

Novel Five-membered B-N-C Heterocycles

Masood Parvez, Kelly E. Krahulic, Hanh V. Ly, Taryn D. Forster, Roland Roesler, *Chemistry Department, University of Calgary, 2500 University Drive, N.W., Calgary, Alberta Canada T2N 1N4*. E-mail: parvez@ucalgary.ca

Stable N-heterocyclic carbenes [1] have found a multitude of applications as catalyst components due to their remarkable ligand properties [2]. Their growing significance prompted us to investigate the stability of carbenes with inorganic backbones, as well as influence of the inorganic backbone on the ligand properties of the carbon ligand. To date, only one N-heterocyclic carbene with an inorganic backbone (:C(NR)₂PR') has been reported [3].

The tremendous importance of cyclopentadienyl (Cp) as a ligand in organometallic chemistry has prompted the design and synthesis of numerous five-membered, anionic heterocyclic analogs involving besides C also B, N, P, O and S. To our knowledge not more than three carbon atoms have been replaced by heteroatoms in heterocyclic analogs of Cp. We decided to investigate the synthesis, stability and coordination chemistry of Cp analogs derived from 1,2-diaza-3,5-diborolidine, where two C₂ fragments have been replaced with (B,N) pairs. The structures of novel five-membered B-N-C heterocycles will be presented.

[1] Arduengo III A. J., Harlow R. L., Kline M., *J. Am. Chem. Soc.*, 1991, **113**, 361. [2] Perry M. C., Burgess K., *Tetrahedron: Asymmetry*, 2003, **14**, 951. [3] Despagne-Ayoub E., Grubbs R. H., *J. Am. Chem. Soc.*, 2004, **126**, 10198.

Keywords: coordination complexes, heterocycles, catalysts