

Grape Wine



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Grape Wine

DEFINITION

- WINE



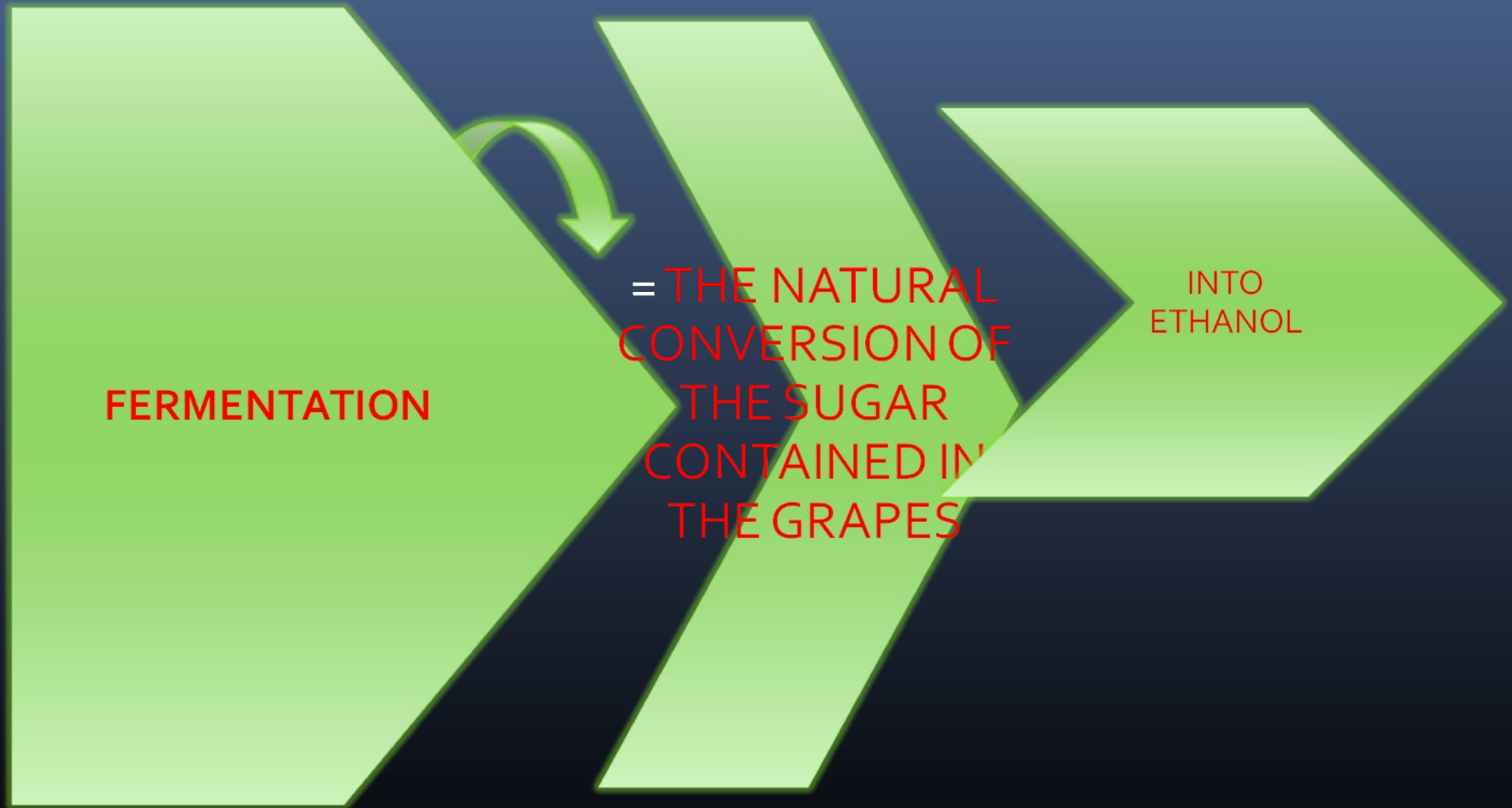
THE ALCOHOLIC BEVERAGE



MADE FROM THE FERMENTATION OF GRAPE JUICE, called

M U S T

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Alcoholic Beverages

- amounts of ethyl alcohol (from 5% to 42%),

Wine

- Alcohol content is 11-14 %, but may be as low as 7 %.

