

## Supplementary Information

# The first Bromide directed double helicate and its role as catalysis

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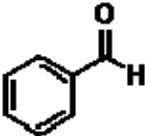
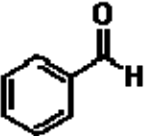
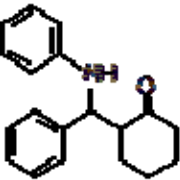
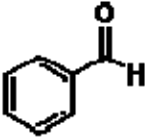
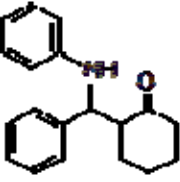
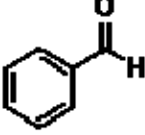
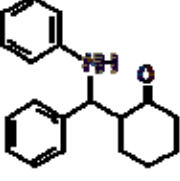
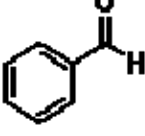
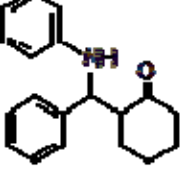
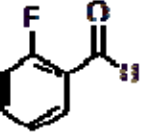
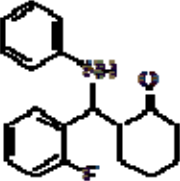
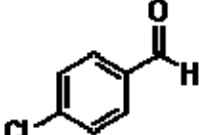
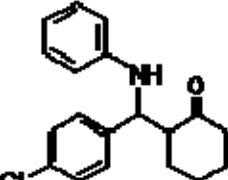
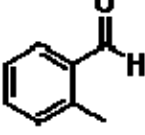
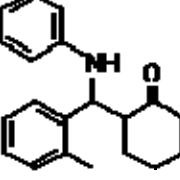
### S1 Experimental Condition.

**Materials and General Methods.** All the chemicals were purchased from Aldrich & Co. Microanalysis of the compound was done using a Perkin-Elmer PE 2400 series II CHNS/O elemental analyzer.  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra were recorded on a Bruker Avance 500 MHz FT-NMR spectrometer. Chemical shifts for proton resonances are reported in ppm ( $\delta$ ) relative to tetramethylsilane.

### S2 General reaction procedure for Catalysis.

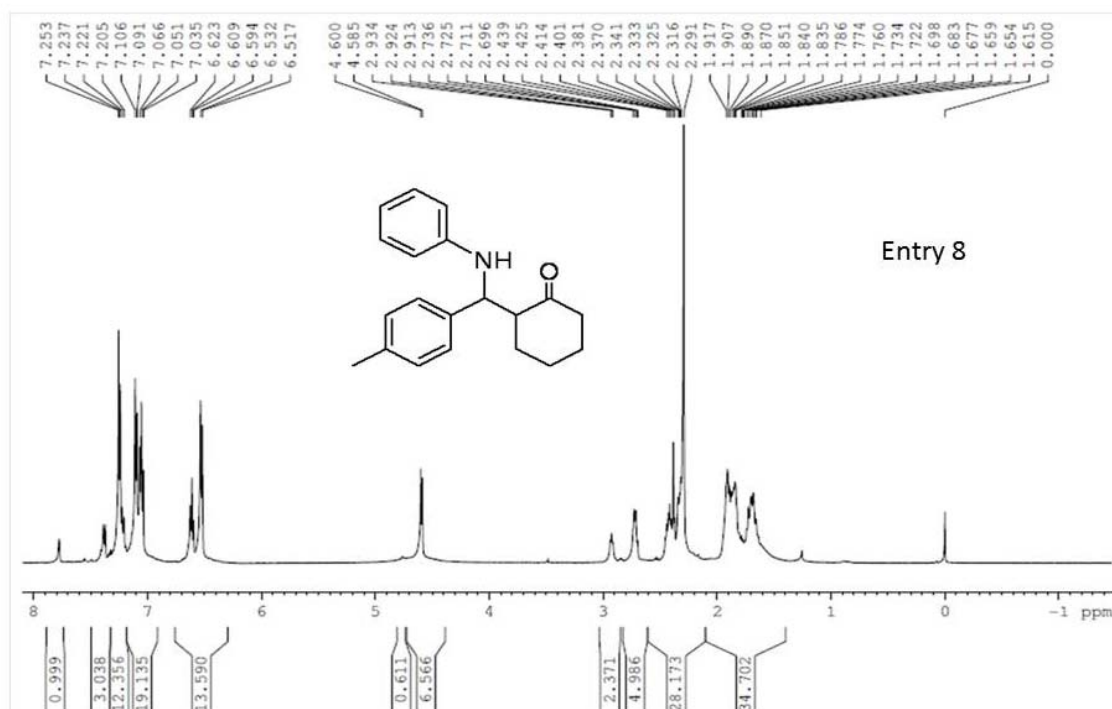
Benzaldehyde (1 equiv), aniline (1 equiv), cyclohexanon (2 equiv), and complex **1b** (5 mol%) as catalysts were stirred at room temperature (25°C) in a reaction vial. After a certain time the reaction mixture became viscous and solidified. At this stage the time was noted and the product was separated from the reaction mixture by extraction using n-hexane (3 x 2 mL) and the solvent was removed by rotavapour, where the solid and solution were appeared. The liquid portion was separated and evaporated using rotavapour. While the solid portion being catalyst was used for the next catalytic cycle as such. The product was recrystallized from ethanol and vacuum dried for 5h. The product was identified using  $^1\text{H}$  NMR in  $\text{CDCl}_3$ .

