A Short Book About Cooking and Baking

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Theoretical Introduction

Baker's Percentage

A universal method of measuring the amount of an ingredient in baking is the baker's percentage. It is a notation indicating the proportion of an ingredient relative to the flour used in the recipe. Baker's percentage expresses the ratio of the weight of an ingredient to the total weight of the flour as a percentage:

$$\text{baker's percentage} = 100\% \times \frac{mass_{ingredient}}{mass_{flour}}$$

For example, a recipe calling for 65% water will require 292.5g of water if 450g of flour are used ($\frac{450 \times 65\%}{100\%} = 450 \times 0.65 \approx 292.5$).

Flour

In Europe there are several prevailing systems for labeling flour types, however, all correspond to a certain standardised process. A sample of flour is incinerated in a laboratory oven at a very high temperature for a long time. The amount of ash residue indicates the amount of whole grain that was present in the flour. When the ash is measured in milligrams per 100g of flour, the German flour types are obtained, such as 450 or 550. Similarly, the French types are the same ash measured in milligrams per 10g of flour, e.g. 45 or 55 which correspond to the German types 450 and 550. The Italians took a different approach and instead assigned the most commonly used flour types numbers 00, 0, 1 and 2. Those correspond to the German 405, 550, 800 and 1050. In general, the higher type flours have higher protein content, but beyond 1100 the protein content begins to drop slightly.

Kneading

Melting Chocolate

Breads

Pre-Ferment Bread

Ingredients

For a single loaf

Pre-Ferment (Poolish)

- 150g flour (12%+ protein or type 650+)
- 150g water (room temperature)
- 1g fresh yeast

Dough

- 400g flour (12%+ protein or type 650+)
- 280g water (35C)
- 6g fresh yeast
- 10g salt

Instructions

Prepare the poolish by mixing all ingredients in a glass jar or a glass container. Leave to ferment in room temperature for 16-24 hours.

Once the poolish is ready, mix it with the ingredients for the dough in a large bowl until homogenous. Leave to rest for around 30 minutes, then fold several times onto itself. Repeat at least one more time and leave to rest for 30 minutes.

Take the dough out of the bowl onto a surface lightly sprinkled with flour. Fold the dough onto itself several times by grabbing an edge of the dough, stretching it up and bringing it to the opposite side. Work clockwise or counterclockwise. Flip the dough upside-down and shape into a ball to form a smooth surface by pulling the dough under itself. Keep the seam at the bottom of the ball throughout the process.

Prepare a proofing basket or line a large bowl with a clean kitchen towel and toss very generously with flour (otherwise the dough will stick to the towel). Toss the top of the dough with flour and place it seam side up in the proofing basket. Proof at room temperature for 30 minutes to one hour.

While the dough is proofing, heat the oven and a dutch oven (you may use a large steel pot with a lid as a replacement) to 250C. Once hot, sprinkle the bottom of the dutch oven with flour and carefully place the dough in it. Do not drop the dough as it will lose the gases built up during proofing resulting in a flatter loaf. Score the top of the bread deeply. Bake covered for 20 minutes, remove the cover and bake for 20 or more minutes to achieve dark brown crust.

Sourdough Bread

Pizza

Pizza Napoletana

Ingredients

- wheat flour (11-12% protein or type 450)
- 60%+ water (room temperature)
- 0.5% fresh yeast
- 2% salt

Measuring

It is important to measure the appropriate amounts of ingredients, so that we may divide the dough evenly without any leftover (too large pieces will result in pizzas with a thick bottom, while too small pieces will result in smaller pizzas). We will be dividing the dough into 280 ± 5g pieces. For example, if we want to make 4 pizzas, we should make 1120g of dough. The mass of the entire dough is approximately the sum of the masses of the ingredients, hence we may calculate the amount of flour needed:

$$mass_{flour} = mass_{dough} \times \frac{100\%}{percent_{flour} + percent_{water} + percent_{salt} + percent_{yeast}}$$

For a 60% hydration dough we need $\frac{1120}{1+0.6+0.02+0.005} = \frac{1120}{1.625} = 689.3$g flour.

Instructions

We mix the ingredients in a large bowl, then knead using any technique for about 20 minutes. For high hydration dough we may instead choose the folding technique and perform it periodically during the resting period. We leave the dough for at least 2h to rest, but due to it being a low yeast content dough, we may leave it for 5h or more.

After the dough rests, we prepare containers to store it. We may use small containers for each piece of dough or large fermentation boxes (as seen in commercial pizzerias) for multiple. Cover the containers with a thin layer of oil. Divide the dough into 280 ± 5g pieces, shape into balls with a smooth surface (extremely important) by, for instance, folding the dough into itself and place them in the containers. If storing multiple ball in one container, leave at least 5cm of space inbetween each pair. Store in the fridge and let ferment for at least 8h. It is possible to store the dough in the fridge for up to a week.

