



Research article

## Evaluation of probiotic potential of dairy propionibacteria

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**Key words:** Dairy propionibacteria, probiotic, antimicrobial activity, bile salt.

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### Abstract

According to propionibacteria natural habitats, nine species have been recognized to belong to the genus *Propionibacterium* and grouped to dairy propionibacteria. These strains were comprising *Propionibacterium thoenii* (3), *Propionibacterium acidipropionici* (2), *Propionibacterium freudenreichii* ssp. *shermanii* (1), *Propionibacterium freudenreichii* (1), *Propionibacterium freudenreichii* ssp. *freudenreichii* (1) and *Propionibacterium shermanii* (1). All nine strains were subjected to *in vitro* analysis to assess their probiotic potential. Eight strains of *Propionibacterium* were fully tolerant to 0.3% and 0.5% bile salts and were able to survive at pH 3 for 3hrs while at pH 2 a few strains were able to survive. Moreover, good growth was observed in the presence of 0.3% phenol. Antimicrobial activity of *Propionibacterium* strains was found to be good against most of tested strains. In addition, all tested strains were sensitive to tetracyclin and trimethoprim/sulfamethoxazole. Technological and productive characteristics tests showed that tested strains displayed various behaviours in their acidifying activity and four strains produced exopolysaccharide. In conclusion, eight strains *P. thoenii* P15, *P. thoenii* TL18, *P. freudenreichii* ssp. *shermanii* ATCC1907, *P. freudenreichii* 169TM, *P. freudenreichii* ssp. *freudenreichii* 111, *P. shermanii* B-123, *P. acidipropionici* TL2 and *P. acidipropionici* P124I were able to pass all the tests and were considered as novel putative probiotic propionibacteria.