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SAFETY PROPERTIES OF LACTIC ACID BACTERIA ISOLATED FROM CONVENTIONAL AND ORGANIC ARTISANAL CHEESES FROM THE SERRA DA CANASTRA REGION, MINAS GERAIS STATE, BRAZIL

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Canastra Cheese is an artisanal product made from raw milk by small farmers in *Serra da Canastra* region, in Brazil. The production process employs back-sloping inoculation driving fermentation by an endogenous culture called \"*pingo*", which is originated from the whey collected from the previous day's production. Cheeses are dairy products, where lactic acid bacteria (LAB) play an essential role in fermentation processes as starter and/or adjunct cultures, and contribute as safeguard against pathogens due to their ability to produce numerous antimicrobial metabolites. Though several LAB are generally considered safe (GRAS), evaluating their safety properties on strain level is essential for their application in the production of fermented foods, including dairy products. In the current study, we have evaluated the safety properties for 12 LAB strains, identified based on 16S rRNA partial gene sequencing (*Streptococcus lutetiensis* 14E1 and 11C4 *Lactococcus lactis* 1B2, 1B3, 6D5 and 1E4*, Lactiplantibacillus plantarum* 2A4, 11B4, 15C8 and 2B3*, Lactiplantibacillus paraplantarum* 15B7 and *Enterococcus durans* 14A3) from dairy samples obtained from Serra da Canastra including *pingo*, conventional artisanal cheeses and organic artisanal cheeses with different ripening times. As initial criteria for the selection of safe LAB, hemolytic properties, mucin degradation and antibiotic susceptibility/resistance according to EFSA recommendations were applied. In the following step, the strains were evaluated by PCR for the presence of genes associated with vancomycin resistance (*van*A, *van*B, *van*C), biogenic amines production (histidine decarboxylase, *hdc*; tyrosine decarboxylase, *tdc*; ornithine decarboxylase, *odc*) and virulence factors (enterococcal surface protein, *esp;* gelatinase, *gel;* aggregation substance*, asa*; cytolisin*, cyt:* hyaluronidase*, hyl;* endocarditis antigen*, efa*: and enterococcal pathogenicity island, *is16*). All analyzed strains exhibited gamma hemolytic activity, absence of mucin degradation, and sensitivity to antibiotics. None of them presented the vancomycin gene resistance, ornithine decarboxylase, cytolisin and hyaluronidase gene. However, two strains tested positive for the *tdc* gene (*E. durans* 14A3 and *Lpb. plantarum* 11B4) and one for the *hdc* gene (*Lpb. plantarum* 15C8). Additionally, two strains were positive for the *esp* gene (*Lpb. plantarum* 11B4 and *Lc. lactis* 1E4), one for the *gel* gene (*Lpb. plantarum* 2A4), one for the *asa* gene (*Lpb. plantarum* 2A4), one for the *ace* gene (*Lpb. plantarum* 2A4), one for the *is16* gene (*Lc. lactis* 1B3), and one for the *efa* gene (*Lc. lactis* 1E4). Despite some undesirable observed traits, most of the strains collected from conventional and organic systems were deemed safe, affirming their suitability for application in food fermentation processes.

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