

FACTSHEET No. 26

SOURDOUGH

What are the origins of sourdough?

There is no doubt that the sourdough method of bread making has been around for a very, very long time: indeed there is archaeological evidence that sourdough has been used as a leavening agent in bread since around 5,000 BC and there is documented evidence of the routine production of sourdough bread by the Egyptians around 3,000 BC. It is not known how, when or who first allowed their flour and water mixture to ferment before baking but fermented bread products have been the preferred choice for consumers down the ages ever since.

What is sourdough?

In its simplest form, sourdough is a spontaneous fermentation of starch, usually a cereal such as wheat or rye, by a micro biotic culture that contains *Lactobacillus* bacteria and yeast. Depending on the type of *lactobacilli* and yeasts that are present, these micro-organisms produce lactic and/or acetic acid and a small amount of carbon dioxide as by-products of their metabolic activity. The presence of these acids have particular effects on the processing behaviour of dough, influence the flavour profile of the finished bread, and create specific crust and crumb characteristics that make sourdough bread so distinctive.

Since the sources of bacteria and yeast are the flour from which it is made and the atmosphere in which it is fermented each sourdough will subtly vary according to geographical location and flour type. Furthermore, fermentation conditions can be adapted to encourage different types of bacteria in the culture; each of which confers different characteristics to the sourdough and, therefore, the finished product.

Why is it called *sourdough*?

The origins of the name 'sourdough' are as misty as the origins of sourdough itself, but the *lactobacilli* that are found in sourdough are in the same family as those responsible for souring milk. These bacteria produce lactic and acetic acids, which can taste sour in the mouth; but the degree of sourness varies according to the type of bacteria that are present and the conditions under which it has been fermented.

Does it taste sour?

The flavour profile of sourdough bread can vary from very mild to very strong. The intensity of the flavour achieved will depend on several factors:

- The type of flour used to make the sourdough: darker and wholemeal flours, e.g. rye, tend to increase the level of acidity due to higher levels of minerals that are naturally present.
- Whether the final bread has been made entirely from sourdough, or from dough to which some sourdough has been added.
- Whether the final bread making process has included any significant fermentation time; either bulk fermentation or proofing.
- The presence of other ingredients in the recipe.
- The age of the bread when it is consumed: the sourdough flavour tends to develop and intensify so that the flavour is more pronounced on the day after production.

Does sourdough contain yeast?

Yes. Even spontaneously fermented sourdoughs contain some yeast spores that are naturally found in the raw materials. Some bakers also add a little yeast to their sourdough bread in order to improve the volume of the loaves, and to give them a different type of crumb texture. However, since sourdough bread is generally bulk fermented to enhance its flavour this level of yeast is usually lower than normal.

Do you need different ingredients to make sourdough?

No. Flour, water and salt are all that is needed; but time and skill are needed to create and maintain the living sourdough that is used for leavening the bread.

How exactly does sourdough differ in the way it is made from other bread?

All bread is made by fermenting a mixture of flour and water (with a little bit of salt), and the basic bread making process is no different for sourdough. The key difference is the time taken to produce a loaf – anything from four to 12 hours and in some cases up to 24 hours, depending on the type of bread; and whether it is made wholly from sourdough or from dough to which some sourdough has been added. In the latter case a little yeast is also added to improve the loaf volume and this will tend to speed up the process too.

What is the difference between wild yeast in sourdough and commercial yeast?

Two types of yeast most commonly found in spontaneously fermented sourdough are *Saccharomyces cerevisiae* and *Candida milleri*. *Saccharomyces cerevisiae* is also the strain of yeast that is commercially cultivated to produce standard bakers' yeast, and it is nurtured in such a way to ensure that its performance is regular and reliable.

Does sourdough bread stay fresh longer than other breads?

Yes. The perceived freshness of bread depends on many factors, including the method of storage, the moisture content of the bread, the thickness of the crust, etc. The crumb of sourdough bread tends to be firmer than that of bread made from yeasted dough, so that it naturally feels less soft. However, the increased acidity of sourdough gives it some natural protection against mould growth. As it is baked for longer than standard bread, sourdough bread also tends to have a thicker crust which helps to slow the rate at which the bread dries out.

Sourdough bread and nutrition

Research suggests that sourdough bread is more digestible than other yeast raised bread and has a higher bioavailability of minerals, chiefly because certain cereal components are broken down during the bulk fermentation process. The addition of sourdough is a promising way of reducing

starch digestibility of products made from wheat flour and, therefore, of reducing the Glycaemic Index (GI) of bread, although the mechanisms by which this is achieved are not yet fully understood.

Furthermore, the use of sourdough improves the flavour of gluten-free bread.

Sourdough is a useful tool in the development of functional baked goods, and the full extent of its applications in this area have not yet been fully exploited.

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