Control of mosquito-borne diseases, such as malaria and Dengue, largely depends on insecticides that are used to kill mosquitoes. As many mosquitoes are resistant to such insecticides, other alternative methods are being investigated, including the use of biocontrol measures. One such strategy proposes using entomopathogenic fungi that kill insects against larval and adult mosquitoes. The long-term goal of this project was to determine the effectiveness of the entomopathogenic fungus, *Beauveria bassiana*, which is commonly used to control agricultural insect pests, to kill *Anopheles gambiae* mosquitoes, the main vectors of malaria. The specific aim of this project was to determine the effect of different concentrations of *B. bassiana* in the development of larval mosquitoes. I evaluated the effects of three different fungal doses on mosquito larval development and survival. 18-21 larvae were put in 50 mL of water containing either no fungi (control) or fungal conidia at increasing doses from 10^6 , $5x10^6$, and 10^7 conidia/mL, respectively. For each treatment, the number of dead larvae and pupated larvae were recorded and removed from the dish every 24 hours. Figure 1 gives an example of larvae and pupae in a treatment. Each dose was tested on larvae in two different age groups, 5 days post-hatch and 3 days post hatch, to determine if there is an advantage to infecting larvae at a younger age.

Overall, the data show that with higher entomopathogenic fungal dose, the larval mortality rate increased, while larval development was slowed down (Figure 2). In addition to larval survival and development time, I observed differences in the morphology and behavior of infected mosquitoes. Pupae in infected water showed higher melanization, a common insect immune response to infection. In addition, larvae treated with fungi were considerably more lethargic than the control larvae, as early as 24 hours after treatment. *B. bassiana* was more effective killing mosquitoes that were exposed to infection at an older age. Taken together, this project determined that the entomopathogen, *B. bassiana*, is able to control mosquito larvae, not only by killing them, but also by causing developmental delays. This suggests that fungi are a potential method to control *An. gambiae* populations even before they reach adulthood, and could prevent the spread of dangerous diseases such as Malaria.