# PHOTOCHEMISTRY OF 2-ALLYLINDOLES

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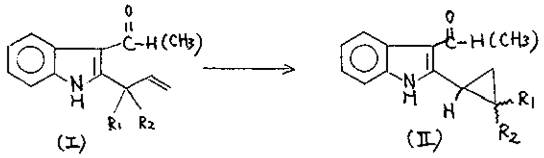
Photochemical reactivities of 2-allylindole derivatives were studied.

Irradiation of 2-allyl-3-formyl-and/or acylindoles (I) in MeOH produced 2-cyclopropyl derivatives (II), for which divinyl methane rearrangement mechanism was offered. The reaction state has been suggested as n, π* triplet on the basis of the phosphorescent measurement and sensitizing experiments.



2-Allyl-3-aldoxime derivative afforded only the geometrical isomer of the oxime configuration.

On the other hand, 2-allyl-3-cyanoindole (III) produced the indolenine (IV). Treatment of (IV) with $NaBH_4$ or irradiation of (III) in the presence of $NaBH_4$ gave the indoline (V). Whereas prolonged heating (IV) in ROH gave the 2-alkoxyindolines (VI) from which the benzazocine (VII) was obtained by alkaline hydrolysis. Intramolecular exciplex mechanism was proposed for the primary state of the photochemistry of (III) by the comparison of its fluorescence spectra with those of the dihydro compound (VIII).