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## Data Article

# Data on changes in red wine phenolic compounds and headspace aroma compounds after treatment of red wines with chitosans with different structures

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4-Ethylguaiaicol

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Phenolic compounds

Headspace aroma abundance

## ABSTRACT

Data in this article presents the changes on phenolic compounds and headspace aroma abundance of a red wine spiked with 4-ethylphenol and 4-ethylguaiaicol and treated with a commercial crustacean chitin (CHTN), two commercial crustacean chitosans (CHTB, CHTD), one fungal chitosan (CHTF), one additional chitin (CHTNA) and one additional chitosan (CHTC) produced by alkaline deacetylation of CHTN and CHTB, respectively. Chitin and chitosans presented different structural features, namely deacetylation degree (DD), average molecular weight (MW), sugar and mineral composition ("Reducing the negative sensory impact of volatile phenols in red wine with different chitosan: effect of structure on efficiency" (Filipe-Ribeiro et al., 2018) [1]). Statistical data is also shown, which correlates the changes in headspace aroma abundance of red wines with the chitosans structural features at 10 g/h L application dose.

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## Specifications Table

Subject area	Chemistry
More specific subject area	Food and Wine Chemistry
Type of data	Table, graph, figure
How data was acquired	X-ray (PANalytical X'Pert Pro X-ray diffractometer equipped with X'Celerator detector and secondary monochromator) FTIR (Umicam Research Series) HPLC (Ultimate 3000, Dionex) with a Photodiode array detector (PDA-100, Dionex) GC-MS (Thermo-Finishingam) with CombiPAL automated HS-SPME (CTCANALYTICS, AG) HPAEC-PAD (ICS-3000, Dionex)
Data format	Analysed
Experimental factors	Wine sample was spiked with two levels of 4-ethylphenol (750 µg/L and 1500 µg/L) and 4-ethylguaicol (150 µg/L and 300 µg/L) and treated with chitosan with different characteristics and application doses (10, 100 and 500 g/h L).
Experimental features	Chitin and chitosan were analysed by titration, viscosimetry, sugar analysis, X-Ray diffraction and FTIR for their characterization Wine phenolic acids and anthocyanins were analysed by RP-HPLC with a photodiode array detector and headspace aroma abundance were analysed by headspace solid phase microextraction using a 50/30 µm DVB/Carboxen/PDMS fibre followed by GC-MS using an Optima FFAP column (30 m×0.32 mm, 0.25 µm).
Data source location	Vila Real, Portugal
Data accessibility	Data with this article

## Value of the data

- Data presented in this study shows the effect of chitins and chitosans physicochemical characteristics on the phenolic composition, headspace aroma abundance of wines spiked with 4-ethylphenol and 4-ethylguaicol.
- Red wines treated with chitins and chitosans with distinct physicochemical characteristics and application doses (10, 100 and 500 g/h L) were analysed by RP-HPLC to determine the phenolic profile and by HS-SPME-GC/MS to analyse the aroma compounds.
- Chitins and chitosans reduced the headspace abundance of 4-ethylphenol and 4-ethylguaicol of red wine, and the reduction was dependent on the deacetylation degree of chitins and chitosans and on their source (fungal vs crustacean origin).
- Increased application doses decreased headspace aroma abundance and phenolic compounds.
- This data could serve as a benchmark for other researchers, evidencing the influence of chitins and chitosans treatment and dose applied on the individual phenolic compounds, chromatic characteristics and headspace aroma abundance of red wine.

## 1. Data

The data reported includes information about X-Ray diffraction pattern of chitins and chitosans (Fig. 1), FTIR spectra (Fig. 2) and band assignments of chitins and chitosans (Table 1), amount of chitosan dissolved in red wine when applied at 10, 100 and 500 g/h L (Fig. 3 and Table 2). The headspace aroma abundance of red wines before and after treatment at 10, 100 and 500 g/h L

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