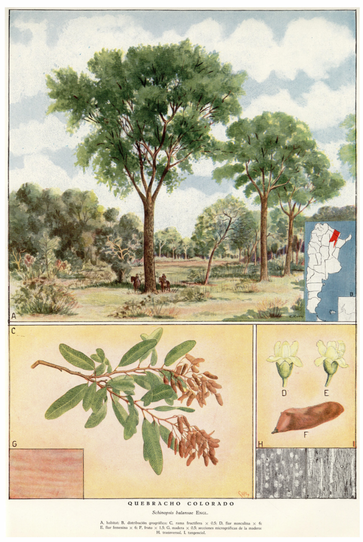
Tannin extracts and oak: past and present

Simon Nordestgaard

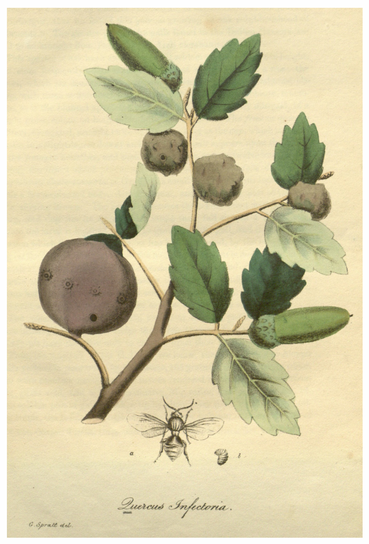
The Australian Wine Research Institute, PO Box 197, Glen Osmond (Adelaide) SA 5064, Australia

Corresponding author's email: simon.nordestgaard@awri.com.au

AWRI



Quebracho
(Wood)



Gall nuts
(nuts)

Tara
(Pods)

Gambier
(Leaves)

Tea
(Leaves)

Cherry
(Wood)

Lemon
(Wood)

Oak
(Wood)

Grapes
(Seeds, skins)

Chestnut
(Wood)

Wattle
(Bark)

Botanical sources of oenological tannins

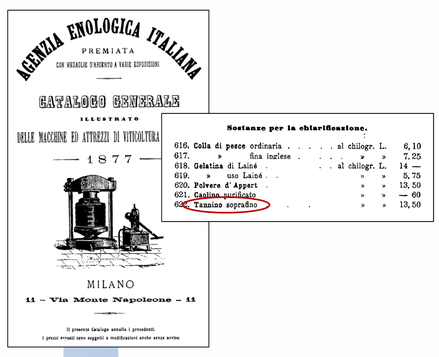
Their composition and impact varies – for example, depending on whether they are condensed or hydrolysable tannins and on their specific structure. Oenological products are often proprietary blends.

Using what was available

This image shows workers peeling bark for use at tannery around 1850 – initially tanners relied on the raw materials near them.

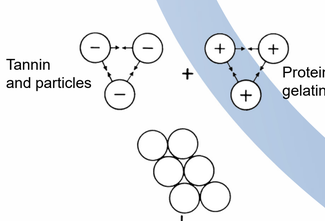
Tanning hides

Vegetable tannins have been used for millennia to help in the conversion of raw hides into leather and this is still by far their most common use (oenological use is only a few % of world use). Tannins cross-link the protein in the skin making it more resistant to putrefaction.



Tannin used in wine in 1877

Tannin is listed in this 1877 Italian oenological supplies catalogue, alongside isinglass (or possibly a less pure fish product), gelatin, and kaolin (a clay – less effective than bentonite).

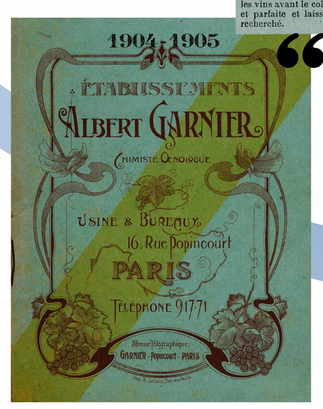


Tannin for clarification

Addition of tannin before protein fining was one historical use of tannin that was once much more prominent than it is now.

Alone or in mixtures

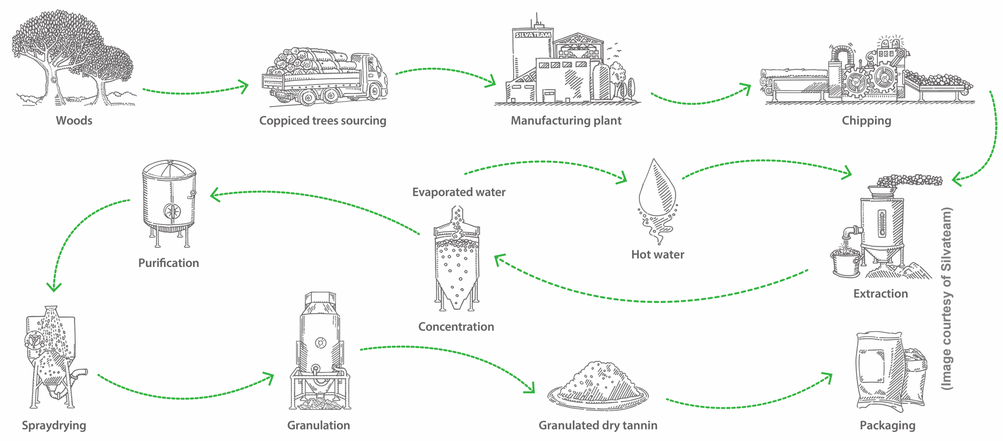
Tannin was sold alone or in mixtures with other additives such as sulfites.



