

ANALYSIS OF THE DOUGH PREPARATION PROCESS AND METHODS USED IN THE TECHNOLOGICAL PROCESS

Turaeva Gulchiroy Sheraliyeva

Assistant of Bukhara Engineering Institute of Technology

Abstract

Preparation of dough is one of the main stages of the technological process of bread production. The state and properties of the finished dough also determine the quality of the finished bread, due to which it significantly affects its state in the subsequent shaping, baking and baking processes.

Introduction

But the dough is prepared from flour, water, salt, yeast, sugar, oil, and various other raw materials.

A certain variety is called the sum of the proportions of individual raw materials used for the production of bakery products.

In the recipes of Non-pastry products, it was accepted that the volume of water, salt, yeast and additional products is expressed in kilograms per 100 kg of flour.

The recipe of the main varieties of bread and Pastry Products provides for the following approximate ratio of individual raw materials (kg):

In the formulations of a number of varieties of bakery products, other types of additional raw materials (such as eggs, raisins, milk, whey, skimmed dry milk, spices, vanillin) are also indicated. It follows that in the dough of different types and varieties of bakery products, the amount and ratio of raw materials can be different. Flour, water, salt and yeast bread make up the group for the fact that all varieties are part of the dough.

The dough is prepared in continuous ways.

There are two main, methods of making dough.

About these methods are presented so far in brief.

In the oparal method, the dough is prepared in two stages: the first stage – preparation, and the second stage – preparation.

In the preparation of Opara, usually about half of the amount of flour intended for the preparation of dough is used, two-thirds of the water and all yeast.

According to the consensus, usually opara is more liquid than hemp. The initial temperature of the Opara is na 28-30 os. The stabbing of the Opara lasts from 3 hours to 4,5 hours. In the finished Opara, the dough is kneaded. When mixing the dough, the Opara is put the rest of the flour and water and salt. If the formulations contain sugar and fat, then they are also put at this time. The dough will have an initial temperature

of 28-30 os. The kneading of the dough usually takes from 1 hour to 1 hour 45 minutes. The dough prepared from the brewed flour is kneaded once or twice during the kneading for 1-2 min.

Dough is prepared not only in the above simple oparad, but also in liquid, dark and large oparad.

The non-oparless method-consists of one stage, in which the dough is kneaded from all the flour, water and yeast, which are designed to prepare a certain amount of dough. At this time, sugar, fat and other additional products are also added to the dough.

The temperature of the prepared dough in the oparless method is about 28-30 os. Depending on the amount of the expectorant yeast can last from 2 hours to 4 hours. During the kneading, the dough made from the brewed flour is punched once or several times.

The preparation of dough in oparal and oparless method will consist of the following operations and stages:

dosing of raw materials;

mix Opara or dough;

knead dough or Opara's bijg;

knead the dough "mushtlash".

Preparation of dough is an important and longest process, which in the production of bread will occupy 70% of the time of the production phase. In production, a number of methods of preparation of yeast dough are used.

There are both traditional and new ways of making dough. Traditional technology implies long-term, bij-7 hours grinding of semi-finished products. For the new technology, the shortening of the dough preparation time is characteristic.

Modern methods of preparation of dough should meet the following requirements: ensure the quality of the product, have technological compactness, provide an opportunity to complex size the process; reduce the number of equipment, production area, workers, increase economic efficiency on the account of reducing the costs of grinding.

Dough is prepared in one-phase and two-phase ways.

One - phase-free method of preparation of dough. Preparation of the dough in the non-opaque method involves one-phase method. This dough is prepared without the addition of semi-finished products, which are kneaded by adding all the raw materials and water listed in the recipe at once.

In the traditional oparless method, the dough is prepared with a large amount of yeast (1,5-2,5% compared to the mass of flour). The large consumption of yeast is due to the presence in the dough of unfavorable conditions for their vital activity (the darker the environment, the presence of salt). The size of the yeast is also necessary to knead the dough for a short time (2-3 hours).

In the preparation of the dough by oparless method to reduce the amount of yeast and improve the quality of the product, the yeast is pre-active-risen. The initial temperature of the dough is 29-30 °C, the duration of the kneading is 2,5-3 hours. After 60-90 min after mixing, it is recommended to "punch" the dough. "Punching" dough in the preparation of oparless dough is of great technological importance.

