Arab Plastic

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This research aims to develop an eco-friendly bioplastic using natural ingredients—gum arabic, flaxseeds, and glycerin—to provide a sustainable alternative to conventional plastic while preserving living organisms and plants stored within. The study explores the unique properties of these materials: gum arabic acts as a binding agent enhancing mechanical cohesion, flaxseeds improve strength and flexibility, and glycerin functions as a plasticizer, providing the necessary elasticity and softness. The samples were prepared by mixing these components in different ratios, followed by heating and cooling processes to achieve the desired consistency. Physical and chemical tests were conducted to evaluate properties such as durability, moisture resistance, and biodegradability. The results indicated that the developed bioplastic exhibited suitable mechanical properties and biodegradability, making it a viable alternative to conventional plastics. This innovation opens new horizons in the field of sustainable packaging, as these edible bioplastic coatings provide a completely safe option without any risks of environmental contamination. Thus, this research contributes to environmental sustainability by reducing plastic pollution, while providing a practical model for using natural materials to develop high-value functional products.

Awards Won: