Marietta High School: Abstract

Our research aims to examine the impact of euglena powder prebiotics on Lactobacillus growth, both individually and in co-culture with E. coli K12. While prior research indicates that euglena powder enhances the growth of various Lactobacillus species, its effects on Lactobacillus-E. coli co-cultures remain unexplored (Dai et al., 2022). Lactobacillus, a gram-positive bacterium, plays a key role in lactose breakdown, with lactic acid production contributing to lactose intolerance symptoms (Pakadaman et al, 2016). Our study aims to assess the efficacy of euglena powder as a natural prebiotic in promoting Lactobacillus growth, potentially offering new strategies for alleviating lactose intolerance symptoms. The experimental design involves preparing MRS broths with different euglena powder concentrations, inoculating them with Lactobacillus and E. coli or Lactobacillus alone, and incubating them before plating on MRS petri dishes. We anticipate that higher euglena powder concentrations will stimulate Lactobacillus growth, although our design does not address the underlying mechanisms of Lactobacillus-E. coli interactions. Future research could investigate these interactions and explore the effects of other prebiotics and specific nutrients present in euglena powder.