

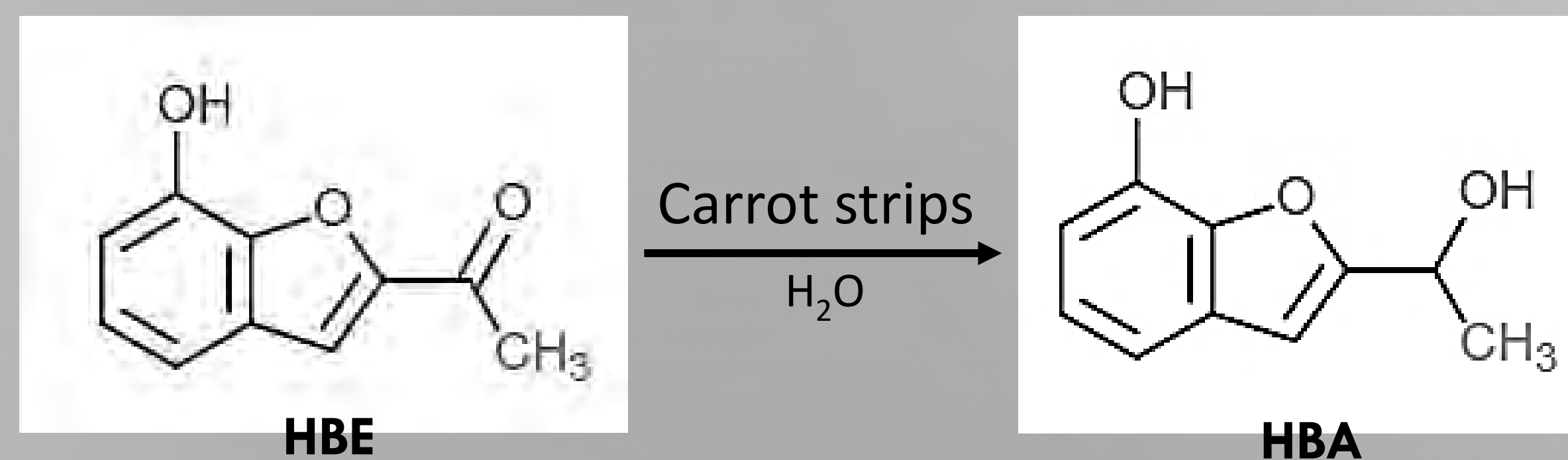
BIOTRANSFORMATION OF HBE AND OTHER BENZOFURAN DERIVATIVES

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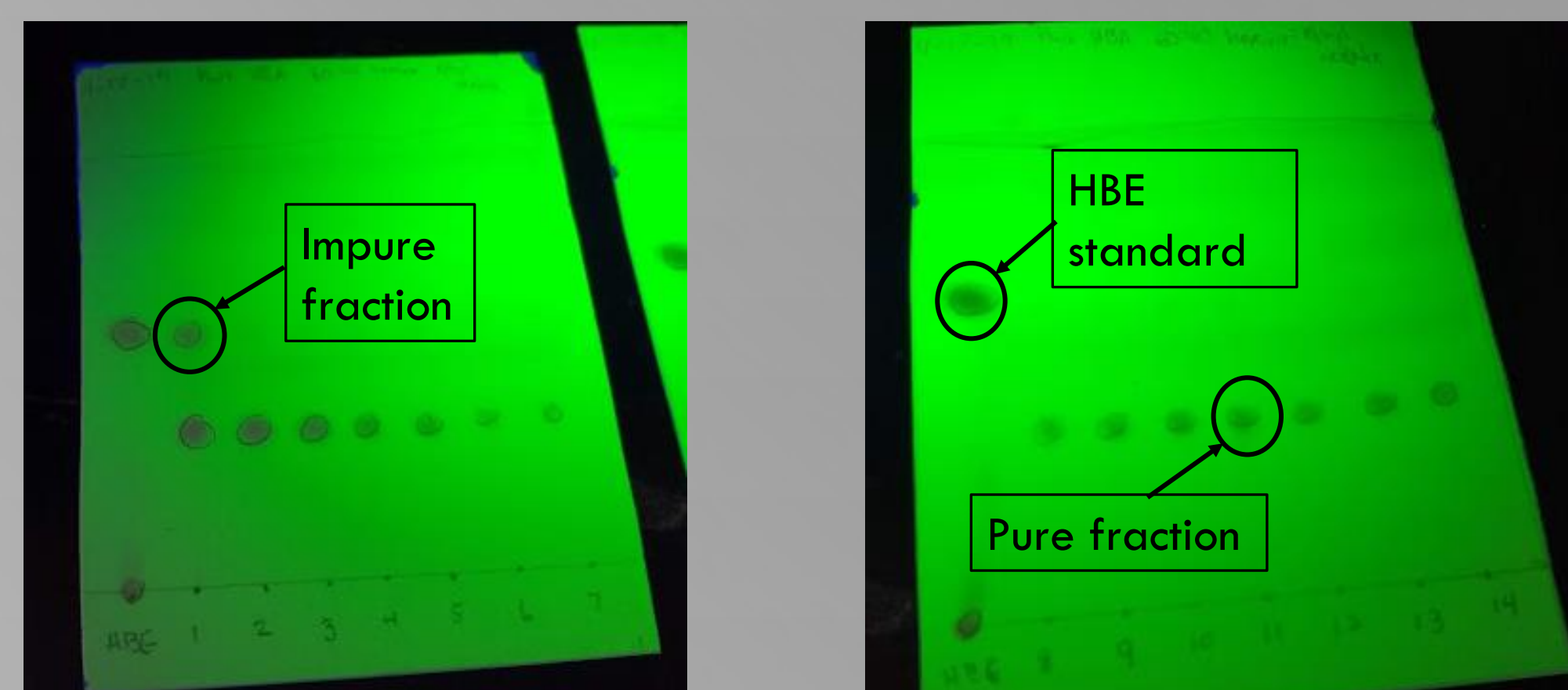
Introduction:

