

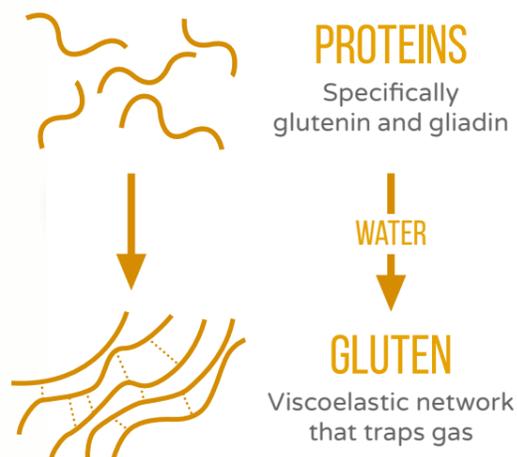
THE CHEMISTRY OF BREAD-MAKING

Baking bread may seem like a very simple process. It's a combination of only four different ingredients: flour, water, yeast, and salt. However, there's a lot of science in how these four ingredients interact, and how varying them varies the bread's characteristics.



1 MIX INGREDIENTS

FLOUR, WATER & SALT



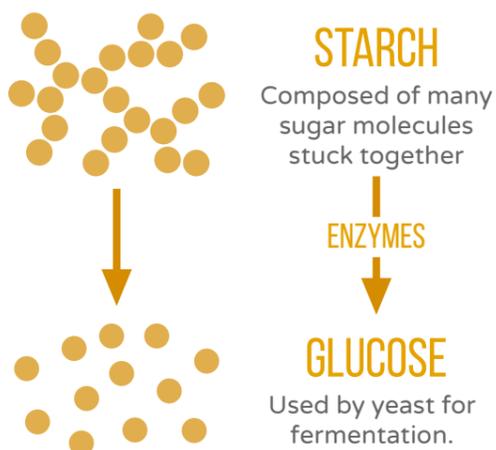
Flour contains high levels of glutenin and gliadin proteins. These classes of proteins are collectively referred to as gluten. When water is added, these proteins form a network held together by hydrogen bonds & disulfide cross-links. Kneading uncoils gluten proteins, strengthening the network and the dough.

THE ROLE OF SALT

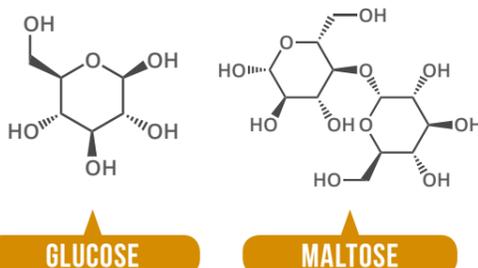
ADDS FLAVOUR TO BREAD
SLOWS DOUGH FERMENTATION
STRENGTHENS GLUTEN STRUCTURE
MAKES DOUGH MORE ELASTIC

2 KNEAD THE DOUGH

STARCH & SUGAR

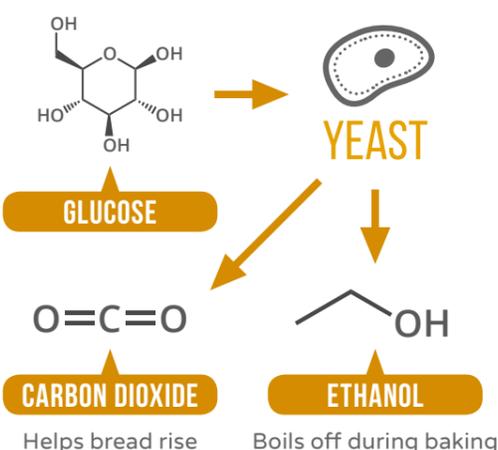


Flour contains starch, long chains of connected sugar molecules. Amylase converts starch to maltose; maltase in yeast converts this to glucose. Along with other sugars, this can be used by the yeast for fermentation, and is also involved in the flavour-forming browning reactions that help to form the bread's crust.



3 LEAVE TO FERMENT

YEAST & FERMENTATION

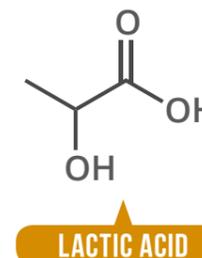


Yeast are single-celled fungi that help convert sugars in the bread mix into carbon dioxide. The bubbles of carbon dioxide formed cause the bread to rise; kneading makes their size more uniform. Sour dough breads contain both bacteria and wild yeasts. The lactic acid produced by bacteria can sometimes give a sour taste.

SOUR DOUGH

100:1 BACTERIA:YEAST

Both feed on sugars; yeasts in sour dough can't break down maltose, bacteria can.



4 BAKE THE BREAD

OTHER INGREDIENTS

