

# Effect of Temperature and Banana quantity on Muffin Height

J Lacasa

2025-06-08

## Background

Banana muffins, much like banana bread, present a unique baking challenge due to the inclusion of mashed bananas in the batter. While this ingredient contributes moisture and flavor, it can also result in a dense crumb if not balanced properly with other recipe components and baking conditions. In particular, oven temperature and banana quantity play a critical role in achieving a light, fluffy texture. This study begins with a standard banana muffin recipe and explores how adjusting the baking temperature affects the final crumb structure, with the goal of identifying optimal conditions for producing well-risen, tender muffins. **The objective of this study is to find the best combination of oven temperature and banana quantity to bake muffins.**

## Materials

The facility that is available to bake the muffins includes.

## ANOVA table

Table 1: Design or Topographical Sources of Variability

Source	df
Day (block)	$r-1 = 3-1 = 2$
Error(oven)	$(t-1)r = (3-1)*3 = 6$
Total	$N-1 = 8$

Table 2: Treatment Sources of Variability

Source	df
Temperature	$t-1 = 3-1 = 2$
Parallels	$N-t = 9-3 = 6$
Total	$N-1 = 8$

Table 3: Combined Table of the Sources of Variability

Source	df
Day	$r-1 = 3-1 = 2$
Temperature	$t-1 = 3-1 = 2$
Error(oven)	$(t-1)r - (t-1) = 2*3 - 2 = 4$

Source	df
Total	N-1 = 8

## References