

**Anti-Allergy Effect of Probiotic Goat Milk Yogurt with Indonesian
Indigenous Bacteria *Streptococcus thermophilus* Dad-11 and
Lactiplantibacillus plantarum subsp. *plantarum* Dad-13**

INTISARI

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Yogurt susu kambing yang diproduksi dengan kultur alternatif bakteri lokal Indonesia *S. thermophilus* Dad-11 dan *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dibuat untuk diversifikasi produk susu kambing lokal. Fungsionalitas produk dievaluasi untuk meningkatkan nilainya, yang menambah sifat probiotik. Penelitian ini bertujuan untuk menilai sifat antialergi yogurt susu kambing dengan mengidentifikasi pelepasan β -heksosaminidase, konsentrasi Ca^{2+} intraseluler, pembentukan mikrotubulus, dan western blotting dalam sistem sel RBL-2H3. GABA yogurt susu kambing pada tingkat awal adalah 97,9 ppm dan tidak ada sitotoksitas yang diamati dalam yogurt terhadap sel RBL-2H3. Ekstrak air yogurt menunjukkan efek antidegranulasi yang lebih substansial pada sel RBL-2H3 daripada susu kambing dengan menekan masuknya Ca^{2+} ke dalam sitosol dan menghambat pembentukan mikrotubulus. Sebagai identifikasi lebih lanjut, yogurt menunjukkan efek supresif pada fosforilasi Syk dan PI3K, sementara sedikit menekan fosforilasi jalur pensinyalan Akt dan Lyn yang terlibat dalam degranulasi. Dapat disimpulkan bahwa yogurt susu kambing yang difermentasi oleh *Streptococcus thermophilus* Dad-11 dan *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 memiliki potensi manfaat kesehatan karena kandungan GABA dan efek antialergi.

Kata kunci: yoghurt, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13, *Streptococcus thermophilus* Dad-11, RBL-2H3, antialergi

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ABSTRACT

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Goat milk yogurt produced by an alternate culture of Indonesian Indigenous bacteria *S. thermophilus* Dad-11 and *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 was made for the diversification of local goat milk products. The functionality of the product was evaluated to increase its value, which added to the probiotic properties. The study aimed to assess the anti-allergic properties of goat milk yogurt by identification of β -hexosaminidase release, intracellular Ca^{2+} concentration, microtubule formation, and western blotting in RBL-2H3 cells system. The GABA of goat milk yogurt at an initial level was 97.9 ppm and no cytotoxicity was observed in the yogurt against RBL-2H3 cells. The yogurt water extract showed a more substantial anti-degranulation effect on RBL-2H3 cells than that of goat milk by suppressing the influx of Ca^{2+} into the cytosol and inhibiting microtubule formation. As further identification, the yogurt showed suppressive effects on the phosphorylation of Syk and PI3K, while slightly suppressing the phosphorylation of Akt and Lyn signaling pathways involved in degranulation. It can be concluded that goat milk yogurt fermented by *Streptococcus thermophilus* Dad-11 and *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 have potential health benefits due to GABA content and anti-allergic effects.

Keywords: yogurt, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13, *Streptococcus thermophilus* Dad-11, RBL-2H3 cells, anti-allergy