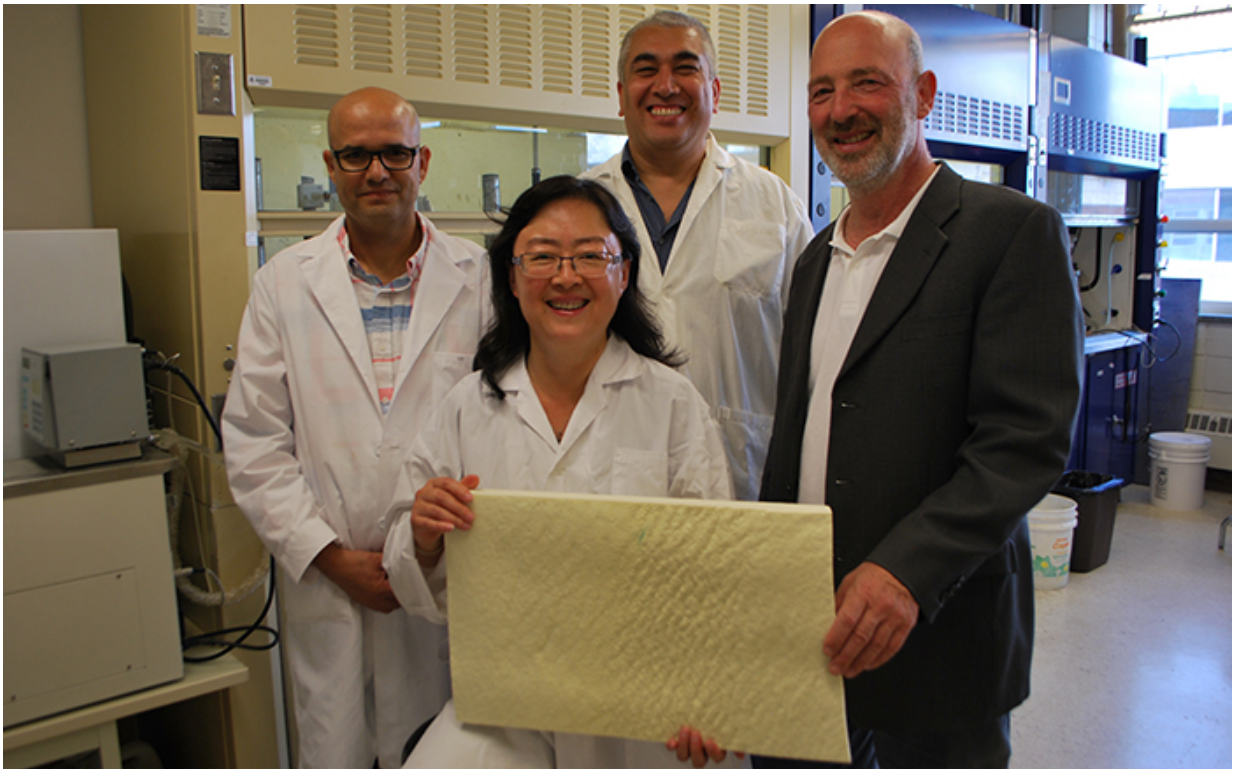


Polyol made from canola oil leading to new greener products

August 25 2016, by Helen Metella



Jonathan Curtis and his Lipid Chemistry Group have developed an organic polyol from canola oil that is used to manufacture spray foam and insulation panels. It's expected to be used in several more applications, such as adhesives, coatings and composite materials, in the years to come. Credit: University of Alberta

A process invented by ALES researchers that converts canola oil into an

organic polyol used to make polyurethane is paving the way for the creation of new, greener products.

The first product to use the canola-based polyol is a spray foam insulation called BioFoam, said Jonathan Curtis, who leads the Lipid Chemistry Group in the Department of Agricultural, Food and Nutritional Science.

"It will be around 25 per cent biobased—well above what's currently on the market," said Curtis. "But our objective is to increase the renewable content of the spray foam over time."

Most other environmentally friendly foams are soya-based products and these typically have a much lower proportion of biobased contents, he said.

The canola-based polyol spray foam is currently moving into the production phase and should be available for residential applications in two to three years, Curtis said, pending the certifications required in residential construction.

In addition to its renewable content, BioFoam has a number of features found in polyurethane foam. Its insulation value is very high and because it's moisture resistant, it also acts as a vapour barrier. Spray foams in general are desirable because they don't compress, sag and lose R-value in the way fiberglass batting often does, Curtis said.

Several companies were involved in the commercialization of the process. The first was Consolidated Coatings of Vancouver, which licensed the process to create the biopolyol that's now called Liprol in 2013. It created a spinoff company called Meadow Polymers, which built a small-scale pilot plant the following year and successfully produced Liprol at scale. The next step is large-scale blending of

BioFoam, which is a formulation of Liprol and other chemicals.

Another company involved is Edmonton-based Mod-Panel, who plan to make roof and wall insulation panels using BioFoam. Another partner is Green Analytics. It has performed life-cycle analysis on the products and will be involved with future building-energy audits to demonstrate the savings from using BioFoam.

"The great thing about BioFoam is that through Mod-Panel, we already have markets waiting for the products," said Curtis, who noted that these companies already supply spray foam and roofing panels in Alberta and have established partners across North America who are waiting for BioFoam.

Initial research on the canola-based biopolyol started about five years ago, with the support of the Alberta Crop Industry Development Fund. Additional funding was received from the Climate Change and Emissions Management Corporation and the National Research Council's Industrial Research Assistance Program. Recently, BioFoam was awarded a large grant by Alberta Innovates BioSolutions to establish the blending facility in Alberta, likely in the Edmonton region.

Curtis said there are many other applications to explore with the organic polyol including adhesives, coatings and composite materials.

"We expect to be adding to the bio-economy for many years," he said.

Provided by University of Alberta

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