

PHOTOCHEMISTRY OF THE NITROGEN-CONTAINING THIOCARBONYL SYSTEM

Kazuaki Oda and Minoru Machida

Faculty of Pharmaceutical Sciences, Higashi-Nippon-Gakuen University

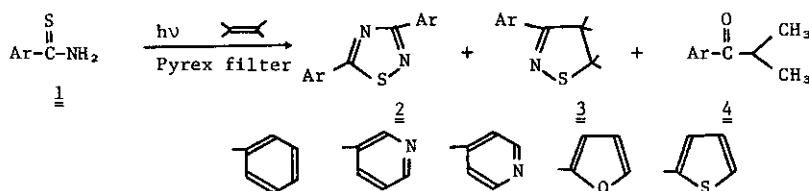
Ishikari-Tobetsu, Hokkaido 061-02

Yuichi Kanaoka

Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo 060

In recent years considerable interest has been showed in the photochemistry of thiocarbonyl systems. In regard to the photoreactions of nitrogen-containing thiocarbonyl systems, however, only few reports have been published. Now, we wish to report the photoreactions of thioamide and thioimide derivatives with various olefins.

Photoreaction of thioamide derivatives 1 with 2,3-dimethyl-2-butene under aerobic conditions gave 1,2,4-thiadiazole derivatives 2, 2-isothiazoline derivatives 3, and ketone derivatives 4, whereas, compounds 2 and 3 were not obtained by the reactions under nitrogen atmosphere.



Irradiation of series of cyclic thioimides 5 in the presence of olefins afforded the corresponding thietanes 6 in good yields. Furthermore, irradiation of 7, a dithiosuccinimide with α , α' -disubstituents on the imide ring, gave only the thietane derivatives 8, but the α -cleaved products were not isolated. In the intramolecular counterpart, a dithiosuccinimide with an olefinic group at the α -position or the N-alkyl side chain, gave tricyclic thietanes 9, 10.

