

The Effect of High Yield Protease for Soy Peptidation in Solid-state Fermentation by newly Isolated *Bacillus subtilis* GR101 and *Aspergillus oryzae* GB101.

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The microorganisms, which are involved in solid-state fermentation (SSF), synthesized enzymes that degrade polymeric substances into smaller and more easily digestible compounds. This approach was developing of bioactive peptide as vegetable feedstuffs, especially soy peptide using mixed with *Bacillus subtilis* GR101 and *Aspergillus oryzae* GB101. In this study, *Bacillus subtilis* were isolated from domestic soybean paste and screened *Bacillus subtilis* GR101 which produced the high-yield protease. Phylogenetic analysis of the isolate using its 16S rRNA gene sequence was analyzed. 16S rRNA gene sequences of GR101 showed 98% homology to *Bacillus subtilis*. The performance of SSF was assessed in terms of changes in protein content, peptide fractionation and morphology of cell wall of soybean.

The protein content of fermented soybean was increased up to 3 day of incubation under SSF. Low molecular of Peptide fractionation was observed with fermented soybean that 35% of peptide was under 1kDa. With the scanning electron microscope, *Aspergillus oryzae* attached to particulate matter and more degraded inner cell from intact soybean.