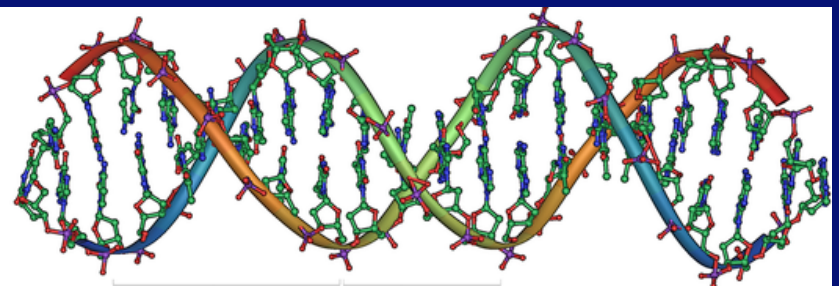
Food Safety Studies on Dried Plums

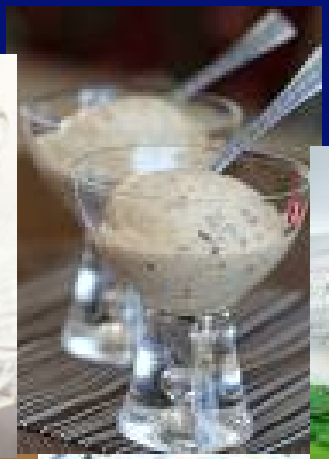
Food Safety Net Services
CDPB 2009

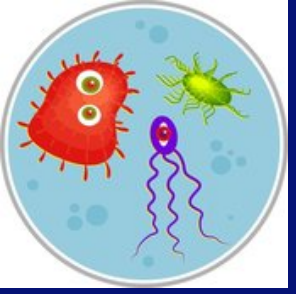


Objective

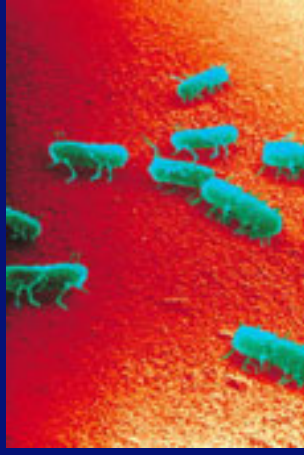
Are Prunes a

Low Risk Commodity?





Experimental Design



- Whole and ground dried plums
- Room temperature & refrigerated
- Observed until below the limit of detection for 2 consecutive time points (every 6 days)
  - Cultural isolation (quantitative)
  - Genomic detection (qualitative)

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Cocktail Foodborne Organisms

- **Organism** **Strain** **Source**
- *Salmonella* Balidon University of Georgia; Tomato isolate associated with human illness
- *Salmonella* Meunchen University of Georgia; Orange juice isolate associated with human illness
- *Salmonella* Phage Type 30 University of California; Almond isolate associated with human illness

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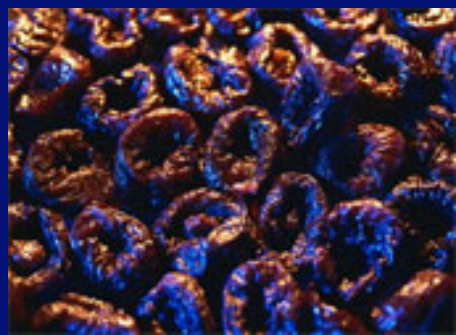
Conclusion

- *Salmonella* is reduced below the LOD in 24 days for GDP & WDP at room temperature
- *Salmonella* is able to persist/survive better on refrigerated whole dried plums (60 days)

Possibilities:

- Condensation from refrigeration increased a_w
- ↓ temperature with skin barrier may prevent antimicrobial diffusion/activity



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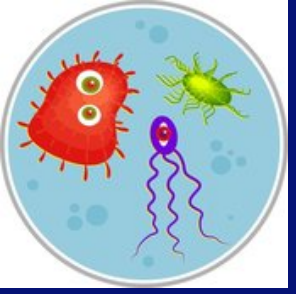
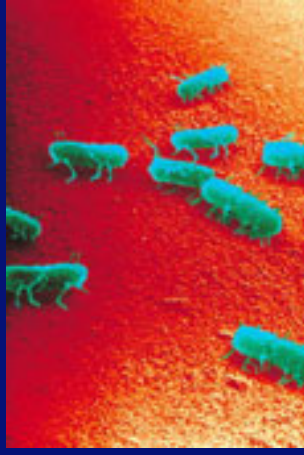


Experimental Design



- Comparison of 3 Organisms
- Room Temperature & Refrigerated
- High & Low Moisture
- Potassium Sorbate
- Steam Hydration
- Dehydration

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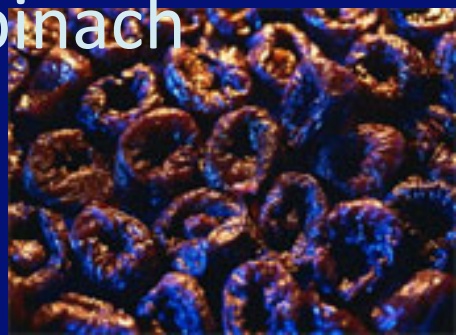
Additional Tests

- *Salmonella* Senftenberg ATCC 8400
- *Salmonella* Tennessee Isolated from peanut butter sample
- *E. coli O157:H7* C7927 University of Georgia; Apple cider isolate associated with human illness
- *E. coli O157:H7* SEA 13B88 University of Georgia; Apple cider isolate associated with human illness
- *E. coli O157:H7* Outbreak Strain FDA; Spinach isolate associated with human illness



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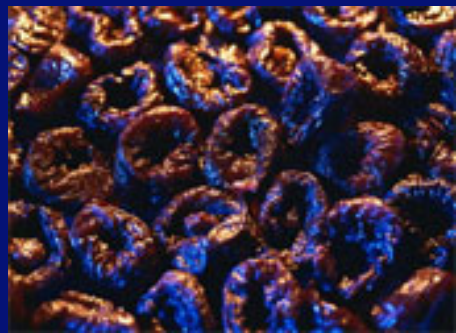
Additional Test

- *Listeria monocytogenes* F8255 (serotype 1/2b) University of Georgia; Peach/plum isolate
- *Listeria monocytogenes* G1091 (serotype 4b) University of Georgia; Coleslaw isolate associated with human illness
- *Listeria monocytogenes* Scott A University of Wisconsin – Madison Food Research Institute; Human isolate



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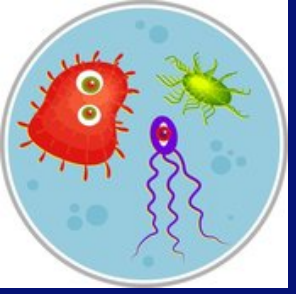
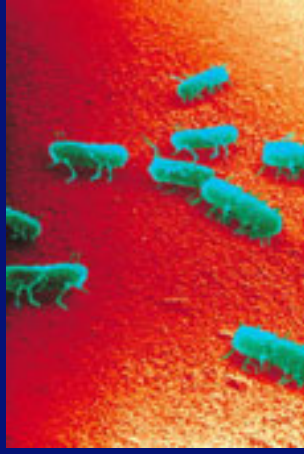


Results



- Comparison of 3 Organisms - Same
- Room Temperature & Refrigerated – Problem if Refrigerated
- High & Low Moisture - Same
- Potassium Sorbate – No Effect???
- Steam Hydration – Log 7.6 Reduction
- Dehydration – Log 6.1 Reduction

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