Grape Wine

Definitions

Fortified wines

Contain added alcohol/ distillate of wine (brandy). Alcohol content of fortified wines is 19-21%

Table Wines

Low alcohol content and little or no sugar

Dessert Wines

These are fortified sweet wines.

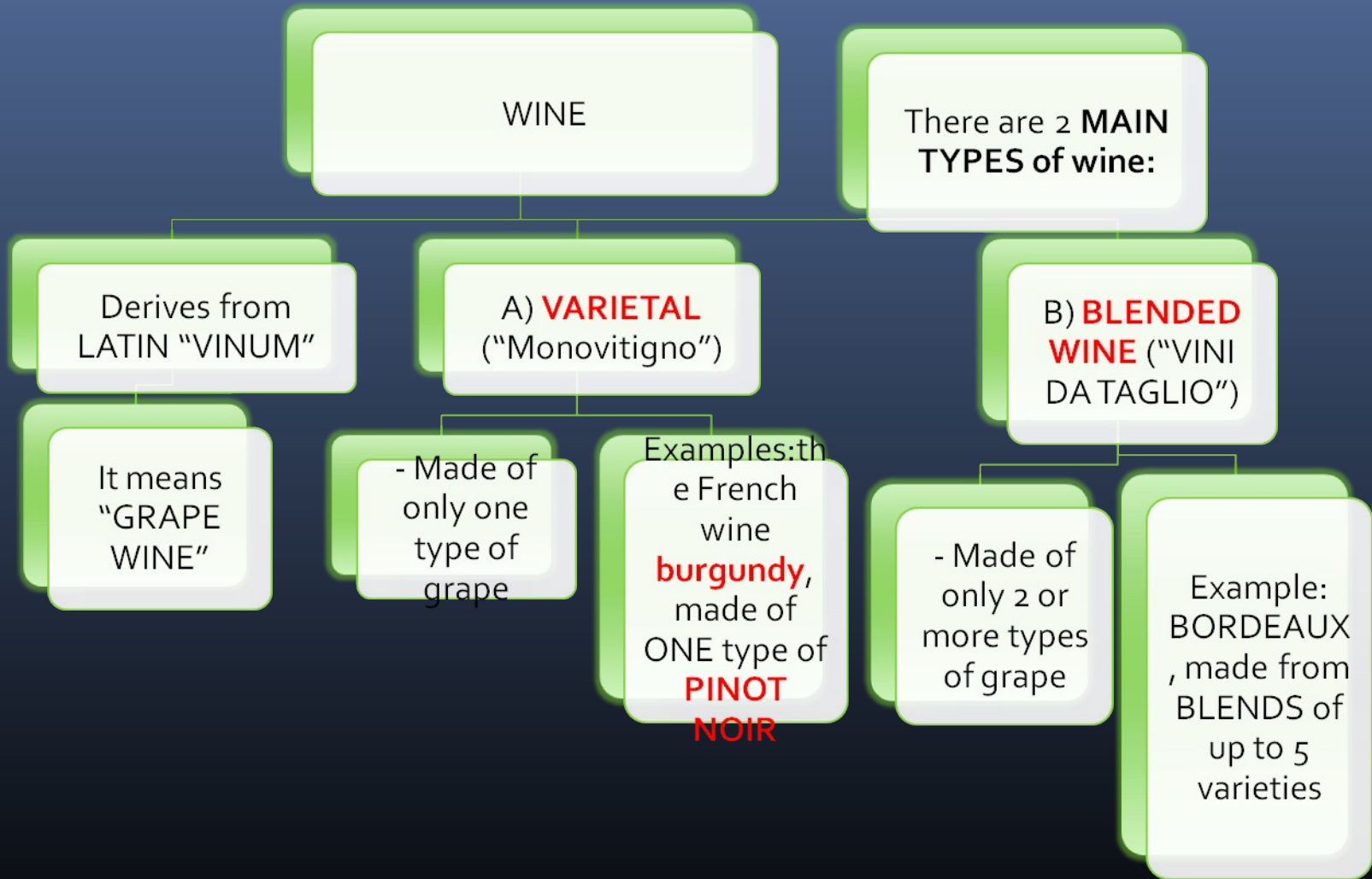


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Grape Wine

All wines are produced in many styles

dry

sweet

(based on sugar content)

