Aktivitas Antibakteri dari Isolat Laktobasil Tape Ketan Hitam terhadap Bakteri Jerawat Cutibacterium acnes dan Staphylococcus epidermidis = Antibacterial Activity of Lactobacilli Isolates from Fermented Black Glutinous Rice Against Acne Bacteria Cutibacterium acnes and Staphylococcus epidermidis

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Abstrak

Jerawat merupakan peradangan yang terjadi pada kulit yang dapat disebabkan oleh infeksi bakteri seperti Cutibacterium acnes dan Staphylococcus epidermidis. Obat jerawat yang beredar mengandung antibiotik yang dapat menyebabkan efek samping. Alternatif agen antibakteri dapat diperoleh dari makanan fermentasi seperti tape ketan hitam. Penelitian yang dilakukan oleh Rais (2022) menunjukkan adanya aktivitas antibakteri isolat laktobasil dari tape ketan hitam terhadap bakteri patogen umum. Penelitian ini bertujuan untuk menguji aktivitas antibakteri isolat laktobasil terhadap bakteri jerawat Cutibacterium acnes dan Staphylococcus epidermidis. Sebanyak empat isolat laktobasil (TM1, TM2, TM3, dan TM4) dilakukan penapisan menggunakan uji plug. Hasil uji plug menunjukkan semua isolat memiliki aktivitas antibakteri terhadap bakteri jerawat. Kemudian berdasarkan nilai Indeks Aktivitas (IA), dipilih dua isolat terbaik (TM2 dan TM4) untuk dilakukan uji antibiosis. Hasil uji antibiosis menggunakan filtrat isolat terpilih menunjukkan isolat TM2 memiliki aktivitas antibakteri terbaik dengan puncak aktivitas pada fermentasi hari ke-3. Selain itu dilakukan juga pengukuran terhadap pH dan total asam filtrat. Hasil pengukuran pH dan total asam bervariasi dan tidak memiliki korelasi dengan hasil uji antibiosis. Berdasarkan hasil uji pH dan total asam, disimpulkan bahwa aktivitas antibakteri diduga disebabkan oleh produksi bakteriosin. Aplikasi bakteriosin pada produk kecantikan dapat diteliti lebih lanjut.
.....Acne is an inflammation that occurs on the skin that can be caused by bacterial infections such as Cutibacterium acnes and Staphylococcus epidermidis. Acne medications available in the market often contain antibiotics that can cause side effects. Alternative antibacterial agents can be obtained from fermented foods such as black glutinous rice. Research conducted by Rais (2022) showed the presence of antibacterial activity of lactobacilli isolate from black glutinous rice against common pathogenic bacteria. This study aimed to test the antibacterial activity of lactobacilli isolates against the acne-causing bacteria Cutibacterium acnes and Staphylococcus epidermidis. A total of four lactobacilli isolates (TM1, TM2, TM3, and TM4) were screened using agar plug test. The plug test results showed all isolates had antibacterial activity against acne bacteria. Based on the Activity Index (IA) value, two best isolates (TM2 and TM4) were selected for antibiosis testing. Results of antibiosis test using selected isolate filtrates showed TM2 isolate had the best antibacterial activity with peak activity on fermentation day 3. In addition, pH and total acid were also measured. Results of pH and total acid measurements were vary and have no correlation with antibiosis test results. Based on the results of pH and total acid tests, it was concluded that antibacterial activity is suspected to be caused by the production of bacteriocin. The application of bacteriocin in cosmetics can be further studied.