**S3.Table.** Data for the Mannich reaction of various aldehydes with aniline and cyclohexanone in presence of **1b**.

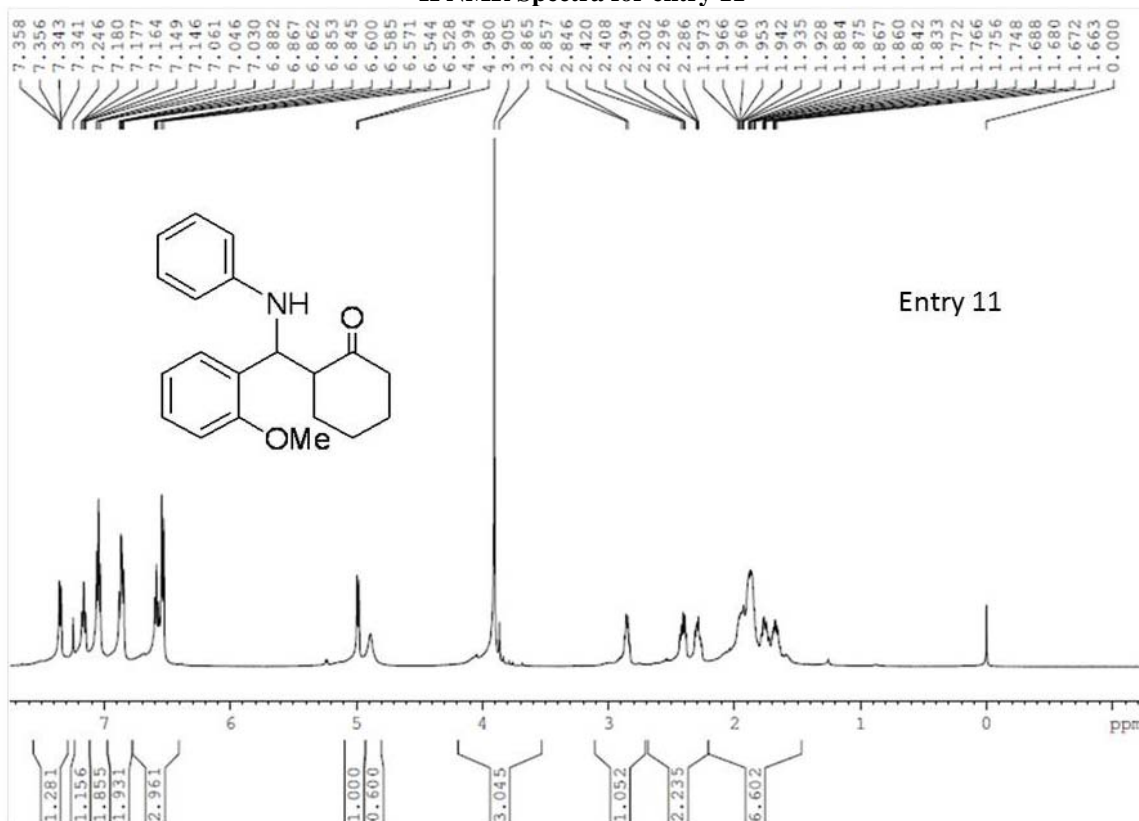
| Entry | Aldehydes (R)   | Product (P)   | Yield(%) <sup>a</sup> |
|-------|---|---|-----------------------|
| 1     |    | No Product  | -                     |
| 2     |    |    | 90                    |
| 3     |    |    | 94                    |
| 4     |   |   | 94                    |
| 5     |  |  | 94                    |
| 6     |  |  | 79                    |
| 7     |  |  | 76                    |
| 8     |  |  | 93                    |

