

# HEAT INACTIVATION OF *Listeria innocua* IN BROTH AND PARSLEY UNDER NON-ISOTHERMAL CONDITIONS

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## INTRODUCTION

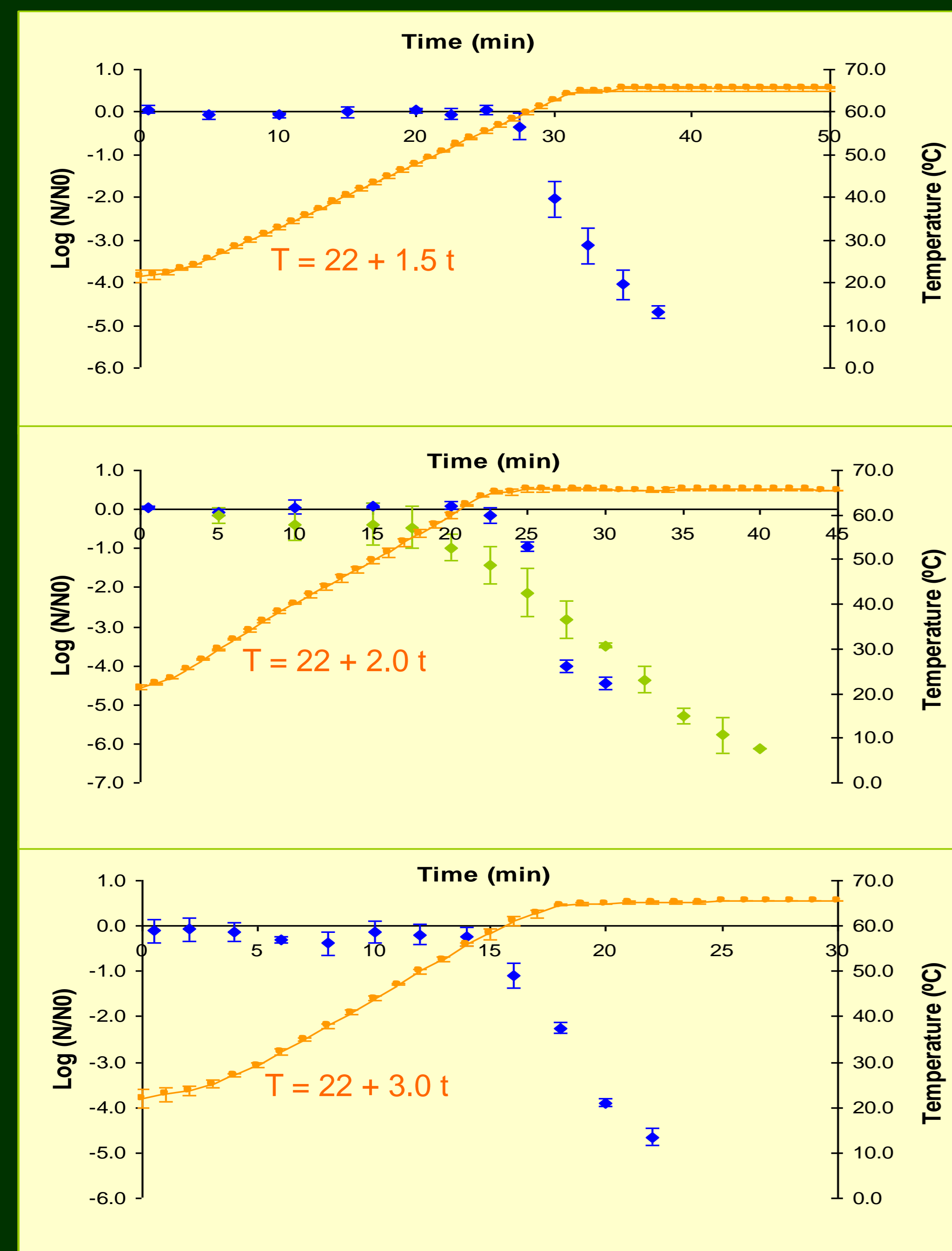
In food industry, the production of microbiologically safe food products by the application of suitable thermal treatments is a major concern. Although much work has been done at laboratory scale to clarify the response of *Listeria monocytogenes* during isothermal heat treatments, scarce information of its behaviour throughout real industrial processes is available. Kinetic parameters estimated under isothermal conditions are commonly used to design time-varying temperature processes without validation.

## OBJECTIVE

The objective of this work was to study the effect of three different linear temperature histories (from 22 to 65°C, with heating rates of 1.5, 2.0 and 3.0°C/min), on the heat resistance of *L. innocua* in liquid medium (TSBYE). The viability of *Listeria* cells was also analyzed in parsley, applying a heating rate of 2.0°C/min.

