



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

Name(s) Ishan Ghosh	Project Number J0508
Project Title Evaluating Effectiveness of Select Natural Remedies: Anticoagulating Properties on Bovine Plasma: An in vitro Study	
<p style="text-align: center;">Abstract</p> <p>Objectives Does select natural remedies possess anticoagulating properties and how they compare with untreated samples in an in vitro study?</p> <p>The primary objective of this in vitro study was to evaluate if select natural remedies bromelain, nattokinase, and serrapeptase, have an effect on the clotting time of bovine plasma.</p> <p>Methods</p> <ul style="list-style-type: none">125 mL citrated bovine plasmaOne bromelain tablet 600 GDUOne serrapeptase capsule 40,000 SPUOne nattokinase capsule 2,000 FUs50 ACTT tubes50 vacu tubesAnhydrous calcium chloride10 3-mL plastic synergies <ol style="list-style-type: none">1. Prepare three different concentrations (2,3,and 4mg) of bromelain, nattokinase, and serrapeptase. Measure 2mg of naproxen sodium. Place each concentration into separate Vacu tubes.2. Add 2 mg of bromelain with 2 mg of nattokinase, 2 mg of bromelain with 2 mg of serrapeptase, and 2 mg of serrapeptase with 2 mg of nattokinase for combination and place them in separate Vacu tubes3. Place frozen citrated bovine plasma in water bath (920-960F) for 30 minutes. Transfer 2mL of bovine plasma into each Vacu tube and in control.4. Put ACTT tubes in water bath (920-960F) for 15 minutes.5. After 15 minutes transfer Vacu tube contents to ACTT tubes and add one granule of anhydrous calcium chloride to each tube then place ACTT tubes back in water bath. Check every 60 seconds until 120 seconds then check every 10 seconds.6. Tilt to see if clotting had started. Call time when bovine plasma transforms from liquid to semi-sloid gello7. Repeat steps 1 through 6 an additional two more times.	
Summary Statement I saw how select natural remedies affect the amount of time it takes to clot bovine plasma in vitro, and my hypothesis was proven correct that it did increase the clotting time.	
Help Received I came upon with the project idea and all of the materials that were used. My parents helped me fund the project and drive me to Canyon Animal Hospital. Dr. Mohit Ghandi helped me better understand the biological parts fo this project. Dr. Greshon Alauf of Canyon Animal Hospital let me use their lab at	