

# Indian medicinal plant *Acanthus ilicifolius* may combat liver cancer

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Liver cancer is the fifth most common cancer in the world with a poor prognosis. About three quarters of the cases of liver cancer are found in Southeast Asia, including China, Hong Kong, Taiwan, Korea, India, and Japan. The frequency of liver cancer in Southeast Asia and sub-Saharan Africa is greater than 20 cases per 100,000 population. Moreover, recent data show the frequency of liver cancer in the U.S. overall is rising.

With the increasing trend in the incidence of cancers in our country, biomedical research directed at early detection and diagnosis, prognosis and survival, as well as prevention of progression of malignancy, is of prime importance.

The aim of cancer chemoprevention is to circumvent the development and progression of malignant cells through the use of non-cytotoxic nutrients, herbal preparations/natural plant products, and/or pharmacological agents. Encouraging dietary intake with herbal supplements may therefore be an effective strategy to limit DNA lesions and organic injuries leading to cancers and other chronic degenerative diseases. A research article published in the December 28 issue of the World Journal of Gastroenterology explores this point.

A research article published on December 28, 2007 in the World Journal of Gastroenterology (volume 13, issue 48) addresses this problem. The research team led by Prof. Malay Chatterjee from Jadavpur University investigated the primary chemopreventive mechanisms of *Acanthus ilicifolius* in an in vivo tumor-transplanted murine model. *A. ilicifolius*,

popularly known as 'Harkach Kanta;' is distributed widely throughout the mangroves of India, including Sunderbans in West Bengal, west coasts, and the Andamans, and in other Asian countries like Singhal, Burma, China, Thailand etc.

The results showed the aqueous leaf extract (ALE) of the plant was substantially effective in preventing hepatic DNA alterations and sister-chromatid exchanges (a type of chromosomal damage) in tumor-bearing mice. The study further demonstrated that ALE treatment was able to limit liver metallothionein expression, a potential marker for cell proliferation, and lengthen the mean survival of animals to a significant extent. The findings suggest that *A. ilicifolius* may be used as a potential chemoprotector against hepatic neoplasia.

This research from Prof. Chatterjee's laboratory opens up a promising avenue in cancer chemoprevention with the use of indigenous plants. The results obtained from this *in vivo* study seem interesting and encouraging. Lack of toxicity favors further preclinical evaluation of *A. ilicifolius* in a defined chemical carcinogenesis model. Elucidation of its anticarcinogenic mechanisms of action at the intricate molecular circuits, and isolation and characterization of its active principles, will provide a better understanding of the anti-cancer/chemoprevention strategy of *A. ilicifolius*. If these studies are found to be really functional, we will have the beginning of a new chemoprevention program with herbal supplements that could have the broadest implications for the well-being of society.

Source: World Journal of Gastroenterology

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