

Full Length Research Paper

Bioprospecting of *Leuconostoc mesenteroides* strains isolated from Algerian raw camel and goat milk for technological properties useful as adjunct starters

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Leuconostoc species are lactic acid bacteria widely used in milk fermentation. Based on morphological, physiological and biochemical analysis, 18 strains of *Leuconostoc mesenteroides* were isolated and identified from 10 samples of goat's milk and camel's milk. Strains were identified as follows 09 strains of *L. mesenteroides* subsp. *mesenteroides* and 09 strains of *L. mesenteroides* subsp. *dextranicum*. The results of technological tests of the strains showed that strains produced dextran, carbon dioxide, and resist to 55°C for 15 min, which promote their industrial use. The growth kinetic, acidification evolution and carbon dioxide production of *L. mesenteroides* subsp. *dextranicum* strain in skim milk at 30°C were slightly higher than *L. mesenteroides* subsp. *mesenteroides*. Addition of yeast extract to skim milk stimulates the development of *L. mesenteroides* subsp. *mesenteroides* by increasing its growth, acidification activity and evolved CO₂. Susceptibility to antibiotics was also evaluated on 33 antibiotics and strains of *L. mesenteroides* showed resistance to 42.4% of antibiotics used.

Key words: Technological, *Leuconostoc*, milk, growth kinetic, carbon dioxide, yeast extract, antibiotics.

INTRODUCTION

Lactic acid bacteria are a heterogeneous group of microorganisms that produce lactic acid as the main product of metabolism (Carr et al., 2002). They colonize many food products such as dairy products, meat, vegetables and cereals; they are part of the intestinal and vaginal flora (Dortu et al., 2009; Mayo et al., 2010). *Leuconostoc* species are widely used as starter cultures and play an important role in food preservation, microbiological stability and production of aroma compounds in various food products. Indeed, lactic acid bacteria produce many metabolites with antimicrobial properties such as organic acids, carbon dioxide and

diacetyl. They play an important role in hygiene by lowering the pH and excreting a variety of inhibitory compounds that inhibit the development of undesirable bacteria (Hugenholtz et al., 2002; Guessas et al., 2005; Dortu et al., 2009). Lactic acid bacteria are Gram-positive, catalase-negative, immobile and non-sporulating; they grow in anaerobic conditions but they can be aerotolerant (Mayo et al., 2010).

Currently, the lactic acid bacteria include thirteen different bacterial genera: *Lactobacillus*, *Leuconostoc*, *Lactococcus*, *Streptococcus*, *Enterococcus*, *Pediococcus*, *Bifidobacterium*, *Carnobacterium*, *Oenococcus*, *Weissella*, *Aerococcus*, *Tetragenococcus* and *Vagococcus* (Dortu et al., 2009).

Among the lactic acid bacteria commonly used in dairy industry, heterofermentative bacteria of the genus

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