

Technological Characterization of Lactic Acid Bacteria Isolated from Algerian's Goat's Milk

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Abstract : A total of 153 wild lactic acid bacteria were isolated from goat's milk collected from different areas in Western Algeria. The strains were identified using phenotypical, biochemical and physiological properties. API system and SDS-PAGE technique was also used in identification of the strains. Six genera were found Enterococcus (41.83%), Lactobacillus (29.40%), Lactococcus (19.60%), Leuconostoc (4.57%), Streptococcus thermophilus (3.26%) and Pediococcus (1.30%). The most abundant species were Enterococcus faecium (24 isolates), Enterococcus durans (22 isolates), Lactococcus lactis subsp. lactis (25 isolates), Lactobacillus rhamnosus (09 isolates) and Lactobacillus delbrueckii subsp. bulgaricus (07 isolates). The strains were screened for production and technological properties such as acid production, aminopeptidase activity, autolytic properties, antimicrobial activity and exopolysaccharide production. In general most tested isolates showed a good biomass separation when collected by centrifugation; as for the production of the lactic acid, results revealed that our strains are weakly acidifying; nevertheless, lactococci showed a best acidifying activity compared to lactobacilli. Aminopeptidase activity was also weak in most strains; but, it was generally higher for lactobacilli compared to lactococci, where we recorded 30 units for Lactobacillus delbrueckii subsp. bulgaricus M14. Autolytic activity was generally higher for most strains, more particularly lactobacilli where we recorded values of 71.13% and 70% of autolysis rate respectively in Lactobacillus rhamnosus strains 9S10 and 9S7. Antimicrobial activity was detected in 50% of the isolates, particularly in lactobacilli where 80% of strains tested were able to inhibit the growth of other strains. Two strains could produce exopolysaccharides, E. faecium 8M6 and E. durans 7S8. Some strains were able to maintain two or three technological characteristics together.

Keywords : lactic acid bacteria, technological properties, acidification, aminopeptidase activity (AP), autolysis

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