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LETTERS TO THE EDITOR

REACTIONS OF PHENYLIODOSOBIS-(TRIFLUOROACETATE) WITH DERIVATIVES OF IMIDAZOLE

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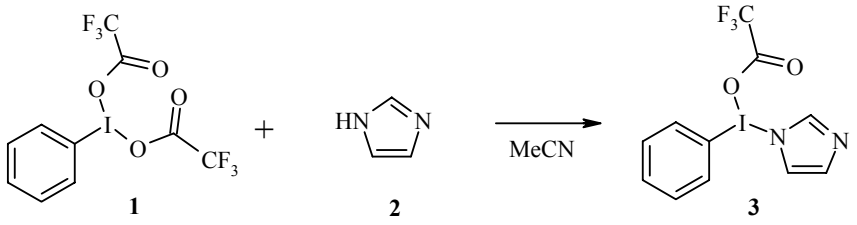
The reaction of phenyliodosobis(trifluoroacetate) (FITA) (**1**) with nucleophiles has been studied with the objective of preparing stable phenyl derivatives containing polyvalent iodine (I^{3+}). It has been shown that compound **1** reacts with imidazole **2** in acetonitrile at room temperature to produce **3**, the product of monosubstitution at the iodine atom.

The structure of compound **3** was confirmed by the presence of the characteristic carbonyl group signal at 1700 cm^{-1} in the IR spectrum and iodometric titration to give a molecular mass of 386 for the substance. This corresponds, with negligible error, to the calculated molecular mass of compound **3**, 384.093.



1 **2** **3**

When the reaction was carried out with 2-methylimidazole (**4**), a compound with a similar basicity to imidazole [1], the formation of a black precipitate of unknown structure was observed which gave a characteristic reaction of polyvalent iodine with starch. This may indicate indirectly the formation of products of nucleophilic substitution, similar in structure to compound **3**.

It is possible that this course of the reaction is explained by the susceptibility of compound **4** to oxidation with compound **1** as the oxidant [2].

^{1}H NMR spectra were recorded in D_2O with H_2O as standard on a Bruker AM-500 (500 MHz) instrument.

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1-[Phenyl(trifluoroacetoxy)-λ^3-iodanyl]-1H-imidazole (3). Phenyliodosobis(trifluoroacetate) (2g, 4.7 mmol) was added with stirring to a solution of imidazole (1.26 g, 1.88 mmol) (previously kept for 24 h over P_2O_5 in a vacuum desiccator) in absolute acetonitrile (15 ml). The mixture was kept for 12 h at room temperature, the precipitate was filtered off and washed with boiling dichloromethane. The compound **3** obtained was dried in a vacuum desiccator over P_2O_5. Yield 70%; mp – decomposition began above 60°C. ^{1}H NMR spectrum, δ, ppm (*J*, Hz): 7.55 (3H, s, H_{Ph}); 7.85 (2H, s, H_{Ph}); 7.95 (1H, d, *J* = 1.4, H_{Im}); 8.05 (1H, d, *J* = 1.4, H_{Im}); 8.15 (1H, s, H_{Im}). Mass spectrum, *m/z*: 384.120 [M^+].

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