

Qi Han

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EDUCATION

- The University of Georgia**, College of Engineering Athens, GA
- *Ph.D. in Biological and Agricultural Engineering (BAE)* Expected May 2017
 - Overall GPA: 3.50/ 4.00
- Southwest University**, State Key Laboratory of Silkworm Genome Biology Chongqing, China
- *M.S. in Biochemistry and Molecular Biology* 2012
 - Overall GPA: 3.70/4.0
- Southwest University** Chongqing, China
- *B.S. in Biotechnology* 2009
 - Overall GPA: 3.30/4.0; Major GPA: 3.37/4.0,

RESEARCH EXPERIENCE

The University of Georgia Athens, GA
Graduate Student with Dr. Mark Andrew Eiteman 2012-present

Improvement of rare sugar production by coupling their alcohol dehydrogenase with NADH oxidase in the recombinant *Escherichia coli*.

- Constructed a recombinant *E. coli* to overexpress xylitol-4 dehydrogenase (from *Pantoea ananatis*) and NADH oxidase (from *Streptococcus pneumoniae*) and examined the production of L-xylulose from xylitol using shake flasks experiments and batch fermentation process.
- Characterized the concentration of phosphate to reveal the function in intracellular redox reaction.
- Examined the effect of intracellular NAD⁺ availability on improving the productivity of L-xylulose

Understanding the mechanism of sugar (glucose) formation in the metabolically engineered *E. coli*.

- Prevented the uptake of glucose and blocked several metabolic genes in glycolysis and pentose phosphate pathway of *E. coli* to accumulate glucose from the carbon source of xylose or arabinose.

Southwest University Chongqing, China
Graduate Student with Dr. Ningjia He 2009-2012

- Purified a small cationic protein from silkworm and analyzed the potential function.
- Analyzed the distribution of hemolymph trypsin inhibitors among 391 species of silkworms by Native-PAGE.

SKILLS and TECHNIQUES

- Gene clone and protein expression system construction
- Gene knockout on *E. coli*
- Fermentation, including flasks experiment, batch or fed batch, chemostat fermentation
- HPLC analysis, protein purification
- Cell culture
- SAS, Polymath, Matlab

COMMUNICATION EXPERIENCE

The university of Georgia, College of Engineering Athens, GA
Mentor, Mentoring for biochemical engineering program 2013-Present

- Guided the undergraduate student to understand the process of microbial production through molecular biology method and fermenter operation.

PUBLICATIONS

Xia, T., **Q. Han**, W. V. Costanzo, Y. Zhu, J. L. Urbauer, and M. A. Eiteman. (2015). Accumulation of d-glucose from pentoses by metabolically engineered *Escherichia coli*. *Applied and environmental microbiology*, 81(10), 3387-3394.

Q Kuang, **Q. Han**, Y.M .Xu, N.J. He. (2010). Sequence analysis, purification and identify of a small cationic protein in the body fluid from silkworm, *Bombyx mori*. *Science of Sericulture*: 36, 0576-0603