

Bitter melon juice prevents pancreatic cancer in mouse models

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A University of Colorado Cancer study published this week in the journal *Carcinogenesis* shows that bitter melon juice restricts the ability of pancreatic cancer cells to metabolize glucose, thus cutting the cells' energy source and eventually killing them.

"Three years ago researchers showed the effect of bitter melon extract on [breast cancer cells](#) only in a [Petri dish](#). This study goes much, much farther. We used the juice – people especially in Asian countries are already consuming it in quantity. We show that it affects the [glucose metabolism](#) pathway to restrict energy and kill pancreatic cancer cells," says Rajesh Agarwal, PhD, co-program leader of Cancer Prevention and Control at the CU Cancer Center and professor at the Skaggs School of Pharmacy and Pharmaceutical Sciences.

Agarwal's interest came from connecting the dots of existing research in a novel way. See, diabetes tends to presage pancreatic cancer and bitter melon has been shown to effect type-II diabetes, and has been used for centuries against diabetes in the folk medicines of China and India. Following this line of thinking, Agarwal and colleagues wondered what would happen if they closed out the middle man of diabetes and directly explored the link between bitter melon and pancreatic cancer.

The result, Agarwal says, is, "Alteration in metabolic events in pancreatic cancer cells and an activation of the AMP-activated protein kinase, an enzyme that indicates low energy levels in the cells."

Perhaps not coincidentally, bitter melon also regulates [insulin secretion](#) by [pancreatic beta cells](#). After studies in [cell cultures](#), the group showed that mouse models of pancreatic cancer that were fed bitter melon juice were 60 percent less likely to develop the disease than controls.

"It's a very exciting finding," Agarwal says. "Many researchers are engineering new drugs to target cancer cells' ability to supply themselves with energy, and here we have a naturally-occurring compound that may do just that."

The Agarwal Lab is now applying for grants that will allow them to move the study of bitter melon into further chemoprevention trials in mouse models of pancreatic cancer.

Provided by University of Colorado Denver

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