



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Pranav G. Reddy	Project Number 31386
Project Title Effects of Natural Agents on Strep Throat and the Body, Using an In Vitro Analysis of S. pneumonia and Mouse Mastocytoma	
Abstract Objectives/Goals Antibiotics are becoming less effective as the years go by (American College of Physicians.) Increased resistance, not enough antibiotics, side effects, and effects on recovery have brought down their efficacy, making searches for alternatives more important. Before prescription of natural remedies can become more common, I must determine their effects on a common disease, Strep Throat and the body. I determined the most common natural remedies for Strep Throat to be: Hydrogen Peroxide, Green Tea, Sea Salt, Colloidal Silver, Manuka Honey, Apple Cider Vinegar, and Cayenne Peppers. Methods/Materials In order to determine the antibacterial effects of the chosen natural remedies, Kirby-Bauer, Minimum Inhibitory Concentration, and Minimum Bacteriocidal Concentration tests were conducted. The turbidity of a probiotic was used to determine effects on intestinal flora. Third, in order to test whether natural agents and antibiotics were competitive or cooperative, I repeated Kirby-Bauer tests, using mixtures of antibiotics and natural agents. Finally, I tested effects on cellular recovery through Mastocytoma granulation, representing recovery from illness. This ideology is revolutionary in the medical field, basing off of the mast cell response in vivo. In this test, the more granules there were, the more successful the treatment. Results My study showed distinctive advantages in using natural remedies. Streptomycin, a leading antibiotic, is only 4.6% more effective than Manuka Honey. However, streptomycin resulted in 373% more damage to probiotics. The results from Competition Tests showed that Manuka Honey with Streptomycin was 20% more effective than Streptomycin alone. Most significantly, natural remedies were more beneficial to cellular recovery than antibiotics. Conclusions/Discussion Thus, my study shows that the use of natural remedies is almost as effective as antibiotics, but is less stressful on the intestinal flora. In addition, certain natural remedies can enhance the effects of antibiotics and are better for the body in recovering from a sickness. Only further research can tell, but it seems as though natural remedies are a viable treatment option for the future.	
Summary Statement As antibiotic resistance increases, and more research is uncovered on the side effects, alternatives to antibiotics are necessary and must be discovered urgently.	
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