

Why Pasteurization?

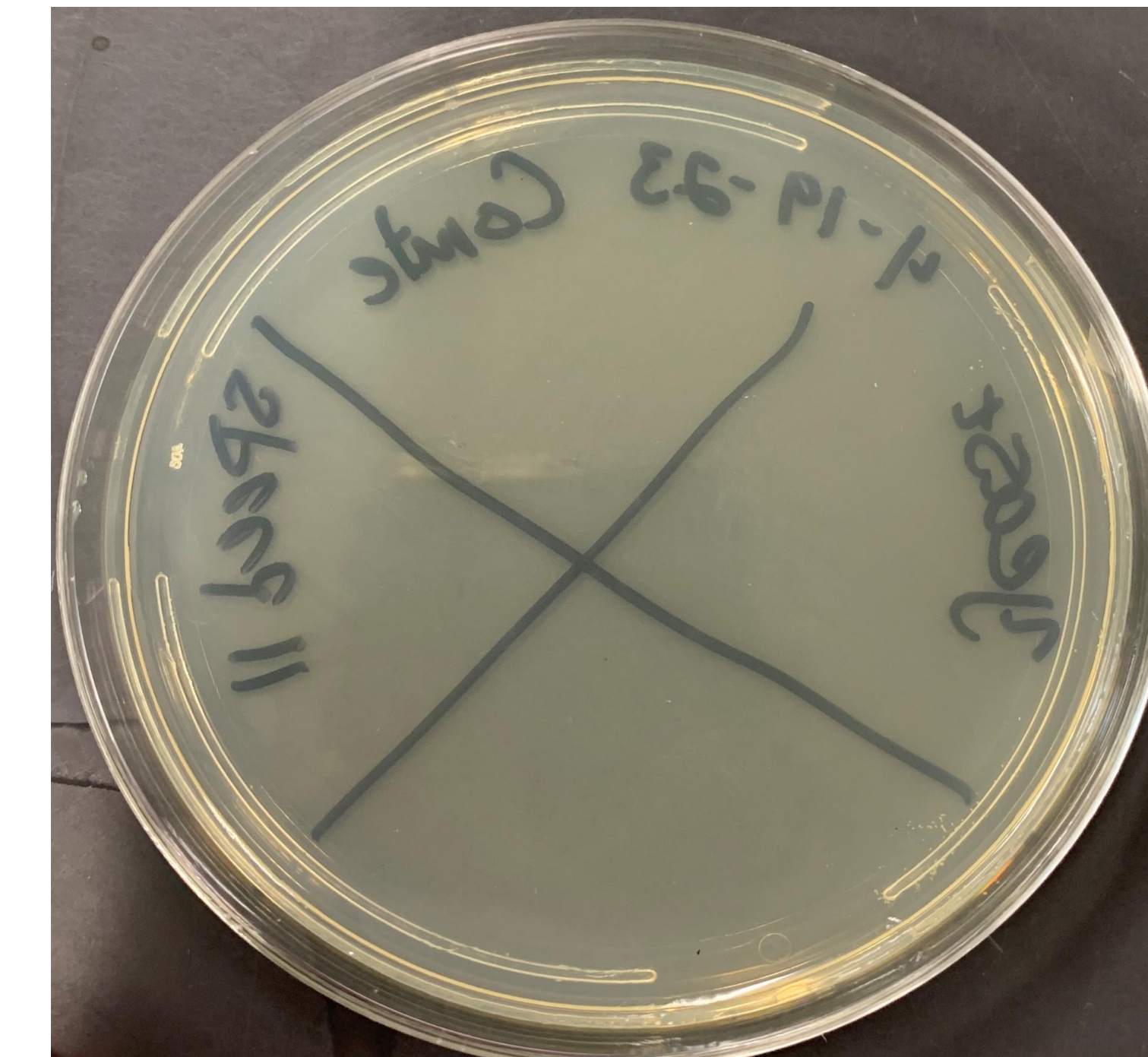
Pasteurization is the process of heat treatment to inhibit the growth of microorganisms that accelerate the spoilage rate of various food products. Neutralizing these microorganisms thus increases the stability and shelf life of these products.



