120 GALLONS OF BEER

Don't try this at home. BY JENNIFER DONOHUE

Before you read any further, I must disclaim. I am not a chemist and will be using some "chemist"-type words here — which kind of bugs me, because I just like to drink beer. But there is a molecule in hops, an ingredient in beer, that might help prevent many types of cancer.

Here we go with the big words, bear with me. The name of the compound is xanthohumol. It is a prenylated chalcone or prenylflavenoid, yellow in color. It is found only in hops, the Latin name of which, is Humulus lupulus. Hops is a vining plant that is truly at home in the Northwest. And hops can even be found growing wild in this region.

It is the hops flower with its heady, musky scent that produces the relaxing sensation that comes with drinking beer. This plant is already renowned to be sleep-inducing, anti-microbial, good for nervous stomaches, stress reducing, and anti-inflammatory. Hops also help give beer its yummy flavor.

Anti-oxidant can now be added to the list. Unfortunately, it would take consuming 120 gallons of beer a day to produce the cancer-reducing effects. Xanthhumol is only present in very small amounts in beer. I like beer, but 120 gallons is going a bit overboard.

So more about the molecule: Researchers at OSU first discovered the anti-oxidant properties about 10 years ago and recently published the findings in the journal *Phytochemistry*. Currently, the only way people ingest it is through drinking beer.

It appears to inhibit a family of enzymes, commonly known as cytochromes P450, that can activate cancer growth. It has also been shown to encourage a "quinone reductase" process that detoxifies carcinogens in the body. I am getting good at this long word thing. These OSU biochemists found xanthohumol is six times more powerful than citrus fruits in preventing the oxidation of LDL, or "bad cholestorol." When it is paired with vitamin E, it is even more potent.

This is really no surprise as prenylflavenoids have already been shown to produce anti-proliferating and cytotoxic effects on tumor cells in lab tests. But that is a lab and this is a beer column. Reality check. At this point, to be effective in cancer prevention, hops would either need to have more xanthohumol or it would have to be produced synthetically as a pill. Special breeding or genetic engineering would be necessary to raise the levels of the compound in hops.

The prenylflavenoids found in hops are also potent phytoestrogens and could be useful with menopausal symptoms and osteoporosis, but trials have not been performed. Presently, a "health" beer with higher levels of the compound is being developed in Germany.

Wow. Well, what's a beer drinker to do about this? Drink more beer, of course. Seriously, the health effects of beer are well known. As a whole, it can also help protect against cancer, osteoporosis and heart disease. Beer contains vitamins, silicon, and polyphenolic anti-oxidant compounds. Several B vitamins are present, such as B12 and B6, and folate from the barley. The fiber comes from the barley cell wall. This grain is already known to reduce levels of cholesterol. Bioavailable silicon is extracted from the orthosilic acid in malt in the mashing process.

Again, I disclaim. In order to receive the benefits I just listed, you have to drink a lot less then 120 gallons per day. Thank goodness. Moderation is the key to the healthful effects of beer. Moderate consumption.

This is making me thirsty. Some home grown beer research is in order. To hell with moderation. And leave out the big words.

Jennifer Donohue is in ad sales at Eugene Weekly. She prefers the pale ales and does everything in excess.