

Wild berry extract may strengthen effectiveness of pancreatic cancer drug

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Chokeberries (*Aronia melanocarpa*). Credit: Artemis International, Inc.

A wild berry native to North America may strengthen the effectiveness of a chemotherapy drug commonly used to treat pancreatic cancer, reveals research published online in the *Journal of Clinical Pathology*.

The study by researchers at King's College Hospital and the University of Southampton suggests that adding nutraceuticals to chemotherapy cycles may improve the effectiveness of conventional drugs, particularly in hard to treat cancers, such as [pancreatic cancer](#).

The team tested the effectiveness of extract of chokeberry (*Aronia melanocarpa*) in killing off [cancer cells](#), probably by apoptosis (programmed [cell death](#)) as markers of early apoptosis appear in treated cells.

Chokeberry is a wild berry that grows on the eastern side of North America in wetlands and swamp areas. The berry is high in vitamins and antioxidants, including various polyphenols—compounds that are believed to mop up the harmful by-products of normal cell activity.

The researchers chose to study the impact of the extract on pancreatic cancer, because of its persistently dismal prognosis: less than 5 per cent of patients are alive five years after their diagnosis.

The study used a well-known line of pancreatic cancer cells (AsPC-1) in the laboratory and assessed how well this grew when treated with either the chemotherapy drug gemcitabine or different levels of commercially available chokeberry extract alone, and when treated with a combination of gemcitabine and chokeberry extract.

The analysis indicated that 48 hours of chokeberry extract treatment of pancreatic cancer cells induced cell death at 1 ug/ml.

The toxicity of chokeberry extract on normal blood vessel lining cells

was tested and found to have no effects up to the highest levels used (50 ug/ml), suggesting that the cell death effect is happening in a way other than through preventing new blood vessel formation (anti-angiogenesis), a process that is important in [cancer cell growth](#).

Bashir Lwaleed, at the University of Southampton, comments: "These are very exciting results. The low doses of the extract greatly boosted the effectiveness of gemcitabine, when the two were combined. In addition, we found that lower doses of the conventional drug were needed, suggesting either that the compounds work together synergistically, or that the extract exerts a "supra-additive" effect. This could change the way we deal with hard to treat cancers in the future. "

The team believe that more clinical trials are now needed to explore the potential of naturally occurring micronutrients in plants, such as those found in chokeberry.

Similar experimental studies, indicating that chokeberry extract seems to induce cell death and curb invasiveness in brain cancer, as well as other research, highlighting the potential therapeutic effects of particular polyphenols found in green tea, soya beans, grapes, mulberries, peanuts and turmeric, show potential, Dr Lwaleed adds.

Dr Harcharan Rooprai, King's College Hospital, comments: "The promising results seen are encouraging and suggest that these polyphenols have great therapeutic potential not only for brain tumours but pancreatic cancer as well."

Provided by University of Southampton

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