The amount of acids, odors and flavoring substances in the dough prepared by the oparless method is less than in the dough prepared by the oparless method. In oparless dough, the formation is much lower due to the speed of colloidal and biochemical processes, the consistency of the dough is darker, and the time of kneading is shorter. Aparless method is often used in the production of buns and pastry products, Uzbek loaves of higher and first grade flour. In the oparless method, the dough is prepared in dough mixing machines with sliding dezhas ("standard", T1-xt2-A, Rz-XTI).

To prepare a dough in a one-phase method, it is also possible to introduce a method of preparation of yeast dough by adding various substances that accelerate the maturation of the dough. The amount of yeast used in the accelerated method is increased by 3% compared to the mass of flour, the accelerated method of kneading the dough is used (in the machine Rz-XTI 3-4 min). The temperature of the dough is increased to 33-34 °C, about 15-20% milk whey is added to the flour in the dough.

Due to the fact that milk whey has a high humidity (95%), it is preferable to use part of the raw material in a dry state (sugar powder, dried milk). In this method, the dough is made for 30-70 minutes.

The accelerated method is used in a variety of variants in the production of small-grain and glazed products. Despite the fact that the dough accelerates its maturation, the amount of flavoring substances in such, such pastries is low, but this does not affect the quality of small-grain products for the following reasons:

the amount of crusts of cereal products will be greater than that of bread crumbs.

During cooking, flavorings are formed mainly in the shell;

milk, butter, sugar and other small raw materials contained in the recipe of cereal and glazed products improve the taste of the product, replacing the substances formed in the dough formation.

The accelerated method of preparation of dough in one-phase method is not used in the production of bakery products in a large mass, since it ensures the quality of the products.

Preparation of dough in a single-phase Way has the following organizational and economic capabilities than the preparation of dough in a two-Phase way:

The duration of the production of the bread preparation is reduced by 50-65%, while the volume of bread fermentation capacity, the area of production and the demand for equipment are also reduced;

In the non-Opar method, the consumption of dry ingredients in the preparation of dough in the Opar method is reduced by about 30% compared to the traditional

method of kneading 1,2 kg; the effectiveness of the preparation of dough in a particularly accelerated one-phase method is that its duration increases by 2-2, 5%, due to the fact that the output

At the same time, an invariable technological regime is established in the preparation of dough in one-phase method. After kneading the dough once, in the situation when it is necessary, there will be no possibility to change its humidity and temperature or add improvers.

In the preparation of dough by one-phase method, the consumption of pressed yeast increases by 50-100%.

Two - phase-oparal method of preparation of dough.

The two-phase method includes the oparal method of preparing the dough. Preparation of the dough consists of two phases: preparation of opara; kneading the dough in the oven to sag until it is ready.

The technology of preparation of Opara will depend on the variety of flour and its baking properties, product formulations, etc.

The humidity of Opara in the preparation of pastry is 47-50%, in the preparation of buns 44-46%, which is due to the fact that the humidity of the dough of these products is different. In order to prevent the desegregation of gluten when the weak flour is heated, the humidity of Opara is reduced.

If the gluten of the flour is short-lived, the humidity of the Opara is increased by 2-3%. In the preparation of Opara, the amount of pressed yeast is 0,5-4%. The amount of yeast dose is high (2-4 %) in the syrup dough Opar, for bread dough Opar is injected in the amount of 0,5-0,7%.

The temperature of the Opara is usually slightly lower than the temperature of the dough (28-29 os). Such a temperature is favorable for the reproduction of yeast cells. In hot Times of the year, the temperature of the Opara is reduced to 2-4, in winter time its temperature rises. When using weak flour, it is necessary to reduce the temperature of opara and dough to 2-3 in order to stop the gillitic processes.

The duration of the puncture of the Opara is 3-5 hours. It will depend on the grade and quality of the flour, the room temperature, the amount and quality of the yeast. The lower the grade of flour, the faster the opara is kneaded; this is evidenced by the abundance of nutrients for the microflora of the brewing in it, the higher the output (the lower the grade).

Dough with oparal method can be prepared according to the following options:

Dough prepared in the Opara (traditional - classical method of kneading), in which 50% of the flour intended for cooking is stored;

Dough prepared in the oven (large dark opara dough), where 65-70% of the flour intended for the preparation of the dough is stored;

Dough prepared in the Opara (liquid Opara oil), where 30% of the flour intended for preparation is stored.