Yeast Culture Study



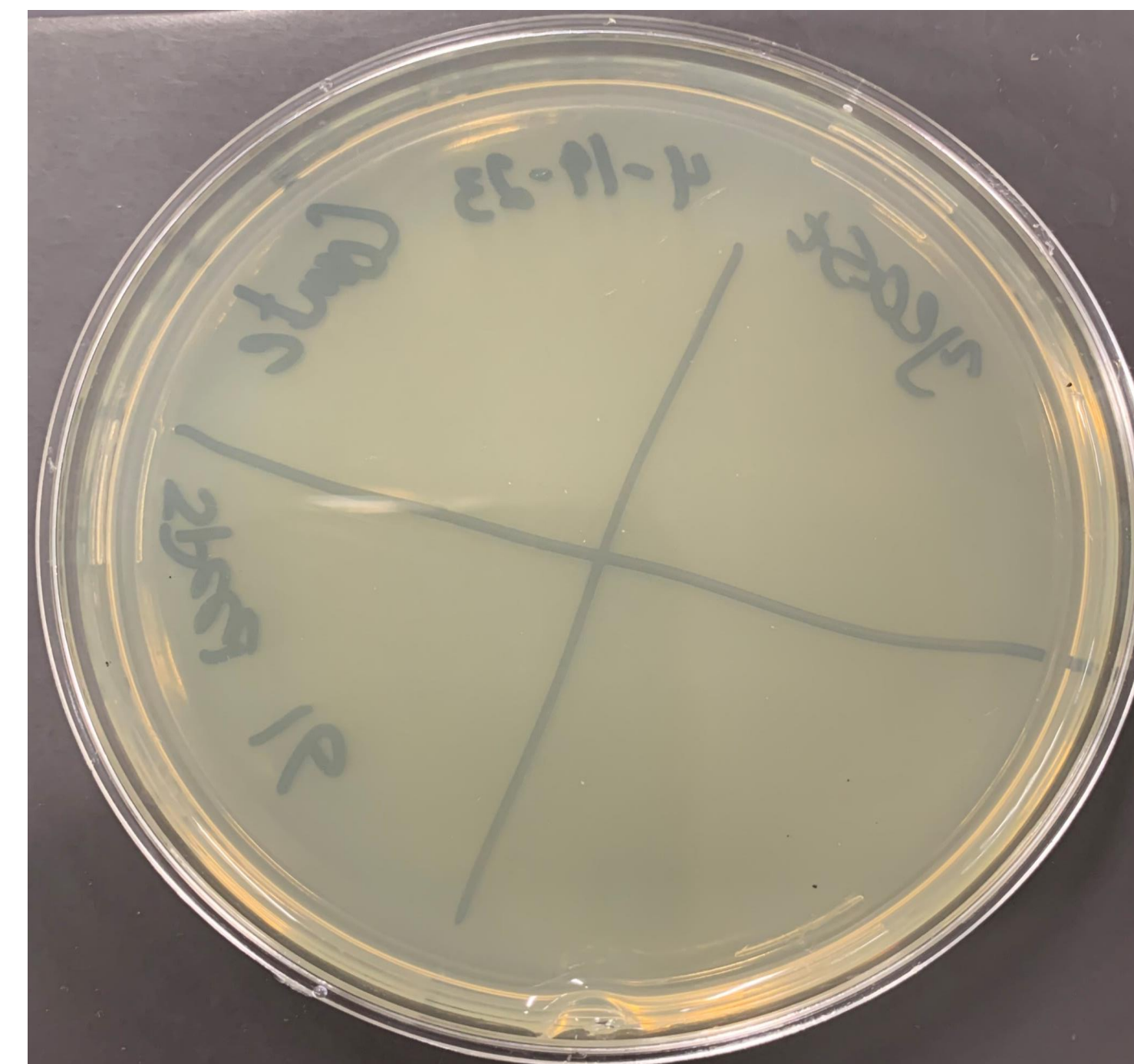
No Pasteurization



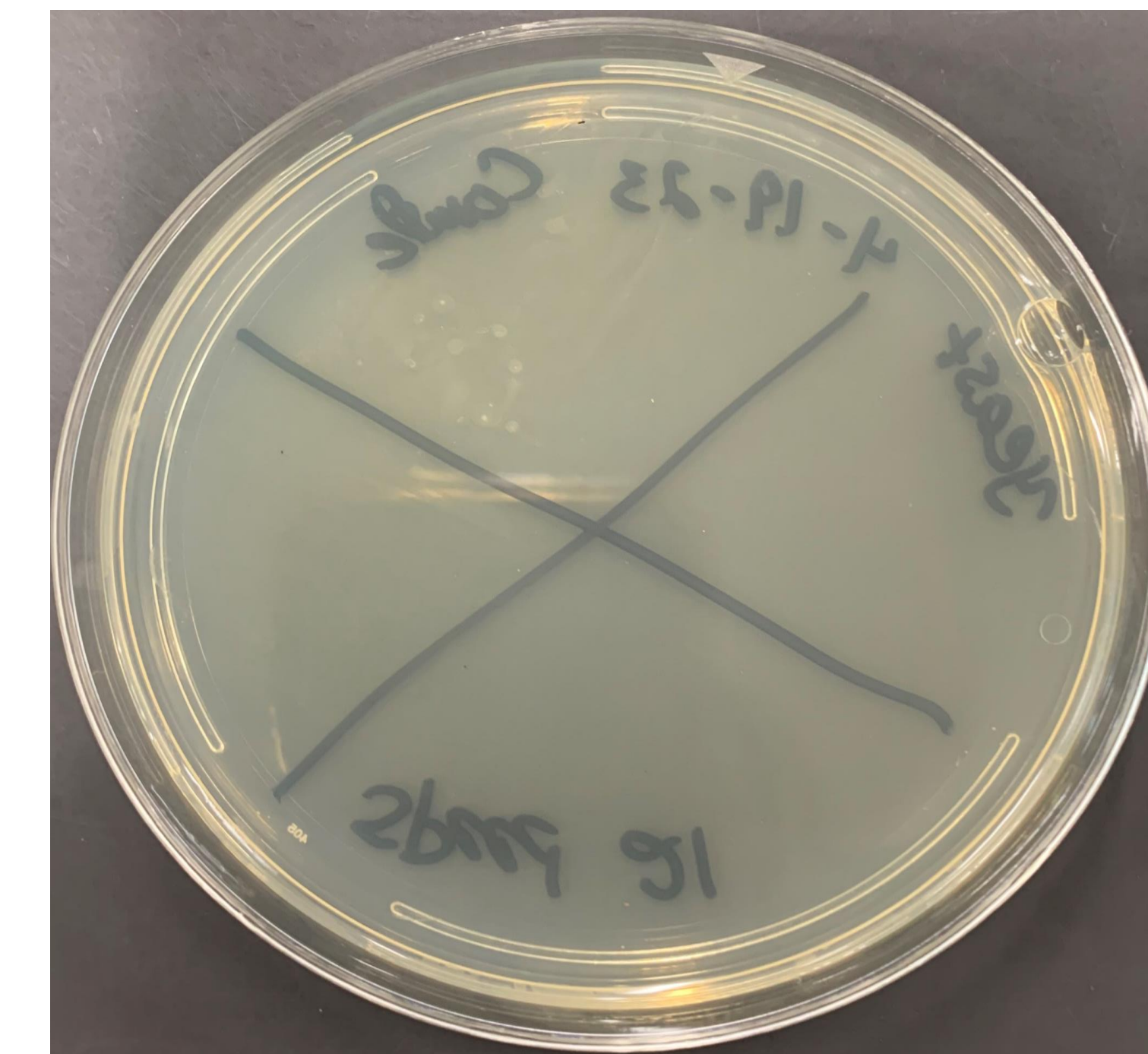
Residence time of 16s

T=180°F
F=1.08L/min
PU=421.58

T=180°F
F=1.75L/min
