



CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s) Rosemary Rojas-Angeles	Project Number 34815
Project Title Incomplete Development of Hymenolepis diminuta Ova in Tribolium confusum Beetles	
Abstract Objectives/Goals The purpose of this project is to confirm if rupture of the rat tapeworm Hymenolepis diminuta ova oncosphere is required for continued hatching and development to the cysticeroid stage within its host Tribolium confusum 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 Tribolium confusum beetle's mandible tooth will affect the hatching of ova inside the beetles. Methods/Materials To confirm this, I basically cut or damaged one mandible tooth on 50 Tribolium confusum beetles and fed them Hymenolepis diminuta 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. Results 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. Conclusions/Discussion I concluded that cutting the mandible left undeveloped, intact tapeworm ova and did not allow for hatching supporting my hypothesis.	
Summary Statement The purpose of this project is to confirm if rupture of the rat tapeworm Hymenolepis diminuta ova's oncosphere is required for continued hatching and development to the cysticeroid stage within its host Tribolium confusum beetles.	
Help Received I received some minimal help from my teacher in clipping the mandibles of the beetles. All other work was my own.	