

ANALISIS LOGAM BERAT (As, Cd, Pb, Cu, Zn) DAN PENENTUAN BATAS AMAN KONSUMSI KERANG *HIATULA CHINENSIS* DARI PULAU BINTAN

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INTISARI

Analisis logam berat (As, Cd, Pb, Cu, Zn) dan penentuan batas aman konsumsi kerang *Hiatula chinensis* dari Pulau Bintan telah dilakukan. Penelitian ini bertujuan untuk menentukan konsentrasi logam berat As, Cd, Pb, Cu, dan Zn dalam kerang *Hiatula chinensis* yang berasal dari Pulau Bintan, mengetahui status keamanan pangan dan menentukan batas aman konsumsi kerang *Hiatula chinensis*.

Sebagian sampel dihilangkan pencernaannya dan sebagian yang lain menggunakan seluruh organ. Sampel dikeringkan dalam oven dan dihaluskan. Sampel serbuk kemudian didestruksi basah dengan menggunakan reagen HNO₃ pekat dalam *Microwave Digestion*. Larutan diencerkan dengan akuabides, disaring, lalu dianalisis dengan *Inductively Coupled Plasma Optical Emission Spectroscopy* (ICP-OES). Hasil konsentrasi logam digunakan untuk mengukur parameter keamanan pangannya seperti perbandingan langsung konsentrasi logam dalam kerang dengan batas cemaran logam yang ditetapkan oleh Badan Pangan Obat dan Makanan (BPOM), penetapan *Target Hazard Quotient* (THQ), *Hazard Index* (HI), *Estimated Daily Intake* (EDI), *Maximum Weekly Intake* (MWI), dan Batas Aman Konsumsi (BAK).

Berdasarkan penelitian ini, konsentrasi logam yang terkandung dalam kerang baik pada sampel seluruh organ maupun organ tanpa bagian pencernaan dari yang paling besar hingga yang paling kecil yaitu Zn>Cu>As>Pb>Cd. Kerang *Hiatula chinensis* tidak aman untuk dikonsumsi karena konsentrasi logam As dan Pb dalam kerang telah melebihi ambang batas cemaran yang ditetapkan serta *Target Hazard Quotient* As bernilai lebih dari 1. Batas aman konsumsi kerang *Hiatula chinensis* adalah sebanyak 12.500 gram/minggu.

Kata Kunci: Batas aman konsumsi, logam berat, *Hiatula chinensis*.

ANALYSIS OF HEAVY METALS (As, Cd, Pb, Cu, Zn) AND DETERMINATION OF CONSUMPTION THRESHOLD OF *HIATULA CHINENSIS* MUSSELS FROM BINTAN ISLAND

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ABSTRACT

Analysis of heavy metals (As, Cd, Pb, Cu, Zn) and determination of consumption threshold of *Hiatula chinensis* mussels from Bintan Island have been done. This experiment was aimed to determine the concentration of heavy metals As, Cd, Pb, Cu, dan Zn in *Hiatula chinensis* mussels from Bintan Island in the whole body and mussels without digestive gland, determine the food safety status and consumption threshold of *Hiatula chinensis*.

The whole body of mussel and the one without digestive organ were dried and crushed. The sample powder was digested by concentrated HNO₃ in microwave digestion. The solution was diluted by aquabidest, filtered and analyzed using ICP-OES (*Inductively Coupled Plasma Optical Emission Spectroscopy*). Then the results of metal concentration were used to quantify food safety parameters such as direct comparison of metals concentration in mussels with metal contamination threshold limits from National Agency of Drug and Food Control, determination of Target Hazard Quotient (THQ), Hazard Index (HI), Estimated Daily Intake (EDI), Maximum Weekly Intake (MWI), and consumption threshold of mussel.

The concentration order of metals in mussels both in the whole body sample and another without digestive gland from the largest to the smallest, namely Zn>Cu>As>Pb>Cd. *Hiatula chinensis* mussels are not safe for consumption because the concentration of As and Pb in the mussels have exceeded the specified contamination threshold and Target Hazard Quotient value of As is more than 1. The consumption threshold of *Hiatula chinensis* are 12500 gram/week.

Keywords: Heavy metals, *Hiatula chinensis*, consumption threshold of mussel.