Tools for Combating Algal Blooms: Developing Resistance to Cecropin A in E. coli

Talley, Ethan (School: Arkansas School for Mathematics, Sciences and the Arts)

A previous study indicated that the antimicrobial peptide Cecropin A could be an effective tool against cyanobacterial blooms. Several applications of Cecropin A against these blooms could involve engineering bacteria to produce the chemical. This project studied the effects of Cecropin A on E. coli K12 in order to determine its viability for this anti-algal application. If E. coli K12 is able to resist the effects of Cecropin A, it could be a good candidate for production or distribution of the compound. In this study, the effects of Cecropin A were tested on several generations of E. coli, and the resulting growth was measured using a plate count. Although a trend appeared to exist between the generation of E. coli and inhibition of bacterial growth, the difference between generations was not statistically significant. These results indicate that because E. coli growth is inhibited by Cecropin A, the bacteria is a viable candidate for distribution of Cecropin A for anti-algal applications with minimal ecological consequences. More research is necessary to determine the details of development of resistance to Cecropin A in E. coli K12.

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