

PEROXIDIC INTERMEDIATES IN INDOLE-SINGLET OXYGEN REACTIONS

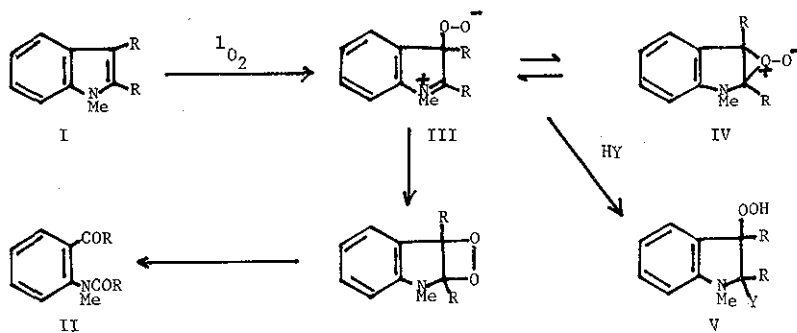
Isao Saito, Yoshiyuki Takahashi, Mitsuru Imuta, Seichi Matsugo, and Teruo Matsuura

Department of Synthetic Chemistry, Faculty of Engineering

Kyoto University, Yoshida, Kyoto 606, Japan

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 C₂-C₃ bond cleavage products.

In order to get further information on the peroxidic intermediates formed in solution phase photooxygenations of N-methylindoles, various approaches to intercept the peroxidic intermediates have been carried out. Photooxygenation of substituted N-methylindoles (I) at room temperature gave the C₂-C₃ 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.

