



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Fruit Flies Attraction To Different Doughs to Conclude Health Inferences

Finalist's Name: Mateo Guerrero

School and City: Summit Middle Charter School

Sponsor's Name: Valerie Keeney

Category: Biomedical & Health Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

Fruit Flies Attraction To Different Doughs to Conclude Health Inferences

Abstract (word count: 284)

Hypothesis:

Previous studies have shown that fruit flies are attracted to yeast due to their dedicated olfactory neurons for detecting scents produced by yeast metabolizing common phenolic compounds like those found in fruit (Wright). Sourdough fermentation also contains phenolic compounds that act as antioxidants, have protein digestibility, and dietary fiber content of the final bread (Alkay et al.). The phenolic compounds the fruit flies are attracted to allow a conclusion that an increase in phenolic compounds increases the health benefits such as digestion and prevention of inflammatory diseases (Alkay et al.). Therefore, an increase in phenolic compounds and health benefits in bread increases the fruit flies' attractiveness to a certain substance.

Procedure:

To measure the flies' attraction to certain doughs and breads, the number of flies within a conical tube containing a certain type of bread or dough was counted. The flies were first frozen, and then the fly count was measured.

Data:

The experiment's data showed that the fruit flies had an overall 21% attraction to homemade products and only a 11% attraction rate to store-bought products. Therefore, the fruit flies were more attracted to homemade products compared to store-bought products, thus showing how homemade sourdough contains more phenolic compounds.

Conclusion:

Since sourdough bread has more of these phenolic compounds from its slow fermentation process, sourdough bread has a more nutritional content due to the health benefits from the phenolic compounds. However, fastly produced store-bought bread, such as the French bread used in this experiment, contains fewer phenolic compounds, as shown through the low fly attraction rates. This infers that the lack of phenolic compounds in store-bought bread shows how this type of bread has a lack of nutrients and health benefits compared to sourdough bread.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**