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Non-targeted glycosidic profiling of international wines using Neutral Loss-high resolution mass spectrometry

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Highlights

- New non-target HRMS-NL approach for glycoside tentative identification.
- Over 280 glycoside-like compounds were detected and 133 tentatively identified.
- Tentative identification of hexoside, pentoside and disaccharidic derivatives.
- Glycosidic profile characterization of 56 international monovarietal wines.

Abstract

Many metabolites naturally occur as glycosides, since sugar moieties can be crucial for their biological activity and increase their water solubility. In the plant kingdom they may occur as glycosides or sugar esters, depending on precursor chemical structure, and in wine they have traditionally attracted attention due to their organoleptic properties, such as astringency and bitterness, and because they affect the colour and aroma of wines.

A new approach directed at detailed description of glycosides in a large selection of monovarietal wines (8 samples each of Pinot Blanc, Muller Thurgau, Riesling, Traminer, Merlot, Pinot Noir and Cabernet Sauvignon) was developed by combining high performance liquid chromatography with high resolution tandem mass spectrometry. Analytical separation was performed on an Accucore™ Polar Premium LC column, while mass analysis was performed in negative ion mode with an non-