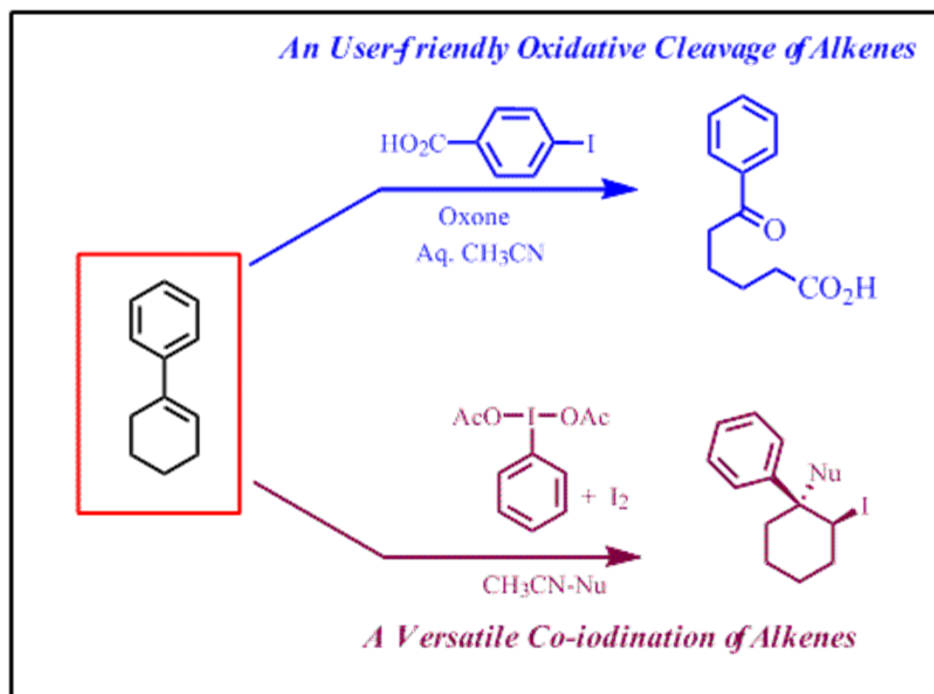


Oxidative Transformations of Alkenes Using Environmentally Benign Reagents



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A facile and operationally convenient procedure for oxidative cleavage of alkenes is reported. An in situ generated aryl-iodonium ion obtained from the oxidation of 4-iodobenzoic acid with Oxone is shown to be an effective reagent for the oxidative cleavage of a wide range of alkenes. The new reaction can be carried out under catalytic conditions using sub-stoichiometric amounts of 4-iodobenzoic acid along with the required amount of Oxone. Competitive oxidative cleavages of different substrates using the procedure has shown that phenyl-conjugated cyclic alkenes are cleaved faster than non-phenyl conjugated alkenes and conformationally rigid cyclic *cis*-diols are preferred over *trans*-diols as substrates.



Oxidation of elemental iodine to I^+ using hypervalent iodine oxidants and the subsequent use of the in-situ generated electrophilic iodine source in co-iodination of alkenes is reported. We believe that we have mechanistically and unequivocally demonstrated the origin of the 100% iodine atom economy observed during the reaction in our recent publication and have illustrated and expanded the synthetic utility for the protocol by using a variety of nucleophilic additives in the reaction.