# Study of the Effect of the Major Components of Bixa orellana L. Seeds in Mosquito Control

Castro, Ester

Galarza, Keren

The purpose of the research was to investigate the effectiveness of the principal components of Bixa orellana L. seeds as a mosquito repellent. The hypothesis is that the components of Bixa orellana L. seeds can be a mosquito repellent. The seeds were pulverized and NaOH at 1% was added. The mixture was filtered and HCl was added to the liquid to crystalize it. After another filtration the solid that remained in the filter is bixin and the liquid is orellina. Using another extraction method, two other components were obtained from the seeds; resin and a volatil oil. Different solutions (A,B,C,D,E) were prepared, four with 25% water and 75% of each seed component and one with 25% of each component. Six mosquito chambers were built, one for the control group and five experimental ones. After three weeks there were mosquitoes in all the chambers and they were treated with the different solutions. Solution D of 25% water and 75% volatile oil and solution B of 25% water and 75% of orellina proved to be the less effective one. Solution A of 25% water and 75% resin and solution C of 25% water and 75% bixin had an average effectiveness. Solution E of 25% resin, 25% orellina, 25% bixin and 25% volatile oil was the most effective one removing mosquito larvae. These results evidence that the components of Bixa orellana L. seeds are an effective mosquito repellent and therefore the hypothesis is accepted. A scented candle that serves as a natural mosquito repellent was made.

**Awards Won:**