

Photochemistry of aliphatic aldehydes

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The photochemistry of alkanals in dilute solutions and in the presence of olefins and hydrogen donors was analysed and the results obtained are discussed taking as reference the photochemical behaviour of the alkanones. Intermolecular and intramolecular hydrogen abstraction take place in alkanals and alkanones with similar rates. However, there are differences in their behaviour towards unsaturated compounds that can be related to differences in ionization potentials and electron affinities. A distinct feature of alkanal photochemistry is the relevance of auto-quenching in both the singlet and triplet states. The singlet lifetimes of the alkanals, when extrapolated to zero alkanal concentration, decrease with α substitution. The results obtained indicate that this effect is not due to type I photofragmentation. © 1980.