

PHOTOCHEMISTRY OF A VARIETY OF PYRIDINECARBOXYLIC ACID DERIVATIVES

Ichiya Ninomiya, Okiko Yamamoto, Toshiko Kiguchi, and Takeaki Naito

Kobe Women's College of Pharmacy,

Motoyamakita, Higashinada, Kobe, Japan.

Irradiation of a variety of the pyridinecarboxylic acid derivatives, which include esters, amides, hydrazides, and nitriles, were carried out in alcohol with a low pressure mercury lamp and afforded products characteristic to the type of substituents.

The pyridine nuclei of the esters and diethylamides, which include niketamide, underwent a facile photochemical addition of alcohol, followed by either dehydrogenolysis or dehydration, to afford products having methyl or hydroxymethyl group respectively.

3-Cyanopyridine was confirmed to undergo similar addition of alcohol to the pyridine nucleus as above. On the contrary, a cyano group at the 2- and 4-positions was readily replaced by alcohol to give the 2- and 4-hydroxymethylpyridines respectively.

The pyridinecarboxylic acid hydrazides, which include isoniazid, underwent a facile addition of alcohol to the terminal nitrogen followed by spontaneous dehydration to afford the N-alkylidenehydrazides, which readily underwent further addition of alcohol to give the N-2-hydroxyethylhydrazides as the second product.