THE WAVELENGTH DEPENDENCE OF THE PHOTOLYSIS OF N-PENTALDEHYDE

L. ZHU and T. J. CRONIN, *Wadsworth Center, NYS Department of Health, Department of Environmental Health and Toxicology, State University of New York at Albany, Albany, NY 12201*.

Aldehydes are pollutants formed from atmospheric photo-oxidation of hydrocarbons. Photodissociation of aldehydes represents a significant source of free radicals in the lower atmosphere. We have studied the uv photolysis of n-pentaldehyde in the 280-340 nm region by using dye laser photolysis in combination with cavity ring-down spectroscopy. Absorption cross sections of n-pentaldehyde were determined. The HCO radical was found to be a photodissociation product and its quantum yield as a function of photolysis wavelength will be presented. The dependence of HCO yield on n-pentaldehyde pressure and total pressure was examined. We have also investigated products formed from steady state photolysis of n-pentaldehyde at several incident wavelengths. The end-products were analyzed by using GC/MS and HPLC. Atmospheric implications of the results will be discussed.