

How Does Protein Content of Flour Affect Sourdough Bread?

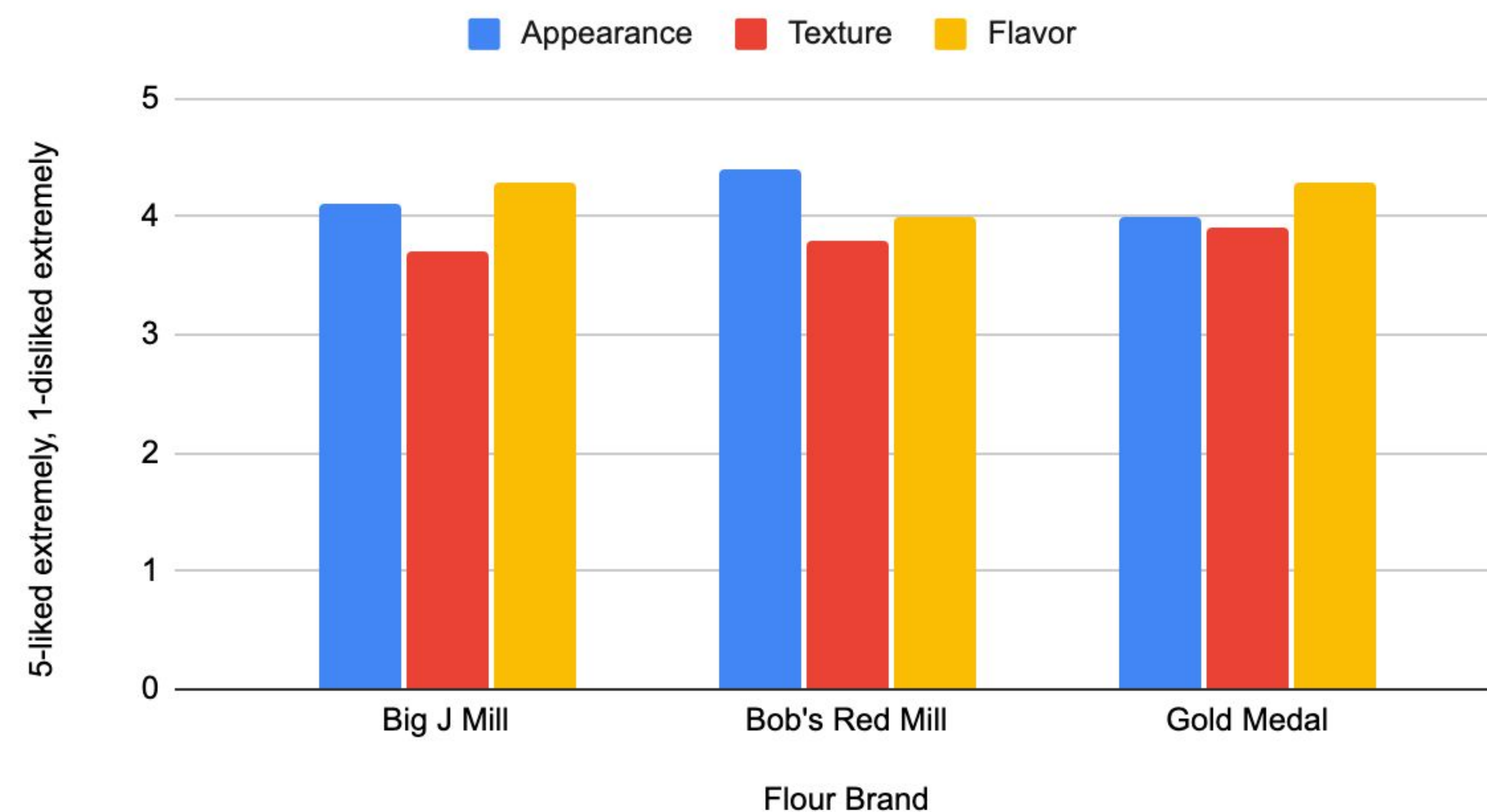
Introduction

The purpose of this experiment is to determine the effects of protein content in unbleached white bread flour from different brands in sourdough used to make bread on cell size, volume, texture, appearance and flavor in sourdough.

This experiment is important because it is known that protein content affects sourdough, but we want to see if micro-amounts of protein differences in bread flour based on brand affect sourdough bread.



Appearance, Texture and Flavor



Methods

Using **500g** of 3 different types of bread flour with different protein contents (Big J Mill, Bob's Red Mill, and Gold Medal), **125g** of a sourdough start, **390g** of water, and **12g** of salt, 3 loaves of sourdough bread were made. Some techniques that were used are lamination, stretch & folding, resting and a cold proof. After combining all the ingredients the dough went through **3** rest and stretch periods, where the dough sat for **30 minutes** and then was stretched. After these **3 periods** the dough was laminated, shaped into a ball, and left to rest in a warm area for **3 hours**. After the **3 hours** the dough was reshaped into a ball and placed in the refrigerator for **30 minutes** while the oven and the dutch oven pot were preheated. Once the oven and the pot were heated up, the dough was scored, placed on parchment paper and baked for **30 minutes** in a dutch oven with the lid on. After the **30 minutes** the lid on the dutch oven was removed and the bread was baked for another **15 minutes** to create a warm golden color. The bread was left to rest for another **30 to 40 minutes** before slicing.

Results

There was no significant difference found in volume, air cell size, flavor, appearance or texture of the 3 sourdough breads.

Volume for all 3 samples measured at **120 cc**.

Air Cell Size varied only slightly.

13% Protein - **81.3 mm²** Air Cell Area

12.7% Protein- **120.7 mm²** Air Cell Area

10.5% Protein- **122.2 mm²** Air Cell Area

Flavor, Texture, and Appearance ratings in the sensory evaluation ranged from **3.7 to 4.4**, as shown in the above graph.



Conclusion

It is well documented that bread flour is successful in making quality sourdough bread. The micro-differences of protein content in 3 brands of bread flour made little difference in the quality of sourdough bread. It was found that there was no significant difference in volume, flavor, texture or appearance between the 3 brands of bread flour.

Differences in sourdough bread may be more influenced by the strength of the sourdough starter or the method used in making the bread. In the future it would be beneficial to evaluate the impact of type of flour used to make the sourdough start.