Genotoxic inhibition and antioxidant activity by microbial bioprotection

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INTRODUCTION

- Adverse effect on human health
- Green consumerism
- Clean labelling
- Environmental sustainability

Reduction of the use of synthetic additives

Use of multifunctional microorganisms in food production

- Increase of shelf-life
- Improvement of organoleptic quality
- Enhancement of nutritional value
- Health benefits

PROJECT AIMS AND EXPERIMENTAL DESIGN

Oxidation reaction is a leading cause for quality deterioration during processing and storage of food products. For this reason, additives with antioxidant properties are widely used in food and beverage industry. However, some of the most used, such as sulphites and nitrate/nitrite are well-recognized to have adverse effects on human health, encouraging the reduction of the use of synthetic additives and the search for alternatives. Moreover, there is also an increased interest on the use of nutrients and bioactive compounds due to their preventive actions against the development of certain non-communicable diseases. These trends strengthen the need for using food additives of natural origin that also exert bioactivity. The use of bioprotective microorganisms in food production has been increasing in the last years and therefore, the evaluation of additional functional properties in these microorganisms is gaining interest.

1. Strain selection
2. Assessment of the antioxidant and genotoxic inhibition capabilities of the strains on human health
3. Assessment of the antioxidant properties on food matrices
4. Evaluation of the impact of the strains on the products' microbial ecology
5. Omic-approach (transcriptomic, proteomic and metabolomic)