The different amounts of flour in the Opara affect the technological parameters of the preparation of semi-finished products. The larger opara will have a lower humidity (41-44 %) than ordinary ones, longer (4-5 hours) will burst. In a large Opar, the dough is kneaded in an accelerated way, and the maturation of the dough is reduced by 2-3 times. The fact that the dough is made for a short time is explained by the intensity of kneading and the application of a large Opar, the large Opar has a greater amount of flavoring and water-soluble substances, hydrated and pitted proteins than the others. Liquid Opara is used mainly in the preparation of dough from second-grade and rye flour. Bug'd the humidity of the Opara used for the preparation of dough is 70-74% [23].

Liquid yeast of rye, "Uzbekistan" and second-grade flour bread is kneaded with the help of liquid yeast. Fermentation activity of yeasts in liquid Opara is higher than in dark Opara. Because in a liquid environment, there are favorable conditions for yeast cells.

The initial temperature of the liquid Opara is 30 os. The increase in temperature to 35 os does not affect the quality of bread and semi-finished products. It is desirable to raise the temperature when the dough melts in a liquid Opar without adding water and the flour temperature is low. The duration of the puncture of the liquid Opara is 3,5-5 hours. Its readiness is determined from the acidity and the strength of the lift. The acidity of the Opara made from the second grade flour is 6,5-7, the acidity of the Opara made from the first grade flour is 5,5-6 grad, the lifting force is 17-25 minutes.

In industry, there are methods of preparation of dough in a liquid Opara, which differ depending on the type of yeast used (liquid or activated), the humidity of the Opara (65-74 %) and the amount of table salt added to the Opara.

Preparation of dough in two-phase method is more complicated and labor-intensive than the preparation of dough in one-phase method. To do this, you will need 2 times more meters and dough mixing machines, 3-4 times more big-tooth capacity, as well as a section for the preparation of dough with a large area, respectively. In the two-phase method, the consumption of dry ingredients in flour to the fermentation is slightly higher than in one phase. Despite this, in many enterprises, the oparal method of preparing dough is used. The main reason for this is the compactness of the technological process. Having determined the properties of the Opara, it is possible to change the temperature and amount of water in the kneading of the dough, add various improvers, knead or shorten the dough, thereby bringing the dough to a state convenient for further splitting and baking. Yeast consumption is reduced to two marathons in estimate [23,16].

The taste and smell of bread, prepared by Oparal method, is higher than that of bread, which is prepared by one-phase method with the properties of its kernels. This is the most decisive factor in the choice of the method of preparation of dough.

Preparation of dough in Bunker aggregates. Preparation of dough in small and medium-sized enterprises method is carried out in dough mixing machines with sliding Deca.

For the preparation of dough in medium and large power enterprises use bunker aggregates with different production capacities and continuous operation. N.F. The bunker dough preparation aggregates developed and proposed by Gatilin were later and on the basis of which i8-Hag-6 (figure 1.1), MTIPP-RMK-7, I8-XTA-12 aggregates were developed and produced in the industry being used.

In these aggregates Opara and dough are continuously kneaded dough mixing machines. From the mixing machine opara is sent to one of the 5-6 sectional bunker sec-TSI. The filled sector of the bunker is replaced by another sector. So the first sector is full, and the endgisi is busted, in the remaining sectors 3-4,5 hours the Opara's biceps will continue. Opara from the last section, water, salt solution and other additives uzluk-you are injected into the dough, dosing continuous processing dough mixing machine in a manner. The dough is transferred to the bunker on the grater and let it brew 20-30 minutes there.

The application of Bunker aggregate stirradi shortens the production area, mexaniz shortens the dough preparation process and facilitates working conditions.

But in the hot climatic conditions of our republic it was found out that bunker aggregates cause deterioration of their quality due to a significant increase in the temperature of opara and dough. Therefore, in bakeries rarely use these aggregates. At the Almalik bakuvian enterprise, utshbu aggregates are used [23,16].

Preparation of dough in XTR aggregate bug'doy.

