

# Conversion of cellulosic biomass to valuable materials- by Dr. S. Kadiravan (Scientist, CSIR-NCL)

## IMMERSIVE TALKS

WITH WASTE-TO-VALUE (W2V) DOMAIN EXPERT

Conversion of cellulosic biomass to valuable materials by Dr. S. Kadiravan (Senior Scientist, the Polymer Science and Engineering Division, CSIR-NCL)

LIVE 5:05



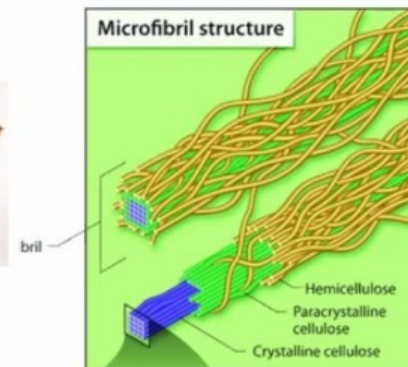
### Conversion of Cellulosic Biomass to Valuable Materials



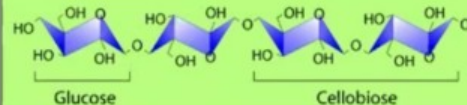
Kadiravan Shanmuganathan Ph.D  
Polymer Science and Engineering Division  
CSIR - National Chemical Laboratory, Pune  
Email: [kadiravan@ncl.res.in](mailto:kadiravan@ncl.res.in)



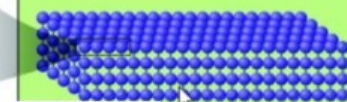
### Microfibril structure



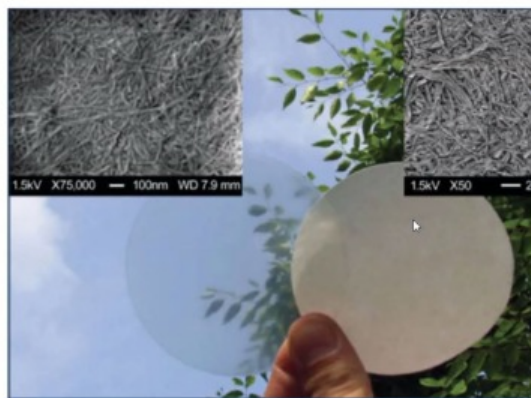
### Cellulose molecule



### Crystalline cellulose



## Transparent Paper



## Challenges

1. Moisture sensitivity of nanocellulose
2. High aspect ratio of cellulose nanofibrils leads to a gel at low concentrations
3. Manufacturing dry nanocellulose
4. Economically efficient productions of films, aerogels and filaments are lacking
5. Most nanocellulose product development -TRL 2 to 4



Total number of Participants 40  
(35 Zoom + 5 FB Live)