

## Abstract

Cindy Rahma Aulya, 24020222140023. **Isolation and Characterization of Lactic Acid Bacteria from Seluang Fish (*Rasbora* spp.) Bekasam and Their Potential in GABA (*Gamma Aminobutyric Acid*) Production.** under the guidance of Endang Kusdiyantini and Agung Suprihadi.

GABA (*gamma aminobutyric acid*) is a non-protein amino acid that acts as the primary inhibitory neurotransmitter in the central nervous system and provides various health benefits. One of the microorganisms known to produce GABA is lactic acid bacteria (LAB) isolated from fermented foods. This study aimed to isolate and characterize LAB from seluang fish (*Rasbora* spp.) bekasam and to evaluate their potential for GABA production. LAB were isolated using the serial dilution method and cultured on de Man, Rogosa, and Sharpe Agar (MRSA) medium. Characterization of LAB was conducted through macroscopic and microscopic observations, as well as catalase and fermentation type tests. GABA production was detected using Thin Layer Chromatography (TLC), while GABA concentration was determined spectrophotometrically at a wavelength of 570 nm. The results showed that five LAB isolates were successfully obtained, namely B1.1.12, B1.1.14, B1.1.24, B1.1.25, and B1.1.26. All isolates exhibited characteristics typical of LAB, including circular colonies, creamy white to cream coloration, entire margins, convex elevation, smooth and glossy surfaces, Gram-positive, rod-shaped morphology (bacilli), negative catalase activity, and homofermentative fermentation type. TLC analysis revealed that isolates B1.1.12 and B1.1.24 were capable of producing GABA in the treatment supplemented with 2% (w/v) monosodium glutamate (MSG), as indicated by their similarity in retention factor ( $R_f$ ) values to the GABA standard. The  $R_f$  values were 0.52 for isolate B1.1.12, 0.51 for isolate B1.1.24, and 0.52 for the GABA standard. The highest GABA concentration produced by isolate B1.1.12 was 635 mg/L after 40-hour of incubation, whereas isolate B1.1.24 reached its highest concentration of 588 mg/L after 44-hour of incubation. These findings indicate that LAB isolated from seluang fish (*Rasbora* spp.) bekasam have the potential to produce GABA.

**Keywords:** *Lactic acid bacteria, Bekasam, GABA, TLC*