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Black walnuts contain heart-healthy nutrients that can stave off obesity and cardiovascular disease, MU study finds

Phytosterols harvested from the tree nut have a wide range of other potential uses, including cosmetics and nutritional supplements

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COLUMBIA, Mo. – Black walnuts are a major industry in the Midwest, with about 23 million pounds processed annually in Missouri alone, and they are a ubiquitous presence on lawns in early fall. But while many tree nuts, such as English walnuts, have received attention for their nutritional benefits, comparatively little research has focused on black walnuts.

In a first-of-its-kind study, researchers at the **University of Missouri** have confirmed that black walnuts contain molecular compounds called phytosterols, which have been shown to help prevent obesity, diabetes and cardiovascular disease while promoting lower cholesterol, lower inflammation and anticancer activity in the body. Phytosterols have previously been found in English walnuts, but researchers discovered black walnuts are a richer source of the health-promoting molecule.

“The black walnut is already an important crop in the Midwest, but we are beginning to see it still has enormous potential,” said [Chung-Ho Lin](#), an associate research professor of forestry in MU’s [School of Natural Resources](#) and Center for Agroforestry. “The health benefits of phytosterols are well known, and now we have critical information for both consumers and producers that shows black walnuts are a great diet option for those looking to reduce their risk of cardiovascular disease.”

Lin and his colleagues — including Danh Vu, a graduate student in the School of Natural Resources — compared the phytosterol profiles of English walnuts and six varieties of black walnuts. Taking advantage of recent advances in phytosterol analysis and MU’s new [Metabolomics Center](#), researchers performed the first

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 **Photo**

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systematic analysis and comparison of the heart-healthy nutrients across different black walnut varieties. Two varieties, known as Tomboy and Chesler, surpassed the English walnut with the potential health benefits of their phytosterol compounds.

“This is an exciting development because it opens the door to other commercial applications for the black walnut,” Lin said. “They are a great nutritional option when eaten, but some dietary supplements are also fortified with phytosterols, so this walnut has a valuable component that could be separated and used in other ways. This nut could have a real impact on the Midwestern economy, especially in a state like Missouri, which is the leading producer of black walnuts in the world.”

Ho-Lin said a large amount of waste material is generated when processing black walnuts, and that material currently has only limited use as pig feed. This study suggests that some of that waste material could be turned into more valuable products, including supplements and cosmetics with anti-inflammatory and anti-oxidant properties. Cosmetic applications would reach the market quicker than other uses because they do not need to be approved by the Food and Drug Administration, Lin said.

The study, “Identification and quantification of phytosterols in black walnut kernels,” was published in the *Journal of Food Composition and Analysis*. Funding was provided by the MU Center for Agroforestry and Missouri Specialty Crop Block Grant Program. Other researchers involved in the study were Zhentian Lei and Lloyd Sumner of the University of Missouri Metabolomics Center, and Mark Coggeshall of the United States Department of Agriculture’s Forest Service Northern Research Station. The School of Natural Resources and MU Center for Agroforestry are located in the [College of Agriculture, Food and Natural Resources](#).

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