Bio-renewable plastics from natural resources to reduce pollution

The earth is an indispensable resource. We rely on it for food, clothing - in fact for the very air we breathe. Sadly because of pollution we have been slowly destroying our earth. A major contributor to that pollution is non-biodegradable plastic, the detrimental impact of which is compounded because its manufacture uses so much of another finite resource, petroleum. But all is not lost. Recently, significant efforts have been made by the Polymers Research Group that is based in Deakin University’s Waurn Ponds campus to create sustainable alternatives to plastic that are both biodegradable and use renewable. Talented young early career researcher Nishar Hameed and his supervisor Professor Qipeng Guo have made considerable progress to date in developing novel, natural polymer materials via what they are calling the “green processing route”.

"We have developed novel biodegradable polymeric materials by taking advantage of the ionic liquid green solvent concept," Nishar said. "We use natural polymers such as cellulose, wool, chitin and their derivatives because they are all renewable, biodegradable, and biocompatible.” These make use of the substantial stock of sustainable materials that exist in Australia, such as cellulose from plants (agriculture and forestry), the huge resource of chitin raw materials from crab, prawns and shrimp shells (fishing industry) and the development of materials from wool keratin (wool industry).

"At the moment most of these natural polymers are processed using large quantities of organic or hydrocarbon solvents that are toxic. "The harmful effects of these solvents and the often hazardous by-products on human health and the environment, combined with their volatility and flammability, have led to increasing pressure to minimize their use. "Since all these materials used in our study are biodegradable, it is expected we will be able to greatly reduce the pollution from the plastics industry.

Analyzing the Source: Deakin University Australia Worldly is potentially reputable, but not necessarily relevant to our cause in the United States. Later in the article, resources in Australia are mentioned but that may not apply to our resources in the U.S.

Interpreting Relevance: Make sure to look at the date to determine relevance. This article may not be from yesterday, but is recent enough to be considered current. However, new technologies and ideas may have changed since the article was written.

Summarizing: This article discusses the need for bioplastics, mentioning the deteriorating status of the Earth, but it also states that the research is still in the process of taking shape. While this article supports bioplastics, it does not give us enough information to know how possible it is.

Vocabulary in Context:
- Biodegradable: capable of decaying through the action of living organisms
- Polymers: plastics
- Sustainable: able to be maintained or kept going; allow for continual reuse
- Biorenewable: product based from an organic, renewable source

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