

THE ROLE OF BACTERIOCIN PRODUCERS IN TABLE-OLIVE FERMENTATION

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Abstract:

A table-olive fermentation roughly consists of three successions of spontaneous populations: *Enterobacteriaceae*, then yeasts and lactic acid bacteria and finally *Lactobacillus*. *Lactobacillus plantarum* LB17.2b and *Lactobacillus pentosus* LBB96 are bacteriocin producers (antimicrobial proteins) that were isolated during the fermentation of 'Azeiteira' variety. The fruit can be harvested at its maximum size, and be processed by the so-called "sevillian style", or after the development of some pulp colour and aroma and be processed by the so-called "natural style". Because of the complexity of such environments, the olive fermentation process is far from being characterized. Although, the role of bacteriocins in food environments is still not clear, they are expected to improve food safety. Bacteriocin production depends on medium composition (Yang and Ray, 1993) and on physical factors (Leroy and De Vuyst, 1999). In this study, the effect of brine components on the growth and on bacteriocin production was compared for LB17.2b and LBB96. Figures were based in brine composition along 'Azeiteira' fermentation that was monitored by HPLC. Bacterial growth (g/l dry weight) was calculated from DO and bacteriocin production was evaluated after the inhibition zone caused by the culture supernatant over a sensitive bacteria. In a first step, some variables were screened in MRS-based formulation. Differences between strains were observed. Best growth and bacteriocin production in brines also occurred under different conditions for each strain, denoting environmental selection pressures. Thus, bacteriocins can be produced in brines at different stages of the fermentation contributing to food safety by inhibiting spoilage and pathogenic bacteria.