

Scientists to develop tougher plastics from plants

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Scientists at the University of Bath and Tel Aviv University are working on a new project to improve the properties of plastics made from plants so that they can be used in a wider variety of products, from bottles to clothes.

Poly(lactic acid) or PLA is a type of biodegradable plastic that can be made from renewable plant sources such as corn, wheat or sugar. It is currently used in bottles, bags and films, and can even be woven into fibres to make clothes in the place of polyester.

The scientists at Bath and Tel Aviv are developing a new chemical catalyst to improve the process of making these plastics, making them stronger and more heat-resistant so they can be used for a wider range of objects such as engineering plastics for the automotive industry, microwavable trays and hot drinks cups.

Professor Matthew Davidson, Whorrod Professor of Sustainable Chemical Technologies at the University of Bath and Director of the University's Centre for Sustainable Chemical Technologies, explained: "PLA can be made up of two types of building blocks that are mirror-images of each other. Using the current technology, when the plastic is made with both types present they are jumbled together within the structure of the plastic.

"This new project will develop a selective [catalyst](#) that will build up a polymer of 'left-handed' and 'right-handed' building blocks in a

structured order so that we can control the physical properties of the resulting plastic.”

The project is one of ten joint British-Israeli research projects that tackle global challenges in energy and the environment that have been selected to receive funding through the Britain Israel Research and Academic Exchange Partnership, BIRAX.

Professor Moshe Kol from Tel Aviv University said: “New catalysts are the key to providing renewable and degradable plastics which will help make our society more sustainable and less reliant on oil.

“Our two research groups have previously discussed the possibility of collaboration and the British-Israeli research grant will provide an opportunity for this collaboration to take its first steps. A free flow of information between the groups will enable the identification of important leads regarding catalysts design and desired polymer structure.

“In addition, exchange of graduate students between the two laboratories will broaden their research horizons and will contribute to strengthening of the scientific collaboration between our two countries.”

BIRAX was launched in 2008 by the Israeli and British Prime Ministers with the aim of strengthening academic collaboration between the two countries and enjoys continued support from both governments.

Among the funders are the Pears Foundation, UJIA, Britain’s Department for Business Innovation and Skills and the Foreign & Commonwealth Office and the Ministry of Science and Technology in Israel. The scheme was designed by the British Council in collaboration with the Pears Foundation and academic leaders from both countries and is managed by the British Council in Israel.

Provided by University of Bath

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