



Colorado Science and Engineering Fair

2024 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: Wi-Fry: Detrimental Impacts of Wi-Fi Router Radiation on Crop Seed Viability and Vigor

Finalist's Name: Jann Angelli Bacolod

School and City: Rocky Ford Junior/Senior High School, Rocky Ford

Sponsor's Name: Jason Bacolod

Category: Plant Sciences (PLNT)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

As use of Wi-Fi routers has proliferated worldwide, biological impacts of exposure to router-emitted electromagnetic radiation remain uncertain.

Mung bean (*Vigna radiata*) seeds, serving as a model crop plant, were grown under regulated conditions for 28 days. Test groups were positioned 5 inches from an active 5 GHz household Wi-Fi router. While control seeds were isolated in a Faraday cage without radiation exposure.

Wi-Fi radiation proved significantly detrimental to the bean's development – reducing germination by 58% (30% Wi-Fi group vs. 72% controls), diminishing seedling height by 37%, and cutting survival rates by 17%. Quantitative impacts outpaced hypotheses, ranging 15-30% beyond projections ($p > 0.05$). Stunting and phenotype alterations occurred, documented photographically. Such impairments likely stem from disrupted cellular repair, gene expression inhibition, and metabolism interferences essential for growth.

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 your Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.