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Spicy treatment the answer to aggressive cancer?

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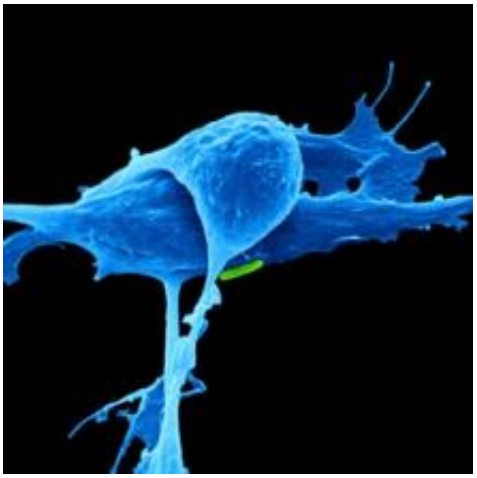

It has been treasured by food lovers for thousands of years for its rich golden colour, peppery flavour and mustardy aroma…and now turmeric may also have a role in fighting cancer.

Researchers at Flinders are investigating whether an active ingredient of the turmeric plant, called curcumin, can be used alone or in conjunction with standard therapies to treat malignant mesothelioma, an aggressive cancer caused by the inhalation of asbestos.

Malignant mesothelioma is a tumour of the thin membranes that surround the lungs, heart and abdominal internal organs. Currently there

is no effective treatment for the cancer.

"Standard chemotherapy shows only limited success, and radical surgery is only available to few patients, and success is not guaranteed," explained lead researcher Associate Professor Sonja Klebe, from the Department of Anatomical Pathology at Flinders Medical Centre.

Associate Professor Klebe said average survival after diagnosis of malignant mesothelioma was less than a year, and current therapies to treat the cancer could make patients quite unwell.

Curcumin has long been known to have anti-inflammatory effects and more recently, has been shown to have anti-carcinogenic properties which help overcome drug resistance to chemotherapy.

"Previous research has been successful in inhibiting the growth of mesothelioma tumour cells in animal model cells in a laboratory setting using curcumin, and recently we have been able to repeat that success – but with the use of patients' cells," said Professor Klebe.

"Importantly, this breakthrough allows us to predict if a certain patient is likely to benefit from therapy."

"In addition, we also found that curcumin may affect blood supply to the tumour, and we know that adequate blood supply is essential to maintain tumour growth."

Traditionally, new vessels were thought to sprout from existing stromal vessels surrounding the tumour. Vascular endothelial growth factor (VEGF) promotes this process, and mesothelial cells display VEGF receptors. To date, drugs targeting VEGF have been disappointing.

Professor Klebe said her team had shown, for the first time, that

mesothelioma cells are capable of forming 3-dimensional tubes themselves.

"This may explain the poor results of trials with the standard drugs, because they do not target this type of blood vessel formation."

Associate Professor Klebe said her team believed that curcumin acted on this type of angiogenesis in mesothelioma, on top of having direct effects on tumour growth.

"Curcumin – which can be taken orally in tablet form - has virtually no side effects, and could be used alone in patients too unwell to tolerate other therapies, or in conjunction with other drugs. It may improve treatment response and allow reduction of standard drugs, improving quality of life."

"It's very exciting research."

Provided by The Lead South Australia

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