

ABSTRACT

Rasyiqah Fayyaza Firdaus. 24020122130088. **Karakterisasi dan Identifikasi Bakteri Asam Laktat Asal Bekasam Penghasil Sistein dan Asam Glutamat sebagai *Flavor Enhancer***. Under the guidance of Arina Tri Lunggani dan Gunawan Priadi

The demand for flavor enhancers such as cysteine and glutamic acid continues to increase. However, the conventional production of flavor enhancers faces challenges related to halal issues and environmental impacts. Fermentation using lactic acid bacteria (LAB) derived from bekasam has the potential to serve as a safer and more sustainable alternative. This study aimed to characterize LAB isolated from bekasam, evaluate the potential of the isolates in producing cysteine and glutamic acid, and identify selected isolates. The research methods included morphological and biochemical characterization of LAB isolates, qualitative analysis of amino acids, quantitative analysis of cysteine and glutamic acid using HPLC, and molecular identification based on the 16S rRNA gene. The results showed that 12 LAB isolates were obtained, characterized as Gram-positive, cocci-shaped, catalase-negative, and non-motile, with most isolates exhibiting proteolytic activity. Qualitative analysis indicated that all isolates had the potential to produce cysteine and glutamic acid. HPLC analysis revealed that isolate BA 3 produced the highest cysteine (3549,82 mg/L), while isolate BA 7 produced the highest glutamic acid (1646,78 mg/L). Molecular identification showed that both superior isolates were identified as *Enterococcus faecalis* with similarity values of 99,86–99,93%. The selected isolates also demonstrated antibacterial activity against *Staphylococcus aureus*. In conclusion, bekasam is a potential source of LAB, particularly *Enterococcus faecalis*, capable of naturally producing cysteine and glutamic acid, and thus has potential to be developed as a functional starter culture for halal, safe, and sustainable flavor enhancer production.

Keywords : *glutamic acid, lactic acid bacteria, bekasam, flavor enhancer, cysteine*