



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Dora I. Duru	Project Number S0502
Project Title Hello Chitin! Goodbye Ions!	
Abstract	
Objectives/Goals #Hello Chitin! Goodbye Ions!# investigates the effect of lobster shell chitin on filtering wastewater metallic ions and how it measures up to charcoal and water distillation.	
Methods/Materials I used four different metallic solutions: chromium, manganese, copper, and nickel. I created a filtration setup using filter paper, rubber bands, and clear tubes and recorded the rates of filtration. Then, using a centrifuge device, I separated the filtered solutions from the substances still present inside. I used an ultraviolet visible spectrometer to measure the metallic concentrations of the solutions.	
Results The water distillation method was the most effective in removing metallic ions, removing almost 100 percent every time. Lobster shell chitin removed on average 54.65 percent of the nickel solution#s metallic ions, 92 percent for copper, 89.35 percent for chromium, and 65.6 percent for manganese. When the charcoal-filtered solutions were tested by the ultraviolet visible spectrometer, there was somehow an interference in the readings, and I was unable to determine how much of the metallic ions were removed by charcoal.	
Conclusions/Discussion The difference in color can act as an indicator as to which solutions were purified most thoroughly. Substances consist of specific colors because of certain wavelengths or colors of the visible spectrum that are being absorbed by the ions or molecules in the substance. By using the Ultraviolet Visible Spectrometer, I was able to measure to what extent the sample absorbed the light. I strongly believe that lobster shell chitin was the second most effective method because the solutions became significantly lighter and different when they passed through the chitin, but when they passed through charcoal, there was not much change in color. However, I will need to conduct further research and experimentation to definitely state that lobster shell chitin was more effective than charcoal.	
Summary Statement I investigated how effective lobster shell chitin was in removing metallic ions from certain ionic solutions.	
Help Received Used lab equipment at California State University Dominguez Hills under the supervision of Dr. Lihung Pu	