PU=263.5



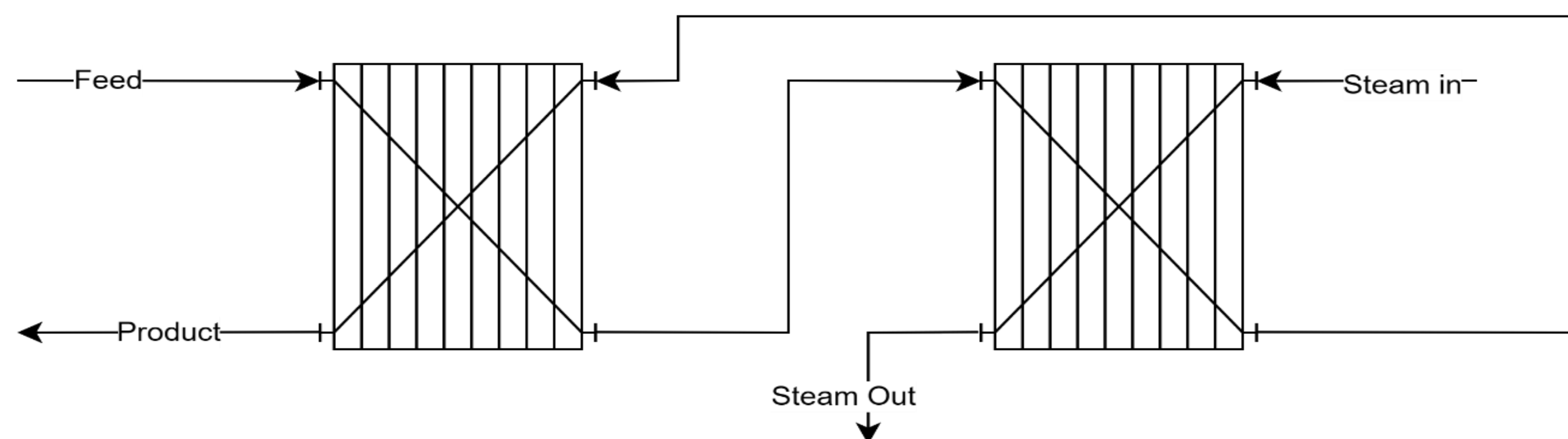
Residence time of 9.8s



Residence time of 7.4s

T=180°F
F=2.32L/min
PU=194.8

Process Flow Diagram



Acknowledgments

