Synthesis of (+)-Haplophytine

Significance: The first of the five quaternary centers in haplophytine was installed by an oxidative coupling reaction (A + B → C) mediated by phenyliodonium bis(trifluoroacetate) (PIFA).

Comment: The oxidative semi-pinacol rearrangement (D → E) was also used in Fukuyama’s synthesis of haplophytine (Angew. Chem. Int. Ed. 2009, 48, 7600; Synfacts 2010, 3). The lactone ring was created by an oxidative cyclization mediated by K3[Fe(CN)6].