Ruthenium is a transition metal that, like titanium, can transfer an electron to a glycosyl halide. Photochemical reaction of [Ru(bpy)3]2+ with a tertiary amine produces [Ru(bpy)3]3+, a complex that then donates an electron to a glycosyl bromide to form a pyranos-1-yl radical (Scheme 10).29,30 The radical formed in this way from the bromide 20 is capable of adding to a variety of electron-deficient alkenes (eq 13). The role of the additive in this reaction is to improve product yield by suppressing oligomerization.29

Scheme 10

![Scheme 10 diagram]

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