

- TIIAME

Theme: Bread processing

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5. Types of bread.
6. Microbial spoilage.
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INTRODUCTION:

BREAD is a dietary product obtained from the fermentation and the subsequent baking of a dough mainly made of cereal flour and water, made in many different ways and sometimes enriched with typical regional ingredients.



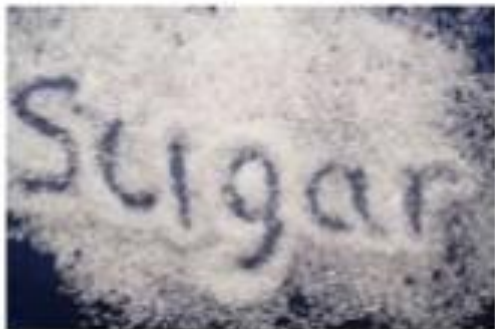
Ingredients of bread:



- **Flour** is the bulking ingredient of bread, it forms the structure of the product. It contains **gluten**. Gluten helps to form an elastic stretchy dough.
- **Yeast** is a raising agent. Yeast produces gases to make the bread rise. Because it is living, correct conditions are needed for growth - food, warmth, time and moisture.
- **Salt** is required to bring out flavour in the bread. This ingredient is used in small quantities. Too much of this ingredient will stop the yeast from growing.



- Yeast needs energy to grow. **Sugar** provides the food for the yeast; it is needed to help the yeast grow.
- **Water** is used to bind the flour together and helps to form the structure of the bread.
- **Fats or oils** improve the texture of the bread, preventing it from going stale quickly.



STARTER CULTURE:

Baker's yeast is the common name for the strains of yeast commonly used as a **leavening agent** in baking bread and bakery products, where it converts the fermentable sugars present in the dough into carbon dioxide and ethanol. Baker's yeast is of the species *Saccharomyces cerevisiae*, which is the same species (but a different strain) commonly used in alcoholic fermentation which is called **brewer's yeast**.



- **Leavening** is the production or incorporation of gases in the baked product to increase volume and to produce shape & texture.

Bread Making Process

Mixing of Ingredients



Rising / Fermentation

Kneading

Moulding into loaf shapes

Rising

Baking



Cooling — Slicing and Wrapping

1. **Mixing** has two functions: to evenly distribute the various ingredients and allow the development of a protein (gluten) network to give the best bread possible.
2. Once the bread is mixed it is then left to rise (**ferment**).
3. Any large gas holes that may have formed during rising are released by **kneading**.
4. **Moulding** the dough into desired loaf shape.
5. During the **final rising** the loaf fills with more bubbles of gas, and once this has proceeded far enough they are transferred to the oven for baking.
6. The loaf is then placed in a preheated oven to **bake**. Such a high heat will kill the yeast, thus stopping its process of rising and growth.
7. The whole loaf is **cooled** to about 35°C before slicing and wrapping can occur without damaging the loaf.

Types of Bread

1. White Bread: **White bread** typically refers to breads made from wheat flour.
2. Brown Bread : **Brown bread** is a designation often given to breads made with significant amounts of whole grain flour, usually wheat.
3. Wholemeal bread: It contains the whole of the wheat grain (endosperm, bran, and germ). It is also referred to as "whole-grain" or "whole-wheat bread".
4. **Rye bread** : It is a type of bread made with various proportions of flour from rye grain.

Apart from above there are several types like Crisp bread, Flatbread is often simple, made with flour, water, and salt.

Microbial spoilage

- Molds are the primary spoilage organisms in baked goods, with *Aspergillus*, *Penicillium*, and *Eurotium* being the most commonly isolated genera.
- *Penicillium* tends to be the more important in sourdough breads and in breads stored at cooler temperatures.
- Freshly baked breads do not contain viable molds but soon become contaminated upon exposure to air and surfaces.
- *Bacillus* spores are very heat resistant and can survive baking process and start growing as the bread cools.
- Some strains cause a defect called ropiness, a soft sticky texture caused by starch degradation and slimy exopolysaccharides often accompanied by a fruity odor.
- *Yeasts* may also be involved in spoilage of some breads and fruitcakes, causing a chalky appearance on surfaces and offodors

Quality control

- As a foodstuff, bread is subject to stringent government food processing regulations, including, but not limited to the percent of additives allowed, sterilization of plant equipment, and cleanliness of plant workers. In addition to adhering to these regulations, processors control the quality of their products to meet consumer expectations by installing checkpoints at various stages of the processing.
- At each inspection station, the bread is tested for appearance, texture, and taste. Because of its high moisture content, 38-40%, bread is particularly subject to bacteria growth.
- While the baking process destroys most of the bacteria, bread is still susceptible to re-inoculation of fungi after packaging. There are a number of methods used to combat this including fungicides and ultraviolet lighting.

Thank you for
attention