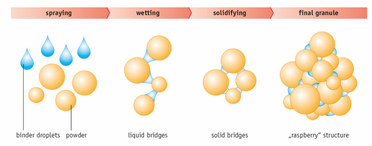
The Vino-Tanin "Garnier" gives body to wines, aids their clarification, conserves the colour of red wines, and prevents and treats wine diseases. Used at fermentation it helps to regulate and protects new wine from any alteration. Used before fining it ensures a thorough and rapid clarification and protects the vinous bouquet so much sought after.

Not really that different

Addition of tannin before protein fining was one use of tannin that was once much more prominent. Modern oenological supplies catalogues offer many different specific actions, with more scientific backing; however, the claims made in this 1904 advertisement are not all that different from modern advertisements – for example, disease prevention and colour enhancement.



Tannin production process



Agglomeration

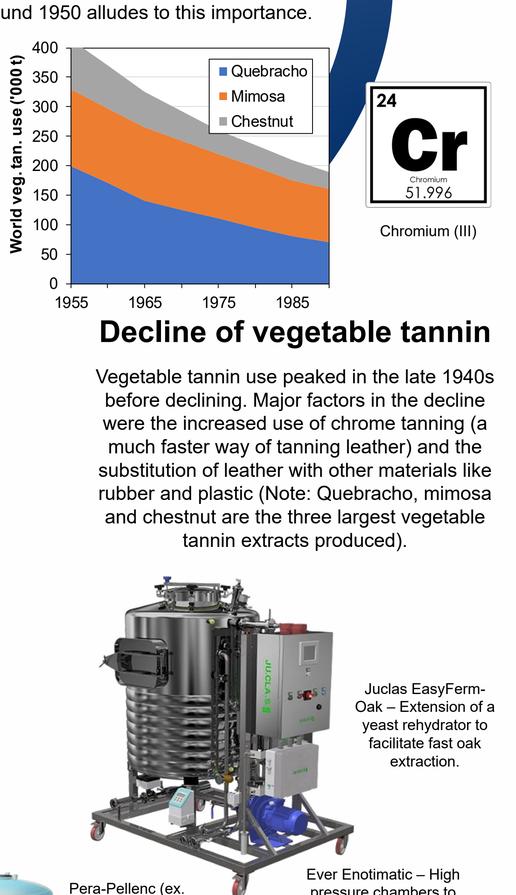
Agglomeration of tannin powders helped make them easier to dissolve when they are used in the winery.

Tannin

The term tannin is intimately linked with leather production. The term was coined to describe the substances in plant extracts that helped transform animal skins into leather. It was derived from the word tan, which means oak bark, and which was often used in leather production.

From wood/bark to extracts

In the mid-19th century wood/bark began to be substituted with tannin extracts, vastly reducing the time required for leather tanning (e.g. from one year to one month). Initially, concentrated liquid extracts were used, then wet powders and then spray dried powders. This also vastly reduced the quantity of material needed, so instead of only using local materials it could be transported from anywhere in the world.



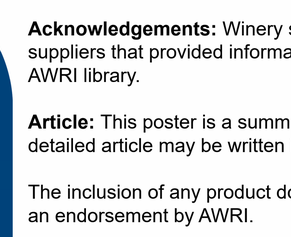
Tannins – a strategic resource

Vegetable tannins were at a time a strategic resources – for example leather was needed for soldiers' boots. This declassified trade map from the CIA around 1950 alludes to this importance.

Chromium (III)

Decline of vegetable tannin

Vegetable tannin use peaked in the late 1940s before declining. Major factors in the decline were the increased use of chrome tanning (a much faster way of tanning leather) and the substitution of leather with other materials like rubber and plastic (Note: Quebracho, mimosa and chestnut are the three largest vegetable tannin extracts produced).



Juclas EasyFerm-Oak – Extension of a yeast rehydrator to facilitate fast oak extraction.

Pera-Pellenc (ex. Inozy) SmartOak – automated contacting with electrical impedance sensor to monitor 'oakiness'.

Ever Enotimatic – High pressure chambers to enhance oak extraction.

Oak adjuncts

The use of oak adjuncts instead of barrels for imparting oak characters has led to major efficiency gains. The narrative that this is a new technique is somewhat questionable. The use of oak chips and beech wood shavings is mentioned in several 19th century textbooks and burning oak and adding it to wine is mentioned in *Geoponika*.

Increasing oak extraction speed

Oak adjuncts (chips, etc.) are cheaper than barrels but are still time-consuming to use and putting them in and removing them from tanks involves manual labour. Multiple suppliers have recently launched systems to optimise the contacting process or create concentrated extracts that can be back-added to tanks (more basic versions of this concept have long been used by wineries – e.g. preparing tanks of very heavily oaked wines for blending).

Wine

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