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PEROXIDIC INTERMEDIATES IN INDOLE-SINGLET OXYGEN REACTIONS

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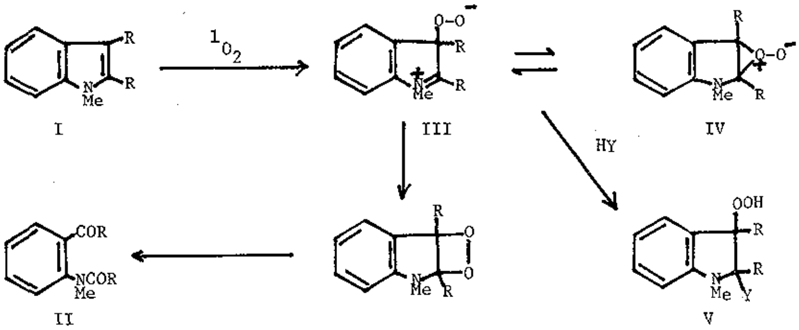
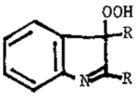
Photosensitized oxygenations and microwave discharge generated singlet-oxygen reactions of various indoles including tryptophan derivatives have been investigated. Reaction of substituted indoles with singlet oxygen generated by microwave discharge method in solids produced the C_2-C_3 bond cleavage products.

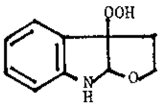
In order to get further information on the peroxidic intermediates formed in solution phase photooxygenations of N-methylindoles, various approarches to intercept the peroxidic intermediates have been carried out. Photooxygenation of substituted N-methylindoles (I) at room temperature gave the C_2-C_3 double bond cleavage products (II), whereas at low temperature ionic peroxides III and/or IV could be intercepted inter- and intramolecularly by a nucleophile HY to give 3-hydroperoxyindolines (V).



Chemical and photochemical properties of hydroperoxides of type VI and VII have also been investigated.



VI



VII