

Food Technology practical

LAB5

Wine production

Introduction:

- Wine is an alcoholic beverage made from fermented fruit juice.
- Grape wine is produced by fermenting crushed grapes using various types of yeast.

Types of wines:

1. Red wine.
2. white wine.

classification of wines:

1. Sparking wine.
2. Fortified wine.
3. Desert wine
4. Table wine.
5. Ice wine.

Wine Production Main steps:

1. Vit culture to pressing.
2. Harvesting.
3. Stemming.
4. Fermentation.
5. Draining.
6. Pressing.

7. Mixing.
8. Clarification.
9. Aging.
10. Bottling.

1. Viticulture:

Factors which influence grapes flavor:

- Climate (sun, humidity and others).
- Soil quality.

2. Harvesting:

- Grapes are picked up by hand or mechanically,
- Decision of harvest informed by level of sugar and acid.

3. Stemming / Crushing:

Stemming: is the separation of the stems and grapes (which are sent to the press).

Crushing: A horizontal press squeezes the broken grapes, separating the fresh juice (must) from the skins (marc).

4. **Fermentation:** Sugar and acids that naturally react with wild yeasts, fermentation can take from 10 to 30 days to convert natural sugar to alcohol.

5. **Draining:** Liquid wine is drained from the vat without being pressed and goes into barrels (free-run wine) the remaining pulp retains about 20% of the wine.

6. **Pressing**: The remaining pulp, after draining is pressed to squeeze out the press wine.

7. **Mixing**: The free run wine and press wine, always from the same source, are mixed together in appropriate ratios to obtain the desired balance.

8. **clarification**: done in numerous ways:

1. Fining.
2. Filtration.
3. Siphoning.
4. Floatation.

9. **Aging**: the clarified wine is transferred into either wooden barrels or metal vats to mature the wine and develop flavors.

Bottling: A dose of Sulfite is added to help preserve the wine and prevent unwanted fermentation in the bottle.

Note: *Saccharomyces cerevisiae* has been favored due to its predictable and vigorous fermentation capabilities, tolerance of relatively high levels of alcohol and Sulfur dioxide as well as its ability to thrive in normal wine pH between 2.8 and 4.

Yeasts:

Yeasts are naturally occurring micro-organisms which are essential in the fermentation process. Yeasts attach themselves to the bloom on the grape.

skins: wild yeasts and wine yeasts are two types and basic groups of yeasts presents on the skins. **Wild yeasts** (mostly of the genus *Klockera*

and ***Hanseniaspora***), need air in which to operate, Once in contact with the grape sugars, they can convert these sugars to alcohol, but only up to about 4% alcohol by volume, at which point they die. **Wine yeasts** of the genus ***Saccharomyces***, then take over and continue to work until either there is no more sugar left or an alcoholic strength of approximately 15 % has been reached, at which point they die naturally.

Note: *Saccharomyces bayanus* is tolerate alcohol levels 17 -20%, so it's often used in fortified wine production such as **port** and varieties such as **Zinfandel** and **Syrah** harvested at high brix sugar levels.

•***Brettanomyces***: is presence in wine fault or added note of complexity.