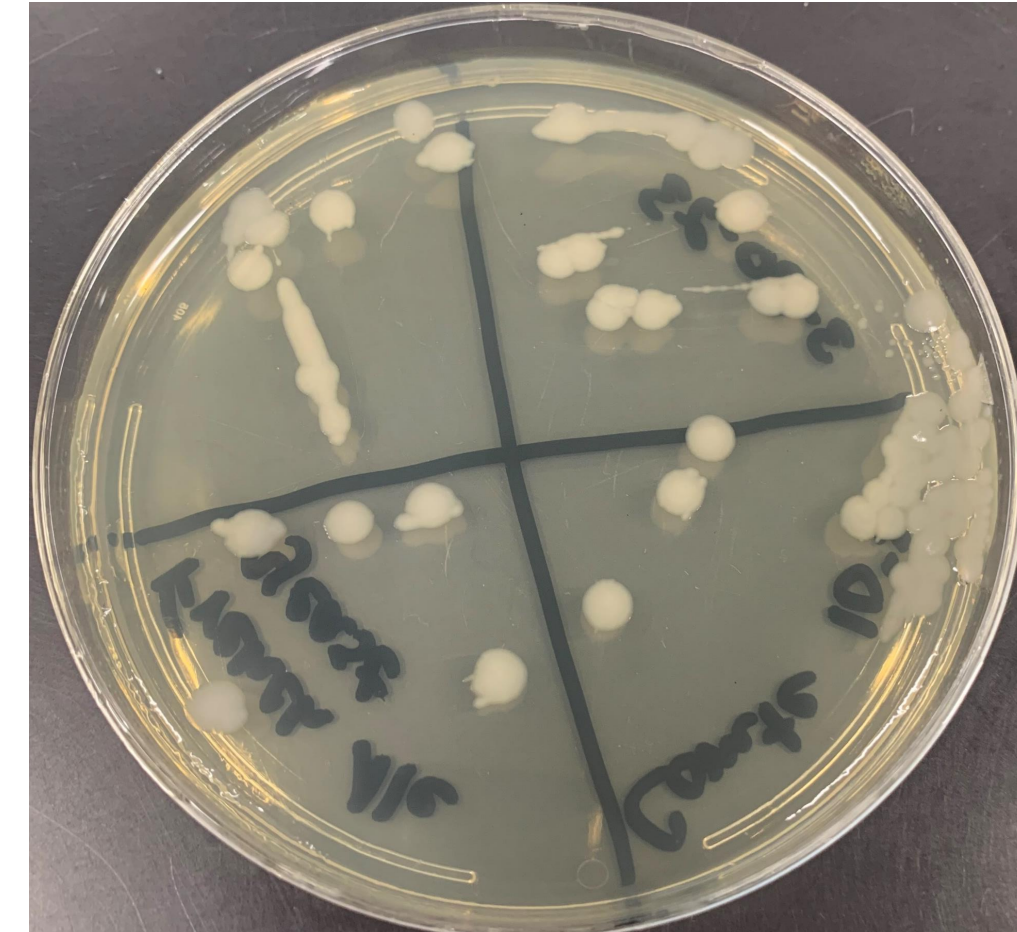
Special thanks to:

- Jeffrey Raymond – for aiding us in setting up equipment for the study
- Dr. John Wagner – for being our advisor and liaison with Chapman's Brewing Co.

