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THE USE OF SOLID STATE FERMENTATION FOR PLANT MATERIAL PROCESSING

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The aim of work was to select the optimal conditions for solid state fermentation of flaxseed, white lupine, defatted soy flours and Jerusalem artichoke tubers and integrated evaluation the changes of product physico chemical properties during the processing. The moisture content, pH kinetic and total titratable acidity (TTA) as well as contents of D(-) and L(+) isomers of lactic acid, amylolytic and proteolytic activities, excreted by *Lactobacillus sakei*, *Pediococcus acidilactici* KTU05-*7* and *Pediococcus pentosaceus KTU05-8* during traditional (TF) and solid state fermentation (SSF) of plant products were analysed. The highest amylolytic activity excreted by *L. sakei* and *P. acidilactici* were measured in Jerusalem artichoke products (1280.7 and 765.7 AU/g (TF fermentation) and 1075.0 ir 390.6 AU/g (SSF fermentation) respectively). On the contrary, plant products treated by SSF showed the lower proteolytic activity of LAB. Results indicated that SSF technology allow to produce the plant products with higher amounts of L(+) isomers of lactic acid (from 2.8 g/100 g in fermented with *P. acidilactici* Jerusalem artichoke to 10.3 g/100 g of fermented with *L. sakei* lupine products) as well as lower formation of D(-) isomers of lactic acid (from 0.18 g/100 g in fermented with *P. acidilactici* Jerusalem artichoke to 7.05 g/100 g in fermented with *P. pentosaceus* soy products) (P ≤ 0,05).

Keywords: Fermentation, hydrolases, lactic acid, L+/D- lactate

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