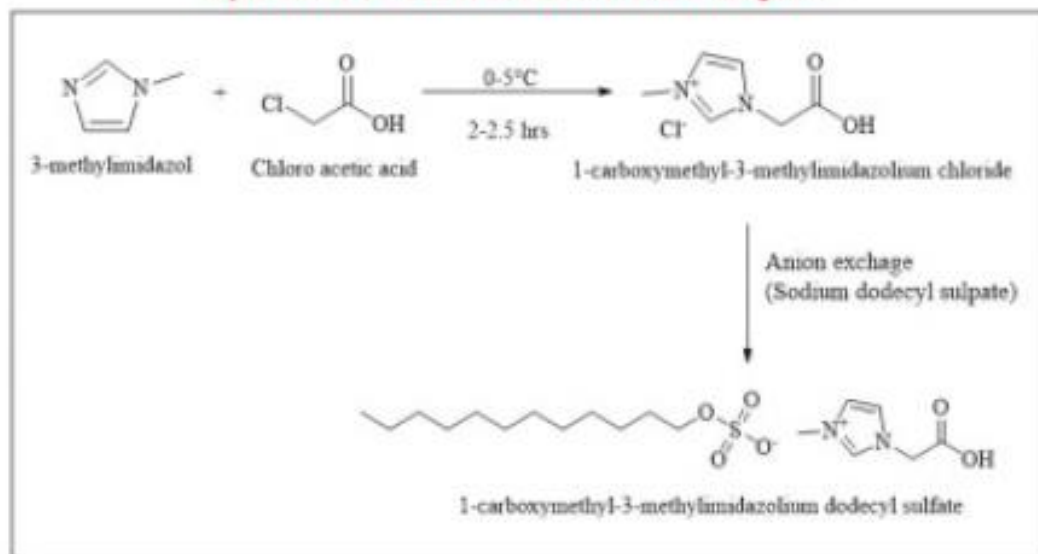


1

## Design and Development of Advance Functional Materials

### Synthesis of Surface Active Ionic Liquids

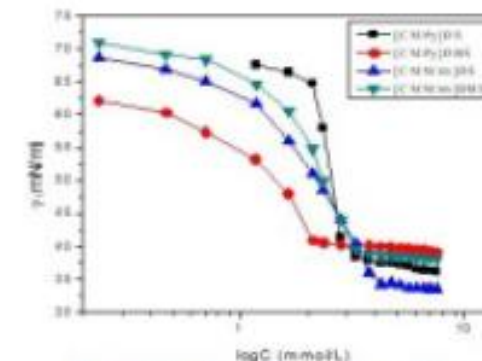


**Highlight:** The carboxy functionalized SAILs are expected to step forward for green surface-active agents

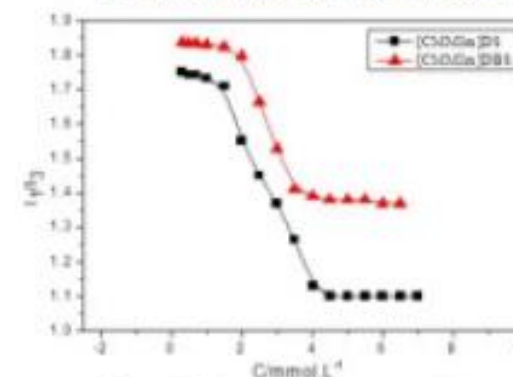
#### Determination of Physical Parameters

Critical Micellar Concentration (CMC), Aggregation Number  
Thermodynamics of Micellization, Surface Active parameters

### Characterization SAILs



Plot of Surface Tension vs. Conc.

