Structural Determination of Cyanoborated Amines and *N*-Alkoxyamines

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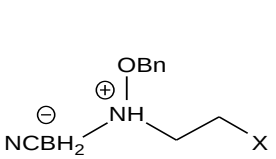
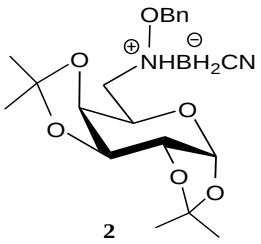
Aminoboranes and aminocyanoboranes possess a wide range of biological and pharmacological activities including antineoplastic, antiviral, anti-inflammatory, hypolipidemic and anti-osteoporotic activities.[1,2] They have also shown antifungal[3] and antibacterial properties,[4] and have been used in radioimaging and radiotherapy.[5] Glycosyl carboranes have been used in the boron neutron capture therapy (BNCT), a chemoradio-therapeutic method for the treatment of cancer that depends on the selective targeting of tumor cells by boron-containing compounds.[6] Furthermore, oxazaborolidines show antibacterial activity against *Streptococcus mutans*[1] and have been used for enantioselective reactions.[7]

Herein, we describe *N*-alkoxyaminocyanoboranes **1** and **2**, a new type of aminocyanoboranes, which are isolated as stable and crystalline compounds in the reduction of *O*-alkyloximes with sodium cyanoborohydride. Some of the prepared *N*-alkoxyaminocyanoboranes are useful as cyanoborane transfer agents, to transform aliphatic amines and aminosugars into aminoboranes, such as **3** and **4**. The zwitterionic structures of cyanoborated amines and *N*-alkoxyamines **1**-**4** were studied by ^{1}H, ^{13}C and ^{11}B NMR. The structures of several cyanoborated *N*-alkoxyamines in the solid state were confirmed by single-crystal X-ray diffraction.



1 X = Cl, Br, NO_2



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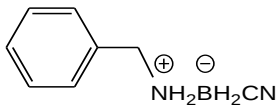

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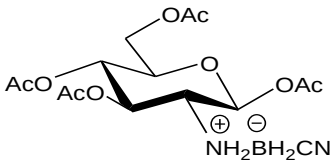

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