

Proteolytic characterization of trimmed beef fermented sausages inoculated by Indonesian probiotics: *Lactobacillus plantarum* IIA-2C12 and *Lactobacillus acidophilus* IIA-2B4

ABSTRACT

Proteolysis is one of the most important biochemical changes affecting proteins during the ripening and preservation of fermented beef sausages. In this study, proteolytic activities of two Indonesian probiotics, *Lactobacillus plantarum* IIA-2C12 and *Lactobacillus acidophilus* IIA-2B4 used as starters in trimmed beef are investigated. *L. plantarum* IIA-2C12 and *L. acidophilus* displayed remarkable proteolytic activities against milk casein substrate, in which the activity of *L. plantarum* IIA-2C12 is higher than that of *L. acidophilus* IIA-2B4. Similar evidences were observed when proteolytic activities of both strains were visualized by using SDS-Page against meat sarcoplasmic proteins. The differences in the number of proteases encoded by the genomes of both starters might account for these differences. The activities of both strains were slightly reduced upon storage at room temperature for 28 days due to decreasing of the amount of substrate and or stability of proteases. In addition, we found also that the sausage inoculated by *L. acidophilus* IIA-2B4 tends to produce more aromatic amino acids than that of *L. plantarum* IIA-2C12. This might differently contribute to flavor (especially aroma) of both sausages. Altogether, this is, to our knowledge, first evidences for the proteolytic activity of *L. acidophilus* strain towards muscle proteins during sausage fermentation.