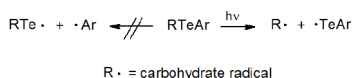


The majority of compounds prepared in this way are anomeric tellurides. Furanosyl tellurides are relatively unstable and tend to decompose within a few days,<sup>80–82</sup> but although their pyranosyl counterparts can exist unchanged in the solid state for months,<sup>79</sup> heating or exposing pyranosyl tellurides to UV light causes epimerization (eq 15).<sup>83</sup>

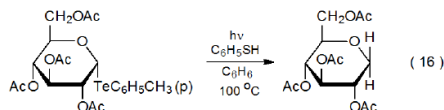


Two procedures, both of which involve [photolysis](#), cause radical reaction of carbohydrate tellurides. The first of these is photochemical homolysis of a carbon–tellurium bond, a reaction that generates the more stable of the two possible, carbon-centered radicals (Scheme 11).

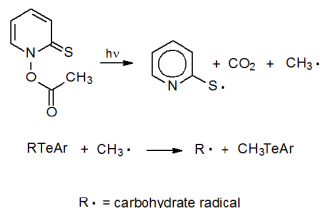
Scheme 11



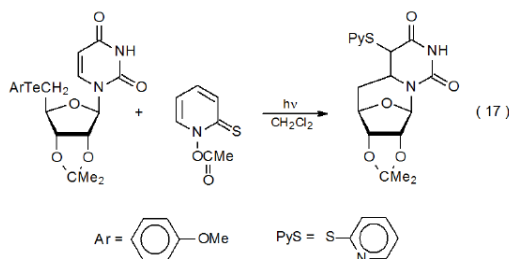
An example of reaction brought about in this way is found eq 16.<sup>83</sup> The second procedure for radical formation from a carbohydrate telluride calls for photochemical decomposition of *N*-acetoxy-2-thiopyridone to produce a methyl radical that then reacts with the telluride (Scheme 12).



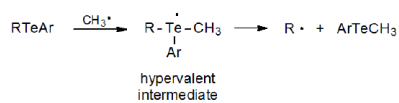
Scheme 12



Equation 17 describes a cyclization reaction initiated in this way.<sup>84</sup> Reactions of carbohydrate radicals formed from tellurides include cyclization,<sup>84,85</sup> addition,<sup>86–89</sup> reduction,<sup>83</sup> and group migration.<sup>83</sup> It is reasonable to assume that reaction of a carbohydrate telluride with a methyl radical involves, as molecular orbital calculations indicate, formation of an intermediate with a hypervalent tellurium atom (Scheme 13).<sup>90</sup>



Scheme 13




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