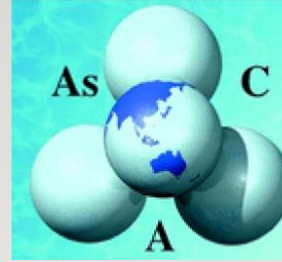


**AsCA 2016**

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# CRYSTAL TRANSFORMATION AND POLYMORPHS OF BIS(N-HYDROXYETHYL-N-ISOPROPYL DITHIOCARBAMATO)CADMIUM(II)

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SUNWAY UNIVERSITY

# INTRODUCTION

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- Crystal Transformation
- Polymorph
- Cadmium Dithiocarbamate

# CRYSTAL TRANSFORMATION

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- One form to another
- Factor
  - Temperature
  - Solvent
  - Pressure
  - pH
  - etc.

# POLYMORPHISM

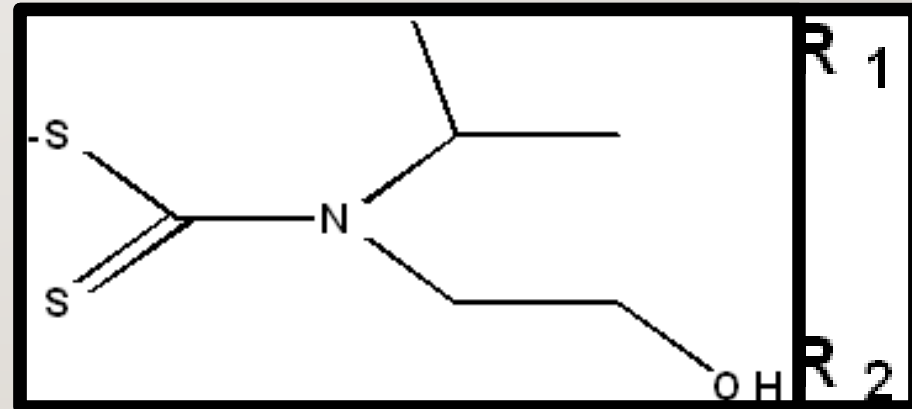
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- Different molecular arrangement
  - Molecule concerned
  - Solvent/guest
- How to identify
  - Unit Cell
  - PXRD pattern

# CADMIUM DITHIOCARBAMATE

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- Cadmium Metal Ion ( $\text{Cd}^{2+}$ )
- Dithiocarbamate Ligand



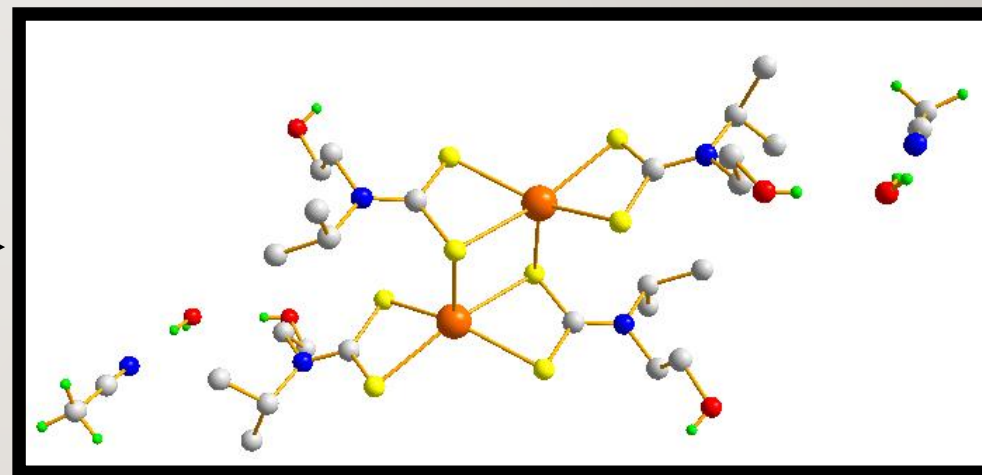
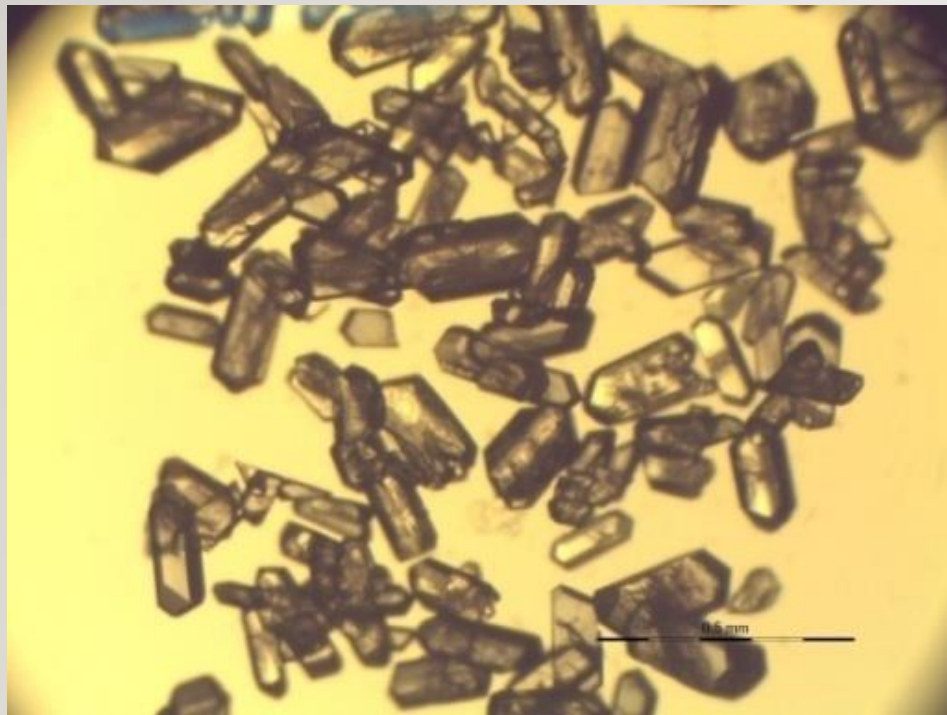
# OBJECTIVE

