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Title:	Aluminum containing molecular bowls and pyridinophanes: use of pyridine modules to access different molecular topologies†
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Keywords:	Molecular topologies Simple complexes Pyridinophanes Varying
Issue Date:	2019
Publisher:	Royal Society of Chemistry
Citation:	Dalton Transactions, 48(21), pp.7442-7450.
Abstract:	Molecular topologies varying from simple complexes to pyridinophanes (neutral and cationic) and to bicyclic pyridinophane containing organoaluminum (Al–Me) species were synthesized by varying the relative stoichiometry of bis(trimethylsilyl)-N,N'-2,6-diaminopyridine (bap) and the reactive partner (AlMe ₃). The ultimate goal of these reactions was to systematically design cyclic structures containing group 13 elements. To highlight the reaction potential of these shapes, the bowl-shaped pyridinophane was reacted with the Lewis acid, B(C ₆ F ₅) ₃ , to generate a stable cationic derivative. An unprecedented bicyclic pyridinophane, [2,6-(Me ₃ SiN)2C ₅ H ₃ N]3Al ₂ , was obtained from the reaction of bap with AlH ₃ ·NMe ₂ Et. The formation of [2,6-(Me ₃ SiN)2C ₅ H ₃ N]3Al ₂ is in contrast to the known reaction between BH ₃ ·SMe ₂ and bap that afforded the syn-tetraazadibora[3.3](2,6)pyridinophane. Quantum chemical calculations have been performed to rationalize the preference for the formation of B-pyridinophane and Al-bicyclic pyridinophane and can be attributed to the nature of B–N and Al–N bonds.
URI:	https://pubs.rsc.org/en/content/articlelanding/2019/dt/c8dt05105d#!divAbstract (https://pubs.rsc.org/en/content/articlelanding/2019/dt/c8dt05105d#!divAbstract) http://hdl.handle.net/123456789/2300 (http://hdl.handle.net/123456789/2300)
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