3 main types of wine

STILL

(LACK IN CARBONATION)

SPARKLING

(WITH CARBON DIOXIDE to make them FIZZY)

FORTIFIED

(addition of alcohol during fermentation)



Grape Wine

VINEYARD
SITE

THE HARMONIC
RELATIONSHIP OF

SOIL

CLIMATE

ALTITUDE

WATER

GRAPE
VARIETY

MAKES EACH WINE
UNIQUE



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Il terroir[1], parola francese, può essere definito come un'area ben delimitata dove le condizioni naturali, fisiche e chimiche, la zona geografica ed il clima permettono la realizzazione di un vino specifico e identificabile mediante le caratteristiche uniche della propria territorialità.

Il terroir definisce anche l'interazione tra più fattori, come terreno, disposizione, clima, viti, viticoltori e consumatori del prodotto. Questa parola non può essere banalmente tradotta in altre lingue in "territorio" in quanto il concetto è molto più complesso.

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Difference between Still wines and Sparkling wines

Still wines

- Retain no CO₂
- eg Cider

Sparkling wines

- Contain considerable amount of CO₂
 - eg Champagne
-

Difference between Dry wines and Sweet wines

Dry wines

- Contain no or little unfermented sugars

Sweet wines

- Contain unfermented sugars or is added later on
-

Source: Sharma (2010)



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Nutritional value of red table wine

Nutritional value per 100 g (3.5 oz)

Energy	355 kJ (85 kcal)
Carbohydrates	2.6 g
- Sugars	0.6 g
Fat	0.0 g
Protein	0.1 g
Alcohol	10.6 g

10.6 g alcohol is 13%vol., 100 g wine is approximately 100 ml (3.4 fl oz.), Sugar and alcohol content can vary.

