

Intisari

ISOLASI DAN IDENTIFIKASI BAKTERI PSIKROFIL PEMBENTUK HISTAMIN DARI CAKALANG

Ikan Cakalang (*Katsuwonus pelamis*) merupakan salah satu komoditas perikanan tangkap unggulan Indonesia karena rasanya yang enak dan kaya akan kandungan gizi. Cakalang termasuk ke dalam famili scromboid yang berpotensi menyebabkan keracunan histamin akibat pertumbuhan bakteri pembentuk histamin (BPH). Penelitian ini bertujuan untuk mengetahui jumlah bakteri total dan bakteri terduga pembentuk histamin dari jenis psikrofil pada cakalang, mengisolasi dan mengidentifikasi BPH dari cakalang, serta mengonfirmasi pertumbuhan BPH psikrofil ikan cakalang pada suhu berbeda. BPH psikrofil diisolasi dari bagian daging dekat insang, daging punggung, daging perut, dan daging ekor yang telah diinkubasi selama 5 hari pada 6°C. Isolat positif BPH dilakukan analisis ALT, uji biokimia, uji molekuler, dan uji konfirmasi. Jumlah bakteri total dan terduga BPH diketahui melalui analisis Angka Lempeng Total (ALT). Uji biokimia dilakukan dengan mengacu pada *Cowan and Steel's Manual for the Identification of Medical Bacteria*. Kemampuan pembentukan histamin dilakukan dengan menggunakan metode Kromatografi Lapis Tipis (KLT) dan *software* ImageJ. Uji molekuler dilakukan di perusahaan 1st Base Singapore lalu data basa nukleotida diunggah ke BLAST untuk melihat kekerabatan dengan bakteri referensi. Uji konfirmasi dilakukan pada 3 suhu yang berbeda yaitu 5, 15, dan 30°C serta pengukuran nilai *optic density* (OD) selama 5 hari pengamatan. Hasil penelitian ini menunjukkan bahwa masih terdapat BPH psikrofil dalam cakalang yang diisolasi pada suhu dingin (5°C) dengan pembentukan histamin hingga 88,36 ppm. Kadar histamin tertinggi terdapat pada perlakuan suhu 5°C dibanding dengan perlakuan suhu 15°C dan 30°C. Seluruh isolat BPH yang diperoleh berasal dari Genus *Pseudomonas* sp. dimana mayoritas isolat berasal dari golongan psikrotrof.

Kata kunci: bakteri pembentuk histamin, cakalang, histamin, *pseudomonas*, psikrofil

Abstract

ISOLATION AND IDENTIFICATION OF HISTAMINE FORMING PSYCROPHILES BACTERIA FROM SKIPJACK TUNA

Skipjack tuna (*Katsuwonus pelamis*) is one of Indonesia's leading capture fisheries commodities because of its delicious taste and rich of nutritional content. Skipjack tuna is included in the *scromboid* family which has the potential to cause histamine poisoning due to the growth of histamine-forming bacteria (HFB). This study aimed to determine the total number of bacteria and bacteria suspected of forming histamine from psychrophilic types in skipjack tuna, isolate and identify HFB from skipjack tuna, and confirm the growth of psychrophilic HFB in skipjack tuna at different temperatures. Psychrophilic HFB was isolated from meat near the gills, back meat, belly meat, and tail meat that had been incubated for 5 days at 6°C. HFB positive isolates were subjected to TPC analysis, biochemical tests, molecular tests, and confirmation tests. The total number of bacteria and suspected BPH were known through Total Plate Count (TPC) analysis. Biochemical tests were carried out with refers to Cowan and Steel's Manual for the Identification of Medical Bacteria. The ability of histamine formation was carried out using Thin Layer Chromatography (TLC) and ImageJ software. The molecular test was carried out at the 1st Base Singapore company and then the nucleotide base data was uploaded to BLAST to see the relationship with the reference bacteria. Confirmation tests were carried out at 3 different temperatures (5, 15, and 30oC) and measuring the optical density (OD) value for 5 days of observation. The results of this study indicate that there is still psychrophilic HFB in skipjack tuna isolated at cold temperatures (5°C) with the formation of histamine up to 88.36 ppm. The highest histamine levels were found at 5°C compared to 15°C and 30°C. All HFB isolates obtained were from the genus *Pseudomonas* sp. where the majority of isolates came from the psychrotroph group.

Keywords: histamine, histamine-forming bacteria, *pseudomonas*, psychrophiles, skipjack tuna