ST. PAUL, Minn. - Can the tasty mushroom help fight cancer?

That's a deliciously appealing question a team of University of Minnesota researchers hope to answer within five years.

"It's impossible to predict the outcome, but we may find novel compounds that haven't been considered by pharmaceutical companies for their anti-cancer attributes," said Bryn Dentinger, a graduate student in the university's department of plant biology and a member of the research team.

While mushrooms have pretty much remained a delicacy in the United States, they have a long medical history in other parts of the world.

The Chinese and Japanese used mushrooms for centuries to treat a variety of illnesses, including cancer. The Romans also used mushrooms for medicinal purposes. Back in the 1950s, New York's famed Memorial Sloan-Kettering Cancer Center discovered that mushrooms may have strong anti-cancer activities, but then quickly dropped the research project for reasons unknown.

Since then, U.S. researchers have virtually ignored mushrooms.

But that changed recently when Dr. Joel Slaton, an assistant professor in the university's medical school, landed a $300,000 National Institutes of Health grant to study whether chemicals from certain edible mushrooms can help the body's immune system fight off cancer. A urologist, Slaton focuses on cancer.

Slaton began by studying a mushroom called reishi, which has been used in Asia for thousands of years. In high doses, extracts from the reishi mushroom can inhibit cancer growth, Slaton said.

"We're looking at (cancer) cells on a plate as well as in mice," Slaton said. "We're also trying to figure out how it works."

Reishi extracts appear to affect how cancer cells divide and how they invade surrounding tissue by making enzymes that break down proteins in healthy cells.

Slaton, also a member of the university's Center for Spirituality and Healing, expects to win a joint $1.8 million, three-year NIH grant that involves animal and human trials of mushrooms that boost the immune system. Slaton said his partner in the project will be an alternative-medicine institute that specializes in training naturopaths - practitioners who use nature-based healing therapies.

Slaton also is testing the anti-cancer properties of porcini, a highly desirable and edible mushroom found in the woods throughout much of the Northern Hemisphere.

But the work is more challenging than it sounds. There are an estimated 1 million to 1.5 million different kinds of mushrooms, so they aren't easy to study, said David McLaughlin, a professor of plant biology in the university's College of Biological Sciences.

While the work appears promising, Slaton says it's far too early to recommend that consumers boost their consumption of mushrooms or mushroom derivatives to ward off cancer.

"We have interesting studies that may provide the foundation for taking these in the future, but not now," Slaton said. "We don't have enough literature in the United States that people are willing to hang their hat on."

By Tom Majeski Knight Ridder News