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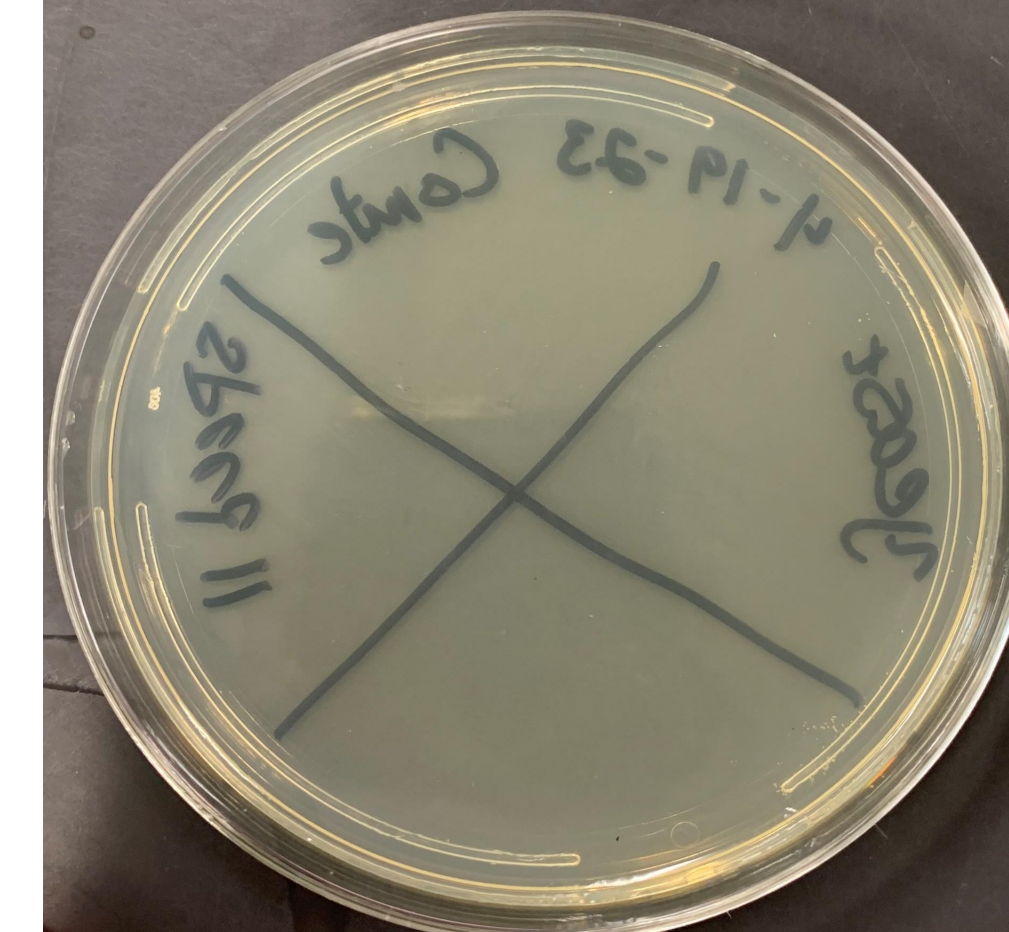
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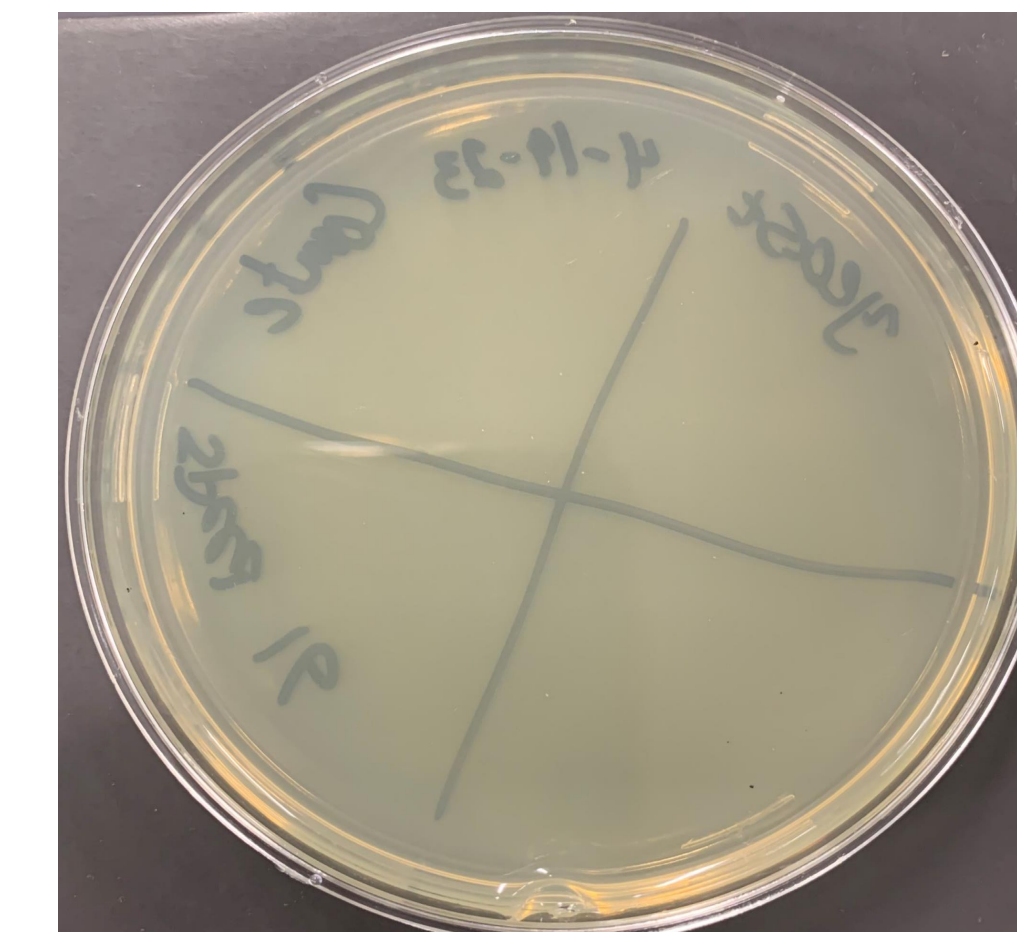
No Pasteurization

