This bark has commercial bite

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Researchers at the Faculty of Forestry and Faculty of Applied Science and Engineering are working to transform a forest industry waste product into a steady source of income with the help of the provincial government and private industry.

Professor Ning Yan and her team are using tree bark, generally discarded by sawmills or used for hog fuel, to create environmentally friendly green adhesives and bio-based foams for use in industry.

“Bark is available in large quantities,” said Yan, noting that in Ontario alone about six million bone-dry tonnes are available annually “and it is material ready to be utilized.”

Depending on the species of tree being considered, the bark makes up six to 22 per cent of the trunk’s weight.

This “magic” waste material contains extracts that can become the building blocks for eco-friendly adhesives and foams that are used in products as diverse as insulation materials, auto components and building and construction parts. If successful, chemicals and green products from this renewable material will substitute for the traditional petroleum-derived ingredients. Yan and her team believe the market is ready and waiting.

Yan, Professor Mohini Sain and Professor Ramin Farnood at U of T and colleagues at Lakehead University, together with the industry partners, including FPInnovations, Woodbridge, Huntsman, Arclin, St-Mary’s

Paper, Tembec and AbitibiBowater, will be working together in a public-private partnership. The university, the Ontario Research Fund and industry are each funding a third of the $5.25-million endeavour. They set out to explore the concept of a bark biorefinery, much like a petrochemical refinery, where instead of crude, bark is converted to multiple products.

“Industry is willing to use these products if we create them,” she told her audience at the recent project start-up meeting, attended by representatives from the seven industrial partners and a number of tech transfer organizations, as well as government officials.

The team has chosen to focus on adhesives and foam, not only because of large market size (billions of dollars) but also because the same technology, solvent liquefaction, is used to convert bark from solid to liquid as the starting precursor to both products.

“Initial findings are quite promising but we have only just scratched the surface so far,” Yan said.

Stay tuned … the next car you drive may bark … and that won’t be from your four-legged friend.

Provided by University of Toronto