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- Intermolecular interaction
- Solvent free

# SLOW EVAPORATION (ACETONITRILE)

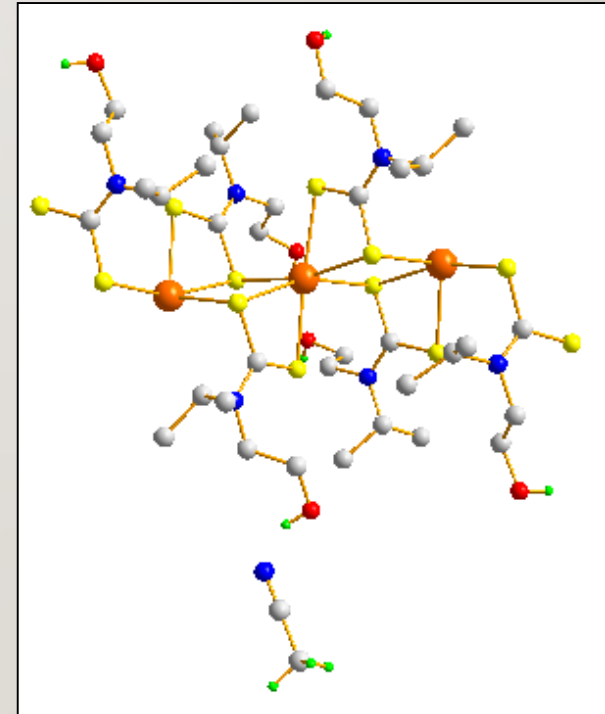
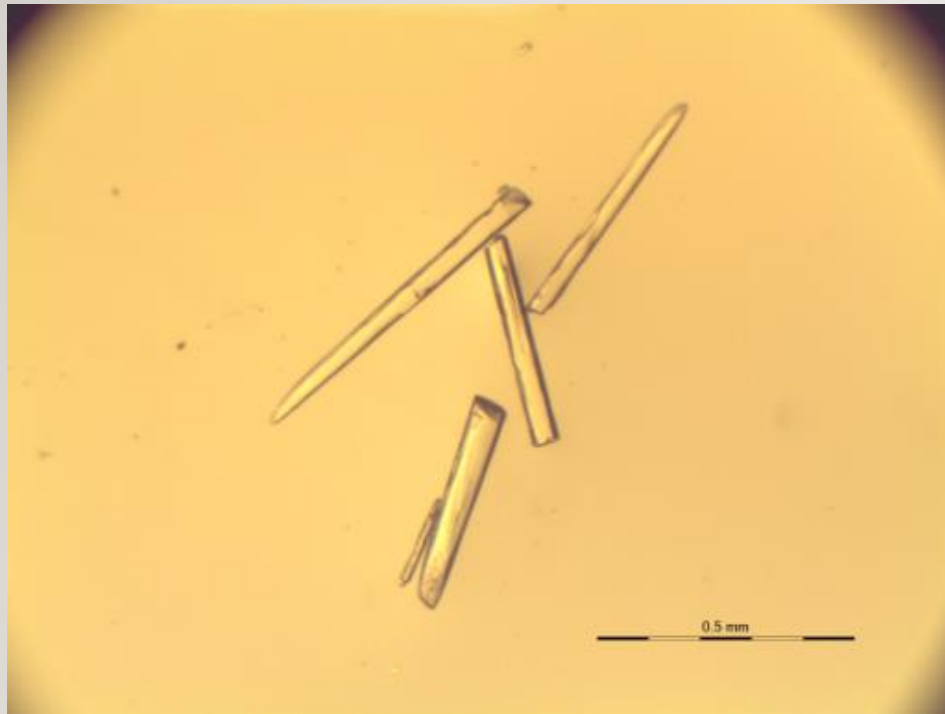
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Characterisation and analysis?

