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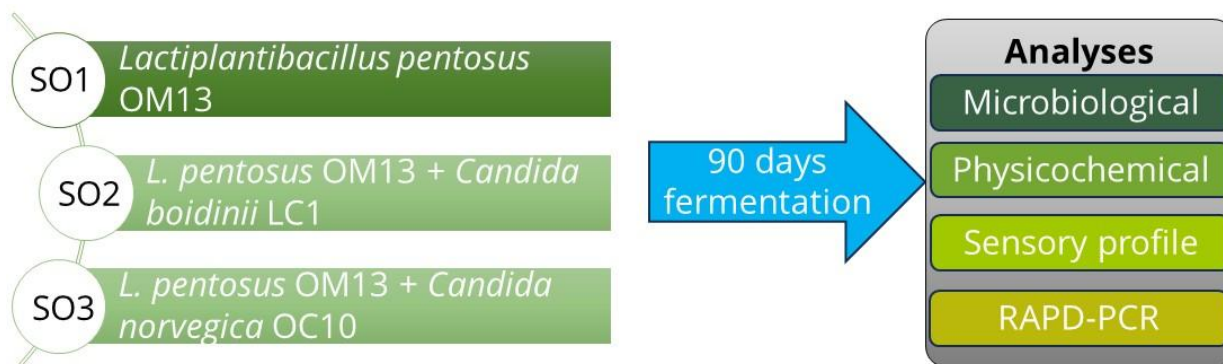
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Background

Green table olives of the Nocellara del Belice cultivar are traditionally produced through spontaneous fermentation carried out by indigenous microflora. However, this natural process is microbiologically uncontrolled and may lead to spoilage due to uncontrolled microbial activity (Valero et al., 2016). Recent studies have demonstrated that co-inoculation with selected lactic acid bacteria (LAB) and yeasts can enhance the fermentation process, improving both product safety and quality (Benítez-Cabello et al., 2020).

Methods

Three experimental batches were conducted to evaluate the effects of co-inoculation strategies (Fig 1).



Results

All inoculated strains exhibited dominance levels exceeding 80%. In trials SO2 and SO3, brine acidification occurred more slowly than in SO1; however, co-inoculation effectively limited spoilage microorganisms. Pulp hardness was better in the SO2 and SO3 trials compared to SO1, while the color was better in SO3. Sensory analysis confirmed these findings (Fig 2), with SO3 receiving the highest scores for flavor, texture, and overall appreciation.

Conclusions

The co-inoculation of *L. pentosus* OM13 with the two selected yeasts proved to be an effective strategy for enhancing the quality and safety of Nocellara del Belice green split table olives.

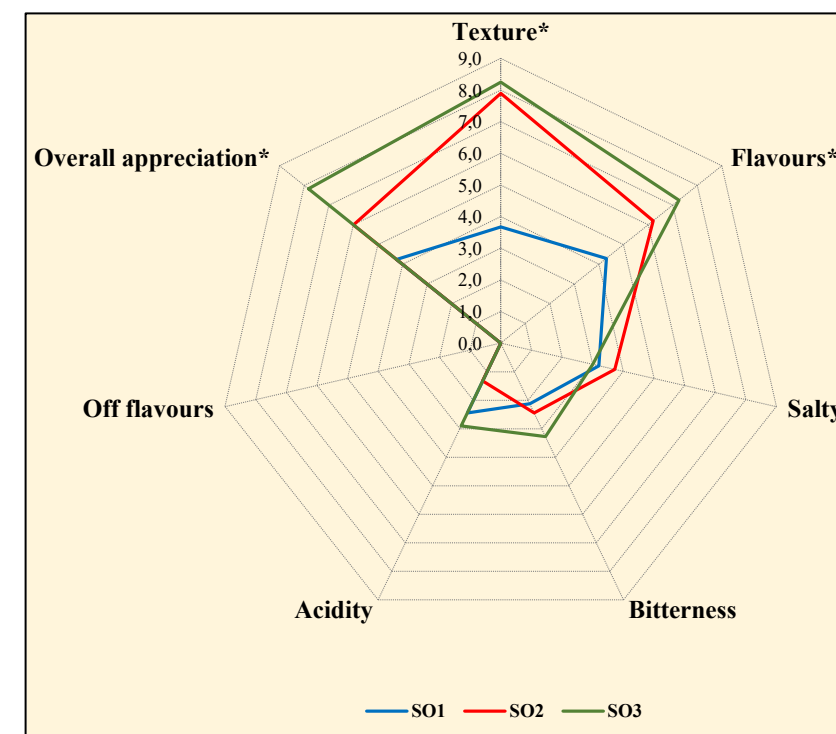


Fig 2. Sensory profiles of green split table olives Nocellara del Belice at 90 days of fermentation

Benítez-Cabello, A., Calero-Delgado, B., Rodríguez-Gómez, F., Bautista-Gallego, J., Garrido-Fernández, A., Jiménez-Díaz, R., & Arroyo-López, F. N. (2020). The use of multifunctional yeast-lactobacilli starter cultures improves fermentation performance of Spanish-style green table olives. *Food Microbiology*, 91, 103497. <https://doi.org/10.1016/j.fm.2020.103497>

Valero, A., Medina, E., & Arroyo-López, F.N. (2016). Microbial hazards and their implications in the production of table olives. In O.V. Singh (Eds.), *Foodborne Pathogens and Antibiotic Resistance*. Oxford: Wiley. p 119-138. <https://doi.org/10.1002/9781119139188.ch5>

Fig 1. Experimental design of green split table olives Nocellara del Belice