

Development of Sustainable Polymeric Material for Packaging Applications



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Polymeric and Composites Materials

Concept

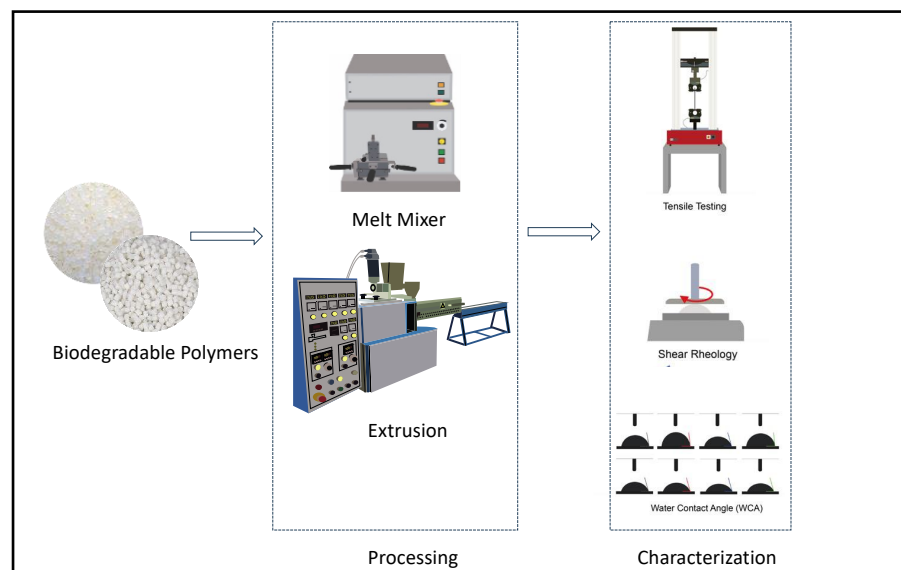
Biodegradable polymers are emerging as one of the most promising solutions in the battle against plastic pollution. Effectively, they represent an environmentally friendly alternative to traditional plastics, which, due to their slow decomposition, can persist in the environment for hundreds of years, producing pollutants that cause significant damage to nature. However, using biodegradable materials does not always completely solve the problem, as such materials often have inferior properties compared to petroleum-derived polymers. Consequently, a viable solution is biodegradable blends or biocomposites

Scientific approach

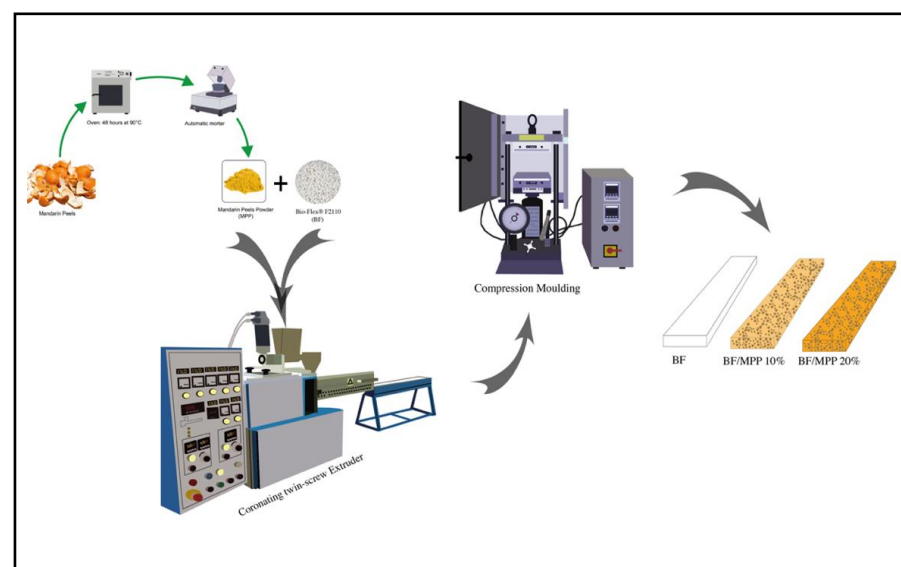
Through a scientific approach, the work begins with a careful analysis of processing conditions and their correlation structure and properties. New formulations of biocomposites are then developed, using both commercial and non-commercial matrices, and incorporating selected agricultural wastes as fillers. In parallel, work is done to create packaging prototypes by combining commercial and non-commercial polymer blends in order to perform detailed characterization to identify the best formulations for use in the packaging industry. Finally, the recyclability of the chosen formulations and commercial multilayer packaging currently not intended for recycling is evaluated, with the aim of promoting sustainability and sustainable development.

Research objectives

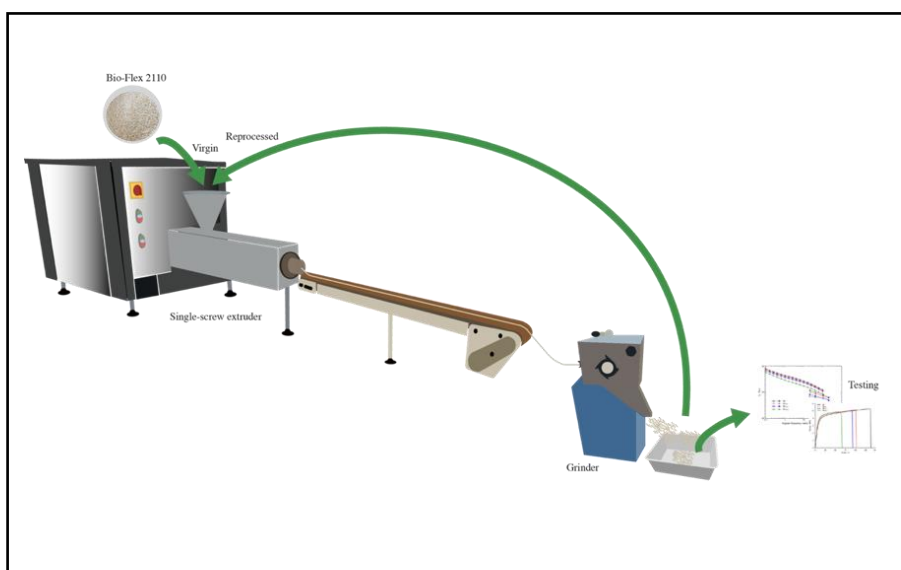
The project aims to reduce the use of fossil fuels and mitigate their environmental impact through the use of biodegradable polymers and local waste for the production of biocomposites. This approach not only reduces dependence on nonrenewable resources, but also reduces the amount of waste. In addition, the project promotes the circular economy, where biodegradable blends and biocomposites can be reintegrated into the production cycle at the end of their use, instead of being disposed of as waste. This process promotes the overall reduction of environmental impacts and contributes to a more sustainable and resilient system.



I Development of biodegradable blends.



II Development of biocomposites using agricultural wastes..



III Mechanical recycling to promote sustainability.