Determination of the microbiological quality and degree of transfer of *Escherichia coli* O157:H7, *Salmonella enterica* serovar Typhimurium and Enteritidis in unpasteurized juices from supermarkets.

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Objectives

1. Determination of the microbiological quality status of freshly squeezed unpasteurized juices from supermarkets.
2. Assessing and quantifying the transfer of *E. coli* O157:H7 and *Salmonella enterica* from contaminated oranges to the final product.

Materials and Methods

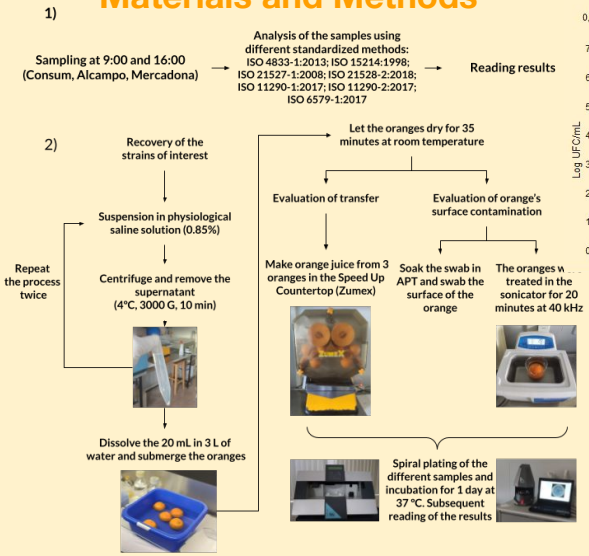

Figure 1: Methodology schemes for: 1) Supermarket juice sampling and 2) Transfer evaluation.

Results and discussion

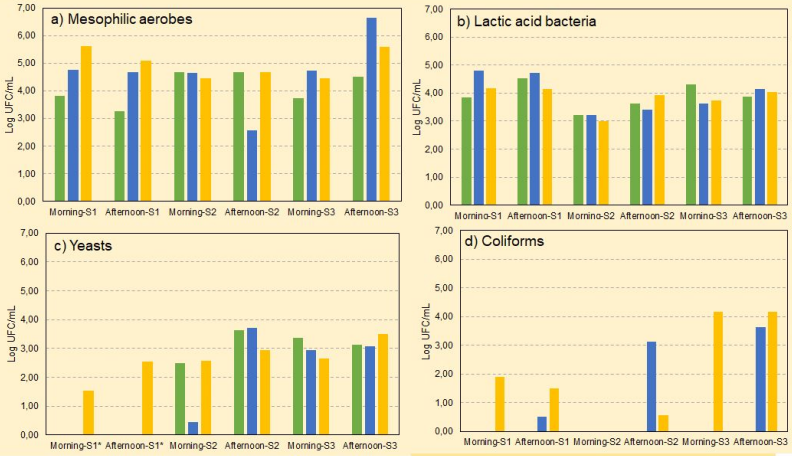

Figure 2: Evolution of the count based on the time and day of the week in the three supermarkets
a) Mesophilic aerobic count, b) Lactic acid bacteria cout c) Yeasts count d) Coliform count

Table 1: Microbial count in the contaminated water of the oranges, the oranges themselves, and the juice with *Salmonella enterica* and *E. coli* O157:H7.

	Pathogene count			
Microorganisms	Contaminated water (log UFC/mL)	Swabbing Technique (Log UFC/naranja)	Sonication Technique (Log UFC/naranja)	Contaminated Juice Log UFC/mL
Salmonella enterica	5.61 ± 0.17	3.99 ± 0.11	5.64 ± 0.24	1.75 ± 0.48
Escherichia coli O157:H7	6.45 ± 0.11	5.07 ± 0.131	6.71 ± 0.136	0.88 ± 1.24

Table 2: Risk assessment of *E. coli* O157:H7 and *S. enterica* from consuming contaminated juice

Variables	*Escherichia coli* 0157:H7	*Salmonella enterica*
Dose ingested per serving	1885,80 UFC	13998,66 UFC
Probability of infection when consuming one serving	0,31 %	0,07 %
Number of cases per year	6925 cases	14670 cases
Cases per 100,000 adult consumers	23,30 cases	49,36 cases
Cases per 100,000 total population	14,63 cases	31,00 cases

Conclusions

1. The microbiological quality on supermarket juices can be improved by addressing potential issues with cleaning and disinfection practices.

2. Further research is needed to assess the presence and concentration of pathogenic microorganisms, such as *E. coli* and *S. enterica*, in unpasteurized juices.

3. Emphasizing good hygiene practices throughout the production chain, from the field to the supermarket, is crucial for ensuring the safety of unpasteurized juices. Due to the lack of thermal treatment, controlling relevant hazards with low infective doses becomes essential to protect consumer's health.