

Synthesis of 5-(4-aryl)-3-(aryldiazenyl)-1*H*-1,2,4-triazole compounds using iodobenzene diacetate in water

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ABSTRACT Herein, we report an efficient and environmentally benign synthesis of 5-(4-aryl)-3-(aryldiazenyl)-1*H*-1,2,4-triazoles employing iodobenzene diacetate as a mild oxidant in water. The protocol is based on the oxidative dehydrogenation of hydrazo-linked triazoles, enabling a clean transformation of the -NH-NH- linkage into the corresponding azo (-N=N-) functionality. This aqueous oxidation strategy provides direct access to both symmetric and non-symmetric diazenyl triazole derivatives in a single step under ambient conditions. Notably, the reaction proceeds smoothly in metal-free conditions, avoiding toxic oxidants and harsh reagents. The use of water as a green solvent, operational simplicity, and room-temperature reaction conditions make this methodology a sustainable and eco-friendly approach for the synthesis of azo-linked 1,2,4-triazoles.

KEY WORDS Aqueous medium, Iodobenzene diacetate, -N=N- bond, Oxidative dehydrogenation, Triazole

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