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Perubahan biokimiawi stakiosa dan asam lemak esensial pada tempe kedelai (*Glycine max*) selama proses fermentasi

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***Triwibowo R, Andriani M.A.M., Ariviani S. 2016. The stakiosa and essential fatty acids biochemical changes in soybean tempeh* (Glycine max*) during fermentation process. Bioteknologi 13: 34-41.* Soybean tempeh is a food that is known by the people of Indonesia. It is known to have levels of stakiosa which causes flatulensi lower than soybean. It is also known to have levels of essential fatty acids (oleic acid, linoleic, and linolenic), which is higher than soybean. This study aims to determine changes in levels of stakiosa and essential fatty acids (oleic acid, linoleic, and linolenic) during the fermentation process. The determination of stakiosa used High Performance Liquid Chromatography method (AOAC 1999). The determination of essential fatty acids include oleic acid, linoleic, and linolenic used Gas Chromotograpy method (Park and Goins 1994). This research are expected to provide an alternative optimal fermentation time observed from the lowest level of stakiosa and the high level of essential fatty acid. The results showed that stakiosa levels of soybean tempeh decreased over the longer fermentation. The percentage of the highest decrease level of stakiosa found in 24 hours fermentation. While changes in level of oleic acid, linoleic acid, and linolenic acid in soybean tempeh fermentation for 96 hours has the same pattern. The lowest level of essential fatty acids found in 48 hours fermentation time and the highest in 96 hours fermentation.**

Keywords: Essential fatty acids, *Glycine max*, soybean, stakiosa, tempeh

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Triwibowo R, Andriani M.A.M., Ariviani S. 2016. Perubahan biokimiawi stakiosa dan asam lemak esensial pada tempe kedelai (Glycine max) selama proses fermentasi. Bioteknologi 13: 34-41. **Tempe kedelai merupakan makanan yang sangat dikenal oleh masyarakat Indonesia. Tempe kedelai diketahui mempunyai kadar stakiosa penyebab terjadinya flatulensi yang lebih rendah dibanding kedelai. Tempe kedelai juga diketahui mempunyai kadar asam lemak esensial (asam oleat, linoleat, dan linolenat) yang lebih tinggi dibanding kedelai. Penelitian ini bertujuan untuk mengetahui perubahan kadar stakiosa dan asam lemak esensial (asam oleat,linoleat dan linolenat) selama proses fermentasi. Penentuan stakiosa menggunakan metode *High Performance Liquid Chromatography* (AOAC 1999). Penentuan kadar asam lemak esensial meliputi asam oleat, linoleat dan linolenat menggunakan metode *Gas Chromotograpy* (Park dan Goins 1994). Melalui penelitian ini diharapkan dapat memberikan alternatif waktu fermentasi yang optimal ditinjau dari kadar stakiosa yang paling rendah dan kadar asam lemak esensial yang tinggi. Hasil penelitian menunjukkan bahwa kadar stakiosa tempe kedelai semakin menurun seiring semakin lama fermentasi. Persentase penurunan kadar stakiosa tertinggi pada 24 jam waktu fermentasi. Sedangkan perubahan kadar asam oleat, asam linoleat maupun asam linolenat tempe kedelai selama 96 jam fermentasi mempunyai pola yang sama. Kadar asam lemak esensial terendah terdapat pada 48 jam waktu fermentasi dan tertinggi pada 96 jam waktu fermentasi.**

Kata kunci: Asam lemak esensial, *Glycine max*, kedelai, stakiosa, tempe