

Internal Seminar

Synthetic Strategy of N-Alkyl substituted Cyclic (Alkyl) (amino) carbene Derived Benzyl Radical

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Organic radicals are of particular interests in chemistry as they have potential applications in the field of synthesis, catalysis and magnetism.^[1] However, despite the enormous efforts of the researchers for isolating persistent and stable organic radicals by different ways, the synthesis of organic radicals remain a challenging task because of their instability and high reactivity.^[2] Recently, there have been growing interests for synthesizing cyclic (Alkyl)(amino)carbene (CAAC) derived organic radicals because of the ability of the CAAC to stabilize the radical. The CAAC derived allenyl/propargyl radicals are reported in a recent time.^[3] Therein, the CAAC moiety and phenyl rings are separated by an acetylene spacer. We have synthesized the precursor for the CAAC derived benzyl radical by an alternative way than the reported procedure for allenyl/propargyl radical. Here, the N-alkyl substituted CAAC and phenyl rings are directly connected by a C(sp²)-C(sp²) bond rather than bridged by C(sp)=C(sp) bond as in the case of reported allenyl/propargyl radicals, and studied the reactivity of the precursor.

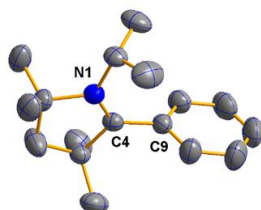


Figure I: Molecular structure of [iPrCAACPh](OTf). The hydrogen atoms and counter anion are omitted for clarity.

References:

[1] a) A. Rajca, Chem. Rev. 1994, 94, 871-893. b) A. Heckmann, C. Lambert, Angew. Chem., Int. Ed. 2012, 51, 326-392. c) P. Renaud, M. P. Sibi, Radicals in Organic Synthesis, Wiley-VCH Verlag GmbH, 2008.

[2] D. Griller, K. U. Ingold, Acc. Chem. Res. 1976, 9, 13-18.

[3] M. M. Hansmann, M. Melaimi, G. Bertrand, J. Am. Chem. Soc. 2017, 139, 15620-15623.

Friday, Feb 9th 2018

10:00 AM (Tea/Coffee at 09:30 AM)

Seminar Hall, TIFR-H