

SYNTHESES OF AZATHIA-MACROCYCLIC COMPOUNDS BY REMOTE PHOTOCYCLIZATION
WITH A PAIR SYSTEM OF PHTHALIMIDE AND SULFIDE GROUPS

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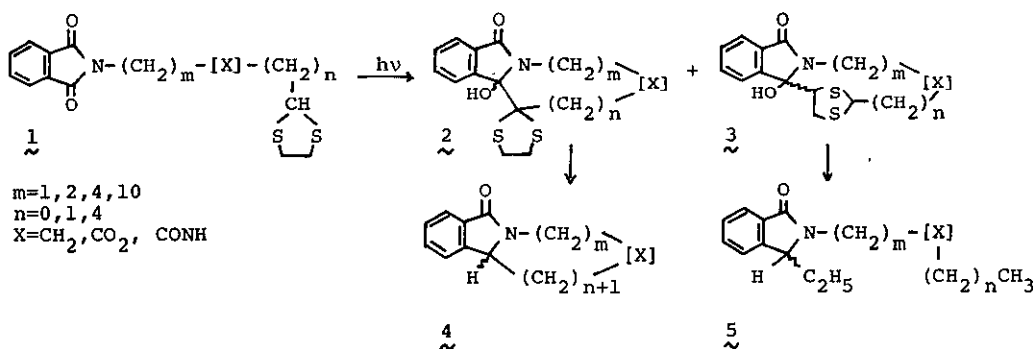
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Based on a regioselective remote photocyclization of a pair system (1) consisting of a phthalimide group and a dithiolanyl group, a variety of aza-cyclic compounds (2,3) with methylene, ester, or amide groups in their frameworks were synthesized. The dithiolanyl group provides a removable latent donor, which effects a needed reaction followed by removal to give new carbon skeletons (4,5) leaving no trace of the precursor form. On the other hand, the photoaddition reaction of sulfides (7) to N-substituted phthalimides (6) was carried out affording the photoproducts (8) in good yields, its quantum yield was 0.06 (in CH₃CN; 313 nm). Changes of the ratio of addition to cyclization were measured by varying the concentration of 7; addition(8)/cyclization(9) = 0.01 (1 mM), 0.02 (10 mM) and 3.67 (100 mM).

i) Remote photocyclization with a pair system of phthalimide and 1,3-dithiolanyl groups.



ii) Photoaddition of dimethyl sulfide to N-substituted phthalimides.

