

Darker and heavier bottles can protect the quality of white wine, study finds

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A new study has found that darker and heavier bottles can protect the quality of white wine.

The research conducted at the National Wine and Grape Industry Centre (NWGIC) at Charles Sturt University (CSU), in collaboration with Dr Daniel Dias at The University of Melbourne, examined the impact of light on the quality of [white wine](#), with the ultimate aim to improve its shelf life.

Lead researcher, Dr Andrew Clark said, "A series of experiments dating back to 2008 have attempted to better understand the impact of light on

several white wine components that have previously not been investigated. The components were tartaric acid, which is a major [organic acid](#) in wine, and iron, a [metal ion](#) found at low concentrations in all wines.

"Although not well understood in wine, these same agents were in fact used as photographic emulsions by the pioneers of photography in the mid-1800s.

"We have shown that a chemical process, known as iron (III) tartrate photochemistry, can adversely affect white wine as it may consume wine preservatives and eventually lead to a brown colour. [Ultra-violet light](#) as well as blue and green visible light can induce the photochemical process in white wine.

"Darker coloured wine [bottles](#) with a thicker wall of glass were found to offer increased protection from this photochemical process.

"These darker and thicker bottles absorb more light so less reaches the wine and the extent of detrimental iron(III) tartrate photochemistry is limited. The darker green and amber coloured bottles were particularly useful to absorb the active wavelengths of [incident light](#).

"Wine is mostly exposed to light after bottling and during storage in retail outlets or in the home. Furthermore, wines designed to be stored for longer periods before being drunk are also more likely to have increased light exposure depending on their conditions of storage.

Further studies into the impact of [light exposure](#) on wine are currently being carried out by CSU PhD student Ms Paris Grant-Preece at the NWGIC.

A full NWGIC fact sheet on the study, Iron (III) tartrate as a potential

precursor of light-induced oxidative degradation of white wine: studies in a model wine system can be found [here](#).

More information: Smith, T. et al., Iron(III) tartrate as a potential precursor of light-induced oxidative degradation of white wine: studies in a model wine system, *Journal of Agricultural and Food Chemistry* 59 (8): 3575-3581.

Provided by Charles Sturt University

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