

Project report submitted in Microsoft Word version. Do not provide a pdf version.

Project Leader (PI): Dr. Taejo Kim (Dr Silva)

Co-PI(s):

Collaborator(s):

Objective(s):

Milestones for FY 2016-17:.

1. List your project title: Development of a 24-h chrome agar for simultaneous detection and quantification of total and pathogenic *Vibrio parahaemolyticus* in seafood
2. *Give a brief explanation if the objective/milestone not met or partially met.* The objective was met partially. We were not able to secure enough samples to validate the biomarker studied.

Progress Report:

Raw oysters are associated with most *Vibrio parahaemolyticus* (Vp) Vp outbreaks. Pathogenic Vp express thermostable-direct hemolysin (tdh) and to some extent thermostable-related hemolysin (trh). Additionally, some pathogenic Vp express urease (uh). The objectives of this work were to discern any relationships between urease (uh) expression, tdh/trh expression, and hemolytic activity in pathogenic and non-pathogenic clinical strains, and to compare urease, motility, tdh/trh expression, and hemolytic activity in raw oyster isolates. This information would determine if urease could be used as a biomarker to detect pathogenic Vp. About 80% of pathogenic strains were uh+ and all non-pathogenic strains were uh-. Two oyster samples were uh+ and no tdh or trh was detected in raw oyster strains.

Accomplishments

We were able to discern some relation between urease expression and pathogenic Vp. This could help in develop the 24-hr chrome agar.

Significant Activities that Support Special Target Populations: (100 words or less)

Technology Transfer: Describe the nature of the transfer

Number of new CRADAs

Number of active CRADAs

Number of new MTAs (providing only)

Number of invention disclosures submitted

Patent Disclosure. Describe number and title.

US Patent Application, describe the number and title

- 0 Number of new germplasm releases
- 0 Number of new commercial licenses granted
- 0 Number of web sites managed
- 1 Number of non-peer reviewed presentations and proceedings
- 0 Number of newspaper articles and other presentations for non-science audiences

- 1 Thesis
- 0 Number of other technology

International Cooperation / Collaboration

List any agreements

Publications: Please use the following format, examples

Mohammadi-Aragh, Maryam K. (2016). Evaluation of urea hydrolysis as a biomarker for detecting pathogenic *Vibrio parahaemolyticus* in clinical isolates and raw oysters. MS Thesis, Mississippi State University

Presentations: Please use the following format

Please attach a photo or figure with a brief explanation to showcase the achievement of your project that will be placed on our food safety research website