



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Eli W. Erlick	Project Number S1504
Project Title The Antibacterial Properties of Neural Tissue from Gromphadorhina portentosa	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The neural tissue of <i>Periplaneta americana</i> has been found to have antibacterial properties against <i>Escherichia coli</i> and <i>Staphylococcus aureus</i>. The object of this experiment was to test the antibacterial properties of neural tissue from a related insectae, <i>Gromphadorhina portentosa</i> (Madagascar Hissing Cockroaches) on <i>Staphylococcus aureus</i>.</p> <p>Methods/Materials Neural tissue was extracted from <i>Gromphadorhina portentosa</i> and was placed in a solution of thioglycollate broth and <i>Staphylococcus aureus</i>. This solution, along with a control solution, was incubated for 24 hours. Both solutions were then plated on 10 Luria agar plates and incubated for 24 hours. Pictures were taken of the plates and the percent plate coverage was calculated. The experiment was repeated for a total of 3 trials.</p> <p>Results The results of this experiment indicate that neural tissue reduces the growth of <i>Staphylococcus aureus</i> by an average of 48%. Trials one through three resulted in a 41%, 51%, and 53% reduction in growth respectively.</p> <p>Conclusions/Discussion The neural tissue from <i>Gromphadorhina portentosa</i> was found to have antibacterial properties. <i>Gromphadorhina portentosa</i> is an easily obtained large insectae that readily reproduces and does not reproduce in the wild in temperate North America. There are 9 compounds that are suspected to contribute to <i>Periplaneta americana</i>'s antibacterial effect, which also may also be present in <i>Gromphadorhina portentosa</i>. This experiment was designed to explore the possibility that <i>Gromphadorhina portentosa</i> has similar antibacterial properties. The results indicate that there is an antibacterial effect of the neural tissue from <i>Gromphadorhina portentosa</i>.</p>	
Summary Statement This experiment examines and supports the hypothesis that neural tissue from <i>Gromphadorhina portentosa</i> (Madagascar Hissing Cockroaches) has antibacterial properties against <i>Staphylococcus aureus</i> .	
Help Received Staphylococcus aureus was obtained from Howard Memorial Hospital Laboratory by Judy Ferlman, lab technician.	