

COMPOUNDS IN BEER MAY BE BENEFICIAL TO HEALTH

Many of us know about the health benefits of drinking wine – the life-extending properties of resveratrol, and the antioxidant effects of tannins. Some of these have actually been proven experimentally; others are still considered undecided. But as with many of the positive effects of nutrition on our health (think also of: garlic for lowering blood pressure or St. John's Wort for depression), they can be of variable benefit, and only work for some people. Nevertheless, it might work for you, and this reasoning has many people drinking their one glass of wine a day, just in case. Alas, beer has always been the poor little brother to wine in both social settings and in terms of health benefit. There is some evidence that beer in moderation has beneficial effects on diabetes, some forms of cancer and even weight loss, but the components of beer that have these benefits have remained mysterious. Until now.

New scientific research has discovered compounds, called humulones, that are derived from hops and give beer its bitter flavour. I can tell that I like these new molecules already! And they also appear to have beneficial health effects; or they may, but only if they are of the right shape. Sounds a bit strange, but as it turns out, molecules need to be of a particular shape in order to function properly, or have their desired effects, in our bodies. Molecules are a bit like gloves – there are right-handed ones and left-handed ones. Image trying to put a right-handed glove on your left hand. It wouldn't work, or it wouldn't work very well. It would be uncomfortable, and it might even hurt you. Molecules have handedness too – when matched properly they fit and function beneficially, but if the wrong one is used it could spell disaster. Thalidomide was given to pregnant women for morning sickness in the 1950s and 60s, but was pulled from the market because it caused birth defects. Turns out, only one handedness caused birth defects, whereas the other did not, yet either would help reduce morning sickness. If only doctors and scientists had known this at the time.

This new research with beer has examined the handedness of the humulones. Already the researchers have found which handedness goes with the lovely bitter taste of a hoppy pilsner, and are now beginning to discover which handedness goes with curing illness. The upshot is that doctors may soon be able to prescribe specific humulones to cure specific illnesses, which would mean more natural remedies that are effective against disease. Until then, although I don't recommend excessive beer consumption for good health, I am considering alternating the one-a-day wine with a similar schedule for beer.

REFERENCE: Urban et al. (2013) "Absolute configuration of beer's bitter compounds." *Angewandte Chemie International* 52: 1553-1555.