

## UNIT 4

## NOT FOR TEETOTALLERS

## A. HOW WINE IS MADE

## YEASTS AND ALCOHOL

Yeasts are a group of single-celled microscopic fungi. Not all are useful: some cause the spoilage of fruit and vegetables, some cause disease. Most of the yeasts used in making bread and alcoholic drinks are members of the genus *Saccharomyces*, or 'sugar fungi'. They metabolize sugar, produce carbon dioxide and alcohol. Strong odours or noxious substances are released, if at all, in only very small amounts. In this sense, they are 'clean' microbes. Essential to the yeasts' production of alcohol is their ability to survive on very little oxygen.

Yeasts introduce a variety of compounds into the grape juice or cereal 'wort' that contributes characteristic flavours, for example, they transform amino acids in the liquid into longer-chain alcohols. And when, after producing its limit of daughter cells by budding, a yeast cell dies, its enzymatic machinery digests the cell and releases its contents into the liquid.

Particular jobs are best done by particular kinds of yeasts. Baker's yeast, for example, should ideally produce little alcohol and a lot of carbon dioxide to do the work of raising bread dough. Two different species are commonly used in making beer. One, *Saccharomyces carlsbergensis* or *S. uvarum*, tolerates cold temperatures and falls to the bottom of the tank after fermentation; it is used in lager beers and in the bottle fermentation of champagne. The other, *Saccharomyces cerevisiae*, (*cerevisia* is Latin for 'beer'), does best at about 21°C, rises to the top of the tank, and is used for traditional English ales and beers. In wine making the situation is more complicated. The important yeasts are usually strains of a variety of *Saccharomyces cerevisiae* called *ellipsoideus* for their shape. But better than 100 different strains of several yeast species have been found growing on the skin or in the released juice of European grapes, and most starters, when they are used, contain at least several strains that may work in sequence during fermentation. In some districts, the grapes are allowed to ferment without a starter.

(from: McGee, *On Food and Cooking*, Unwin Hyman)

1

Say whether these statements are true or false and correct them when necessary.

- a. Yeasts are very tiny monocellular fungi. ....
- b. There are no harmful fungi. ....
- c. *Saccharomyces* are 'clean' microbes since they do not release bad odours nor harmful substances. ....
- d. Yeasts need a lot of oxygen to survive. ....
- e. Yeasts flavour the raw materials for making wine and beer. ....
- f. Carbon dioxide is needed to raise bread dough. ....
- g. More strains of yeasts are involved in wine making than in beer brewing. ....

2

Join these words into pairs to complete the definitions: acid, amino, baker's, bread, brewer's, cereal, dough, grape, juice, wort, yeast (2). *Tip: copy the definitions in your indexed book.*

- a. .... is a fungous substance used in the making of beer.
- b. .... is the liquid obtained by pressing grapes.
- c. .... is an infusion of malt consisting of a dilute solution of sugars that is fermented to form beer
- d. .... is the building block of proteins.
- e. .... is a fungous substance used to make bread raise.
- f. .... is a thick mixture of flour and water ready to be baked into bread.



## B. BEER: THE BREWING PROCESS

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*This is the final chapter of New A matter of Life, so it's time to celebrate! No usual language activities here, just enjoy yourself with a cold one of your own making!*

### HOW TO BREW YOUR OWN BEER

#### Equipment

- Large brew pot – 4 or 5 gallon stainless steel pot where you will bring your initial mixture of malt extract, water and hops to a boil.
- Fermenter – a vessel that can be used to contain the beer as it is being fermented.
- Funnel and Strainer – to help transfer the contents of your brew pot into the fermenter.
- Siphon Hose – to transfer your beer from the fermenter into the empty beer bottles.
- Airlock and Stopper – sized to fit your fermenter, to prevent outside air from getting inside the fermenter, while at the same time allowing the carbon dioxide that is produced by fermentation to escape.
- Thermometer – to measure the temperature of your brew during different stages of the brewing process.
- Bottling Bucket – to hold the mixture of the finished beer before bottling.
- Beer Bottles and Capper – for the packaging and storage of your finished beer.
- Bottle Caps
- Sanitizing solution – since beer is prone to infection, everything must be sanitized before use.

#### Ingredients

- Malt Extract – produced by the forced germination of barley grain, which activates the enzymes that can then be used in the brewing process. Packages of pre-made malt extract can be purchased at your local home-brewing store or online retailer and come in many different flavours and varieties.
- Hops – the flowering cones found on the end of the vine of the hop flower. Hops are used to give beer its bitterness, aroma, and additional flavours.
- Yeast – a type of fungus that is used in the fermenting process to convert the sugar in the malt extract into ethyl alcohol and carbon dioxide.
- Water – normal tap water can be used for home-brewing; it is important that it be free of any major impurities or chemicals. The chlorine that is found in most water supply systems can give your beer a harsh flavour, so it is often better to use bottled or filtered water.
- Sugar (Dextrose or Glucose) – added to the beer before bottling in order to carbonate the beer.

#### The brewing process

- Brewing the Beer – Pale malt extract and hops are boiled together with water for about an hour to sterilize the extract and release the bittering qualities of the hops. Frequently grains are steeped in the mixture prior to the boil to add additional colour and flavour complexity.

- Cooling and Fermenting – The hot mixture (called wort) is cooled to room temperature and siphoned or transferred to a fermenter where it is combined with additional water to achieve the desired batch size. Once the mixture drops to room temperature, yeast is added to start the fermentation process. Cleanliness and sanitation are very important since the wort can be easily infected by bacteria in this state. An airlock is used to keep the fermenter sealed during fermentation. Your beer will ferment for 1-2 weeks.
- Priming and Bottling – Once the beer is fully fermented, it is siphoned to another container to prepare for bottling. Here priming sugars such as corn sugar are mixed with the beer. The beer is siphoned into bottles and each bottle is capped.
- Aging – Once the beer has been bottled it needs to age for 2-6 weeks. During aging the yeast will ferment the remaining sugar you added and create carbon dioxide to make your beer nice and bubbly. In addition, undesirable sediments such as excess yeast and proteins will drop out of the beer during aging and this will enhance the flavour of your beer. It may take several months to reach peak flavour, though homemade beer is usually drinkable after a month.
- Drinking – When the beer is properly aged – just put the bottles in the fridge and enjoy! There's nothing quite like a great beer that you made yourself.