

# Bat plant could give some cancers a devil of a time

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In a new study published this month in the *Journal of the American Chemical Society*, researchers with The University of Texas Health Science Center at San Antonio have pinpointed the cancer-fighting potential in the bat plant, or *Tacca chantrieri*.

Susan Mooberry, Ph.D., leader of the Experimental Development Therapeutics Program at the [Cancer Therapy](#) & Research Center and a professor of pharmacology at the UT Health Science Center, has been working to isolate substances in the plant, looking for a plant-derived cancer drug with the potential of Taxol.

Taxol, the first microtubule stabilizer derived from the Yew family, has been an effective chemotherapy drug, but patients eventually develop problems with resistance over time and toxicity at higher doses. Researchers have long been seeking alternatives.

"We've been working with these for years with some good results, but never with the potency of Taxol," said Dr. Mooberry, lead author of the study. "Now we have that potency, and we also show for the first time the taccalonolides' cellular binding site."

Microtubules are structures in the [cells](#) that act as conveyer belts. They help maintain cell shape and help guide chromosomes in cell division to ensure that every new cell, including every new cancer cell, gets a full complement of genetic material. When microtubules are stabilized -- essentially held still so they can't do their jobs -- this disrupts numerous

cellular processes, and the cell can die.

The taccalonolides stabilize microtubules in cancer cells, but they do not attack healthy cells, Dr. Mooberry said. "We've run normal prostate cells and normal breast cells through these tests, and they don't die. The taccalonolides selectively kill [cancer](#) cells."

Until now, how they did this was unknown. The isolation of these highly potent taccalonolides for the first time by Dr. Mooberry's team shows how they interact directly with microtubules.

Provided by University of Texas Health Science Center at San Antonio

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