

Aktivitas Antibakteri dan Isolasi Bakteri Lactobacilli dari Kefir = Antibacterial Activity and Isolation of Lactobacilli Bacteria from Kefir

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Abstrak

Minuman kefir merupakan suatu produk fermentasi yang dapat dibuat secara mudah dan murah. Minuman kefir dikenal luas sebagai suatu minuman probiotik. Pembuatan kefir dapat dilakukan dengan menggunakan baik susu sapi maupun susu kambing. Penelitian ini bertujuan untuk menguji aktivitas antibakteri dari kefir susu sapi dan susu kambing, serta mengisolasi bakteri lactobacilli yang berperan. Aktivitas antibakteri dari kefir diuji berdasarkan perbedaan pada jenis susu yang digunakan dan lama waktu fermentasi. Isolasi dan karakterisasi isolat dilakukan berdasarkan Cowan and Steel's Manual for the Identification of Medical Bacteria. Kefir dibuat dengan menginokulasikan 5% (w/v) granula kefir lokal ke dalam 50 mL susu sapi atau kambing yang telah dipasteurisasi. Fermentasi dilakukan selama 3, 4, dan 5 hari untuk kedua jenis susu. Uji antibakteri dari kefir dilakukan dengan metode difusi menggunakan silinder (cylinder diffusion method) terhadap 5 bakteri uji, yaitu *Staphylococcus aureus* NBRC 100910, *Pseudomonas aeruginosa* DRK 9.1, *Eschericia coli* NBRC 3301, *Bacillus subtilis* NBRC 13719 dan *Kocuria rhizophila* NBRC 12708.

Pengukuran nilai pH kefir dilakukan dengan pH meter dan nilai total asam kefir dengan metode titrasi. Hasil uji aktivitas antibakteri dari kefir susu sapi maupun susu kambing menunjukkan adanya aktivitas antibakteri terhadap kelima bakteri uji. Secara umum kefir susu sapi menunjukkan aktivitas antibakteri yang lebih kecil dari kefir susu kambing, baik dari hasil fermentasi dengan lama waktu 3, 4, maupun 5 hari. Selanjutnya, aktivitas antibakteri yang paling optimal secara umum diperoleh pada kefir dengan lama fermentasi 4 hari baik untuk kefir susu sapi maupun susu kambing. Sebanyak 9 isolat bakteri berhasil diisolasi. Seluruhnya menunjukkan karakteristik bakteri yang berasal dari kelompok lactobacilli.

.....Kefir is a fermented beverage that can be made easily and cheaply. Kefir is widely known as a probiotic beverage. The production of kefir can be done using either cow milk or goat milk. This study aims to examine the antibacterial activity of cow milk and goat milk kefir, as well as to isolate responsible lactobacilli bacteria. The antibacterial activity of kefir is examined based on differences in type of milk used and fermentation time. The isolation and characterization of isolates is done according to Cowan and Steel's Manual for the Identification of Medical Bacteria. The kefirs are made by inoculating 5% (w/v) local kefir grains into 50 mL pasteurized cow milk or goat milk. Fermentation was carried out for 3, 4, and 5 days for both types of milk. The antibacterial test of kefirs was carried out using diffusion method utilizing cylinders (cylinder diffusion method) against 5 test bacteria, namely *Staphylococcus aureus* NBRC 100910, *Pseudomonas aeruginosa* DRK 9.1, *Eschericia coli* NBRC 3301, *Bacillus subtilis* NBRC 13719 and *Kocuria rhizophila* NBRC 12708. The measurement of kefir pH values was performed using pH meter and kefir total acidities by using titration method. Antibacterial activity test results from either cow milk or goat milk kefir showed the presence of antibacterial activity against five test bacteria. In general, cow milk kefir showed lower antibacterial activity than goat milk kefir in fermentation times of either 3, 4, or 5 days. Furthermore, the most optimal antibacterial activity was generally obtained in kefirs with a fermentation time of 4 days for both cow milk and goat milk kefir. A total of 9 bacterial isolates were successfully isolated. All of which

shows the characteristics of bacteria from the lactobacilli group.