Source: USDA Nutrient Database



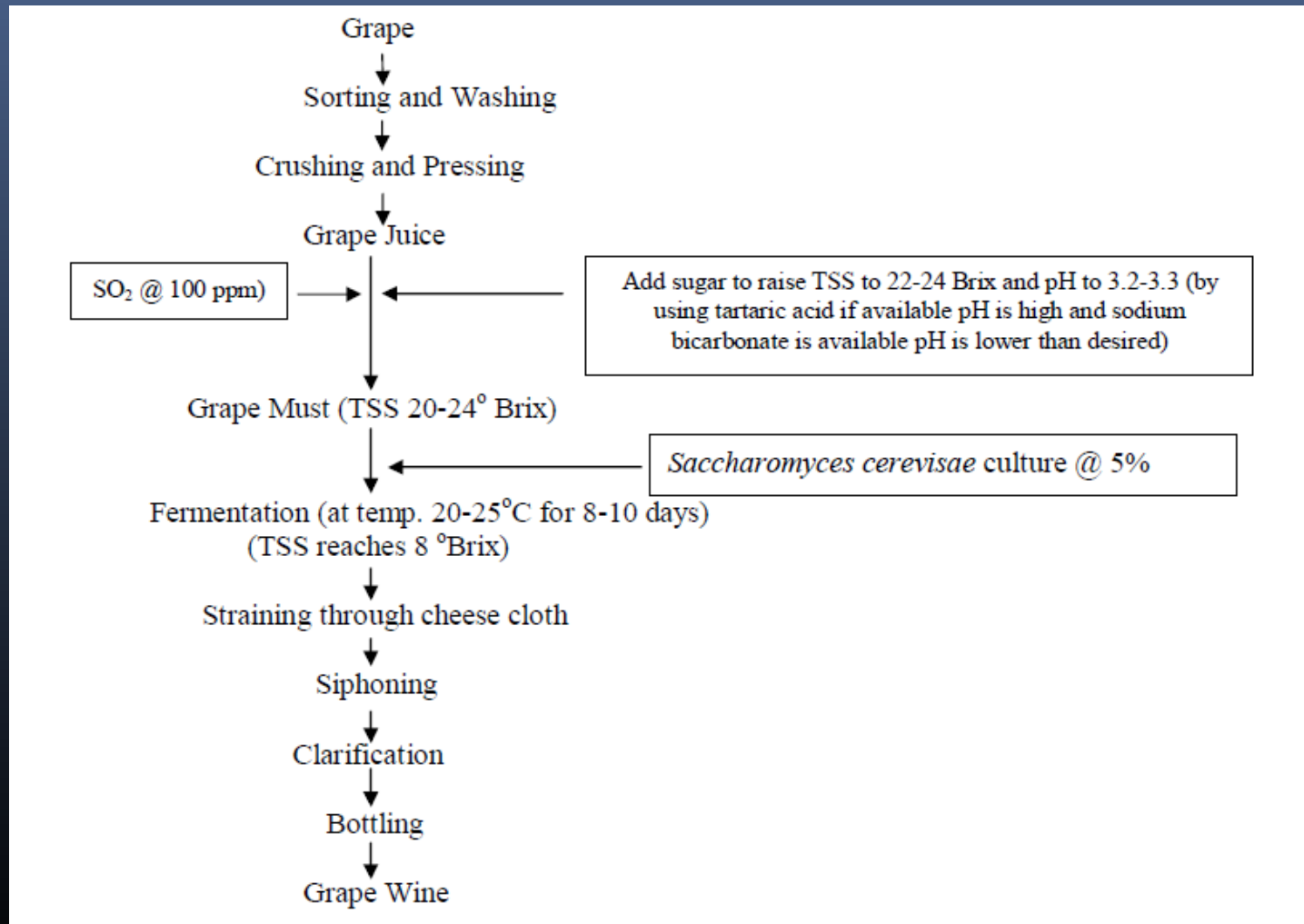
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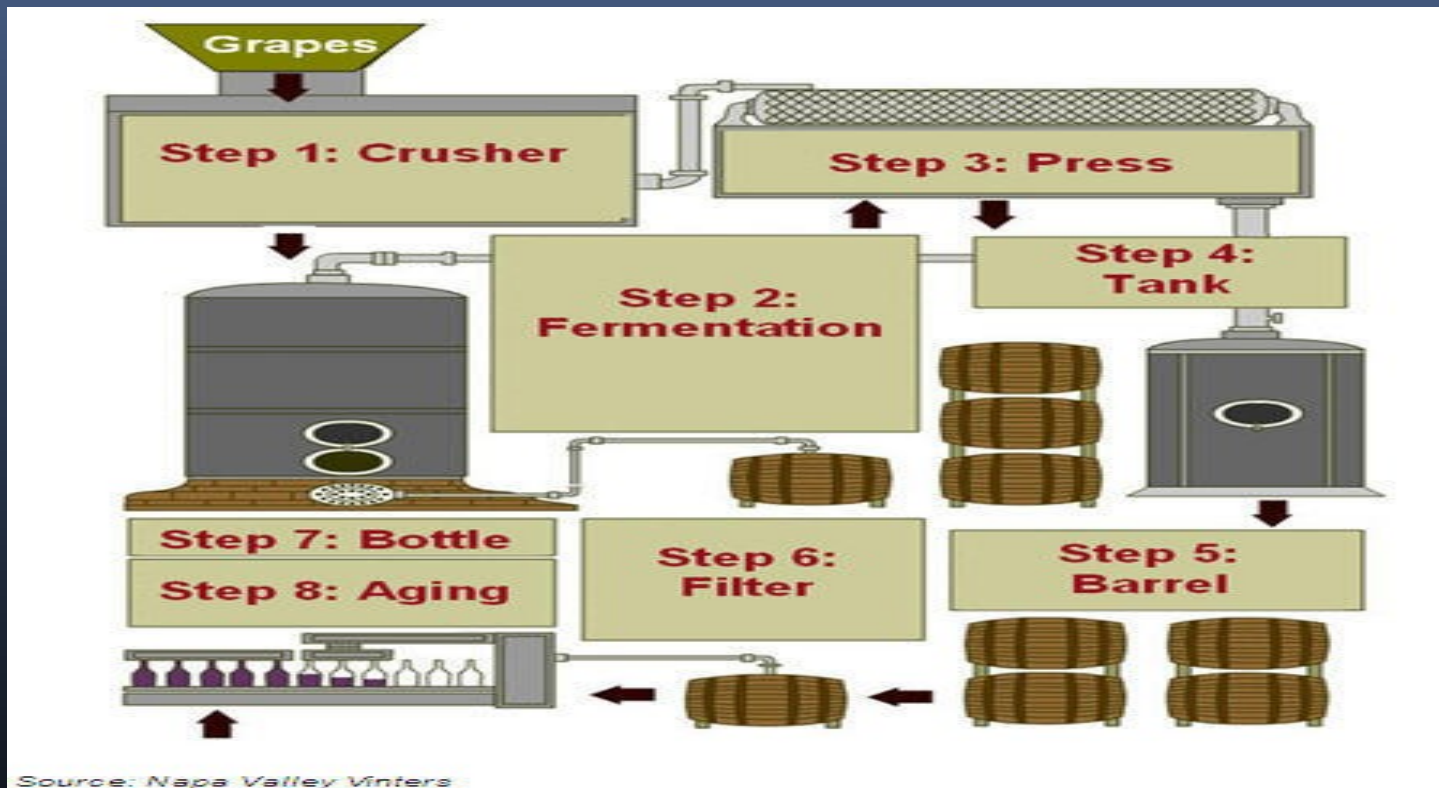
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Process for preparation of wine



