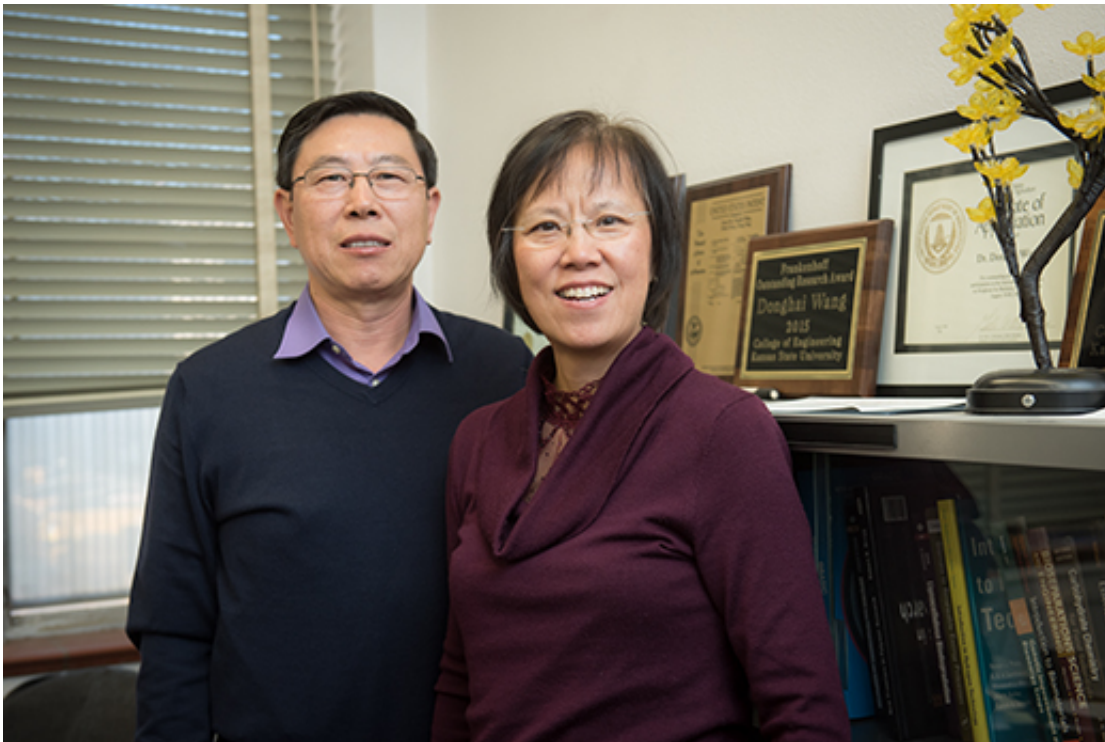


Cost-saving, longer-lasting biodegradable adhesive patented by KSU

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Donghai Wang, professor of biological and agricultural engineering, and Susan Sun, university distinguished professor of grain science and industry, developed a patented biodegradable resin for adhesives and coatings. Credit: Kansas State University

Kansas State University researchers have patented the first plant-based resin of its kind that would be ideal for re-adherable painters' tape, labels, packing tapes, stationery notes and other adhesive uses. It also can

provide shiny coatings.

"Painters generally finish projects with mounds of used tape made of low-quality paper that does not recycle," said Susan Sun, university distinguished professor of grain science and industry and lead researcher on the project. "If they could use biodegradable tape, like ours, it would greatly reduce the amount of waste."

In addition to adhesive applications, the resin could be used in coatings on wooden surfaces, slick magazine pages, bags of potato chips and other items needing shiny and protective surfaces that are either flexible or rigid.

Sun said the resin outperforms previous bio-based adhesives because it adheres to a surface for a longer period of time, has a longer shelf life and is more water-resistant. Because the substance is plant-based, its resources are biodegradable and renewable.

"Our [resin](#) is unique because it is made from soybean, corn and other plant oils," Sun said. "Currently available resins are made from petroleum-based products, which are less sustainable, and from plant fatty acids, which cost more to process."

The research has been featured in several publications, including *Biomacromolecules*, *Journal of Materials Chemistry* and others. It has been presented at the International Material Research Conference in China, the Green Chemistry and Engineering Conference in Washington, D.C., the American Chemical Society National Meeting in Anaheim, California, and other events.

Provided by Kansas State University

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