- Biotransformation reactions use naturally occurring enzymes for chemical reactions.
- Can greatly reduce chemical waste in hospitals and labs
- Benzofuran derivatives have antibacterial, antifungal, and antiviral qualities
- HBE to HBA reaction:



Methods:

- Carrot strips used as enzyme source to catalyze biotransformation of HBE
- Extracted crude HBA with 60:40 hexane:ethyl acetate
- Used silica gel filtration to purify HBA
- Performed antimicrobial and antifungal studies using pure HBA



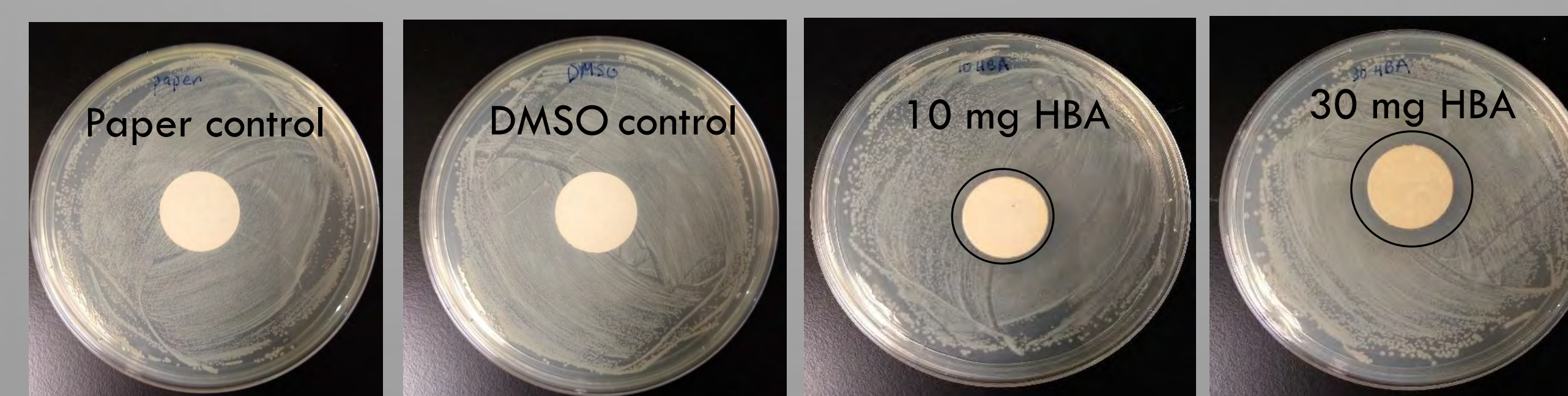
Results:

Substrate	Product	Percent Yield	Reaction Time (hrs)	Product Verification
BMK		48.66%	2	TLC, NMR, polarimetry
BCA		48.42%	1.5	TLC, NMR
HBE		50.91%	24	TLC, NMR

