

[Chem. Pharm. Bull., 37, 1948 (1989)]

Synthesis, Structure, and Self-Oxidation of Alkynyl (phenyl) iodonium Periodates.

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Alkynyl(phenyl)iodonium periodates, which has two iodine atoms of different oxidation states in the molecule, were synthesized from the corresponding alkynyl(phenyl)iodonium tetrafluoroborates. The periodates on standing at room temperature underwent the carbon-carbon triple bond cleavage by self-oxidation with the counter anion, I_{04}^- , yielding carboxylic acids. X-ray study of 3, 3-dimethyl-1-butynyl(phenyl)iodonium periodate revealed that the molecule adopts a distorted trigonal bipyramidal configuration.

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Radiosensitizing Hypoxic Cells with New 3-Nitro-1,2,4-triazole Derivatives *In Vitro* and *In Vivo*.

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Some derivatives of 3-nitro-1,2,4-triazole (3-NTR) were synthesized for the development of new radiosensitizers of hypoxic cancer cells for radiotherapy. N(2)-Substituted 3-NTR derivatives showed stronger radiosensitizing effects on hypoxic cells *in vitro* (Chinese hamster V79 cells) than N(1)-substituted 3-NTR derivatives. With *in vivo* testing (SCCVII carcinoma cells inoculated into C3H/He mouse), however, N(1)-substituted 3-NTR derivatives were shown to be more active.

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Diazidation of Allylsilanes with a Combination of Iodosylbenzene and Trimethylsilyl Azide, and Synthesis of Allyl Azides.

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Reaction of allyltrimethylsilanes with iodosylbenzene and trimethylsilyl azide in dichloromethane at -78°C to room temperature affords vicinal diazides in good yields. It seems reasonable to assume that the reaction involves the formation of [azido(trimethylsiloxy)iodo]benzene and/or (diazidoiodo)benzene depending on the relative amounts of trimethylsilyl azide and iodosylbenzene. The vicinal diazides undergo fluoride ion-catalyzed β -elimination of azide and trimethylsilyl groups yielding allyl azides in good yields.