

The Science of Sourdough Assessment

Name: **ANSWER KEY**

Period:



1. What is the primary difference between sourdough and commercial yeast bread?

- ☒ Sourdough uses wild yeast, while commercial bread uses commercial yeast.
- ☐ Sourdough is always sweeter than commercial bread.
- ☐ Commercial bread requires longer fermentation than sourdough.
- ☐ Sourdough is made without any flour.

2. Which microorganisms are primarily responsible for the fermentation in sourdough?

- ☐ Only yeast
- ☐ Only bacteria
- ☒ Wild yeast and lactic acid bacteria
- ☐ Commercial yeast and sugar

3. What gives sourdough its characteristic tangy flavor?

- ☐ Sugar
- ☒ Lactic and acetic acids
- ☐ Salt
- ☐ Baking powder

4. Why does sourdough have a longer shelf life compared to commercial bread?

- ☐ It contains preservatives.
- ☐ It has a higher sugar content.
- ☒ The acids produced during fermentation act as natural preservatives.
- ☐ It is baked at a higher temperature.

5. What is the role of a sourdough starter?

- ☐ To add flavor only
- ☒ To capture wild yeast and bacteria for fermentation
- ☐ To replace flour in the recipe
- ☐ To speed up the baking process

6. How long does the fermentation process for sourdough typically take?

- ☐ 1-2 hours
- ☒ 12-48 hours
- ☐ 5-10 hours
- ☐ 24-36 hours

7. Which of the following is NOT a benefit of sourdough fermentation?

- ☐ Improved digestibility
- ☐ Lower glycemic index
- ☒ Increased sugar content
- ☐ Probiotic properties

8. What is the main purpose of kneading dough?

- ☐ To add flavor
- ☒ To develop gluten for structure and elasticity
- ☐ To cool the dough
- ☐ To make it sweeter

9. What happens during the 'bulk fermentation' phase of sourdough?

- ☐ The dough is shaped
- ☒ The dough rises slowly as yeast and bacteria ferment
- ☐ The dough is baked
- ☐ The starter is fed

10. Which type of flour can affect the fermentation process of sourdough?

- ☐ Only whole wheat flour
- ☐ Only all-purpose flour
- ☒ Any type of flour
- ☐ Only gluten-free flour

11. What wheat classes are best for strong gluten development in sourdough breads?

- ☐ Soft red and white
- ☒ Hard red and white
- ☐ Durum wheats
- ☐ Soft red winter and club

12. Why might someone prefer sourdough over commercial bread?

- ☐ It is quicker to make
- ☒ It has a more complex flavor and health benefits
- ☐ It is always sweeter
- ☐ It requires no fermentation

13. What is the purpose of proofing in bread making?

- ☐ To cool the dough
- ☒ To allow the dough to rise before baking
- ☐ To add flavor
- ☐ To mix in additional ingredients

14. What can happen if a sourdough starter develops an orange or pink color?

- ☐ It is ready to use
- ☐ It is safe to eat
- ☒ It indicates harmful bacteria and should be discarded
- ☐ It means the starter is too dry

15. How did the California Gold Rush influence sourdough bread?

- ☐ It made sourdough less popular
- ☒ Miners relied on sourdough starters as a food source
- ☐ Sourdough was invented during this time
- ☐ It led to the use of commercial yeast

16. What is the primary reason for the resurgence of sourdough during the COVID-19 pandemic?

- ☒ People had more time to bake at home
- ☐ Sourdough is easier to make than other breads
- ☐ Commercial yeast was more available
- ☐ Sourdough requires no ingredients

17. What is the main characteristic of the texture of sourdough bread?

- ☐ Soft and uniform
- ☒ Chewy with irregular air pockets
- ☐ Dense and heavy
- ☐ Flaky and crumbly

18. Which of the following is a common misconception about sourdough?

- ☐ It is made with wild yeast
- ☐ It requires a starter
- ☒ It is always sour
- ☐ It has a long shelf life

19. What is one of the health benefits associated with consuming sourdough bread?

- ☐ Higher sugar content
- ☒ Lower glycemic index
- ☐ Higher fat content
- ☐ Less fiber

20. What primary mechanism distinguishes sourdough fermentation from commercial yeast bread production?

- ☐ Speed of rising
- ☐ Use of commercial additives
- ☒ Presence of wild yeast and lactic acid bacteria
- ☐ Temperature of baking

21. How do lactic acid bacteria contribute to sourdough's unique characteristics?

- ☐ By preventing mold growth
- ☒ By producing tangy organic acids
- ☐ By increasing bread's sugar content
- ☐ By reducing gluten formation

22. During the California Gold Rush, why was sourdough particularly valuable to pioneers?

- ☐ It was expensive
- ☒ It was easy to transport and maintain
- ☐ It required specialized equipment
- ☐ It needed constant refrigeration

23. What biological process creates carbon dioxide in sourdough bread?

- ☐ Photosynthesis
- ☒ Fermentation
- ☐ Cellular respiration
- ☐ Oxidation

24. Why might sourdough bread have a longer shelf life compared to commercial yeast bread?

- ☐ More preservatives
- ☐ Higher salt content
- ☒ Presence of organic acids
- ☐ Thicker crust

25. What microorganism is primarily responsible for converting sugars during bread fermentation?

- ☐ Bacteria
- ☐ Fungus
- ☒ Yeast
- ☐ Protozoa

26. How does the fermentation time of sourdough compare to commercial yeast bread?

- ☐ Exactly the same
- ☐ Sourdough ferments much faster
- ☒ Sourdough ferments much slower
- ☐ No difference in fermentation

27. What potential health benefit does longer fermentation offer in sourdough?

- ☐ Increased sugar content
- ☒ Improved digestibility
- ☐ Higher calorie count
- ☐ Reduced protein

28. Which scientific process allows sourdough starter to capture wild yeast?

- ☐ Distillation
- ☒ Fermentation
- ☐ Condensation
- ☐ Sublimation

29. What gives sourdough its characteristic tangy flavor?

- ☐ Added vinegar
- ☐ Commercial flavoring
- ☒ Lactic and acetic acids
- ☐ Extra salt

30. Why might sourdough starter be considered a 'living' ingredient?

- ☒ It contains active microorganisms
- ☐ It moves on its own
- ☐ It has a heartbeat
- ☐ It reproduces sexually

31. What historical period significantly popularized sourdough in American culture?

- ☐ Revolutionary War
- ☐ Civil War
- ☒ California Gold Rush
- ☐ Great Depression

32. Which city became particularly famous for sourdough bread production?

- ☐ New York
- ☐ Chicago
- ☒ San Francisco
- ☐ Los Angeles

33. What unexpected cultural trend boosted sourdough's popularity in recent years?

- ☐ Cooking shows
- ☐ Social media
- ☒ COVID-19 pandemic
- ☐ Celebrity endorsements

34. What makes sourdough potentially more digestible than commercial yeast bread?

- ☒ Gluten bonds break down more with long fermentation
- ☐ Probiotic properties
- ☐ Less flour
- ☐ Higher temperature baking

35. How do miners during the Gold Rush relate to sourdough culture?

- ☐ They invented commercial yeast
- ☒ They were called 'sourdoughs'
- ☐ They disliked bread
- ☐ They only ate canned food

36. What primary ingredients are common to both sourdough and commercial yeast bread?

- ☐ Eggs and milk
- ☒ Flour, water, and salt
- ☐ Sugar and butter
- ☐ Preservatives

37. What environmental factor significantly influences sourdough fermentation?

- ☐ Moonlight
- ☐ Atmospheric pressure
- ☒ Temperature
- ☐ Wind speed