

A New Intramolecular Photosubstitution Reaction of 2-Haloarene by Its Amide Group: Naphthoxazole Formation

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Photoreactions of N-(2,4-dibromonaphthyl)arene-carboxamides in basic medium result in the intramolecular substituted products 2-aryl-8-bromonaphthoxazoles in moderate yields and further photoreactions of the product afford the reduced product, 2-arylnaphthoxazoles. These reactions are straightforward for syntheses of naphthoxazole derivatives. The intramolecular photosubstitution of the bromoarene by its amide group is faster than the photoreduction in basic medium. A charge-transferred singlet state of an imidol form of the 2-bromoarene-carboxamide is involved in the photosubstitution, whereas triplet state of the 2-bromoarene-carboxamide is related in the photoreduction.

Scheme 1