# SLOW EVAPORATION (ACETONITRILE)

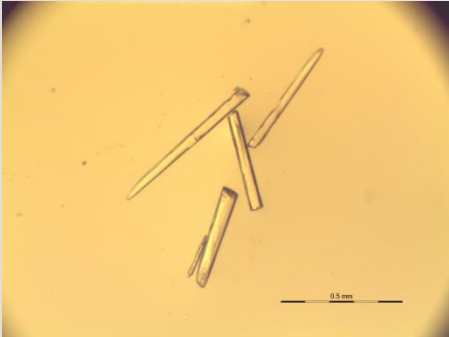
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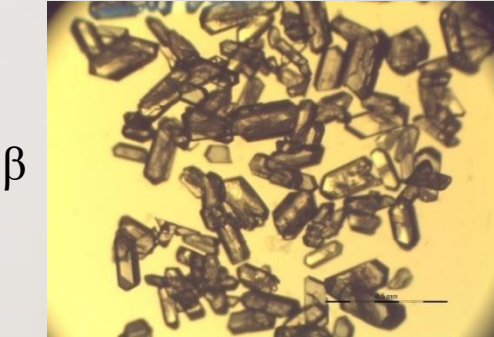


# CRYSTAL TRANSFORMATION 1

Day1



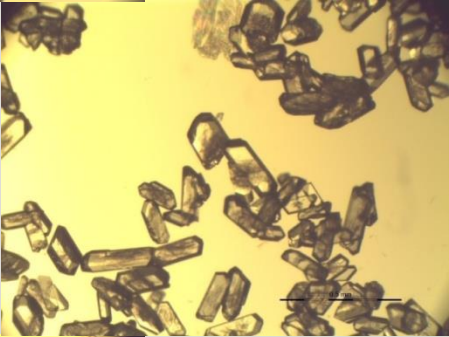
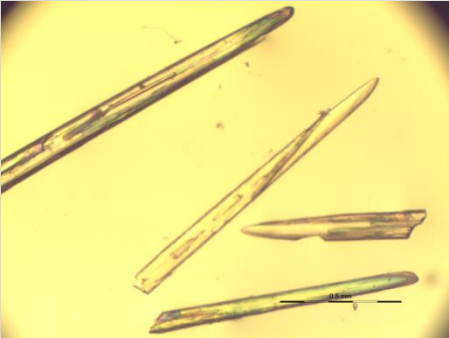
$\alpha$



