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Production of LAB bacteriocin in MRS medium and in a natural cereal medium with potential application in the food industry

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Introduction & Objective: *Listeria monocytogenes* is a great concern in the food industry. Bacteriocins, produced by lactic acid bacteria (LAB) are of great importance to face this concern. The reason for that is because some bacteriocins have demonstrated antimicrobial activity against *Listeria monocytogenes* and do not alter the organoleptic characteristics of the products. Although MRS broth can fulfill fastidious growth requirements of most LAB, high costs for large-scale commercial applications and non-food grade constituents limit its use by the food industry. The objective of this study was to seek for a simple and food grade medium that could promote growth of an autochthonous strain of *Lactobacillus* and production of bacteriocin active against *Listeria monocytogenes*.

Method: From previous studies with different LAB, isolated from traditional meat products, an autochthonous *Lactobacillus* strain was selected since it demonstrated antimicrobial activity against *Listeria monocytogenes* and do not alter the organoleptic characteristics of the tested products. The LAB strain was grown in MRS broth and in the cereal based medium for 28 hours at 37 °C. Bacteriocins produced in those mediums were tested against five strains of *Listeria monocytogenes*.

Results & Conclusion: Bacteriocin activity and LAB growth were higher in MRS broth than in the cereal based medium. When LAB produced bacteriocins in MRS Broth, the maximum antimicrobial activity reached was about 12800 AU/ml. The bacteriocin produced in the natural medium was very low. The maximum antimicrobial activity was about 1600 AU/ml. So, although promising results were obtained, further investigation is still needed to improve the cereal based medium for bacteriocin production.

Biography

Ariana Macieira is a researcher working in Paula Teixeira's group in Universidade Católica Portuguesa, in Porto, Portugal. She has been doing some work in the field of bacteriocins production by trying to find some techniques that will improve LAB bacteriocins with application in the food industry.

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