UV-induced generation of free radicals from aromatic and heteroaromatic molecules isolated in cryogenic matrices

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Here we present an overview of our selected experimental works, carried out within the last decade,[1-8] and dedicated to studies of photochemistry of aromatic and heteroaromatic molecules. Monomers of phenol, indole, and of their several derivatives were isolated in cryogenic argon matrices and characterized by infrared spectroscopy. The samples were irradiated *in situ*, using either broadband or narrowband UV light. The structures of both the starting compounds and of the photoproducts were identified by comparing their observed infrared spectra with vibrational spectra computed theoretically. A common feature of all the selected studies is generation and experimental identification of free radicals resulting from the cleavage of OH, NH, or SH bonds. The mechanistic analysis of the observed photochemistry will be presented.

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