Microbial interference in fruits: promoting fruit resistance against pathogenic proliferation

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Introduction

The demand for fresh salad vegetables and fruit has increased in recent years. This foods are minimal processed and can be a vehicle of innumerous foodborne pathogens. Rising consumption levels have resulted in a higher frequency of outbreaks of foodborne illness associated with raw produce.

Pathogenic bacteria of concern include *Listeria monocytogenes, Escherichia coli* O157:H7 and *Salmonella*. The *L. monocytogenes* bacterium is of particular importance as it can cause humans listeriosis. Important characteristics of *L.monocytogenes* contributing to foodborne transmission, are its ability to grow at refrigeration temperatures and in environments of reduced water-activity, measures commonly used to control the growth of pathogens in foods.

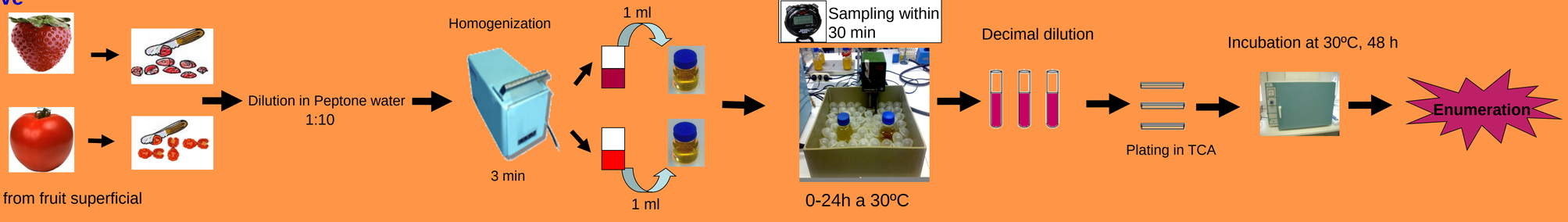
In attempt to increase fruits and vegetables self life and safety, several technologies are widely used to inactivate/remove the microorganisms responsible for their contamination and deterioration. These treatments affect all the microbiota and may promote food susceptibility to pathogenic proliferation, as a consequence of microbial interference reduction. This interference includes the ability of endogen microbiota to act as antagonist, inhibitor or destructor of certain pathogenic bacteria. An alternative approach is the inactivation/inhibition of those microorganisms by a biological control.

Objective

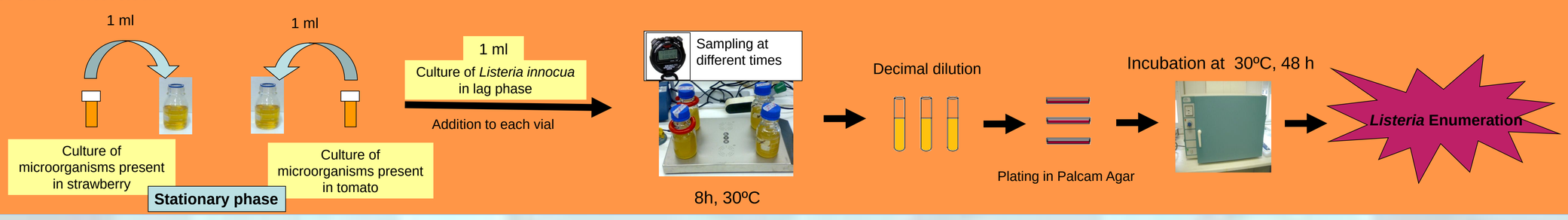
The objective of this work was to assess the interaction between strawberry and tomato endogen bacteria, and *Listeria innocua* (used as an indicator of the pathogenic specie, *L. monocytogenes*).

