

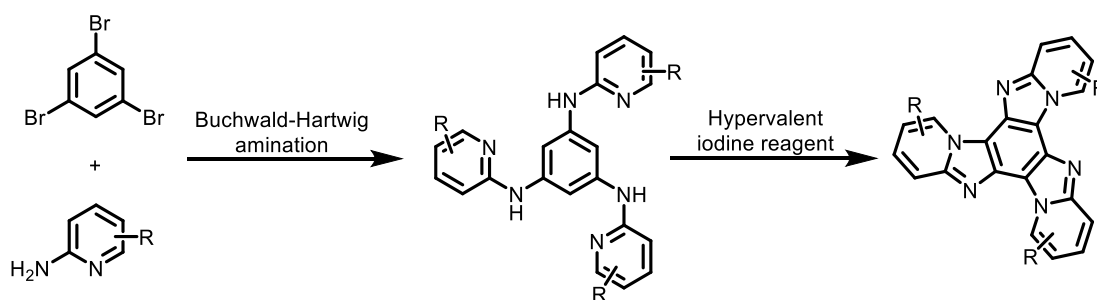
Facile Synthesis of Hexaazatruxenes Using Hypervalent Iodine Reagents and Evaluation of Their Photophysical Properties

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Truxene is a C_3 -symmetric compound, which has a planar seven-ring structure consisting of three fluorene moieties shared with a central benzene ring. Truxene has high thermal stability and strong blue light emission, and easy to be synthetically modified. With these properties, it could be used as a versatile building block and has been used and studied in wide range of fields such as organic photovoltaic (OPV) cells, organic field-effect transistor (OFET), and organic light emitting diode (OLED). In the synthesis of various types of truxenes, examples of heterotruxenes are limited¹⁾ and to the best of our knowledge, there is no example of heterotruxene containing more than three heteroatoms in the π -conjugated system.

On the other hand, we previously developed a two- or three-step synthesis of polyaza[5]–[9]helicenes by consecutive N–H/C–H coupling with a hypervalent iodine reagent.^[2] Against this background, we here successfully synthesized azatruxenes containing six nitrogen atoms by the Buchwald-Hartwig amination of commercially available or easily prepared 2-aminopyridine derivatives and 1,3,5-tribromobenzene following by a consecutive N–H/C–H coupling using hypervalent iodine reagent. Their photophysical properties are discussed in this presentation.



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