

Special Issue Reprint

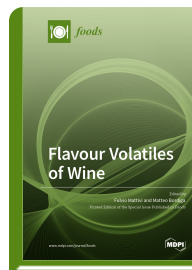
Flavour Volatiles of Wine

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The perception of wine flavour and aroma is the result of several interactions between a large number of chemical compounds and sensory receptors. Compounds show synergistic (one compound enhances the perception of another) and antagonistic (one compound suppresses the perception of another) interactions. The chemical profile of a wine is derived from the entire process, starting from the grapes and continuing through to bottled ageing. At the moment, wine makers are limited as to the range of yeasts that are able to impart some specific aromatic characteristic to a wine, and research focuses on issues such as adjusting the levels of flavour and aroma compounds, in particular esters and alcohols, producing enzymes that will release additional volatile compounds from the grapes, and reducing the amount of alcohol to levels that allow a better perception and release of aroma and flavour compounds. New yeast strains are continuously being developed using traditional breeding techniques, leading to different flavour and aroma profiles in wine. The potential flavour volatiles of wine include, but are not limited, to the following: i) varietal; ii) pre-fermentative volatiles formed by the yeast during fermentation; iii) formed by the yeast directly related to alcoholic fermentation; iv) related to amino acid metabolism; v) formed during malolactic fermentation; vi) formed during ageing (reductive and oxidative pathway) and maturation. This Special Issue, “Flavour Volatiles of Wine”, aims to reach a mechanistic understanding of these pathways, with a focus on the reactions involved in the formation or degradation of key wine odorants, and of the technological factors involved during the winemaking process. It consists of six peer-reviewed papers that cover novel aspects of wine research in the wine sector.

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