Food

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7. Title

Control of Food-Borne Pathogens in Pre and Post Harvest Environments

12. Investigator Name(s) (Last Name and Initials)

Janes, M. E.

20. Termination Date 09/30/2012	40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011

Outputs:

The results of this project were presented at the IAFP meeting in 2011 in Milwaukee, WI and used as the basis for graduate study for a Masters student.

Outcomes/Impacts:

Blue crabs (Callinectes sapidus) play an important role in Louisiana's economy. The increase in consumer popularity coupled with the ambiguity of cooking instructions available is portentous because of the tendency of some pathogenic bacteria to share the natural habitats of the Louisiana blue crab. While all seafood has the potential of being associated with foodborne illness, blue crabs are environmentally exposed to Vibrio cholerae, Vibrio parahaemolyticus, Vibrio vulnificus, Listeria monocytogenes and Salmonella species. This study was designed to determine the least amount of time and temperature needed to reduce or eliminate each of the aforementioned bacteria from a single Louisiana blue crab with either boiling or steaming heat treatments. Once the single crab heat treatment studies were completed, the bacteria that showed the greatest thermal resistance-Listeria monocytogenes, and the bacteria most associated with foodborne illness in Louisiana blue crabs-Vibrio parahaemolyticus were inoculated into a serving size of crabs and subjected to heat treatments. The results were based on the bacterial log reduction of each heat treatment time point. The recommendations for safe cooking times were determined by the abundance of below detection limit or non-detectable level results for each bacterium tested, and the temperature was determined by the lowest temperature needed to achieve these conditions. Results of the heat treatment experiments were: boil one crab four minutes and cool one additional minute for an internal temperature of at least 79.5 degrees C and a total cooking time of five minutes; steam one crab for five minutes and cool two additional minutes for an internal temperature of at least 75 degrees C and a total cooking time of seven minutes; boil four crabs for 10 minutes and cool five additional minutes for an internal temperature of at least 85 degrees C and a total cooking time of 15 minutes; steam four crabs for 15 minutes and cool five additional minutes to reach an internal temperature of at least 85 degrees C with a total cooking time of 20 minutes. These results will be presented to consumers as easy, concise instructions for safe preparation of Louisiana blue crabs.

Publications:

N.W. Hazard, J.D. Johnson, and M.E. Janes. 2011. Cooking times and temperatures for safe consumption of Louisiana Blue Crab. IAFP, Milwaukee, WI. (Abstract #P3-78).

Participants:

M.E. Janes (PI), and N. Hazard, LSU AgCenter.

Target Audiences:

These results will be presented to consumers as easy, concise instructions for safe preparation of Louisiana blue crabs.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		3-23-12