

Research Direction and Overview



Objective of the Research

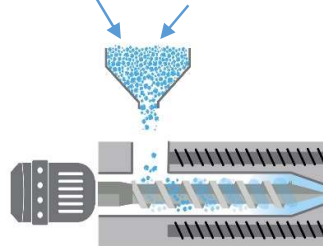
Commercial production of bio-degradable films for packaging applications



By melt processing

- Extrusion
- Injection Molding
- Extrusion Blown films

Bio-polymers Additives (Plasticizers, Fillers)



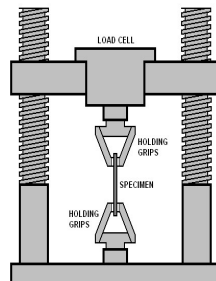
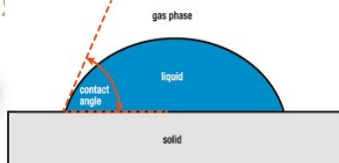
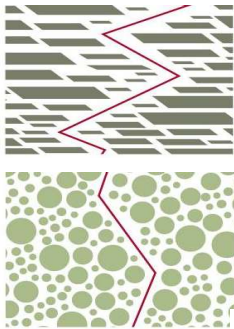
Target properties for Packaging applications and their Characterization

- Mechanical Strength (TS, EB, YM)
- Barrier Properties (OTR, WVTR, CO₂TR)
- Hydrophobicity
- Degradability

Optimizing Processing Parameters, Conditions, and techniques

Incorporation of additives like Plasticizers, fillers and blending with suitable bio-polymers

Multilayered films with other biopolymers could also provide enhanced Barrier properties



Possible Outcomes and Advantages of this Research

- Degradable and environmentally benign films
- Safe for food contact applications
- Can get degraded by normal soil burial (mitigating littering problems)
- Low cost compared to non-scalable and costly solvent casting method
- Less disposal problems compared to commercial packaging films



Applications



With this Green Initiative of Commercializing Bio-degradable plastics with cost-effective prices, a positive change can be brought in society and Nation that can be beneficial for all the living species on planet and environment, and hereby contributing to '*Swacch Bharat Mission*' and '*Atmanirbhar Bharat*'.