$\beta$

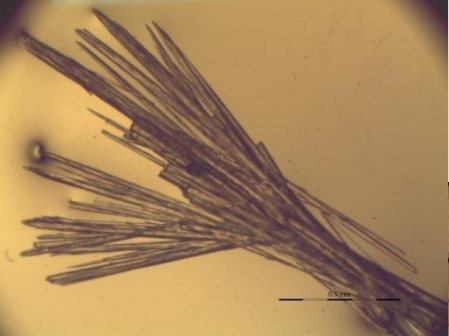
Day6

Day2

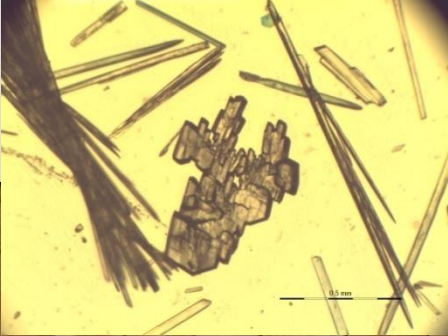


Day5

Day3



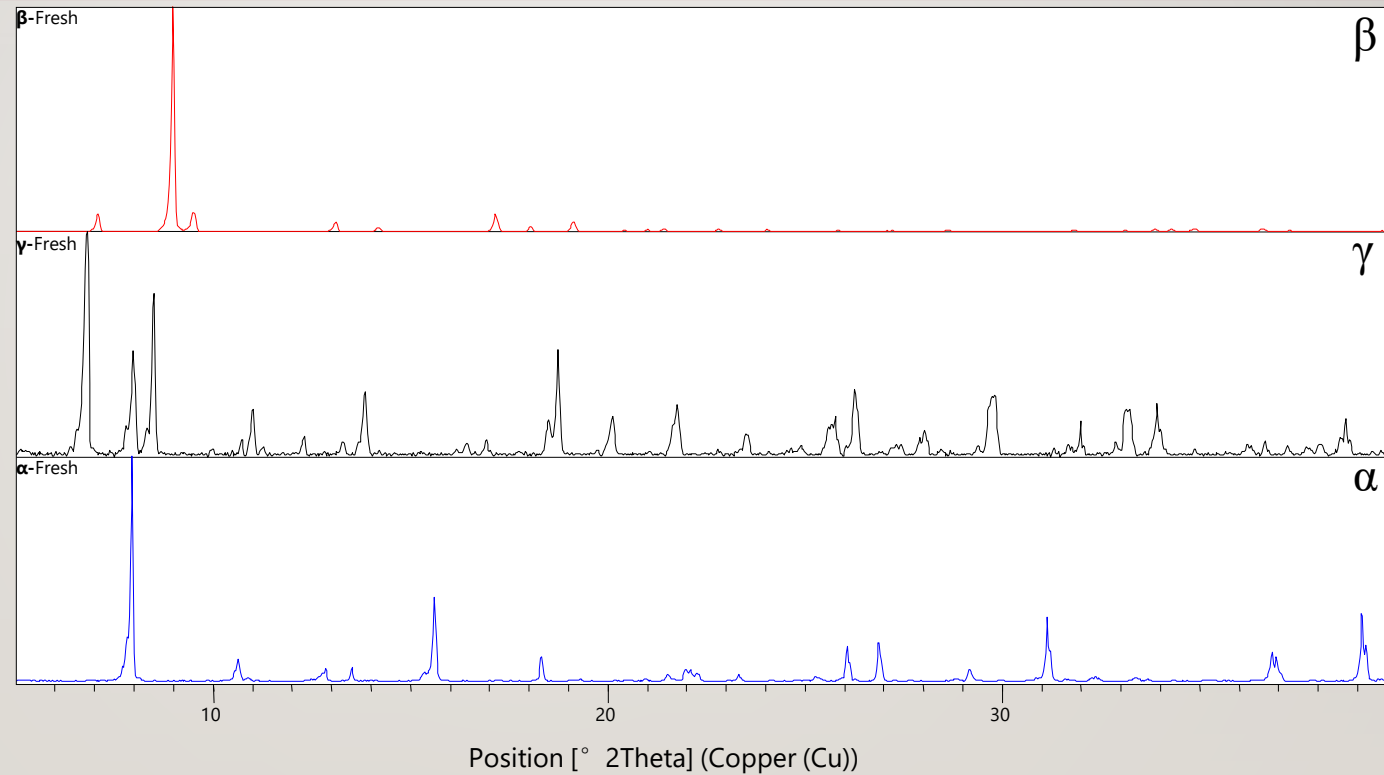
$\gamma$



Day4

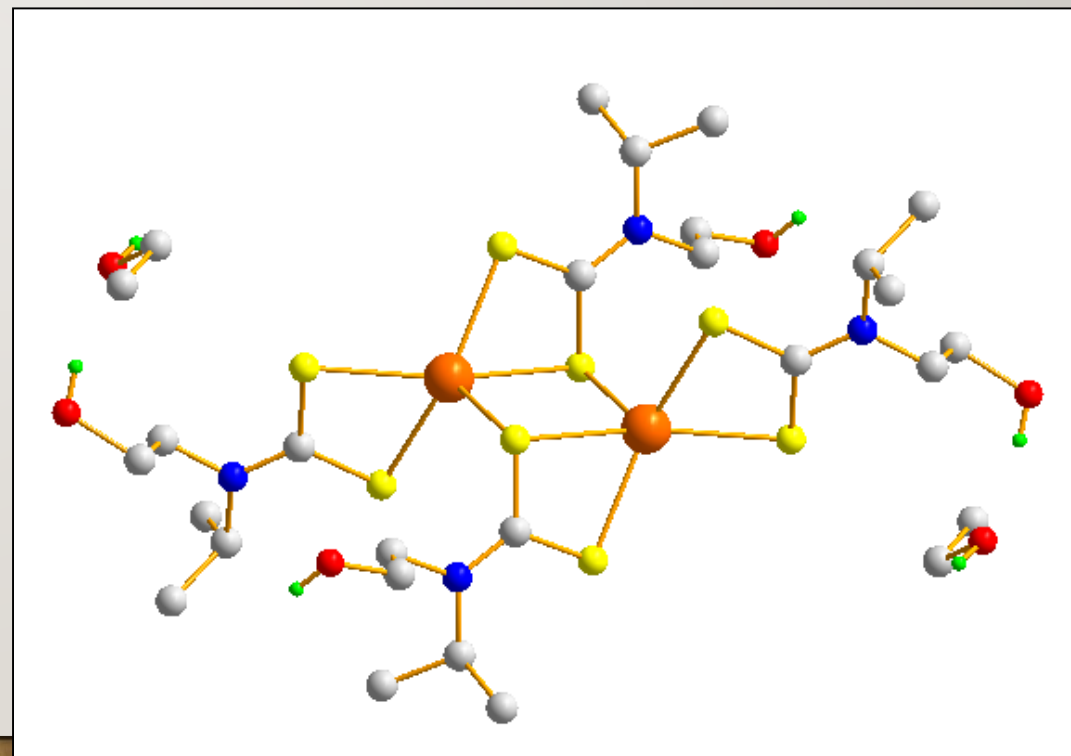
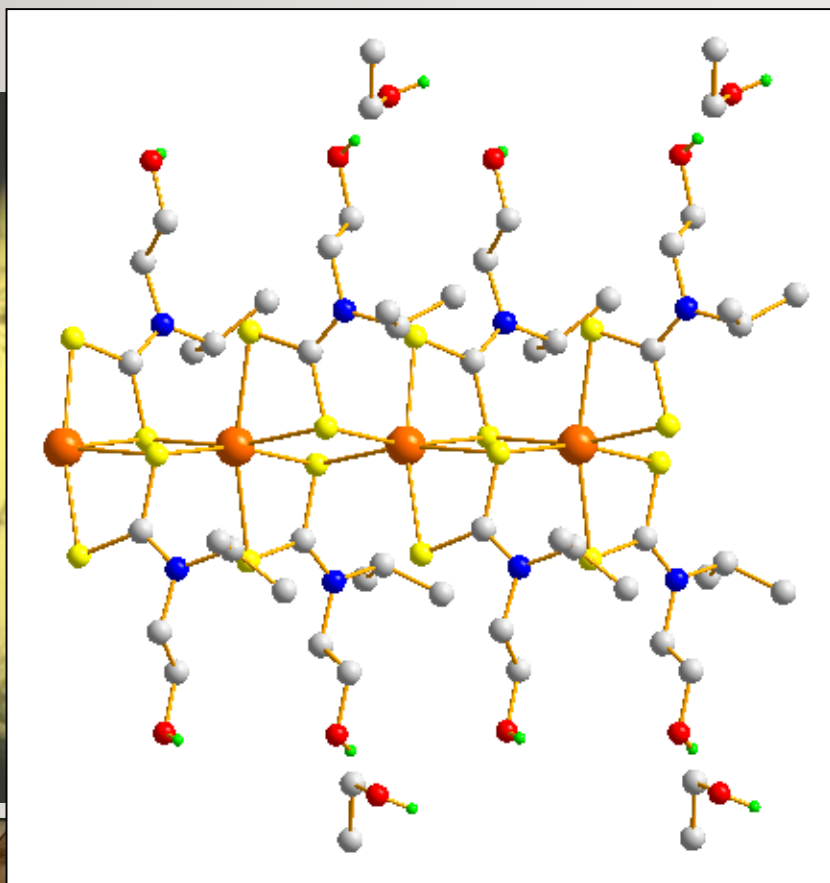
# PHASE CHANGE

