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Synthesis of various iodyl compounds of iodoarenes and tetrazolene using Oxone® as an oxidant

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Iodyls are interesting compounds. To date, much of this interest has been focused on the application of iodyls as unique oxidants in organic synthesis. In this work, we are interested in their application as energetic materials. When Oxone® was used as an oxidant in the preparation of iodyl compounds, more than 99% pure product based on NMR analysis was obtained without extra purification of the products. This method is also able to recover the unreacted starting material by washing the precipitate of iodyl compound with appropriate organic solvents. Eleven iodyl compounds with good yields have been synthesized using Oxone®. After successfully establishing the reactions, the scales of some starting materials were increased up to 10 mmol. After increasing the reaction scales, the yields of the products did not decrease, indicating that this method is readily scalable. Due to the presence of two iodyl groups on the benzene ring, 1,4-diiodylbenzene was not soluble in DMSO. The melting points of the iodyl compounds are the decomposition points. p-Diiodylbenzene decomposed vigorously compared to the iodyl compounds having only one iodyl group, such as iodylbenzene, 2-iodylnitrobenzene, 3-iodylbenzonitrile, and 4-iodylbenzonitrile. From this observation, when the iodyl group on the benzene ring is more than one, the explosive character of the compounds increases. Iodyl compounds of the tetrazolederivatives, such as 5-(3-iodylphenyl)-1H-tetrazole and 5-(4-iodylphenyl)-1H-tetrazole, also decomposed vigorously at the corresponding decomposition points.

Biography

Ram Dhakal has completed his MSc in Organic Chemistry from Tribhuvan University, Nepal and has also completed MS in Chemistry from Middle Tennessee State University, USA. He has more than 4 year teaching experience at undergraduate level. Now, he is a PhD candidate at the University of Vermont, USA. He has published three papers in different journals such as, *Journal of Nepal Chemical Society, Journal of American Chemical Society* and *Tetrahedron.*

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