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Fast, Efficient and High-Yielding Routes to Diaryliodonium Salts

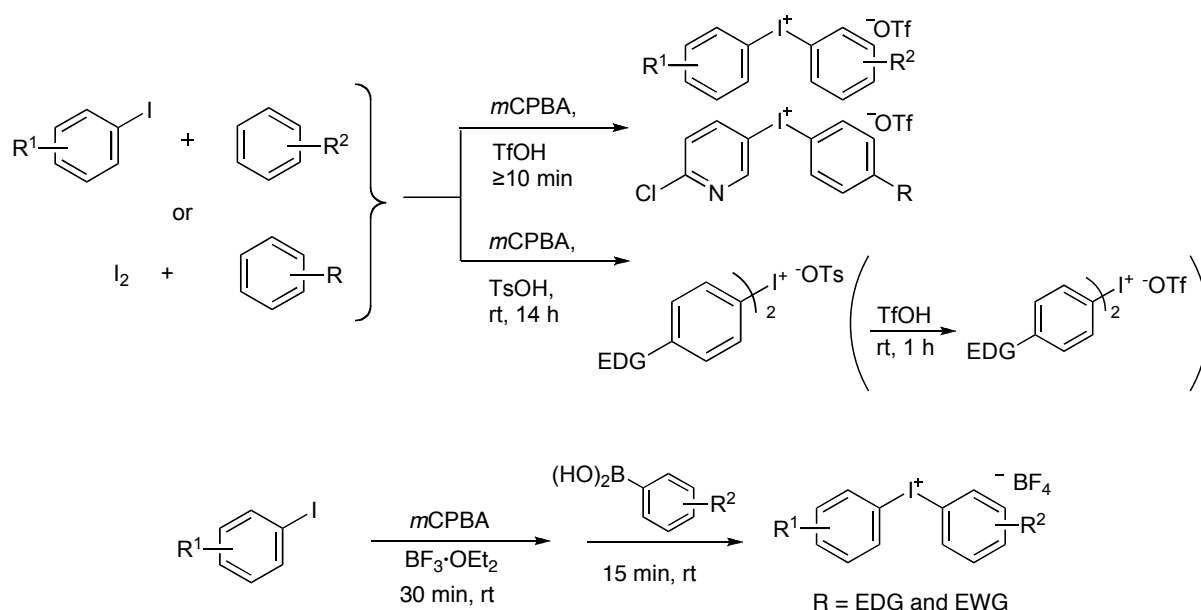
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Diaryliodonium salts are hypervalent iodine compounds and belong to the group of iodine(III) species having two carbon ligands. Their use in organic synthesis has recently gained considerable attention, as their properties resemble those of organometallic complexes with Hg, Pb and Pd. Due to their highly electron-deficient nature and hyperleaving group ability, they serve as versatile arylating agents with a variety of nucleophiles, e.g. in α -arylation of carbonyl compounds. They are often applied in metal-catalyzed cross-coupling reactions, allowing milder reaction conditions than in couplings with aryl halides. Other applications are as photo initiators in polymerizations, benzyne generators and precursors to ^{18}F -labelled radio-ligands.

The lack of efficient synthetic routes towards diaryliodonium salts has clearly limited their scope as reagents in organic chemistry. We have recently developed three one-pot syntheses of diaryliodonium triflates,¹ tosylates² and tetrafluoroborates³, respectively. These routes nicely complement each other, and give access to a large variety of symmetric and unsymmetric salts with various functional groups. Both electron deficient and electron rich salts can be synthesized using these fast, high yielding, and operationally simple protocols.



- 1) (a) Bielawski, M.; Olofsson, B., *Chem. Commun.* **2007**, 2521-2523;
(b) Bielawski, M.; Zhu, M.; Olofsson, B., *Adv. Synth. Catal.* **2007**, 349, 2610-2618.
- 2) Zhu, M.; Jalalian, N.; Olofsson, B., *Synlett* **2008**, 592-596.
- 3) Bielawski, M.; Aili, D.; Olofsson, B., *J. Org. Chem.* **2008**, 73, 4602-4607.