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The impact of pretreatment of soymilk by pepsin on soymilk-based yogurt's fermentation process

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Oybean is generally recognized as a healthy food by Chinese people, due to its high content of vegetable protein, which Soybean is generally recognized as a healthy tood by Uninese people, due to its night content of vegetable protein, which produces plenty of essential amino acids. Recent research also revealed that the intake of soybean products can decrease an individual's risks of cardiopathy and hypercholesteremia. Soybean isoflavones were generally recognized as the main active component of soybean influencing the decrease of cardiopathy and hypercholesteremia. In soybean, the majority of isoflavones exist in the form of glucosides, which compared with isoflavone aglycones, have lower bioactivity. The addition of lactic bacteria can hydrolyze glucosides into isoflavone aglycones and consequently facilitates the bioactivities of soybean isoflavones. The isoflavones are transformed due to the β -glucosidase produced by microorganism when the soybean milk is fermented by lactic acid bacteria. Nevertheless, soybean milk, especially the vegetable protein in soybean milk is not a suitable medium conducive to the growth of lactic acid bacteria, because soybean milk is lack of oligopeptide growth factors and the proteinase activity is low in lactic acid bacteria. With the assistance of additional protease, the soybean milk can be fermented into soybean yogurt by lactic acid bacteria. In this article, baked soybean was ground to powder, mixed with water to make soybean milk, and then pre-hydrolyzed by pepsin at 37 °C for 30 minutes. Then high-fructose corn syrup was added into the pretreated soybean milk as carbon source. Some lactic acid bacteria starter was inoculated to initiate the fermentation under anaerobic conditions at a preference temperature. After the primary fermentation, the mixture was reserved at 4°C for 24 h sustain secondary fermentation. The process could shorten the fermentation time and improve total acids in the soybean yogurt. Above all, the pretreatment of protease in soybean yogurt increases the load of lactic acid bacteria for dozens of times.

Key words: Soybean yogurt, pretreatment, pepsin, and lactic acid bacteria

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