

## **ONO pincer type ligand complexes of Al(III) as efficient catalyst for chemical fixation of CO<sub>2</sub> to epoxides at atmospheric pressure**

### **Summary:**

Carbon dioxide, the main cause of environmental pollution, its utilization to produce valuable products is of utmost interest. A series of ONO pincer hydrazone based most active mono-nuclear Al(III) complexes were successfully synthesized and characterized with the help of NMR, IR, mass spectrometry and only complex **2a** was confirmed by single-crystal analysis. The synthesized Al(III) complexes were then employed as capable catalysts for the solvent-free chemical fixation of CO<sub>2</sub> with epoxides at atmospheric pressure and could be reused five times without loss of any catalytic activity. In addition, the catalytic mechanism was investigated by analyzing intermediates *via* <sup>1</sup>H NMR, <sup>13</sup>C NMR, and mass MALDI-TOF. The excellent catalytic performance could be due to simultaneous attack and the opening of the epoxide by metal centers to form an alkoxide ion which activates the CO<sub>2</sub> at the same time.

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