



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Sahil Vaidya	Project Number J1612
Project Title Comparison of the Effects of Natural and Artificial Food Coloring on Microbes	
<p style="text-align: center;">Abstract</p> <p>Objectives The goal of this experiment was to compare the effects of a natural food coloring agent curcumin versus an artificial food coloring agents Sudan dye on the growth of two strains of bacteria that reside in our microbiome.</p> <p>Methods Bacteria, culture media, curcumin, Sudan dye, ciprofloxacin, incubator, spectrophotometer. I evaluated the effects of curcumin, Sudan dye and cirpofloxacin on the growth of two strains of bacteria- E. coli and L.acidophilus measured at OD 600 in a spectrophotometer over a period of 24 hours.</p> <p>Results Two different concentrations of curcumin and Sudan dye were tested against the two strains of bacteria in triplicates. The artificial coloring agent Sudan dye inhibited both strains of bacteria, while curcumin did not show any negative effects on L.acidophilus.</p> <p>Conclusions This experiment revealed contrasting effects of natural and artificial coloring agents on the growth of the the two bacterial strains tested. The inhibitory effects of Sudan dye on the two bacterial strains suggests that consuming processed foods with artificial coloring agents can have significant effects on the bacteria in our microbiome.</p>	
Summary Statement I showed that artificial food coloring agents have potentially negative effects on the growth of probiotic strains of bacteria.	
Help Received I performed initial research on my project using online resources. I then consulted two microbiologists Dr. Gulmezian-Sefer and Dr. Srikumar (Allergan) regarding the procedure I developed. I also received space to conduct my procedure and training to use the equipment by graduate student Amruta Karbelkar in the	