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AREAS FOR FURTHER RESEARCH

In this study, lactic acid bacteria were not effective at reducing the counts of *Listeria monocytogenes* in brines. However, lactic acid bacteria did lower the counts of *L. monocytogenes* in water, suggesting that treatment with LAB might be more effective under different conditions. Further research should focus on specific mechanisms of inhibition, such as bacteriocin and acid production, so that LAB treatment may be customized to suit the environmental conditions for the specific food product at risk for *Listeria* contamination. Other research should be conducted on the many different strains of LAB to determine which have the highest antilisterial ability.

In this study, *L. innocua* and *L. monocytogenes* did not behave similarly under the given environmental conditions. This is concerning because many studies use *L. innocua* or another non-pathogenic strain to represent *L. monocytogenes*. Future studies using a non-pathogenic strain as a model must be aware of the possibility of varied responses amongst different species of *Listeria*. Successful antilisterial treatments tested on *L. innocua* or other non-pathogenic strains must also be confirmed on *L. monocytogenes* before considered fully effective. Further research should be conducted on the differences between the *Listeria* species under as many environmental conditions as possible. Only treatments that have been tested on the pathogen can be considered useful for increasing food safety in the industry.

APPENDIX I

Chemical Analysis of Top-Flo Evaporated Salt (99.8% purity). Supplied by Cargill Inc., Minneapolis, MN:

Component	Units	Typical	Specification
Sodium Chloride (dry)[1]	%	99.86	99.80
Calcium & Magnesium (as Ca)	%	0.04	-
Sulfate (as SO_4)	%	0.06	-
Surface moisture[2]	%	0.03	0.1 max
Copper (as Cu)	ppm	0.01	0.5 max
Iron (as free Fe)	ppm	0.2	2.0 max
Heavy Metals (as Pb)	ppm	<1.0	2.0 max
Water Insolubles	ppm	165	200 max
Yellow Prussiate of Soda[3]	ppm	5	13 max

[1]By difference of impurities
[2]110°C for 2 hours
[3]Anti-caking agent (sodium ferrocyanide decahydrate)

APPENDIX II

Typical brine chiller system

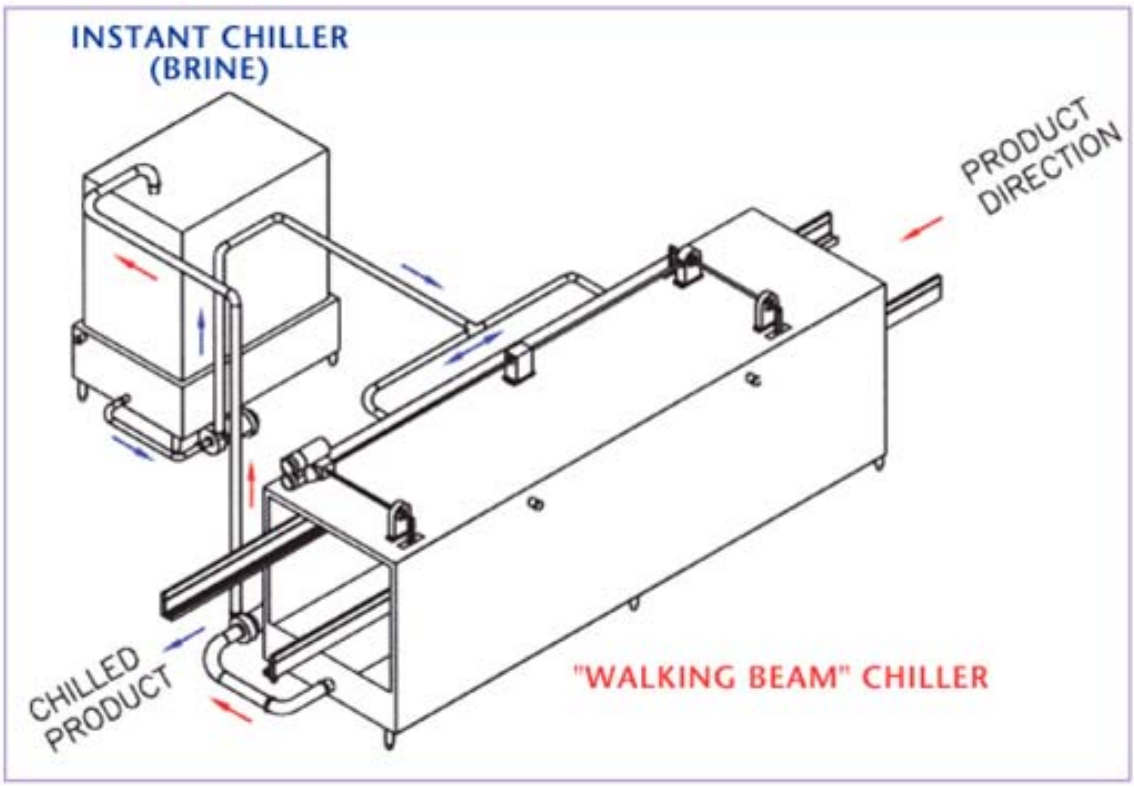

Image courtesy of Chester Jensen Co., Inc., Chester, PA
available from http://www.chester-jensen.com/systems.html

VITAE

Bridget Archibald Meadows was born in Auckland, New Zealand to Ian and Maeve Archibald. After briefly residing in New Zealand and Cleveland, OH, she was raised in Clifton Forge, VA where she received her primary and secondary education. She graduated from Alleghany High School (Covington, VA) in 1995. She received her Bachelor of Science degree in Biology with a minor in Chemistry in 1999 from Salem College (Winston-Salem, NC).

Following completion of her degree, she was employed by Wake Forest University Baptist Medical Center (Winston-Salem, NC) where she worked as a laboratory technician. She began her graduate studies at Virginia Polytechnic Institute and State University in 2002. While in graduate school, she was a member of the American Society for Enology and Viticulture (ASEV) and the Institute of Food Technologists (IFT).