

In vitro antioxidant activity of sesame milk fermentation in human Low-Density Lipoprotein (LDL)

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Sesame milk contains sesaminol triglucoside that showed higher antioxidant activity when it is hydrolyzed by β -glucosidase. The objectives of this study were to determine in vitro antioxidant activity of fermented sesame milk (FSM) extract and sesame milk (SM) extract against DPPH and LDL oxidation and to examine phenolic, sesaminol triglucoside content and β -glucosidase activity. Antioxidant activity was examined using DPPH and TBARS assay with LDL as the oxidation substrate. Sesaminol triglucoside was identified with HPLC diode array detector and β -glucosidase activity was determined by measuring hydrolysis rate of *p*-nitrophenyl- β -D-glucopyranoside (pNPG). After fermentation of sesame milk with *L. plantarum* Dad 13, the β -glucosidase activity was 70.3 ± 0.023 mU/ml fermented sesame milk, the sesaminol triglucoside content of SM and FSM were 5.65 to 2.56 mg/100 ml of sesame milk, respectively, the phenolic content of SM and FSM were 3.81 ± 0.10 and 7.9 ± 0.08 mg GAE/g dry

sesame seed, respectively, radical scavenging activity of SM and FSM 18 ± 0.64 , and $45.5 \pm 0.37\%$ respectively. Fermented sesame milk inhibited human plasma LDL oxidation by 1.82 compared to unfermented sesame milk. This result related to hydrolysis of sesaminol triglucoside by β -glucosidase which was produced by *L. plantarum* Dad 13 that resulted in sesaminol. This results suggest that fermented sesame milk extract has in vitro antioxidant activity in human LDL better than sesame milk extract.

Speaker Biography

Ulyatu Fitrotin is a researcher in Assesment Institutes for Agricultural Technology of West Nusa Tenggara, Indonesia. She has completed her PhD from food science doctoral program of Gadjah Mada University Yogyakarta, Indonesia. Her research focuses on antioxidant activity and food processing.

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