

Antilisterial Effect of Vinegar Solutions in Fresh Salads Preparation



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INTRODUCTION

The contamination of fresh produce with food pathogens is important because this kind of products are likely to be consumed raw, without any type of microbiologically lethal processing, only relying on cold storage to maintain their safety. The presence of *Listeria monocytogenes* on these products is of special concern due to its ability to survive and multiply at refrigeration temperatures.

Foodborne illness originated in private home environments is three times more frequent than in commercial cafeterias, thus it is important to develop strategies to control *L. monocytogenes* in the home environment. There are various chemical compounds in household that can be useful for sanitizing fresh produce, particularly acetic acid in vinegar. Vinegar-based solutions can be promising in this field, since they are commonly used in salads and appetizers.

OBJECTIVE

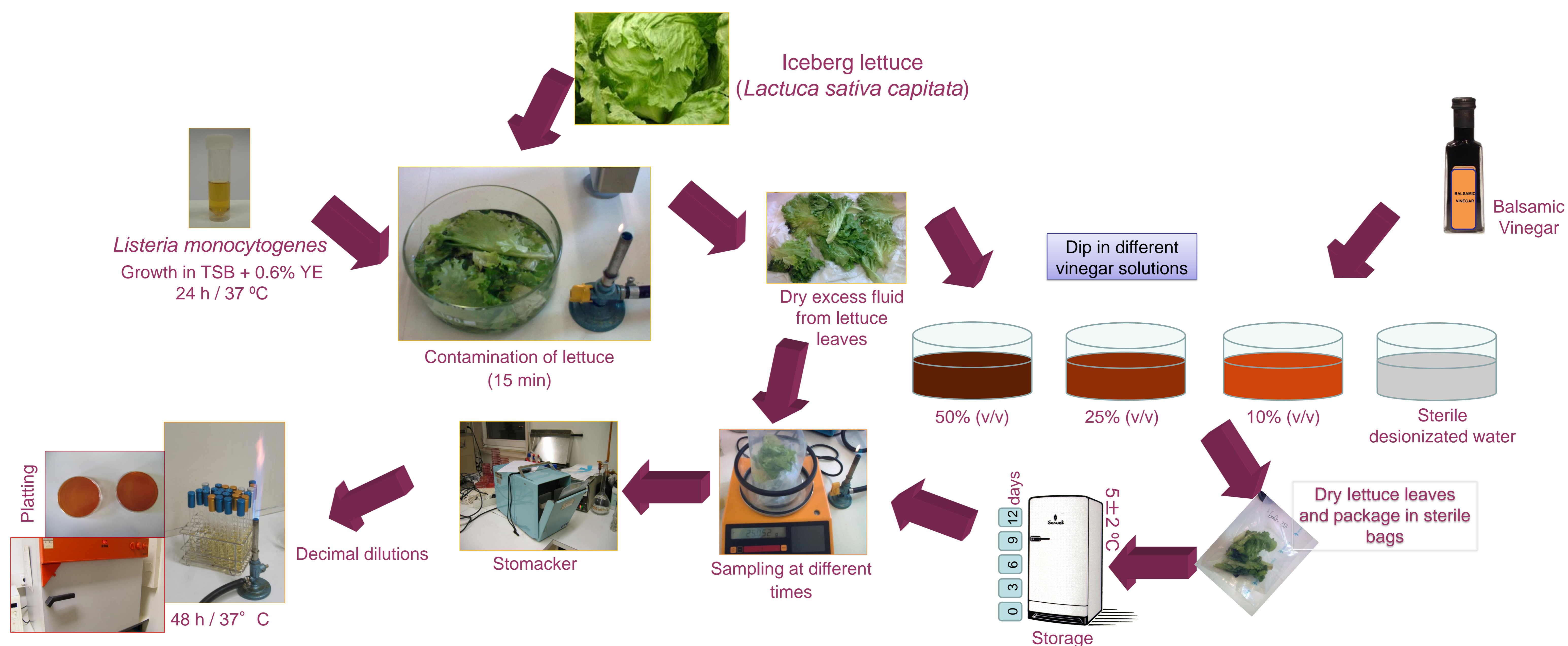
The present study was designed to evaluate the antilisterial effect of different balsamic vinegar solutions on lettuce inoculated with *L. monocytogenes*. The study of bacteria survival / growth was carried out at refrigeration storage (5 ± 2 °C) for 12 days.

CONCLUSIONS

Lettuce washed with vinegar solutions showed a reduction in *L. monocytogenes* load. The reduction was more evident when solutions with higher balsamic vinegar content were used. Statistical analysis (ANOVA and Duncan tests) of the results revealed significant differences between the solutions. The solution containing 50% of balsamic vinegar was significantly different from the others ($p < 0.05$). The impact of solution with 25% vinegar was similar to the one of 15%, but both differed significantly from water-washings.

At the end of 12 days of storage, *L. monocytogenes* was not detected in lettuce pre-washed with all vinegar solutions tested. However, the load of pathogen was maintained if simple water-washings were applied.