- PXRD Pattern

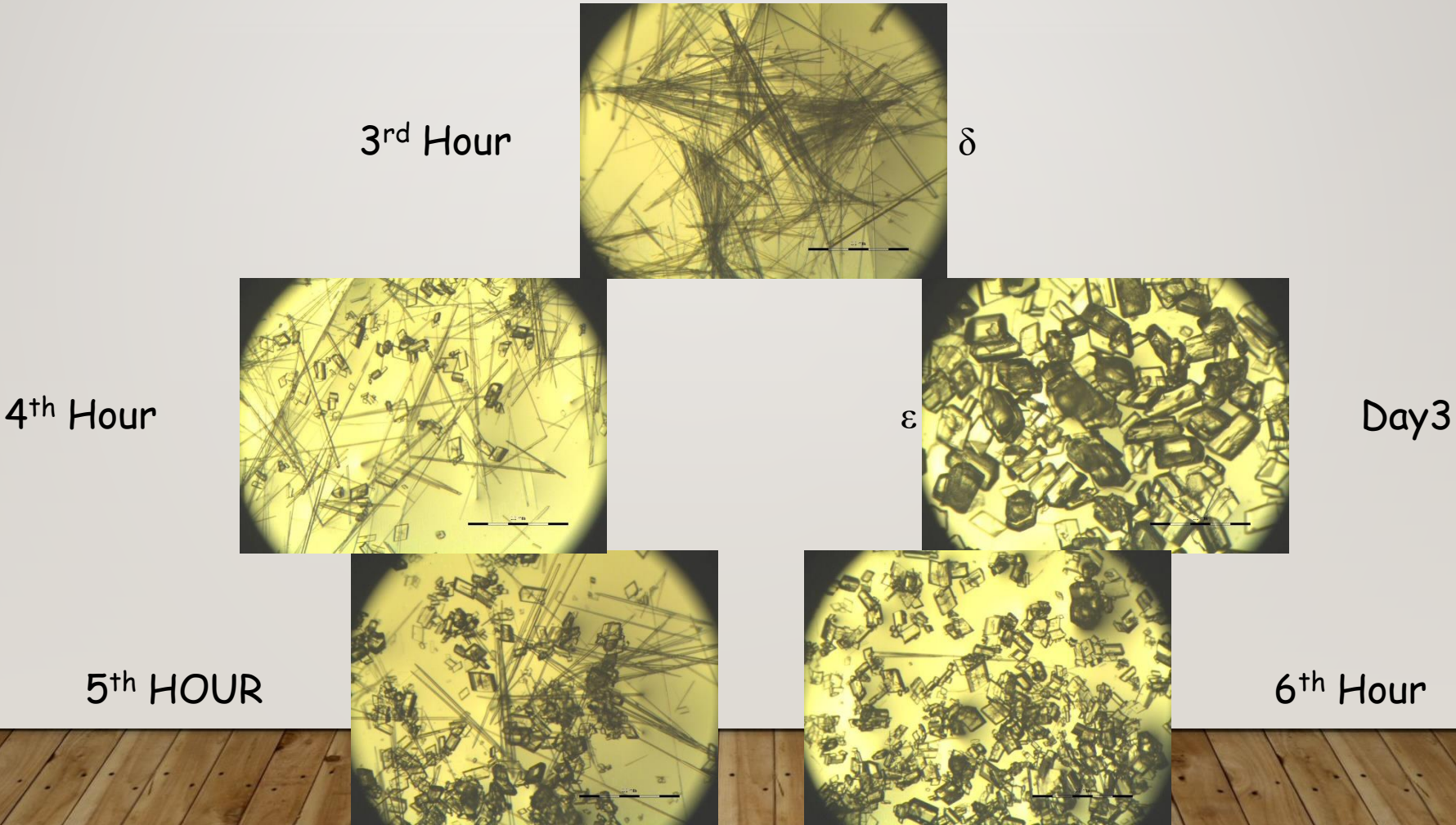


# SLOW EVAPORATION (ETHANOL)

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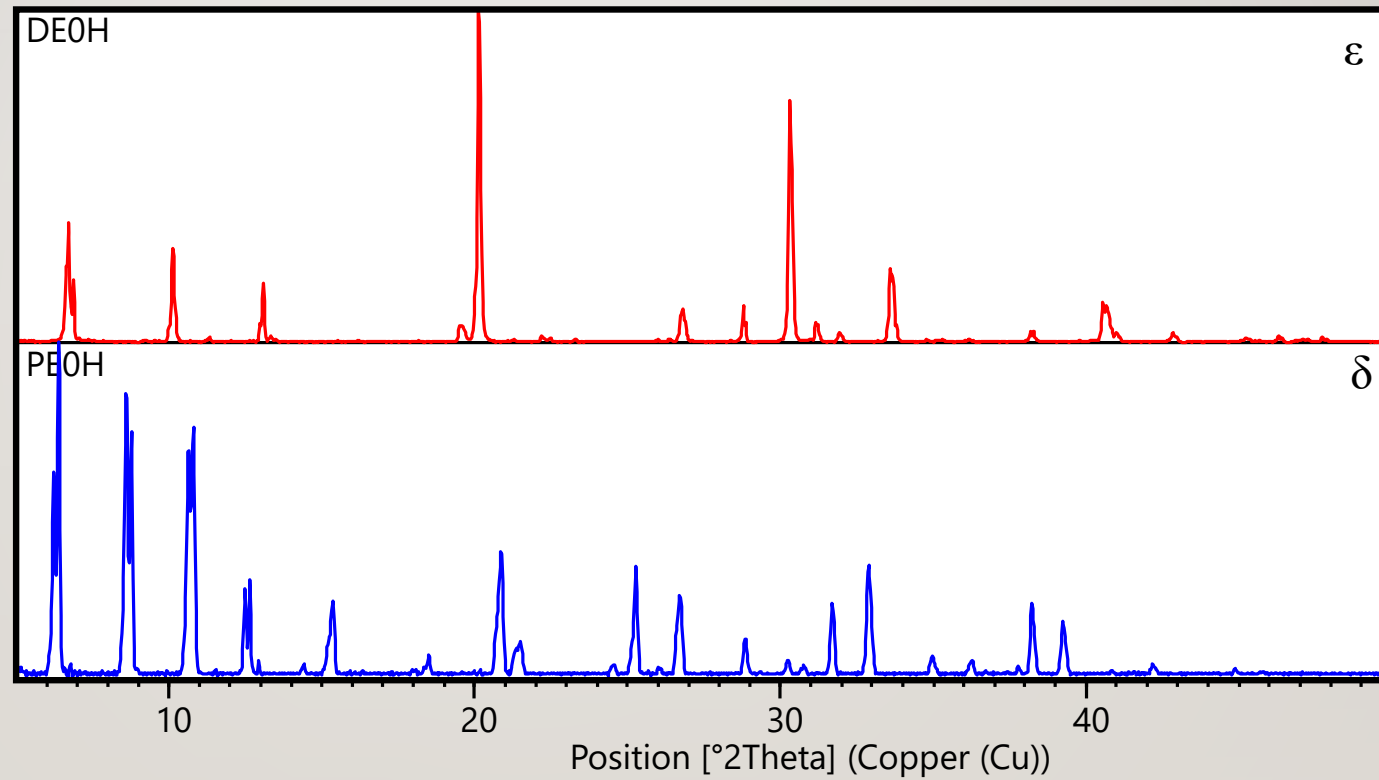


