

**UJI AKTIVITAS BAKTERI ASAM LAKTAT
(*Lactobacillus bulgaricus* dan *Streptococcus thermophilus*)
PADA YOGHURT DALAM MENGHAMBAT PERTUMBUHAN
*Stenotrophomonas maltophilia***

ABSTRAK

Stenotrophomonas maltophilia merupakan patogen oportunistik yang banyak ditemukan di air dan peralatan rumah sakit sehingga dapat menyebabkan infeksi nosokomial pada kulit, jaringan lunak, dan paru. Terapi untuk infeksi *S. maltophilia* terbatas, lini utama yang disarankan adalah kombinasi trimethoprim dengan sulfamethoxazole, namun penggunaan antibiotik perlu pengawasan karena dapat memiliki efek samping serta bisa meningkatkan angka resistensi sehingga perlu dipertimbangkan alternatif pencegahan untuk infeksi *S. maltophilia* salah satunya menggunakan bakteri asam laktat (BAL) pada yoghurt. Penelitian ini bertujuan untuk menguji pengaruh aktivitas BAL *Lactobacillus bulgaricus* dan *Streptococcus thermophilus* pada yoghurt dalam menghambat pertumbuhan *S. maltophilia*. Penelitian ini merupakan penelitian *experimental post test-only with control group design* dan menggunakan Rancangan Acak Lengkap (RAL). Metode yang digunakan adalah metode dilusi cair, *S. maltophilia* dikontakkan dengan BAL pada yoghurt dalam 5 kelompok konsentrasi yaitu 0%, 20%, 40%, 60%, dan 80% kemudian diinokulasi pada media *Mueller-Hinton agar* secara *spread plate* dan diamati rata – rata jumlah koloni yang tumbuh. Hasil yang didapat semakin tinggi angka konsentrasi yoghurt semakin berkurang rata – rata jumlah koloni, penghambatan terbaik mencapai 99,99981% dengan rerata jumlah koloni $0,610 \times 10^6$ CFU/mL pada konsentrasi yoghurt 80%. Berdasarkan hasil penelitian dapat disimpulkan bahwa BAL *L. bulgaricus* dan *S. thermophilus* pada yoghurt dapat menghambat pertumbuhan *S. maltophilia*.

Kata kunci: BAL, efek antibakteri yoghurt, *Stenotrophomonas maltophilia*.

**ACTIVITY TEST OF LACTIC ACID BACTERIA
(*Lactobacillus bulgaricus* AND *Streptococcus thermophilus*)
YOGHURT IN INHIBITING *Stenotrophomonas maltophilia***

ABSTRACT

Stenotrophomonas maltophilia is an opportunistic pathogen found in tap water and hospital equipment causing skin, soft tissue, and lungs infection. Unfortunately, the treatments are still lacking in which the first-line one is the combination of trimethoprim and sulfamethoxazole. However, because of the side effect of antibiotics, such antibiotic resistance, the prescription of these antibiotics are supervised and alternative treatment to the infections are extensively explored such by the using of lactic acid bacteria (LAB) in yoghurt. Taking all the above into account, the research was aimed to examine the effect of LAB *Lactobacillus bulgaricus* and *Streptococcus thermophilus* in yoghurt in inhibiting *S. maltophilia*. This research was an experimental study with the post test-only with control group design and completely randomized design (CRD). The method used was broth dilution, *S. maltophilia* was contacted with LAB in 5 different concentration, 0%, 20%, 40%, 60%, and 80%. Next, after the suspension was contacted, the suspension was inoculated on *Mueller-Hinton* agar by spread plate in which total colony-forming unit of each plate was observed and counted. The result indicated the higher the yoghurt concentration, the less colonies were formed. Besides, the test also showed the highest percentage inhibition of bacterial growth (99,99981%) was produced from yoghurt with 80% concentration, in which the number of viable bacteria of the sample was $0,610 \times 10^6$ CFU/mL. This finding implies the LAB *L. bulgaricus* and *S. thermophilus* in yoghurt can inhibit *S. maltophilia*.

Keywords: LAB, *Stenotrophomonas maltophilia*, Yoghurt's antibacterial effects.