

Vintage titrations: tannin in wine

Tannin is a substance found naturally in red wines. Wines that contain a lot of tannin are described as 'full' and are said to have body; however, too much tannin makes the wine taste bitter. As wine matures the single tannin molecules slowly polymerise to give six or eight-unit tannins that are less bitter, mellowing the wine.

Wine-making is a more scientific business than the wine correspondents may lead you to believe. The tannin concentration can be measured by oxidation with potassium manganate(VII) using indigo carmine as the indicator. But the tannin concentrations determined by this method also include the pigments in wine. Like tannins, the pigments belong to a class of oxidisable compounds known as flavonoids.

Potassium manganate(VII) also oxidises the alcohol and other substances in the wine, including the indicator. The alcohol must be removed from the wine by gentle boiling. A sample should then be prepared for a blank titration by treating it with activated charcoal to remove the tannins and the pigment.

- Determine the tannin concentration in the samples of wine. How do you account for the differences between red and white wine?

Health & Safety

In planning this activity, you should consider health and safety. Check your plans with your teacher before implementing them.

Eye protection must be worn for preparing solutions.

Solutions themselves are of low hazard but eye protection is advisable when heating any liquid.

Credits

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Health & safety checked May 2018

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