

## What's your favourite fungus?

# The One That Makes Your Daily Bread

Everyone knows that yeast is added to bread in order to make it 'rise', but do you know what is actually happening in this process?

Yeast is a type of fungus that is unicellular. So the organism is just a single cell that is more-or-less round in shape. It is used in baking and also in brewing beers and ales and making wine because in anaerobic conditions (that is, when there is very little or no oxygen available) yeast ferments sugar to produce alcohol, carbon dioxide and water in the process called fermentation.

Equation: Yeast + Glucose → Alcohol + Carbon dioxide + Water

Brewer's yeast (scientific name *Saccharomyces cerevisiae*) ferments sugars in cereal grains to produce alcohol, in addition to various other products that affect the flavour. Baker's yeast (which is also *Saccharomyces cerevisiae*, but a special strain that tolerates higher temperatures) ferments sugars in the flour, but this time it is the carbon dioxide that's the useful product of the fermentation.

In bread making the yeast is added to the dough mixture (ingredients of which are flour and sugar) and the mixture is left for about 2 hours before baking. This is when the yeast action can be seen. Yeast cells produce the enzymes that use the sugar to generate carbon dioxide and alcohol. The carbon dioxide forms lots of bubbles in the dough. The gas cannot escape from the dough because it gets trapped by gluten, which is a really sticky protein found in wheat flour. As the yeast cells carry on fermenting, more and more carbon dioxide is produced, making more and more bubbles and causing the dough mixture to 'rise', or increase in volume very obviously. When the baker judges that the dough has risen enough, the bread is baked. During baking the alcohol evaporates in the heat of the oven, and the bubbly structure of the dough is turned into the open, spongy, structure of bread. Clearly, yeast plays a crucial role in the production of a food that is part of most people's daily diet. There are over 200 varieties of bread!