Grape Wine

Steps in wine making



Source:

<http://www.softchalk.com/lessonchallenge09/lesson/wineTutorial/wineTutorial4.html>

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Determination of alcohol content ?

Record starting specific gravity of must (S1),

Record finished specific gravity (S2)

Calculate by using the formula

$$\text{Alcohol}(\%) = \frac{S1 - S2}{7.36}$$



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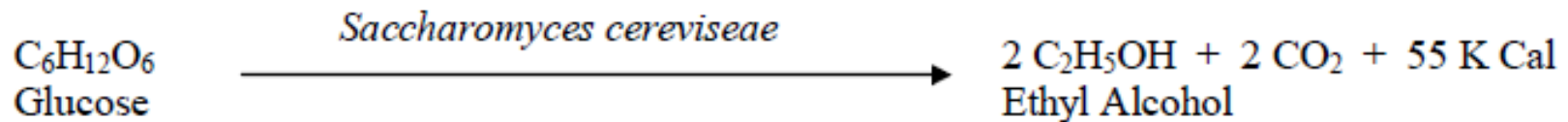
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What happens during fermentation?

Yeast *Saccharomyces cerevisiae*, which causes fermentation, is a single cell organism that converts the sugar in the fruit to alcohol and carbon dioxide. The carbon dioxide escapes into the air and what is left is wine.



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Wine Making Problems

The major cause of wine failures is a lack of proper sterilization procedures and practices. Important Problems encountered are:

1. Corkiness

Symptoms: An unpleasant flavor in wine

Possible Causes:

- a. Bottling with a defective cork
- b. Not a complete seal and the outside air allowed to enter into the bottle
- c. Inferior cork

2. Soapiness

Symptoms: Soapy taste in your favorite wine

Possible Causes:

- a. Equipment, carboys and Fermenters not properly cleaned and rinsed.



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Wine Making Problems

3. Woody

Symptoms: Aroma of wood in your wine.

Possible Causes:

- a. Over-soaking of corks
- b. Over-aging with oak chips

4. Flowers of Wine

Symptoms: A white film or skin that forms on the surface of wines

Possible Causes:

- a. Undue exposure to air



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Wine Making Problems

5. Stuck Fermentation

Symptoms: Wine has stopped fermenting before reaching a specific gravity of 0.994 - 0.996

Possible Causes:

- a. cold temperatures / too hot
- b. Bad yeast, using a yeast that's reached its limit of alcohol tolerance
- c. Too much sugar
- d. Insufficient nutrients or acids
- e. Insufficient oxygen
- f. Too much carbon dioxide

Remedy: Add a high powered yeast



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Let us sum up

- Wine is a product made by alcoholic fermentation of grapes or grape juice unless otherwise specified, by yeast (*Saccharomyces cerevisiae*) and subsequent ageing process. Alcohol content is 11-14 %, but may be as low as 7 %.
- Fortified wines contain added alcohol or distillate of wine while sweet wines consist of unfermented sugar.
- Ethyl alcohol and CO_2 are produced during fermentation
- Alcohol content is calculated by dividing the difference between initial and final specific gravity by 7.36.
- Corkiness, soapiness and flower of wines are problems of wine making.



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