

# Hops extract studied to prevent breast cancer

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Hops. Credit: University of Illinois at Chicago

An enriched hops extract activates a chemical pathway in cells that could help prevent breast cancer, according to new laboratory findings from the UIC/NIH Center for Botanical Dietary Supplements Research at the University of Illinois at Chicago.

Natural botanical dietary supplements such as hops have become increasingly popular among women for postmenopausal symptoms, as they are perceived as a safer alternative to hormone therapy, which has been linked to increased risk of breast cancer. However, the efficacy and potential toxicity of botanicals are still being studied.

Researchers led by Judy Bolton, professor and head of medicinal chemistry and pharmacognosy in the UIC College of Pharmacy, applied hops extract to two different breast cell lines to see if they would affect estrogen metabolism, a key mechanism in breast cancer. One compound, 6-prenylnarigenin, or 6-PN, increased a detoxification pathway in the cells that has been linked to a lower risk for breast cancer.

"We need to further explore this possibility, but our results suggest that 6-PN could have anti-cancer effects," Bolton said.

In addition to 6-PN, Bolton and her colleagues studied 8-prenylnarigenin (8-PN), isoxanthohumol (IX) and xanthohumol (XH) for their effects on [estrogen metabolism](#) in [breast cells](#). According to Bolton, 8-PN showed only a slight increase of metabolism in breast cells, while the other two compounds did not have significant effects in either cell line.

Breast cancer is one of the most commonly diagnosed cancers in women in the U.S.; about one in eight U.S. women will develop invasive breast cancer over their lifetime. An estimated 246,660 new cases of invasive breast cancer and 61,000 new cases of non-[invasive breast cancer](#) are expected in women in the U.S. this year, according to the American Cancer Society.

The incidence of breast cancer began decreasing in 2000, after increasing during the previous two decades. Just from 2002 to 2003, the incidence declined by 7 percent. Some think the drop was partly due to reduced use of [hormone replacement therapy](#), or HRT, after results of

the Women's Health Initiative suggested a link between HRT and increased [breast cancer risk](#). Estrogen exposure has long been linked with postmenopausal [breast cancer](#) risk, especially since the 2002 report, Bolton said.

The new research is published in the journal *Chemical Research in Toxicology*.

Provided by University of Illinois at Chicago

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