#### S4. Representative $^1\text{H}$ NMR Spectra for product.

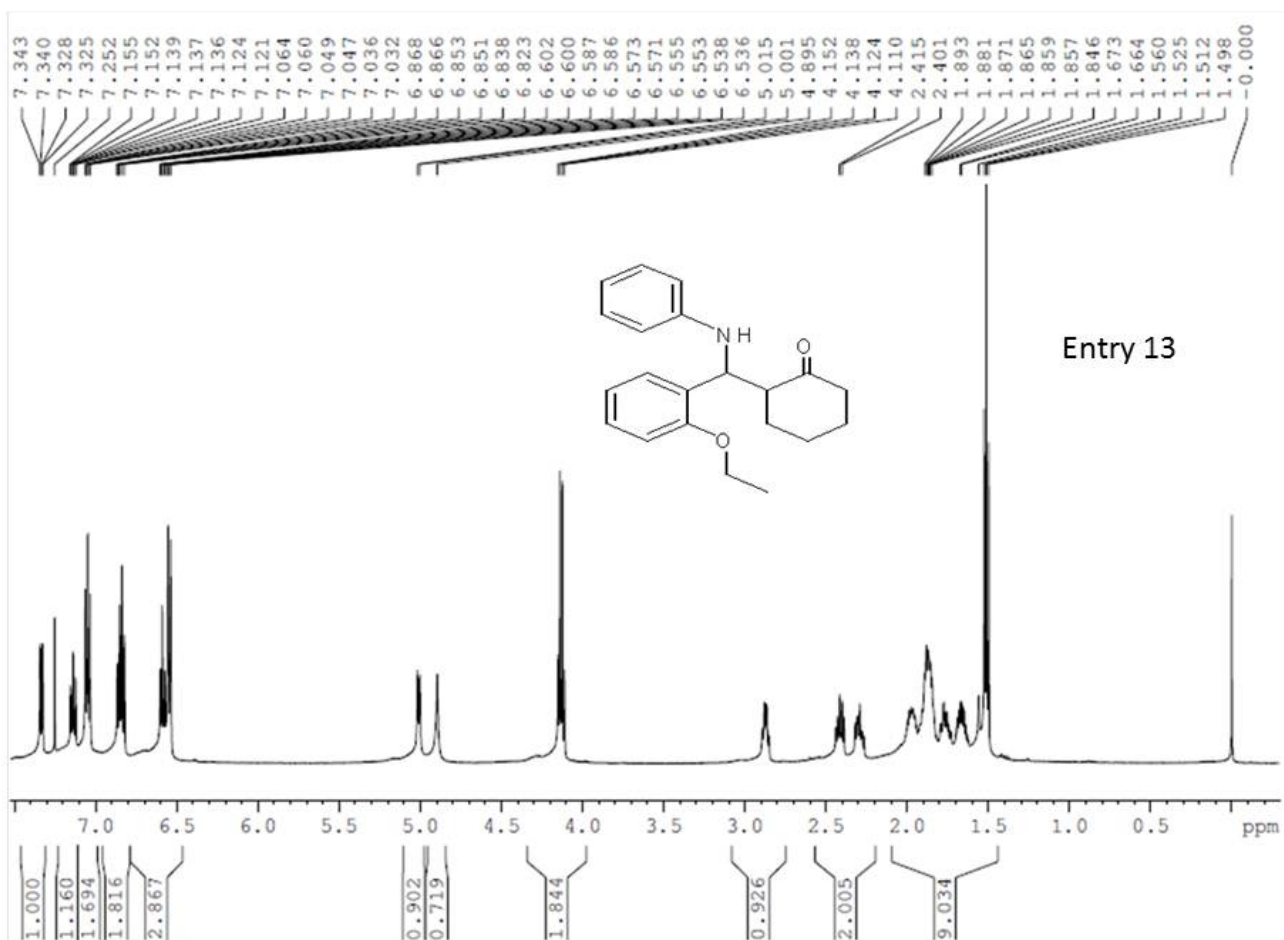
##### $^1\text{H}$ NMR Spectra for entry 8



