BIOTRANSFORMATION OF HBE AND OTHER BENZOFURAN DERIVATIVES HANNAH TRAUGER AND DR. MICHELE HARRIS* DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY, SFASU, NACOGDOCHES TX

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	CH ₃	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Previous unpublished work by Hailey Jarzynka, Holly Jarzynka, and Nick Cheatwood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:



Concl	USIO	ns

0.061

Future Work:

- BMA, BCAlc, and HBA
- bacterial inhibition

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0.0561 0.084 Amount of Compound (mmol)

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Determine the method of inhibition for
Develop a better method for studying
Explore other benzofuran derivatives to
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0.005

further categorize the carrot strip enzyme