Angiotensin I-converting enzyme inhibitor activity on egg albumen fermentation.

Nahariah N¹, Legowo AM², Abustam E¹, Hintono A².

Abstract

Lactobacillus plantarum is used for fermentation of fish products, meat and milk. However, the utilization of these bacteria in egg processing has not been done. This study was designed to evaluate the potential of fermented egg albumen as a functional food that is rich in angiotensin I-converting enzyme inhibitors activity (ACE-inhibitor activity) and is antihypertensive. A completely randomized design was used in this study with six durations of fermentation (6, 12, 18, 24, 30, and 36 h) as treatments. Six hundred eggs obtained from the same chicken farm were used in the experiment as sources of egg albumen. Bacteria L. plantarum FNCC 0027 used in the fermentation was isolated from cow's milk. The parameters measured were the total bacteria, dissolved protein, pH, total acid and the activity of ACE-inhibitors. The results showed that there were significant effects of fermentation time on the parameters tested. Total bacteria increased significantly during fermentation for 6, 12, 18, and 24 h and then decreased with the increasing time of fermentation to 30 and 36 h. Soluble protein increased significantly during fermentation to 18 h and then subsequently decreased during of fermentation to 24, 30, and 36 h. The pH value decreased markedly during fermentation. The activities of ACE-inhibitor in fermented egg albumen increased during fermentation to 18 h and then decreased with the increasing of the duration of fermentation to 24, 30, and 36 h. The egg albumen which was fermented for 18 h resulted in a functional food that was rich in ACE-inhibitor activity.

KEYWORDS:

Angiotensin I-Converting Enzyme Inhibitor Activity; Egg Albumen; Fermentation; Functional Food; L. plantarum