##### $^1\text{H}$ NMR Spectra for entry 11

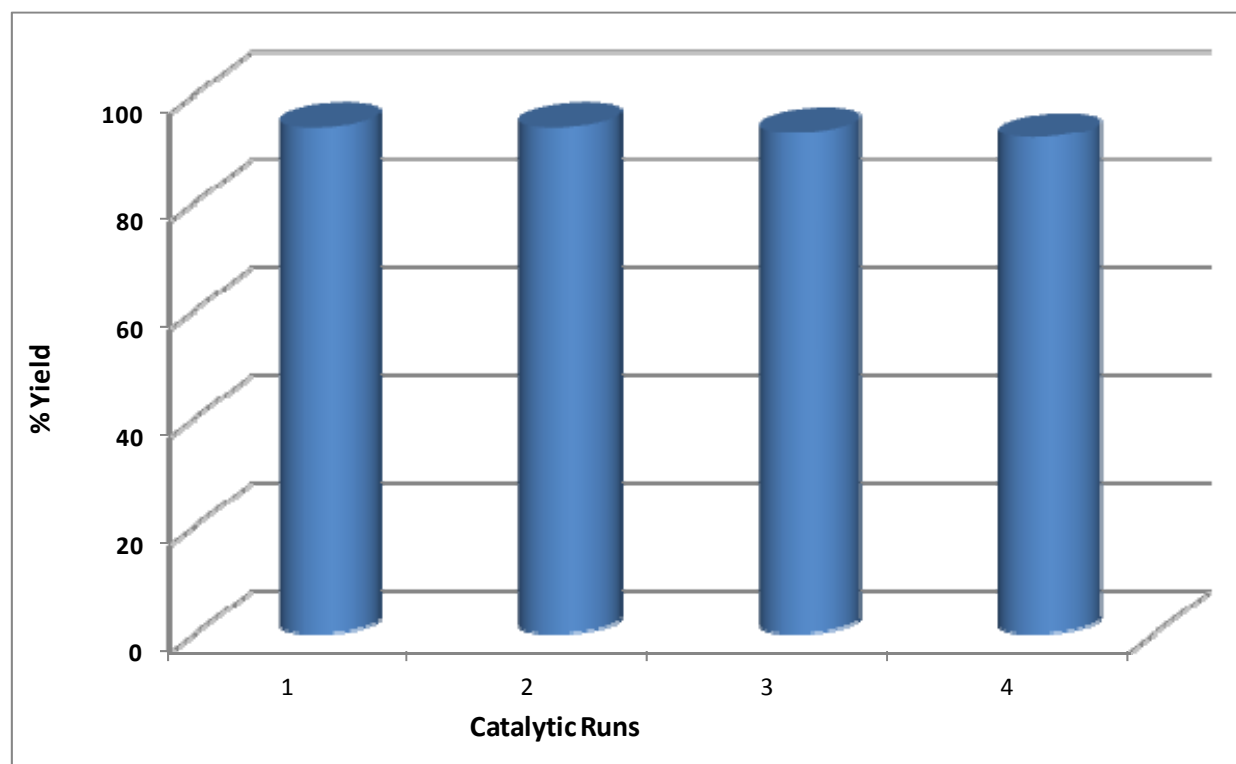


##### $^1\text{H}$ NMR Spectra for Entry 13.





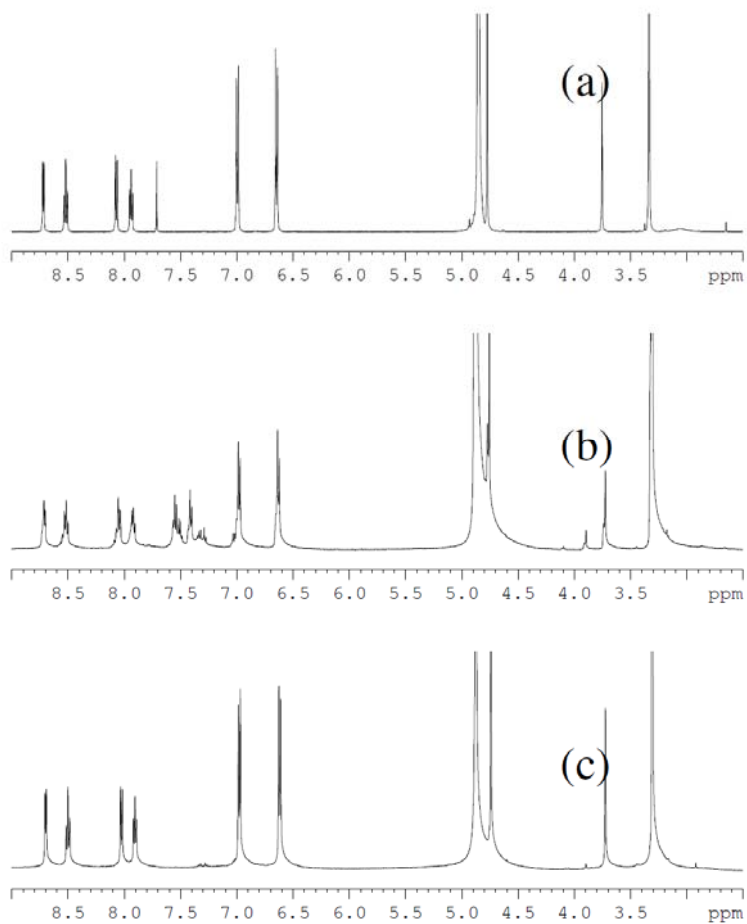
**S5:Mannich reaction Showing catalytic recycle howing upto four cycle**



Catalytic recycle

Reaction Condition: 2:1:1 ratio of reactant cyclohexanone:aniline:benzaldehyde with catalyst 1b at Room temperature 25C. No solvent. Yield was isolated upon treating with hexane.

### S6: $^1\text{H}$ NMR Spectra of Catalyst



(a) Catalyst **1b** before catalysis (b) Both Catalyst and product (c) Catalyst **1b**, after the isolation of the product