# CRYSTAL TRANSFORMATION 2

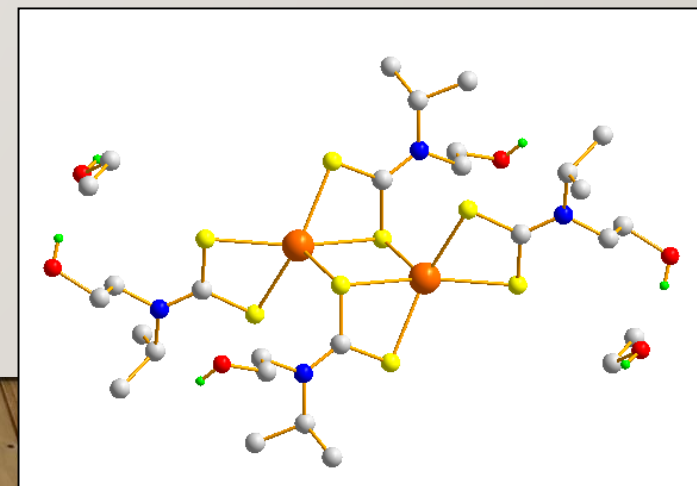
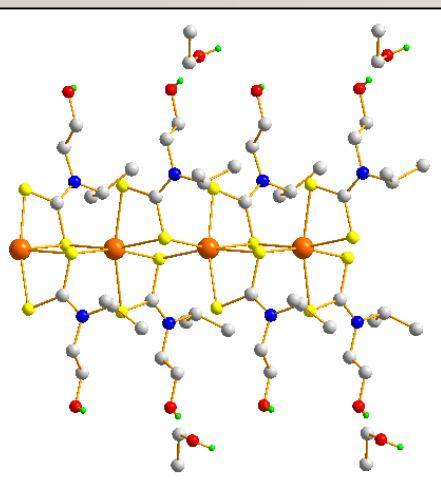
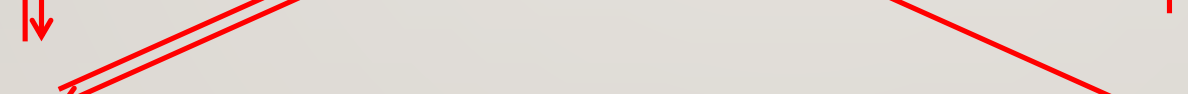
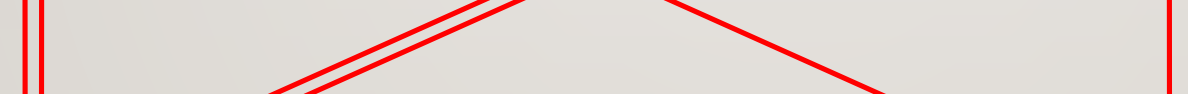
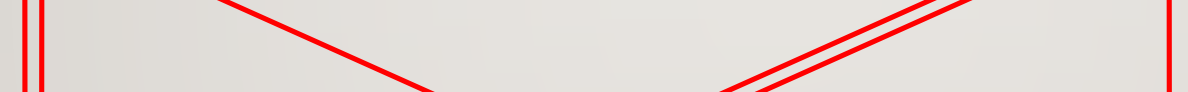
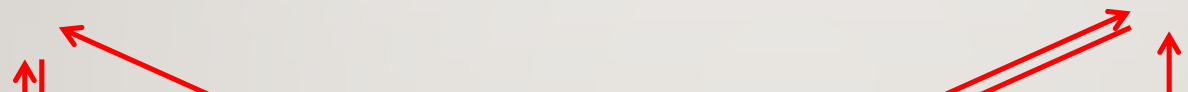
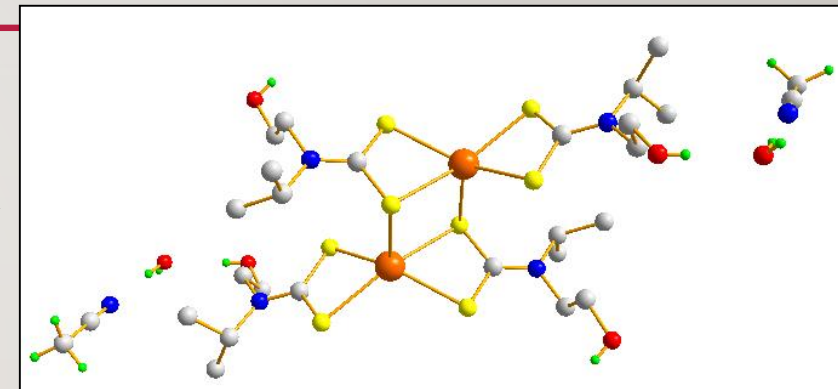
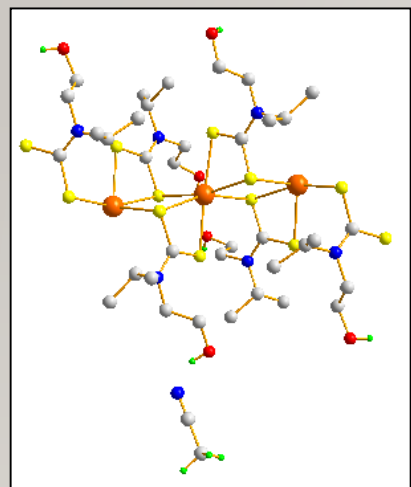


