Photochemistry of alkyl pyruvates

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The photochemistry of alkyl pyruvates of the type CH3COCOOCHR2 has been examined in solution using a combination of product studies and laser flash photolysis techniques. The results indicate that the main reaction path for triplet decay is the intramolecular abstraction of hydrogen to yield the biradical CH3?(OH)COO?R2 which decays predominantly to regenerate the parent substrate and to a lesser extent to yield fragmentation products. Efficient self-quenching by photoproducts makes the determination of triplet lifetimes difficult; triplet parameters need to be extrapolated to zero concentration zero conversion. Under these conditions the triplet lifetimes (n-heptane; 20 °C) are 280 ns and 130 ns for the methyl esters and isopropyl esters respectively.