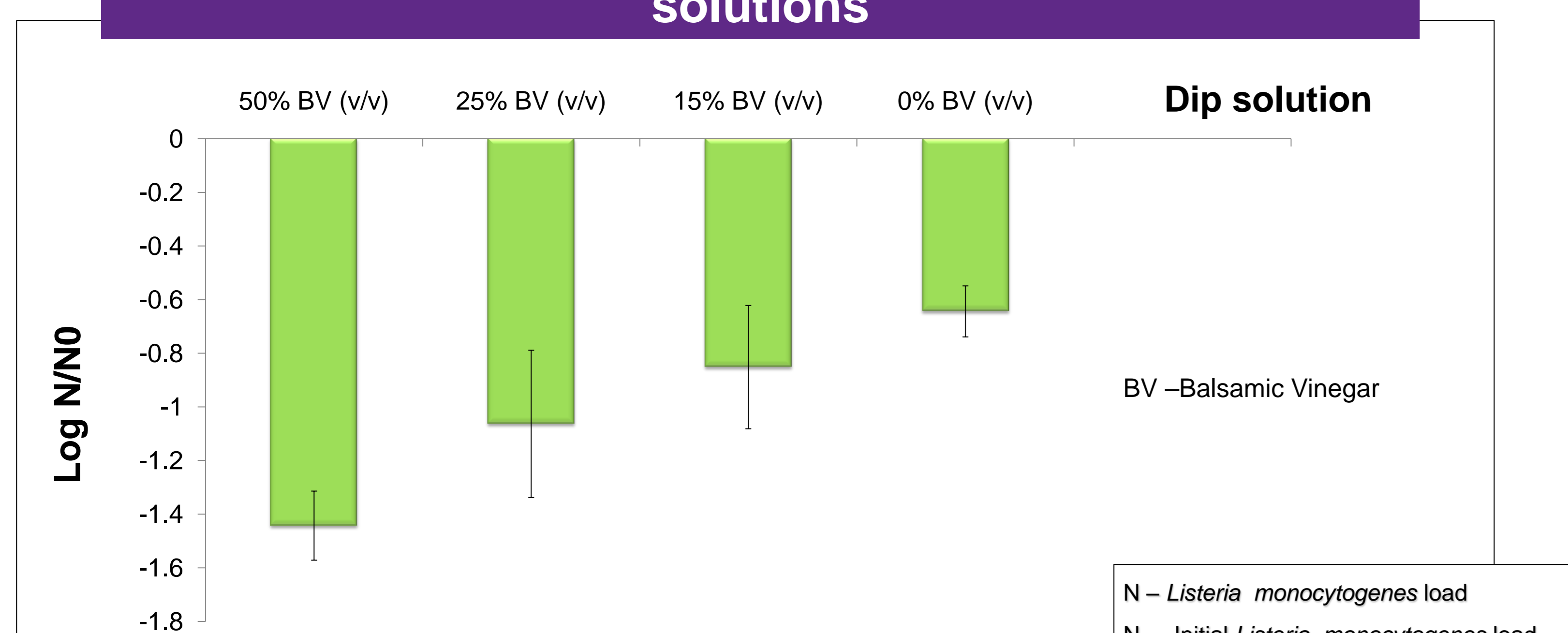
MATERIALS AND METHODS



RESULTS

Before Storage

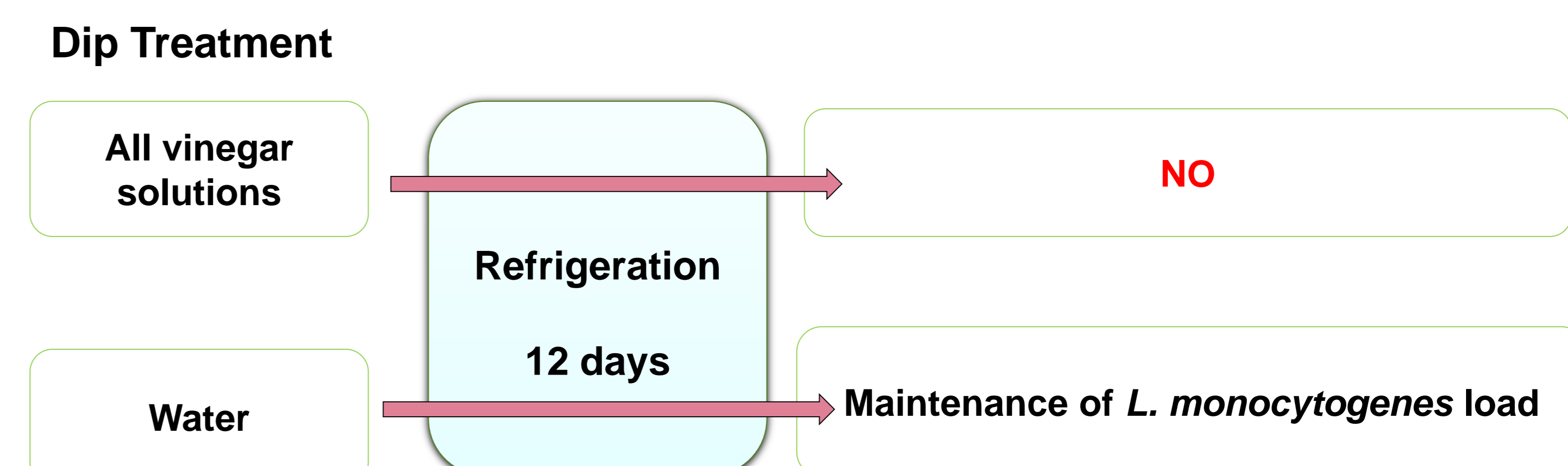
Antilisterial effect of various Balsamic vinegar solutions



The bars indicate mean standard deviation

At the end of Storage

Survival and growth of *Listeria monocytogenes* in lettuce under refrigeration storage for 12 days



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