

# Siris tree leaves hold promise for stopping spread of breast cancer cells, say researchers

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Albizia lebbek—Shirish/Siris Tree. Credit: Wikimedia Commons, [CC BY-SA 4.0](#)

Albizia lebbeck is the scientific name of the siris tree, which may hold the promise of working as a natural agent to combat breast cancer metastasis. The finding, presented in the journal [\*Scientific Reports\*](#), shows that the leaves of the plant could thwart the spread of cancerous cells to other parts of the body.

"The ability to impede cancer cell migration is particularly crucial in preventing the spread of cancer to distant organs, a process central to the lethality of many cancers, including breast cancer," said Dr. Dilber Uzun Ozsahin, associate professor at the University of Sharjah's Department of Medical Diagnostic Imaging.

Dr. Ozsahin, a co-author of the study, added that she and her colleagues reached what she described as "initial findings" towards stopping metastasis of breast cancer.

[Research demonstrates](#) that metastatic disease is the most common cause of death in [breast cancer patients](#). According to the World Health Organization (WHO), there were 2.3 million women diagnosed with breast cancer in 2022. WHO put breast cancer-related deaths at 670,000 in the same year.

Dr. Ozsahin said the authors' deployment of different methods to arrive at the finding added a "solid dimension" to the study which incorporated artificial intelligence into the cancer research.

"The study utilizes advanced computational models such as multilayer perceptron (MLP), extreme gradient boosting (XGB), and extreme learning machine (ELM) to predict in vitro cancer cell migration."

The authors write, "Our study has uncovered promising organic

compounds in ALEE that possess medicinal properties, potentially aiding in the prevention of metastasis in human breast cancer."

"Interestingly, we observed that varied concentrations of the plant extract were non-toxic and had no impact on [cell proliferation](#) but displayed significant anti-migratory potential in both MDA-MB 231 and MCF-7 cells, with increasing concentration."

Of the significance of their project, the authors maintained that the importance of their scientific endeavor lay in their pursuit of medicinal plants with the potential to inhibit metastasis.

"Our study sheds light on the multifaceted approach needed to address the complexities of cancer metastasis and underscores the importance of exploring natural compounds and advanced computational techniques in cancer treatment and prevention," noted the study's lead author, Dr. Huzaifa Umar of the Near East University of Northern Cyprus.

"In addition, the study gives an insight into the use of medicinal plants and their contents in the treatment of cancer and other related diseases, and the discovery will give way for other researchers to carry out more studies using various medicinal plants."

The authors' primary objective, according to the study, was the discovery of plants that could effectively inhibit metastasis while minimizing or avoiding side effects.

"This is incredibly important and addresses a critical need in [cancer research](#) and treatment because metastasis involves the spread of cancer cells from the primary tumor to other parts of the body," said Dr. Umar.

"Metastasis is indeed the leading cause of mortality among cancer patients. It poses a significant challenge in cancer treatment because it

often leads to more aggressive forms of the disease that are harder to manage."

"The discovery of medicinal plants with the potential to inhibit metastasis holds great promise for the prevention of metastatic cancer, or cancer that is in an [advanced stage](#)."

"It (the study) advances an innovative approach to [cancer treatment](#) and improving patient outcomes, an approach that may lead to the development of safer and more effective therapies for combating metastatic cancer," said Dr. Ozsahin.

"By demonstrating anti-migratory, antiproliferative, and cytotoxic effects against these cancer cell lines, the study suggests that Albizia lebbeck may hold promise as a natural agent for combating [breast cancer metastasis](#)."

At this stage in their research, the authors have employed vigorous scientific methods to screen and evaluate medicinal plants' bioactive compounds. Albizia lebbeck is the plant of choice for the scientists. Commonly known as a 'flea' or 'siris' tree, its leaves contain organic compounds that are highly valued in the medical field.

Native to the Indian subcontinent, farmers commonly use the tree to provide shade for their plantations, particularly for cocoa and coffee. Edible parts include the tree's young tips, which they either cook or boil.

The authors presented in their study the potential of Albizia lebbeck's ethanolic extracts in inhibiting the migration of human breast cancer cells in vitro.

Ozsahin said the study has generated "considerable interest" from the medical community, with a few industries expressing interest in

collaborating with the team on how to advance the research to the clinical stage.

"Moving into the clinical stage will enable us to evaluate novel therapies' safety, efficacy, and feasibility in human subjects. Clinical trials provide a rigorous framework for testing experimental treatments, collecting data on their effects, and assessing their impact on patient outcomes."

**More information:** Huzaifa Umar et al, Prediction of cell migration potential on human breast cancer cells treated with Albizia lebbeck ethanolic extract using extreme machine learning, *Scientific Reports* (2023). [DOI: 10.1038/s41598-023-49363-z](https://doi.org/10.1038/s41598-023-49363-z)

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