

White wine light-strike fault: a comparison between flint and green bottles under the typical supermarket conditions

AIM: Consumer preference favors flint-glass wine bottles over the traditional dark-colored, but it is documented that light exposure can cause white wines to produce off-aromas and change in color, and consequently damage their quality. Aim of the study was to study the white wine shelf life under the typical supermarket conditions, by recording the light and temperature exposure, the colorimetric changes, and the light-strike fault. **METHODS:** One pilot experiment based on two white wines and eight-time points and one kinetic experiment based on four white wines and seven-time points were designed and realized using a typical supermarket shelf for 32 and 50 days, correspondently. By installing prototype sensors at 32 points of the shelf, the temperature, UV, IR, and Visible light exposure were registered every 10 min. Approximately 600 commercial wines, bottled in flint and colored glass, were used. The colorimetric changes of the wines were registered and the light-strike fault was evaluated. **RESULTS:** Generally, green glass bottles secured wine quality for the tested period. Only a few flint glass bottled wines developed the fault after 1-2 days of supermarket shelf life, but all developed the fault after 3-4 weeks. Storing the wines in dark and cold after a period of exposure to light did not eliminate the fault. A limit of up to 20-30 UVI of UV light passing through the glass could be set, considering the relative UV light in respect to the sensor measurements and the glass type. Moreover, wines bottled in flint glass after two days of shelf life had already lost more chromatic intensity and yellow hue than the same wines bottled in the green glass after 50 days. **CONCLUSIONS:** Light-strike wine fault is irreversible, occurs in all white wines, even if some are more resistant than others are, and the dark colored glass bottle is the best solution to avoid the problem.

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