

# Discovery of proteins that cause haze in beer

July 23 2015, by Cristy Burne

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Prof Li says eliminating the haze-active proteins could also reduce brewing costs for industry, and improve a beer's taste. Credit: Dan Woods

Beer drinkers and barley growers are toasting the discovery of two proteins that cause an unattractive haze to form when chilling or storing an otherwise perfect beer.

Beer haze reduces a beer's visual appeal and [shelf life](#), so the chance to produce barley (*Hordeum vulgare* L) without the offending proteins is hugely significant for Australian growers.

Murdoch University professor Chengdao Li says barley varieties in which the proteins are absent can produce beers 30–40 per cent less likely to form the cloudy haze.

"Previously barley breeders just selected varieties based on appearance...then they'd say, 'oh, beer from this variety formed a haze', and in some years, the problem is worse," he says.

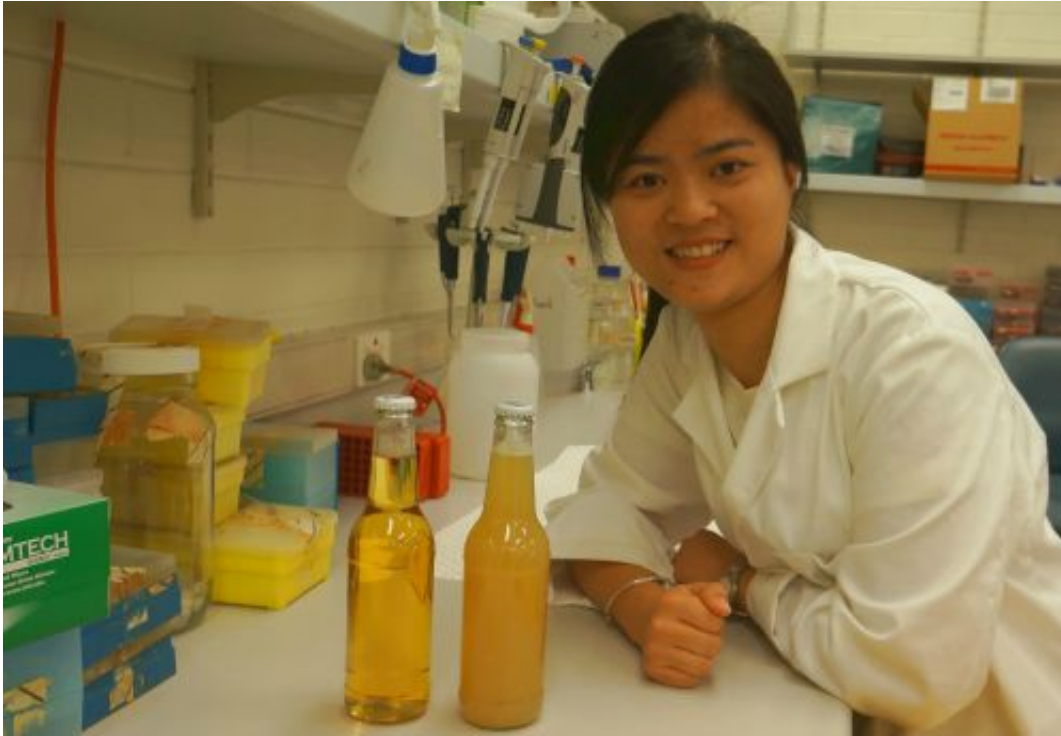
"Now we're in the very early stages of being able to tell breeders which varieties to select to reduce haze.

"If we could get rid of these proteins, we'd get haze-free beer every year."

Prof Li says eliminating the haze-active proteins could also reduce brewing costs for industry, and improve a beer's taste.

"Traditionally brewers treat their beer to remove haze proteins, to keep the beer looking good and extend shelf life, but in that same process they remove flavour and foam proteins as well," he says.

"Beer drinkers are becoming more sophisticated, they want a beer looking good, very clear with good colour and no haze, and they also want a beer that tastes good with good foam."



Dr Ye, posing with some of her microbrews, used for her research. Credit: Western Barley Genetics Alliance, Murdoch University

The haze-active proteins were discovered by Dr Lingzhen Ye using a combination of modern DNA and molecular techniques with micro-malting and micro-brewing.

As part of her work, Dr Ye developed molecular markers that will allow breeders to quickly determine whether new barley varieties harbour the genes that encode the haze-active proteins.

"We can use these molecular markers to test all the varieties and say 'yes, Variety A will easily form haze, but Variety B won't have that problem'," Prof Li says.

Dr Ye's work is part of a Chinese-Australian collaboration focused on

improving the quality of Australia's export grain.

"Australia is the world's largest malting barley exporter, and China is the world's largest importer," Prof Li says.

"Australia supplies 60–70 per cent of China's malting [barley](#)."

Dr Ye's analysis suggests there are other as-yet elusive genes that also contribute to [beer haze](#).

Prof Li says the recent Memorandum of Understanding signed between Murdoch University and Zhejiang University will ensure ongoing collaboration in this space.

Provided by Science Network WA

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