

Kinetics and mechanism of UV-phototransformations new synthetic antioxidants series of N-substituted amides of salicylic acid

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Abstract

The photolysis products of N-substituted amides salicylate-Cretaceous acid: 1-(N-4'-hydroxyphenyl-3,3',5'-tri-*tert*-butyl-5-ethyl salitsilovoy acid (**I**) and 1-acid (N-4'-hydroxyphenylpropyl-3',5'-di-*tert*-butyl) salicylic acid (**II**) in heptane have been investigated by optical spectroscopy, stationary and nanosecond laser flash photolysis (Nd: YAG laser, 355 nm). The method of partial-foot deuteration of the molecules of amides **I**, **II** shows that they are in a free state, and in the form of complexes with intra- and intermolecular hydrogen bonds. Photolysis subjected to free phenolic groups of amides **I**, **II**, which leads to the triplet state and the formation of phenoxy radicals RO[•] allegedly as a result of the absorption of a quantum of light of the second excited singlet state. The main channel of the triplet states, the death of the RO[•] radicals and a triplet-triplet (TT) annihilation and recombination ($k_{rek} \approx 2.3 \cdot 10^8 \text{ L} \cdot \text{mol}^{-1} \cdot \text{s}^{-1}$), respectively. Upon UV irradiation of the compounds **I**, **II** are excited amide groups established by the formation of radical products due to ionization of NH-bond.