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Production of Hypoallergenic Soybean Proteins Using Three step fermentation

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Soybean is an important food component. The use of soybean products in processed foods poses a significant health and food safety problem for sensitive individuals. Fermentation is known to be particularly effective in reducing allergenicity. In this study we have investigated the effect of fermentation with 3 different types of microorganisms on antigenicity change of soybeans by using immunoblotting with polyclonal antibody against soybean proteins. Lactic acid bacteria was inoculated at first in steamed soybean and fermented at 30℃ for 24 hours. After *Aspergillus oryzae* was inoculated at lactic fermented soybean and incubated at 30℃ for 30 hours. Then *Bacillus subtilis* was inoculated at second fermented soybean and incubated at 43℃ for 24 hours. Soybean proteins were extracted by after fermentation and separated by SDS-PAGE. Antigenicity were analyzed by immunobot using soybean protein-specific polycolonal antibody. Proteins in soybean were degraded after fermentation. The best degradation was achieved by three-step fermentation using nisin-producing *Lactococcus lactis* subsp. *lactis* IFO 12007, *Aspergillus oryzae* and *Bacillus subtilis*. Antigenicity were also completely degradation after three-step fermentation.