Methods

Growth curve



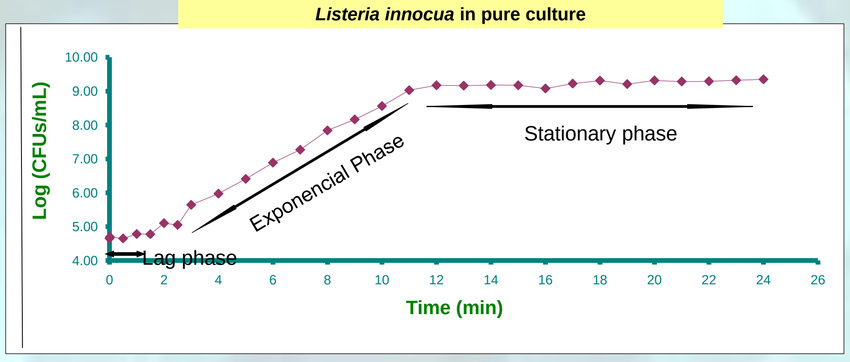
Microbial Interaction



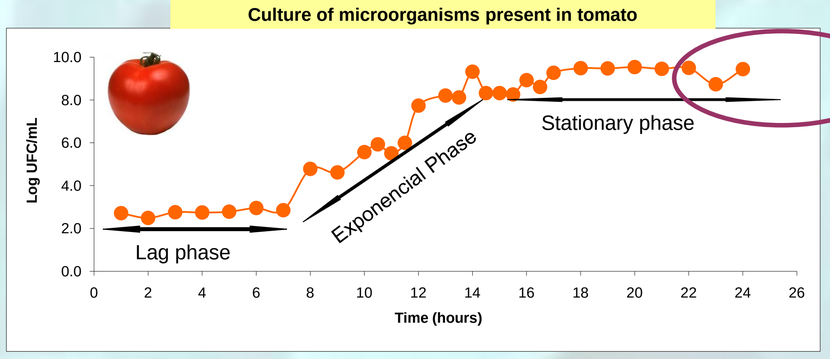
Results

Growth curves

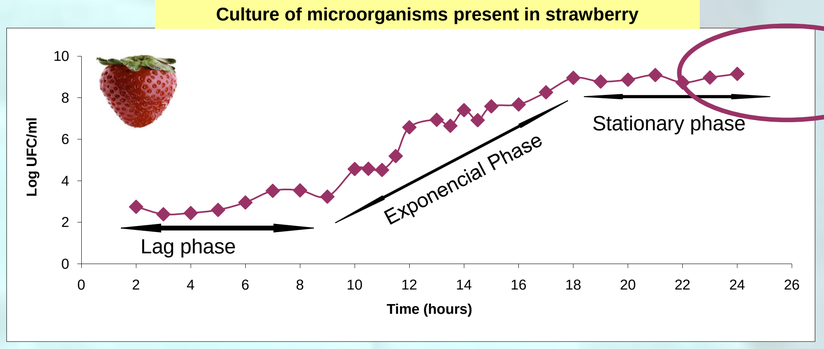
***Listeria innocua* in pure culture**



Culture of microorganisms present in tomato

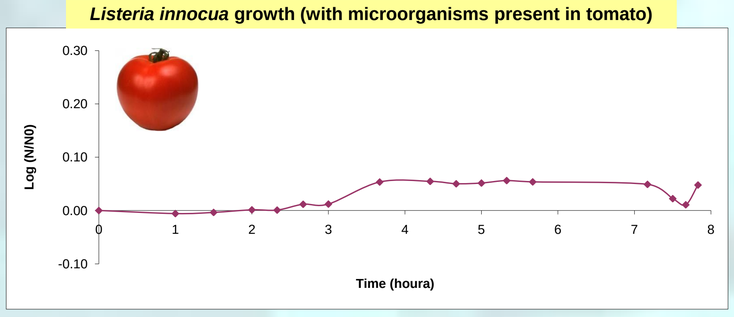


Culture of microorganisms present in strawberry

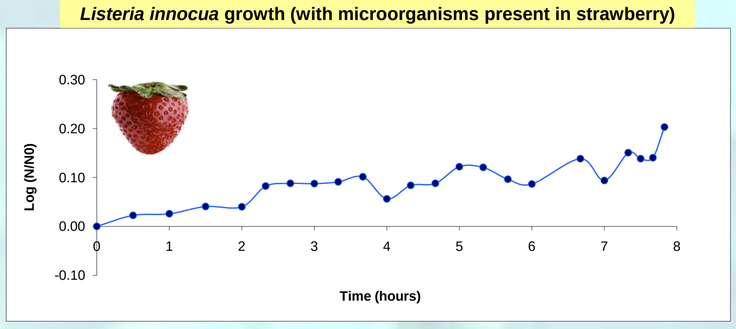


Microbial Interaction

***Listeria innocua* growth (with microorganisms present in tomato)**



***Listeria innocua* growth (with microorganisms present in strawberry)**



N – *Listeria innocua* load

N_0 – Initial *Listeria innocua*

Conclusion

Results showed that *L. innocua* growth, in the presence of tomato and strawberry endogen microorganisms, was inhibited during the first 8h, when compared with *L. innocua* behaviour in pure culture.

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