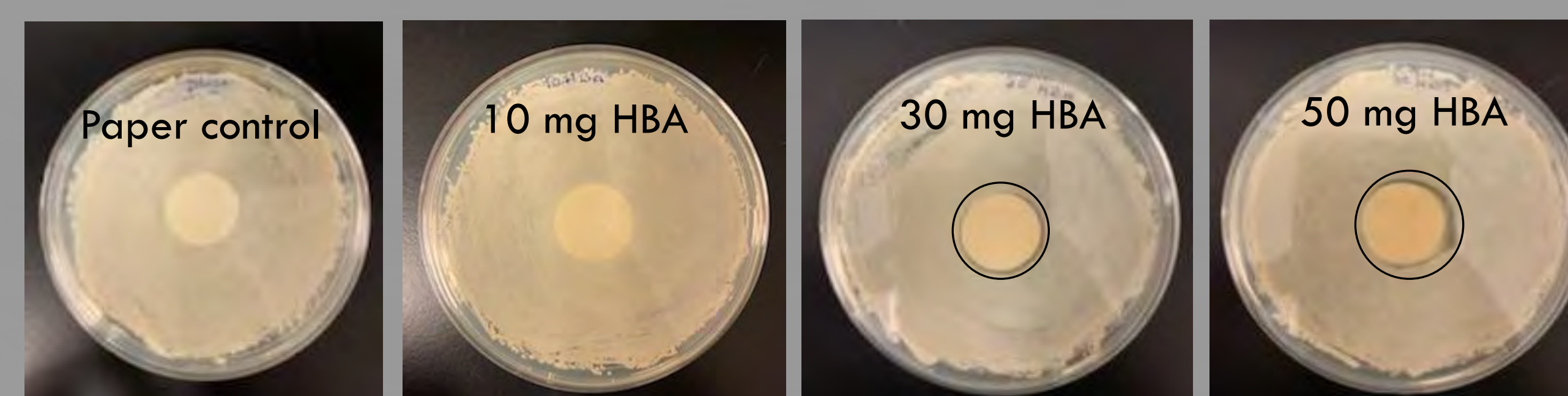
- Previous unpublished work by Hailey Jarzynka, Holly Jarzynka, and Nick Cheatwood

Antimicrobial Studies:

