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Date of joining: 17.07.2023

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Education Details (UG & PG)

B.E. – Mechanical Engineering

M.E. – Engineering Design

Tentative title of the research work

Development of biodegradable materials for sustainable food packaging applications

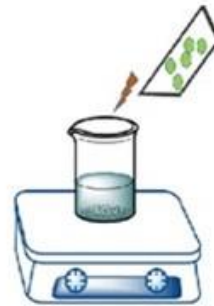


Brief abstract

In the modern era of nutrition science, food industries face a plethora of obstacles in ensuring the quality of food with increased shelf life and long-term preservation. This study proposes the development of biopolymer-based sustainable and biodegradable packaging materials as a solution to these obstacles. These materials offer oxygen and moisture barriers essential for maintaining food freshness and quality, thus extending shelf life. The outcomes of this study are anticipated to pique the interest of packaging industries for the prudent use of natural and waste materials for the commercialization of green materials for packaging applications. The objectives include the development of a novel, cost-effective material optimized for specific properties such as mechanical strength, optical clarity, and gas barrier properties suitable for various food packaging applications. The different films will be manufactured using solution-casting method and subjected to various characterization analysis which are required for food packaging materials. The properties of the developed materials will be compared with the properties of other materials reported in the literature to ensure that the developed material is a suitable candidate for packaging applications.



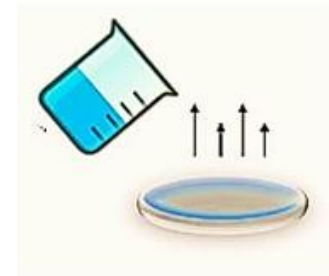
Reinforcement



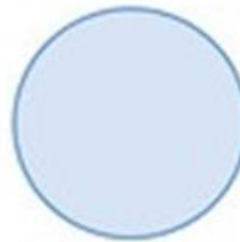
**Mixing of biopolymer
with reinforcement**



Addition of glycerol



**Pouring into a petri dish
and drying**



Biopolymer film



**Vegetable covered with
biodegradable film**