

PHOTO-OXIDATION PROCESSES AT FUNCTIONAL GROUPS OF BUILDING UNITS OF PROTEINS STUDIED BY FT EPR AND LASER FLASH PHOTOLYSIS

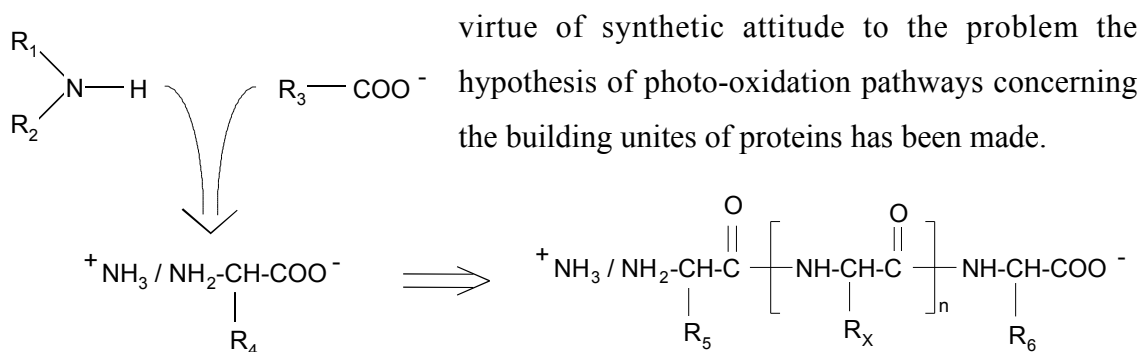
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Fourier transform electron paramagnetic resonance (FT EPR) spectroscopy and laser flash photolysis with optical detection have been employed in order to investigate the photo-oxidation processes running at aliphatic amines, sodium acetate, amino acids and simple peptides, sensitized by spin-polarized (CIDEP) triplets of anthraquinone-2,6-disulfonate in aqueous solutions. The triplet quenching rate constants have been determined by laser flash photolysis measuring the triplet decay using models of functional groups characteristic for proteins and building unites of proteins (amino acids and small peptides) as a triplet quenchers. The structures of triplet quenching process successor radicals have been determined by time resolved FT EPR spectroscopy. By



For amino acids and peptides the formation of different radical products is conditional on the pH value. In basic water solutions aminyl radicals and α -aminoalkyl radicals prevail as successors of terminal amino group oxidation. In neutral and acidic pH region dominate C-centered radicals as consecutive products of fast decarboxylation after oxidation of a carboxyl group.