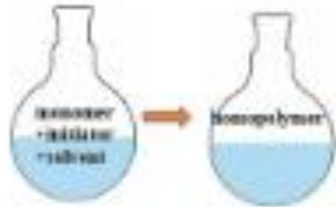


Plot of Fluorescence quenching

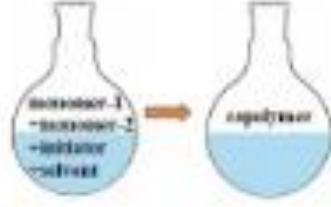
5

## Design and Development of Surface Active Ionic Liquids

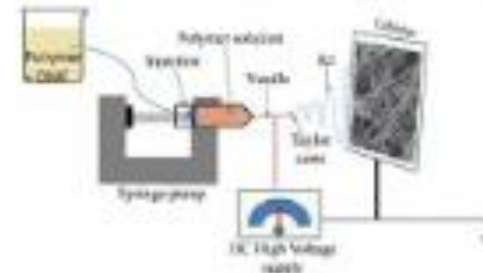
**Synthesis of homopolymer**



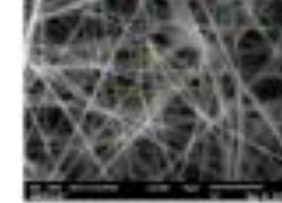
**Synthesis of copolymer**



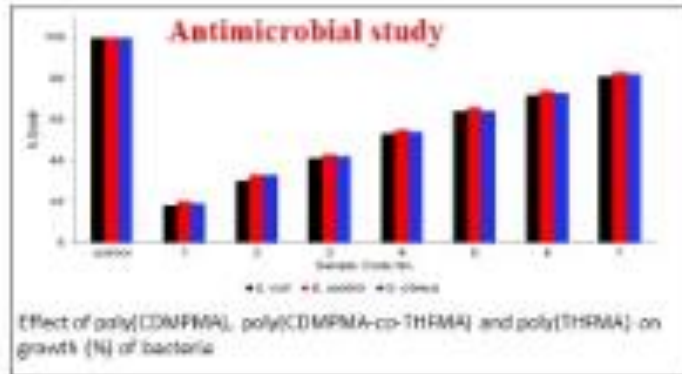
**Nanofiber synthesis**



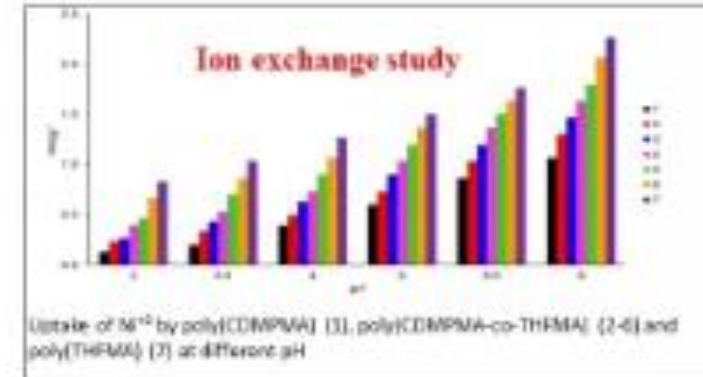
**Surface morphology study**



**Antimicrobial study**



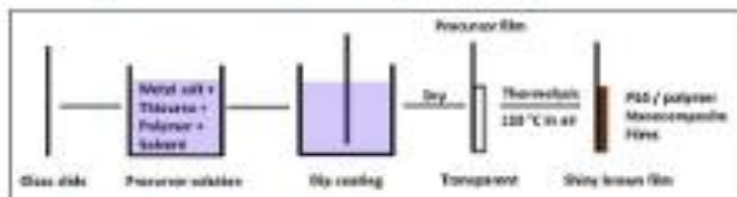
**Ion exchange study**



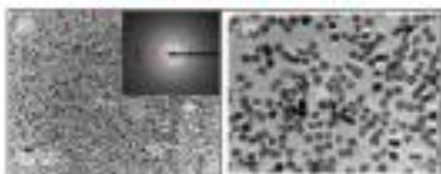
# Development of Acrylate Polymer, Nanocomposites and Nanofibres



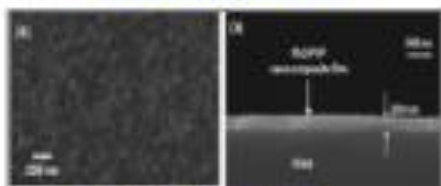
### Development of single step in-situ protocol for NCs



### Morphological study

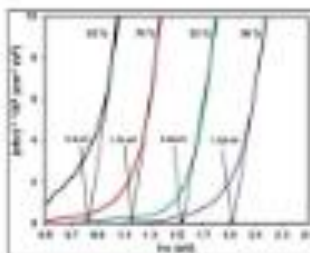


TEM of PbS/PVP NC

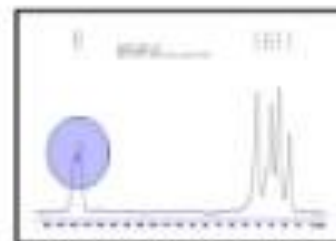


SEM of PbS/PVP NC

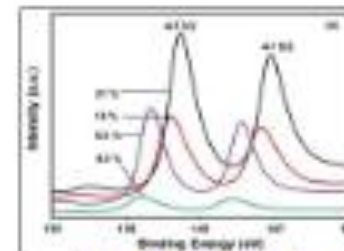
### Optical Study



### Interaction Study



<sup>13</sup>C NMR of PbS/PVP NC



XPS of PbS/PVP NC

# Nanocomposites and Nanofibers