# PHASE CHANGE

- PXRD Pattern

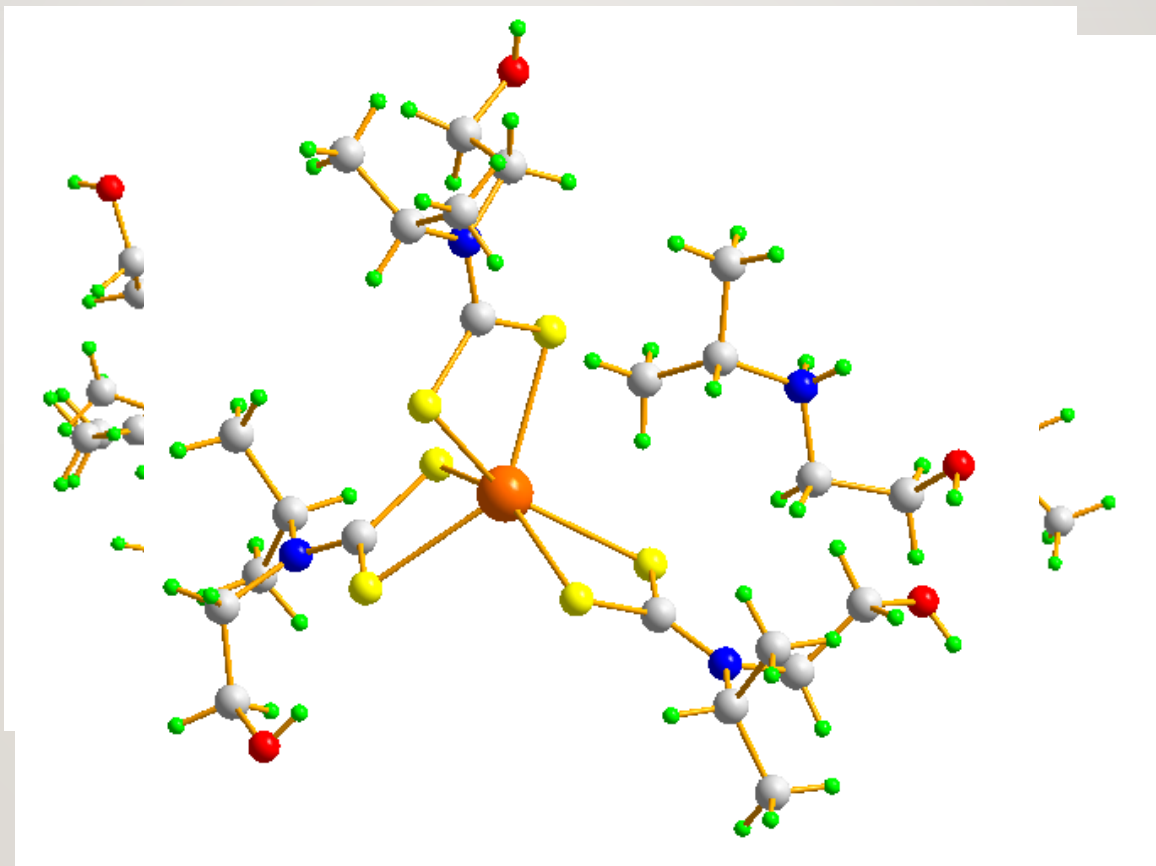


# SOLVENT INDUCE REVERSIBLE TRANSFORMATION



# OTHER CRYSTALLISATION OUTCOME

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Salicylate Crystal

# CONCLUSION

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- Fail?
  - Solvate free
- Observation
  - Crystallisation Process
- Various method
  - Polymorph



# ACKNOWLEDGEMENT

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