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Beta-glycosidase enzyme activities of *Lactobacillus* and hydrolysis of isoflavone

Yuksekdag Z N and Cinar-Acar B
University of Gazi, Turkey

Phytochemicals, a type of isoflavones, representing a major group of phytoestrogens are the beneficial composites to health. Soy isoflavone complements are used to treat several chronic diseases, cancer cells, cardiovascular diseases and osteoporosis. Biological activities of glycosides and aglycones that are in two groups of isoflavones are originating from their aglycones (genistein, daidzein), but not from their glycoside forms (genistin, daidzin). Isoflavone aglycones have been shown to be more quickly and efficiently absorbed into intestines than isoflavone glucosides. β-glucosidases can be used to convert isoflavone glucosides to aglycones. In the present study, human-being, nutritional and animal originated 39 *Lactobacillus* species were used. β-glucosidases enzyme activities of the cultures were identified by using p-nitrophenyl-β-D glikopiranozit (p-NPG) as a substrate. In these strains, β-glycosidase specific enzyme activity was determined that varied from 0.250-4.500 U/mg. For β-glycosidase enzyme belonging to *L. rhamnosus* MBA9 (4.500 U/mg), *L. rhamnosus* EA1 (2.670 U/mg), and L. casei SC1 (3.000 U/mg) strains showed high β-glycosidase specific enzyme activity. The strains that showed high β-glycosidase specific enzyme activity was determined for the ability to hydrolyze the isoflavone glucosides, genistin and daidzin, using High Pressure Liquid Chromatography (HPLC). These strains hydrolyzed 42.6-56.0% of genistin and 59.8-74.0% of daidzin. These results prove that β-glucosidase is an important enzyme which is produced by *Lactobacillus* and can be used to transform isoflavone glucosides to beneficial for health aglycones.

Biography

Yuksekdag Z N has completed her PhD from Gazi University. She is working as a Professor Doctor in Gazi University. Her areas of expertise are probiotics, microbial biotechnology, and food microbiology. She has published more than 25 papers in reputed journals and is serving as an Editorial Board Member and Referee in different reputed journals, and has worked in 19 research projects.

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