In this aggregate (figure 1.2) opara continuous operation comes to the first section of the dough kneading machine kneading trough. In the first section there is a mixer with a shovel, which moves the bijgan Opara. From the first section, a continuous-action dough mixing machine is obtained by means of an Opara syringe dispenser. This machine also continuously dosing water, flour, salt solution and other components. The curd dough comes to the second section for baking. The finished dough is rolled out from the output slit at the end of the section. XTR aggregate is adapted to the preparation of dough for the production of bakery products up to 25 tons per day by oparali method.

There is also a construction of the XTR aggregate for the preparation of dough in the non-oparous method. It consists of a single continuous-action dough mixing machine, liquid components and flour dosing machines and a grinding machine that continuously measures. The modified structure-teeth of the aggregate are also used in baking enterprises. This aggregate is used in Fergana bakeries.

Bug'd preparation of the dough in a liquid Opar. Various schemes of preparation of dough in liquid dough in bakeries of the Republic are being stocked. Preparation of dough according to these schemes is carried out continuously, and short-term

kneading of the dough occurs in the bunker, which is installed on the cutting machine. In some enterprises, the liquid opara is prepared without salt (in Bukhara and other cities), in others with the addition of salt to Opar (in Samarkand). Preparation of dough in a liquid Opar is often carried out in a KHTUD aggregate (1.3-figure).

Mixing the dough is carried out in a continuous-working dough mixing machine X-12D type 11, where the flour is dosed with the help of a dozator 9, and the liquid opara with the help of a dozator 8. Kneading dough is given to the kneading bunker, which is installed on the dough shredder 11, along the tube with the help of a Shnek 12.

Additional mechanical processing with the help of a rolling pin accelerates the maturation of the dough.

Bug'd methods of preparing the dough in an accelerated way. Currently, in the industry there are several ways to prepare the dough in an accelerated way.

P3-XTH aggregate is intended for the preparation of dough in a liquid Opar from wheat flour (Figure 1.4). In this aggregate, the liquid opara is prepared from 30-50% of the total flour miq-drug in the dough.

The Opara Sh2-XVB screw mixer is snapped at 1. Flour, water and yeast suspension from the dosers to the flour come without interruption. This mixture-liquid from the Plunger is divided into opara sections on a regular basis, and the horizontal Rz-XTN/1 apparati supplied with the mixer is sent to 2 for 3,5-4 hours of sieving. As the Opara that has been implanted into the apparatus comes into play continuously, the bijgan opara is also transferred to the dosing pump 4 of continuous liquid components using pumps 6.

The dosage itself is continuously dosing other components of the dough recipe. Flour is also dosed using a continuous-acting Doser 7. The dosing components come in continuous operation Rz-xto dough mixing machine 8, intensively knead the dough. The dough is kneaded 30 minutes, the rhz-XTN/4orortyori is reached 9, with this transportyori the dough is transferred to the 10 of the funnel of the dough grinder.

The Rz-XTP aggregate is intended for the preparation of dough for pastry products from bug'doy flour in the form of porous in condensed lactic acid yeast (QSKX).

At the initial stage of the preparation of QSKH it is grown from pure varieties of lactic acid bacteria. These varieties are mainly produced lactic acid. It differs sharply from acetic acid by its pleasant taste.

At the production stage, the apparatus with the qskx mixer and shirt is stitched at a temperature of 2 to 36-38 os for 8-10 hours until it has 16-20 grad acidity and 65-68% humidity. Half of QSKX is sent to 5 curls to spend sent to the kneading of the dough. On top of the rest of the QSKH, a nutrient medium consisting of flour and water is introduced to renew it. After 36-8 hours of sieving at a temperature of 8-18-38 os, the renewed QSKX achieves 16-18 grad acidity, and its halves are again taken for the preparation of the dough. Due to the fact that QSKX is in a stable state, it can be stored

at a temperature of 36-38 °C for up to 20 hours and at a temperature of 12-15 °C for one day and more.

QSKX dough R3-XTI dough mixing machine in the portioned way is kneaded for 8-10 minutes. To knead the dough is spent 3-5 %, and the remaining 95-97% flour to knead the dough. With the help of kneading dough protractor is transferred to a special capacity 40 to 60 for 9 minutes of kneading, after which it is sent to the slicing.

Since the duration of the dough preparation is reduced, the advantages of this method are the creation of an opportunity to organize the work in two shifts, a decrease in the consumption of dry ingredients of flour for baking and an improvement in the quality of bread.

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