

# Effect of Bacteria and Fungal Interactions on Mosquito Egg Hatching

Henry, Jady (School: Southeastern Junior/Senior High School)

Mosquitoes represent a significant proportion of insect biodiversity, and yeasts fill important roles in food webs, decomposition of organic matter, and nutrient cycling in aquatic ecosystems, but potential mosquito-fungal interactions remain largely unknown. The purpose of this scientific investigation was to evaluate the potential differences of bacteria within red and white *Meyerozyma* yeast isolates. It was observed that agar plates with *Meyerozyma* yeast and different antibiotics affected the pigment of the samples. The *Meyerozyma* red and white yeast samples went through DNA extraction and PCR, and samples were sent to a commercial lab for next generation Illumina sequencing. After analyzing 133,127 sequences obtained from six isolates of *Meyerozyma* red and white, it was determined that the bacterial communities within *Meyerozyma*-red and white were abundant and diverse, with eleven genera identified. The most abundant bacteria found within the *Meyerozyma*-red isolates was *Serratia* (88.87%), and the most abundant bacteria found within the *Meyerozyma*-white isolates was *Sphingobacterium* (87.38%). These bacteria can affect the morphology of the yeasts, in this case causing the red pigment of *Meyerozyma* red. Additional research on *Serratia* is needed in order to fully understand its impact on mosquito-fungal interactions.