SYNLETT
Spotlight 172Iodic Acid (HIO_3)Compiled by Arash Ghorbani Choghamarani^{a,b}

This feature focuses on a reagent chosen by a postgraduate, highlighting the uses and preparation of the reagent in current research

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Introduction

Iodic acid (HIO_3) has attracted much interest owing to its potential as oxidant,^{1–8} reagent^{9–12} and acidic source.^{13,14} The use of iodic acid has been known for a long time and has been widely employed in numerous and different organic reactions such as: oxidation of sulfides,^{1,3} iodina-

tion,^{10,12} deprotection,¹³ nitrosation,¹⁴ and dehydrogenation of aldehydes and ketones.¹⁵ This reagent has several advantages: cost-effectiveness, non-toxicity, easy and clean workup of products.

Abstracts

(A) Patil et al. reported a useful method for the iodination of hydroxy aryl ketones; they showed a variety of *ortho*-hydroxy-substituted aromatic carbonyl compounds which were selectively iodinated in 81–87% yield by using iodine and iodic acid.¹⁰

(B) Zolfigol and co-workers have used HIO_3 and NaNO_2 in the presence of wet SiO_2 as a nitrosating agent for the effective and selective nitrosation of secondary amines under mild and heterogeneous conditions in good yields.¹⁴

(C) Shirini et al. reported a simple and efficient method for the oxidation of thiols to disulfides and sulfides to sulfoxides in 87–95% yield using aqueous HIO_3 at room temperature.³

Also Lakouraj and co-workers have explained the utility of HIO_3 for oxidation of sulfides to sulfoxides in the presence of wet SiO_2 under solvent-free conditions.¹

(D) Ketoximes and aromatic aldoximes are converted to the corresponding carbonyl compounds with HIO_3 under mild and heterogeneous conditions in CH_2Cl_2 at room temperature in 67–97% yields.⁴

Also deoximation and dehydrazonation have been reported using HIO_3 in the presence of wet SiO_2 under solvent-free conditions.¹⁶

(E) A variety of aldehydes and ketones were readily and selectively transformed to 1,3-saturated aldehydes and ketones with HIO_3 and I_2O_5 at 45–65 °C in good yields.¹⁵

(F) Hashemi and Akhbari showed the conversion of a variety of aromatic amines into their corresponding quinones under microwave irradiation.⁸

(G) A variety of thioacetals and thioketals were deprotected to the corresponding carbonyl compounds with HIO_3 in the presence of wet SiO_2 at room temperature under solvent-free conditions.¹³

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