

Agitation and Mixing

Yeast bread / Sourdough bread / Poolish bread

The bread dough is subject to swelling of basic ingredients used, due to fermentation. That is what differentiates the flatbread and it is commonly called leavened dough. The flour comes mainly from bread-bound cereals characterized by the presence of gluten, protein groups of elastic properties that can imprison the carbon dioxide bubbles released by fermentation. This fermentation is initiated by the incorporation into the dough of micro-organisms such as yeast, in more or less important quantities depending on the flour and bread recipes.

There are 3 main methods of leavening for making bread:

- **The baker's yeast bread:** This is the most classical method. We directly use yeast, i.e. a unicellular microscopic fungus in either a dry form, or in sequin or capsule forms. The fermentation produced is known as alcoholic (as opposed to a lactic fermentation obtained for example by leaven). The physico-chemical process of leavening is due to gas clearing due to fermentation. The mixing is done directly by mixing water, flour, yeast and salt. The quantity of yeast is quite important and the leavening of bread is quite fast. The cereal grain is rich, among others, in calcium and pythic acid. However, this acid precipitates calcium and a few other trace elements and makes them more or less non-assimilated by the body. Unlike leaven, fermentation of the baker's yeast does not destroy the pythic acid, and is therefore not advisable to use this method with full flour.
- **The sourdough bread:** The leaven is the oldest known technique and the only one used until the XVIIth century for obtaining leavened bread. This is the method most difficult to implement, in which the leaven replaces the baker's yeast. The leaven is created from flour, water and sugar or fruit. After mixing these 3 ingredients, it takes several days to maintain the fermentation during which will develop a yeast and lactic acid bacteria culture. The yeast is a living material that should be "fed" and monitor regularly. Each day, we need to refresh it by adding water and flour and ensure it does not die or is not polluted by undesirable bacteria. The mixing of bread dough is made in two stages: a collection of leaven stem being incorporated into the basic pre-blending of water-flour. The taste of sourdough bread differs markedly from the baker's yeast bread. It is slightly acidic, because of lactic acid and acetic acid emitted by lactic acid bacteria of the leaven. The sourdough crumb is, on the other hand, a little more compact. The acidity provided by the leaven slowing the demotion of starch (spontaneous phenomenon of starch, which tends to resume its original structure, thereby promoting the evaporation of water it retained), the sourdough bread is kept several weeks, much longer than the leavened bread by the baker's yeast.
- **the poolish bread:** It is an intermediary method between yeast and leaven. A small amount of yeast is mixed with water and flour, thus constituting a fairly liquid mixture which is allowed to rest some ten hours for fermentation. This mixture is then incorporated in its entirety to the successive mixtures of the day. This process is proving to be a good compromise between the speed of implementation of the baker's yeast bread and the organoleptic qualities of leaven bread. It can restrict the use of the baker's yeast and makes the bread softer and more ventilated.

To Learn More:

Literature

- *Le Goût du Pain – Professeur Raymond Calvel (Editions Jerome Villette)*
- *Le Compagnon Boulanger – Jean-Marie Viard (Editions Jerome Villette)*

Web

- <http://www.boulangerie.net/Loi/dospainlevain.html>