

Photoreactions of 2-Allyloxyacetophenone

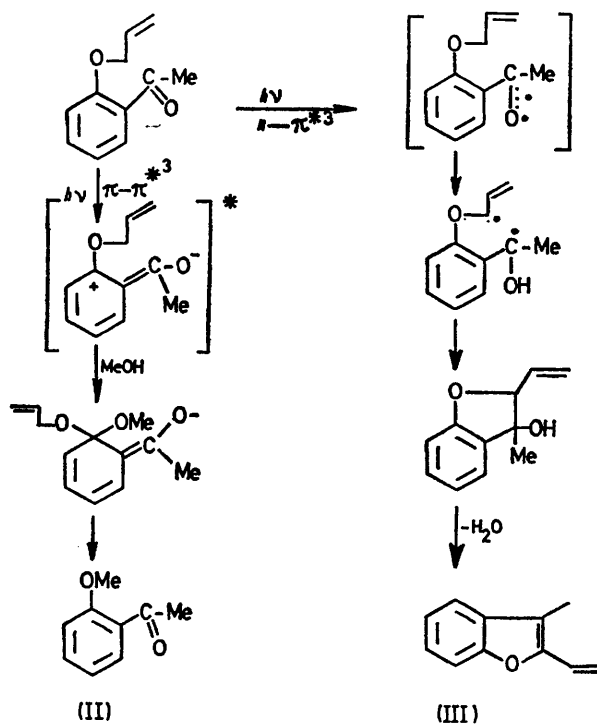
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Summary The photolysis of 2-allyloxyacetophenone in methanol produced 3-methyl-2-vinylbenzofuran, apparently by an intramolecular hydrogen abstraction, and 2-methoxyacetophenone by a nucleophilic aromatic substitution reaction.

THERE have been several reports on the photochemistry of the ethers of 2-hydroxybenzophenones but few on the corresponding acetophenones. Demethylation¹ of 2-methoxybenzophenone has been reported to occur under photochemical conditions to give 2-hydroxybenzophenone, and 2-benzyloxy-4-methoxybenzophenone² underwent a photocyclization reaction to give 6-methoxy-2,3-diphenylbenzofuran. We now report a photoreaction of a substituted acetophenone which bears similarities to each of these reactions.

When 2-allyloxyacetophenone was irradiated in methanolic solution with a medium pressure mercury arc lamp for 120 h, 2-hydroxyacetophenone (I, 9%), 2-methoxyacetophenone (II, 12%), and 3-methyl-2-vinyl benzofuran (III, 1%) were obtained. Identification was made on the basis of their i.r., n.m.r., u.v., and mass spectra. The following scheme is presented as a probable reaction pathway to (II) and (III). The formation of (I) is apparently analogous to the photochemical dealkylation mentioned.



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¹ G. Leary and J. Oliver, *Tetrahedron Letters*, 1968, 299.

² G. R. Lappin and J. S. Zannucci, *Chem. Comm.*, 1969, 1113.

³ R. L. Letsinger and O. B. Ramsey, *J. Amer. Chem. Soc.*, 1965, **87**, 2945.