Short answer type questions

Q1. Classify major bread making processes and indicate main differences between them?

Ans. The processes used for commercial production of bread may be classified into three broad processing groups:

1. Long fermentation processes: In these processes prolonged fermentation period is given to the dough. It includes Straight dough bulk fermentation process and Sponge & dough process.

2. Rapid processes: In these methods a very short or no period of bulk fermentation is given to the dough. It includes activated dough development (ADD), and The dutch green dough process.

3. Mechanical dough development process: Dough development is achieved during mixing by intense mechanical working of the dough using high-speed mixers. It includes Chorleywood bread process (CBP) frozen dough process, and microwave process

Q2. What are the special features of straight dough process?

Ans. The three essential features of bulk fermentation are:

1. Mixing of all the ingredients usually at slow speed (mixer or by hand) to form homogeneous dough.

2. Resting of the dough in bulk for a prescribed period of time (1-3 hr), during which yeast ferments to inflate the dough mass.

3. Punching or knock back to even out the temperature and increase the number of gas cells.

Q3. **In Activated dough development (ADD) process how is dough development achieved?**

Ans. In ADD the dough development is achieved by the use of a rapid –acting reducing agent generally L-cysteine Hydrochloride and a relatively slow-acting oxidizing agent, potassium bromate or a mixture of potassium bromate and ascorbic acid. The reducing agent accelerates the uncoiling and reorientation of the protein molecules and the oxidizing agent follows up by stimulating the formation of cross links to stabilize the desired elastic three dimensional gluten network.

Q4. What are the essential features of "The dutch green dough process"?

Ans: The essential features of the process are:

1. Mixing in a spiral-type mixer or extra mixing in a speeded-up conventional low-speed mixer.

2. Dividing of dough immediately after mixing.

3. The dough is then rounded and given a resting period of 35-40 min.

4. The dough is re-rounded and given a further resting period before final moulding.

Q5. What are the advantages of mechanical dough development?

Ans: The advantages of mechanical dough development are:

1. Less time consuming.

2. Less space occupied.

3. Improved process control and reduced wastage.

4. More consistent product quality.

Q6. What are the disadvantages of Bulk fermentation process?

Ans. The disadvantages of bulk fermentation process are:

1. More space requirement for processing.

2. Time consuming.

3. More expenses on labour hiring.

4. Product quality may vary from batch to batch due to poor process

control..

Q7. What is the purpose of fermentation in bread making?

Ans: The main purpose of fermentation is to obtain light aerated porous structure of bread and to develop flavour. Fermentation is achieved by yeast (*Saccaromyces cerevisiae*). Yeasts ferment sugars and continuously produce carbon-dioxide in the aqueous dough phase. When the aqueous dough phase is saturated with carbon-dioxide, most of the carbon dioxide diffuses into the air cells that are formed in the dough during mixing. The diffusion of carbon-dioxide into gas cells increases the pressure within gas cells that provides the driving force for dough expansion.

Q8. What is the optimum conditions required for yeast activity?

Ans: The temperature and relative humidity conditions are particularly important for yeast activity and gas production. The yeast performs well at 30-35ºC and relative humidity of 85 % and above. Above 40ºC yeast cells are started to get killed. The optimum pH range for yeast is 4 to 6..

Q9. What are the advantages of Knock- back?

Ans: Knock back or punching of dough in between the fermentation periods increases gas retaining capacity of the dough, even out temperature variation, expel gas, subdivide gas cells, and introduces atmospheric oxygen for the stimulation of yeast

activity. The knock back also aids in the mechanical development of gluten by the stretching and folding action.

Q10. What are the different types of mixers?

Ans: The mixers commonly used for mixing of wheat dough are classified as: Low speed mixer, Spiral mixers, High speed and twin-spiral mixers, Chorleywood bread process compatible mixers.

Q11. What is the function of water in bread making?

Ans: Water transforms flour into a viscoelastic dough that retains gas produced during fermentation and also provides medium of all chemical reaction to occur.

Q12. What are the three basic steps of bread making?

Ans: Bread making process is accomplished through three basic operations i.e., mixing, fermentation, and baking.

Q13. What are the three main functions of mixing?

Ans: Mixing serves three main functions:

a. To hydrate and blend the dough ingredients.

b. To aerate the dough. Air is essential for introduction of gas cells into which the carbon-dioxide produced by the yeasts during fermentation diffuses as yeasts cannot produce new gas cells.

c. To form a visco-elastic mass that is able to retain gas without rupturing.

Q14. What are the different steps of Dough make -up?

Ans: Dough make-up includes dividing, rounding, first proof and moulding.

Q15. What are the steps involved in moulding?

Ans: Moulding involves three separate steps; (i) sheeting; (ii) curling; and (iii) scaling..