After taking out of the fridge, let rest for around 30 minutes or until it reaches around 16C. In the meantime preheat the oven to the highest available temperature. Carefully take one dough ball out of a container (it is important to not push the gases out of the dough at this stage) onto flour and stretch using any technique while being cautious to not press the gases out of the crust. Bake until the crust turns crispy (for reference, 6-8 minutes in 250C).

Cookies

Oatmeal Cookies

Ingredients

For about 18 cookies:

- 250g oatmeal
- 200g flour (type 450-650)
- 150g butter
- 2 eggs
- 4g salt
- 4g cinnamon
- 15g brown sugar/honey or use caramel
- dried fruits (for example cranberry)
- 100g 64% chocolate or chocolate chips
- water (optional)

Instructions

Preheat your oven to about 165C.

Take a steel pot and set it over medium heat. Add butter and brown until butter solids appear and the liquid turns golden brown. It is important to transfer the liquid butter to a bowl or another container, or cool the pot in a water bath until it is around room temperature because otherwise the butter might burn from the heat stored by the pot.

Blend half the oatmeal coarsely, transfer to a container, then blend the dried fruits until they turn into tiny pieces. We do not want to turn them into a paste, though. Cut the chocolate int rough 5mm squares.

Take a large bowl and mix eggs and sugar. Add butter and mix until combined, then add flour and whisk until the mass turns smooth. Add your remaining ingredients and mix until the mass is uniform. If the mass is crumbly, add some water.

Line a baking tray with parchment paper. Scoop a small portion of the dough, form into a rough ball, then lay on the tray and press down until about 1cm thick. Repeat to make 9 cookies. Bake for 17 minutes or until the bottom of the cookies is brown.

Desserts

Panna Cotta

Panna Cotta may be served and garnished in a variety of ways, e.g. layered in a glass or inverted onto a plate with a side of fruits. In this recipe we will be making a 3-layer Panna Cotta in whiskey glasses, however, the recipe for the cream itself may be used to make any variety of Panna Cotta.

Ingredients

For 3 servings:

<u>Cream</u>

- 500ml cream 36% or 30%
- 25g sugar
- 7g gelatin (powder, for other kinds use the appropriate method to dissolve)
- vanilla bean (optional)

<u>Chocolate</u>

- 30g dark chocolate 64%+
- 20g butter
- confectioner sugar (optional)

Fruit Sauce

- 100g strawberries, peaches or any other fresh fruits
- sugar (optional)

Garnish

- 1 large strawberry, 1 slice of peach or a part of the fruit used to make the sauce
- 2 mint leaves

Instructions

In a small bowl mix 3 spoons of cream with the gelatin. To a large pot, add the sugar and the rest of the cream and set over small heat. Use a thermometer to measure the temperature and stir constantly. Pour in the cream mixed with the gelatin and mix until thoroughly incorporated. If using vanilla or other spices, add them now. Once the temperature reaches slightly below 80C, cut the heat and distribute evenly into 400ml whiskey glasses. Cover tightly with plastic foil and place in the fridge for at least 4h.

Once the cream sets and you are ready to serve the dessert, prepare the chocolate and the fuit sauce. Melt the chocolate and the butter in a water bath. Blend the fruits. You may optionally cook the fruits before blending. Prepare the garnish. Remove the cover from a glass and wipe any moisture from the inside. Layer chocolate thinly as it has quite an intense flavour. Pour the sauce gently on top and garnish with fruit and mint.

Brownies

There are two types of brownies - fudgy and cakey. Fudgy brownies are chewy, gooey, moist, while cakey brownies resemble a very dense genoise. It is up to your personal preference which type you will make.

The proportions of fats (from butter and chocolate) and flour will vary the fudgyness of the brownies. For fudgy brownies add more fat (butter and chocolate) and for cakey brownies add more flour. The mixing technique, the baking time and the temperature also affect the texture of the brownies. For fudgy brownies, barely mix the ingredients and bake shorter, while for cakey brownies do the exact opposite - ensure the ingredients are thoroughly incorporated, preferably using a mixer, and the brownies are baked for a longer time.

Additionally, using less sugar will prevent the sweetness from overwhelming the bitter taste of the chocolate and the cocoa resulting in a richer flavour variety (the following recipe already reflects that). However, the sugar, when baking, carmelises at the top forming a light crust. Adding too little sugar will result in no crust and extremely bitter brownies.

The following recipe is for a 22x22cm baking pan of fudgy brownies.

Ingredients

- 120g 64% chocolate
- 115g butter
- 140g white sugar
- 3 eggs
- 60g flour
- 50g cocoa powder
- 7g salt
- 120g 64% chopped chocolate or chocolate chips

Preheat your oven to 165C and line a 22x22cm baking pan with parchment paper. In a water bath, melt the chocolate and the butter stirring occasionally to combine. Once fully melted, take off the heat source and add sugar and salt. Barely mix. Then, add the eggs, mix roughly. Add the dry ingredients (flour, cocoa powder) and the chopped chocolate or chocolate chips, and mix until few lumps remain. It is perfect if your batter is lightly undermixed. Pour the batter into the pan and bake for 23 minutes. Let cool in the pan on a wire rack for several hours before cutting.