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ELECTROCHEMICAL GENERATION OF HYPERVALENT BROMINE(III) COMPOUNDS

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The chemistry of hypervalent halogen species has experienced enormous progress in the last decades, and hypervalent iodine (III) compounds have become common reagents in modern organic synthesis. In sharp contrast, the chemistry of isoelectronic bromine (III) compounds occur to be notably less advanced to date. This dramatic difference obviously is to be connected with the relatively low stability and the high oxidizing power of bromine (III) reagents, which results in a difficult-to-control reactivity. Furthermore, there is a clear deficit of simple protocol for the synthesis of bromine (III) species, but known methods often require a handling of the highly toxic and corrosive BrF3 precursor. In this context, we present a straightforward and scalable method for preparation of a benchtop-stabile λ3-bromanes by anodic oxidation of corresponding aryl bromides with two stabilizing hexafluoro-2-hydroxypropanyl groups. The synthetic use of the generated λ3-bromane is demonstrated by oxidative C-C, C-N, and C-O bond formation reactions [1].

Primary author: Dr SOKOLOVS, Igors (Latvian Institute of Organic Synthesis)

Presenter: Dr SOKOLOVS, Igors (Latvian Institute of Organic Synthesis)

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