



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Rosemary Rojas-Angeles</b>	<b>Project Number</b> <b>J2218</b>
<b>Project Title</b> <b>Incomplete Development of Hymenolepis diminuta Ova in Tribolium confusum Beetles</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this project is to confirm if rupture of the rat tapeworm <i>Hymenolepis diminuta</i> ova oncosphere is required for continued hatching and development to the cysticeroid stage within its host <i>Tribolium confusum</i> beetles, and a possible mechanism for doing so. A 1973 paper had noted a singular case of large numbers of undeveloped ova containing fully intact ova in the haemocoel of a dissected beetle with a broken tooth on its mandible. My goal is to find out if cutting a <i>Tribolium confusum</i> beetle's mandible tooth will affect the hatching of ova inside the beetles.</p> <p><b>Methods/Materials</b> To confirm this, I basically cut or damaged one mandible tooth on 50 <i>Tribolium confusum</i> beetles and fed them <i>Hymenolepis diminuta</i> ova. For comparison I also maintained 50 additional beetles that were fed ova but not treated, and a large culture stock of beetles uninfected. After 20 days I dissected all inoculated beetles and checked for cysticeroids.</p> <p><b>Results</b> My results indicated 38 out of 50 beetles without mandible clipping developed cysticeroids, 6 beetles did not, and 6 beetles died. The test group with mandible clippings 9 out of 50 developed cysticeroids, 27 beetles did not, and 14 beetles died. Examination of beetle mandibles with cysticeroids suggested the mandible tooth clipping may not have been adequate.</p> <p><b>Conclusions/Discussion</b> I concluded that cutting the mandible left undeveloped, intact tapeworm ova and did not allow for hatching supporting my hypothesis.</p>	
<b>Summary Statement</b> The purpose of this project is to confirm if rupture of the rat tapeworm <i>Hymenolepis diminuta</i> ova oncosphere is required for continued hatching and development to the cysticeroid stage within its host <i>Tribolium confusum</i> beetles.	
<b>Help Received</b> I received some minimal help from my teacher in clipping the mandibles of the beetles. All other work was my own.	