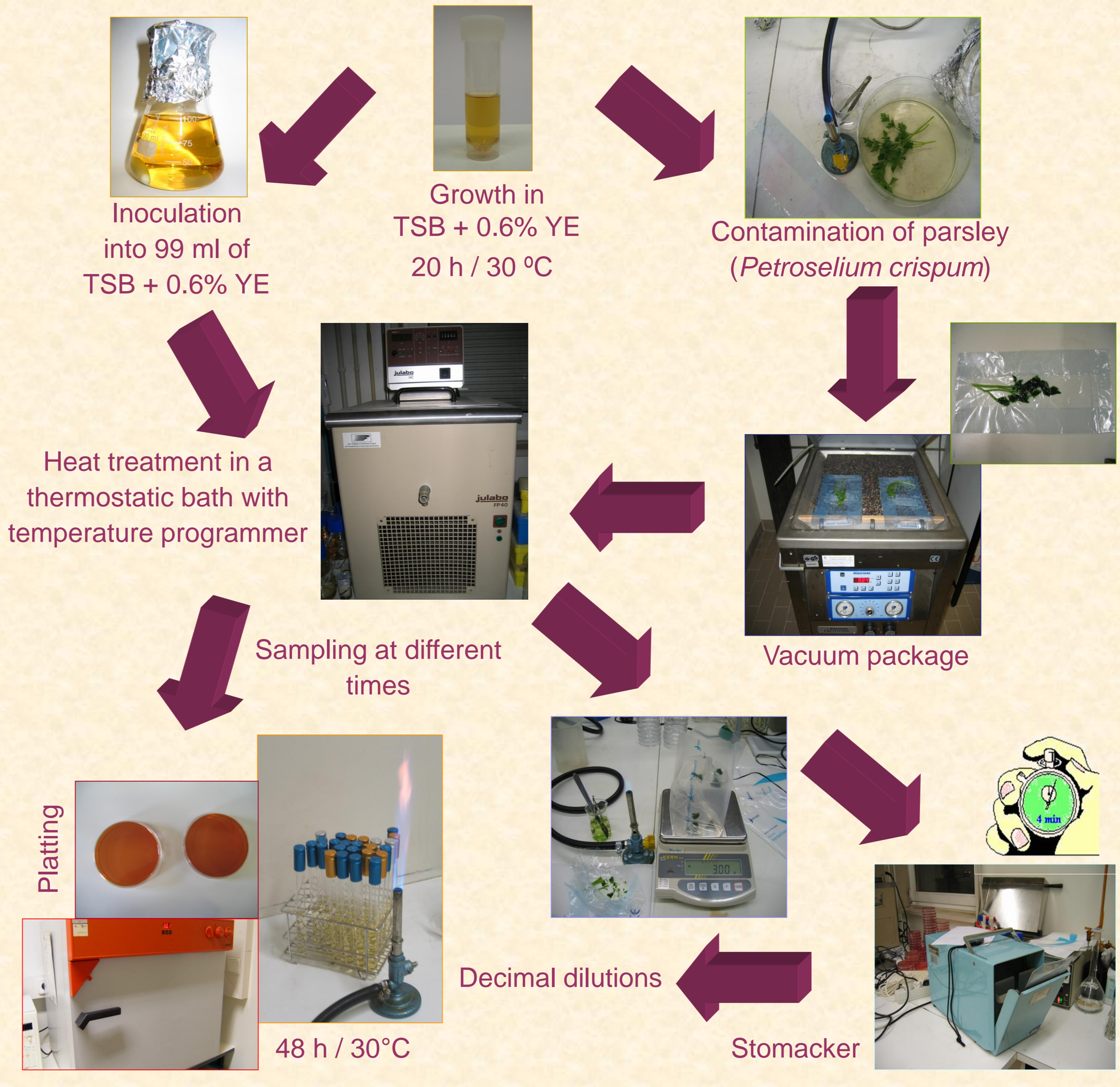
## RESULTS

Thermal inactivation of *L. innocua* in broth (◆) and parsley (◇)



The bars represent the standard deviation.

## MATERIAL AND METHODS



☘ *Listeria* heat resistance, in liquid media, under non-isothermal conditions is influenced by the temperature profile used → The lower the heating rate, the higher the thermotolerance of the microorganism.

☘ Heat resistance was much lower in broth than in the food product.

☘ No bacterial inactivation occurred during the heating up periods, until the temperature reached approximately 40°C (if parsley was used) and 55 to 60°C (if broth was used).

## CONCLUSION

This work highlights the importance of studying the influence of dynamic conditions on microorganisms thermal resistance, since the heating up phases may significantly contribute to an increase in cells thermotolerance.

## ACKNOWLEDGEMENTS

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