

Grape seed promise in fight against bowel cancer

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University of Adelaide research has shown for the first time that grape seed can aid the effectiveness of chemotherapy in killing colon cancer cells as well as reducing the chemotherapy's side effects.

Published in the prestigious journal *PLOS ONE*, the researchers say that combining grape seed extracts with [chemotherapy](#) has potential as a new approach for bowel cancer treatment - to both reduce intestinal damage commonly caused by [cancer chemotherapy](#) and to enhance its effect.

Lead author Dr Amy Cheah says there is a growing body of evidence about the antioxidant health benefits of grape seed tannins or polyphenols as anti-inflammatory agents and, more recently, for their anti-cancer properties.

"This is the first study showing that grape seed can enhance the potency of one of the major chemotherapy drugs in its action against [colon cancer cells](#)," says Dr Cheah, researcher in the School of Agriculture, Food and Wine.

"Our research also showed that in laboratory studies grape seed taken orally significantly reduced inflammation and tissue damage caused by chemotherapy in the small intestine, and had no harmful effects on non-cancerous cells. Unlike chemotherapy, grape seed appears to selectively act on [cancer cells](#) and leave healthy cells almost unaffected."

The researchers used commercially available [grape seed extract](#), a by-

product of winemaking. Tannins extracted from the grape seed were freeze-dried and powdered. The extract was tested in laboratory studies using colon cancer cells grown in culture.

The research showed grape seed extract:

- showed no side effects on the healthy intestine at concentrations of up to 1000mg/kg;
- significantly decreased intestinal damage compared to the chemotherapy control;
- decreased chemotherapy-induced inflammation by up to 55%
- increased growth-inhibitory effects of chemotherapy on [colon cancer](#) cells in culture by 26%

"Our experimental studies have shown that grape seed extract reduced chemotherapy-induced inflammation and damage and helped protect healthy cells in the gastrointestinal tract," says Dr Cheah. "While this effect is very promising, we were initially concerned that grape seed could reduce the effectiveness of the chemotherapy."

"In contrast, we found that grape seed extract not only aided the ability of chemotherapy to kill cancer cells, but was also more potent than the chemotherapy we tested at one concentration."

Co-author and project leader Professor Gordon Howarth says: "Grape seed is showing great potential as an anti-inflammatory treatment for a range of bowel diseases and now as a possible anti-cancer treatment. These first anti-cancer results are from cell culture and the next step will be to investigate more widely."

Fellow co-author and joint lead researcher Dr Sue Bastian, Senior Lecturer in Oenology, says: "These findings could be a boost to the wine grape industry as it value adds to what is essentially a by-product of the

winemaking process."

Provided by University of Adelaide

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