

Fighting cancer at your local Indian restaurant

EurekAlert

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Turmeric, a bright yellow spice from south Asia belonging to the ginger family, is the main ingredient in curries ? and ancient wisdom suggests that it's also good for your health. Taking this wisdom to the laboratory, Tel Aviv University researchers have discovered that turmeric's active ingredient called curcumin amplifies the therapeutic activity of highly toxic anti-inflammatory drugs used to fight colon cancer when used at high doses.

Dr. Shahar Lev-Ari of Tel Aviv University's School of Public Health at the Sackler Faculty of Medicine and his colleagues have found that curcumin can fight cancer when used in combination with a popular anti-inflammatory drug, alleviating the inflammatory response caused when cancer takes root in the body. A treatment based on this finding has already had promising results in human clinical trials.

"Although more testing will be needed before a possible new drug treatment is developed," says Dr. Lev-Ari, "one could combine curcumin with a lower dose of a cancer anti-inflammatory drug, to better fight colon cancer." The results of the new study have been published in the journal *Therapeutic Advances in Gastroenterology*.

Alleviating unwanted side effects

Research in the last few decades has shown that cancer is linked to inflammation. Several lines of evidence demonstrate that chronic inflammation in the stomach can cause gastric cancer and that inflammation in the liver from hepatitis can lead to liver cancer.

Dr. Lev-Ari and his colleagues found that Celecoxib, a popular anti-inflammatory drug commonly used to treat arthritis, also inhibits proliferation of colon cancer in laboratory settings. Curcumin increases the anti-cancer and anti-inflammatory effects of Celecoxib while reducing its dose, thus reducing its toxic side-effects, including the rate of heart attack and stroke.

The effect of using a curcumin concentrate to improve the effects of cancer drugs was first proposed by Dr. Lev-Ari when he was a graduate student at Tel Aviv University's Sackler Faculty of Medicine under the supervision of Prof. Nadir Arber and Prof. Dov Lichtenberg.

Both co-supervisors were eager to test the possible health benefits described in folk medicine but were looking for hard evidence. "We would like to use this treatment for patients with all types of cancers," says Prof. Arber. "It has the promise of being an important life-extending therapy, particularly for non-curable pancreatic cancer,

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suggested by the very promising results we achieved for 20 pancreatic cancer patients."

Putting shelved cancer drugs back into circulation

Previous in vitro and in vivo experiments conducted by the Tel Aviv University team show that curcumin inhibits an enzyme known as COX-2 (cyclooxygenase-2), believed to cause inflammation. The team's research demonstrates that curcumin neutralizes oxygen free radicals, which are believed to play an important role in carcinogenesis.

These effects may be the basis for drug treatment of both inflammation and cancer through the combination of curcumin and Celecoxib. And it may also help return previously shelved potent anticancer drugs taken out of use due to high toxicity back to the market under lower dosage indications.

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