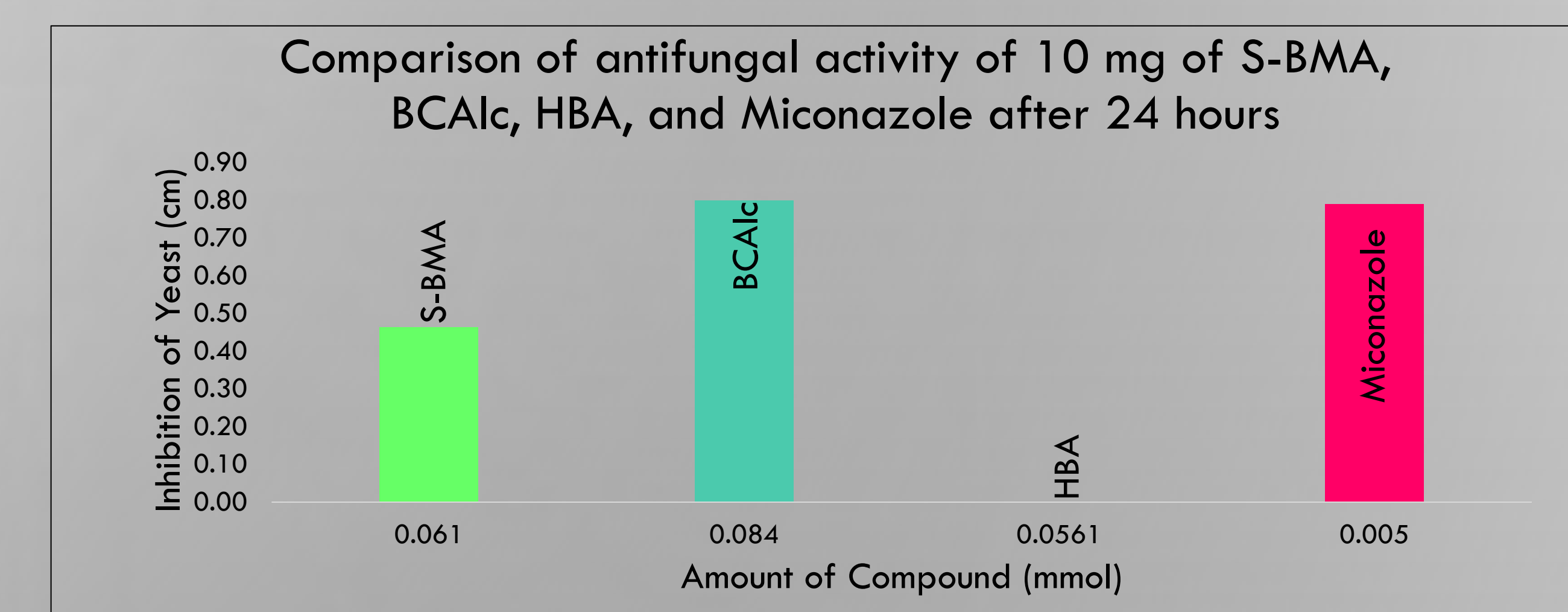
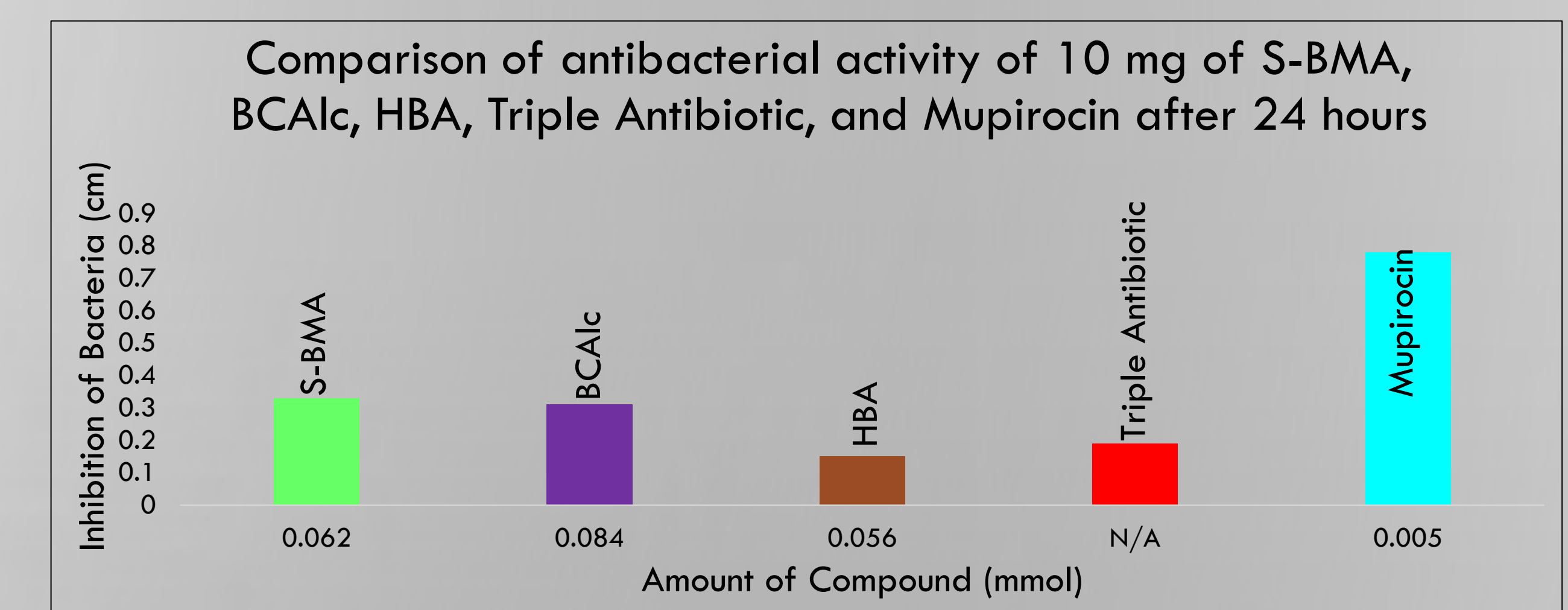
- Antibacterial studies done with *E. coli*:



- Antifungal studies done with Baker's yeast:



Conclusions:



Future Work:

- Determine the method of inhibition for BMA, BCAlc, and HBA
- Develop a better method for studying bacterial inhibition
- Explore other benzofuran derivatives to further categorize the carrot strip enzyme

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