T = temperature
F = flow rate
PU = pasteurization units
T = residence time



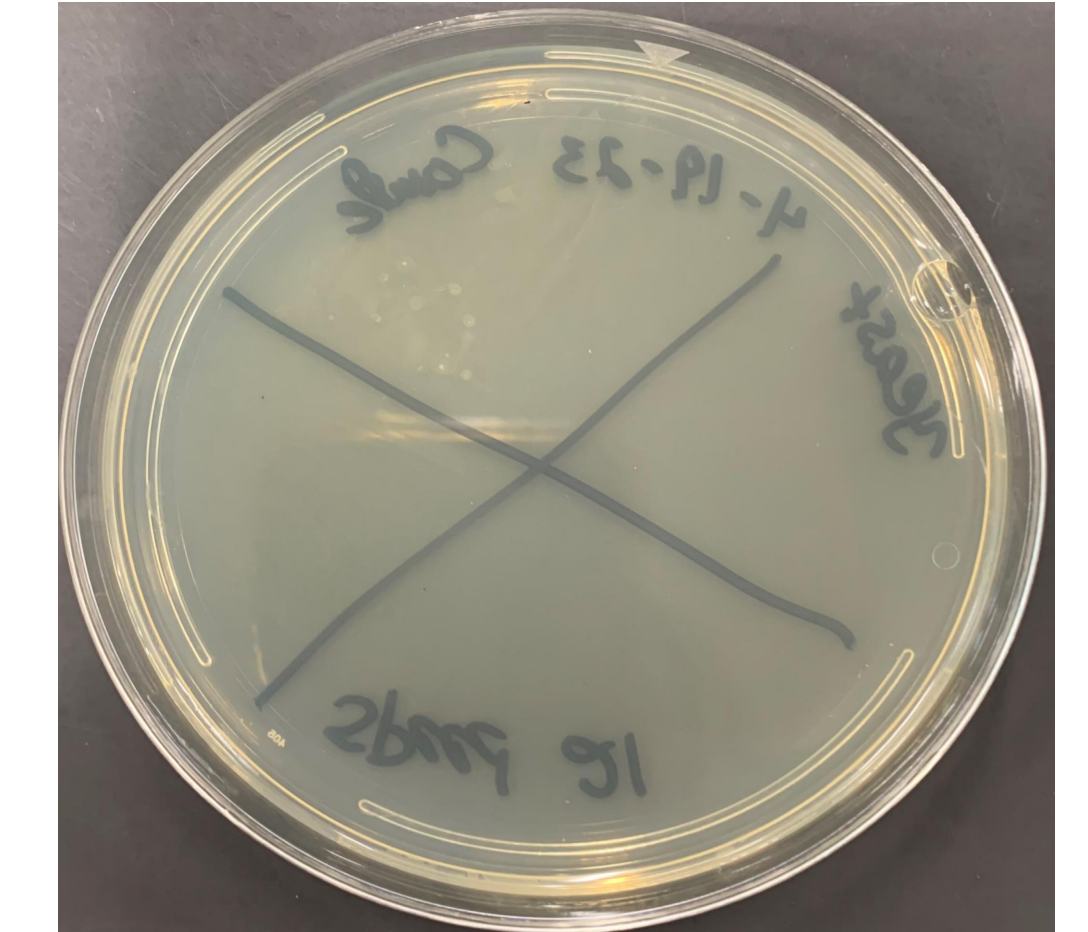
T = 180°F

F = 1.08L/min
PU = 421.58
T = 16s



T = 180°F

F = 1.75L/min
PU = 263.5
T = 9.8s



T = 180°F

F = 2.32L/min
PU = 194.8
T = 7.4s

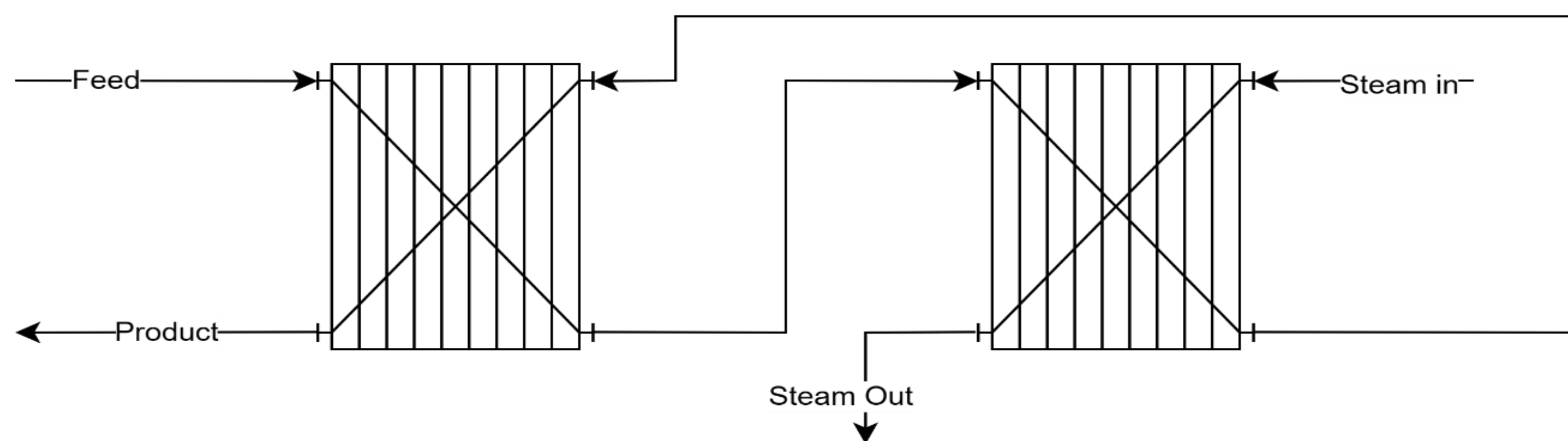
Objective

The motivation behind evaluating the effectiveness of this pasteurization unit was to understand the process unit in order to attempt to bring the unit to its maximum operating potential.

Conclusion and Recommendations

The object of this study was met successfully. With the understanding of how this pasteurization unit worked, it was possible to neutralize all microbial growth regardless of flow rate at the constant temperature of 180°F. It's recommended for future studies to conduct several more runs utilizing decreased temperatures. Additionally, it's recommended to perform repeated culture studies to eliminate or reduce any potential errors caused by the growth media.

Process Flow Diagram



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