

ANALISIS LOGAM BERAT DAN TINGKAT KEAMANAN PANGAN PADA SIPUT GONGGONG DI PERAIRAN PULAU BINTAN, KEPULAUAN RIAU DENGAN *INDUCTIVELY COUPLED PLASMA – OPTICAL EMISSION SPECTROMETRY (ICP-OES)*

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INTISARI

Analisis logam As, Cd, Cu, Pb, Ni dan tingkat keamanan pangan pada siput gonggong pulau Bintan, Kepulauan Riau telah dilakukan. Tujuan dari penelitian ini adalah untuk menentukan konsentrasi logam berat (As, Cd, Ni, Pb, dan Cu) pada siput gonggong (*Laevistrombus canarium*) yang berasal dari pulau Bintan, mengetahui status keamanan pangan pada siput gonggong, dan menentukan batas ambang pangan konsumsi siput gonggong per minggu. Penentuan kandungan logam dilakukan dengan metode destruksi basah. Bagian otot sampel diambil lalu dikeringkan dengan oven kemudian digerus hingga berbentuk serbuk. Sampel siput gonggong yang berbentuk serbuk sebanyak 0,2 gram dianalisis langsung untuk penentuan logam As, Cd, Cu, Pb, dan Ni yang dilakukan dengan melarutkan sampel siput gonggong yang berbentuk serbuk dengan *double deionized water* dan HNO₃ pekat hingga 10 mL kemudian dilakukan digesti menggunakan *Microwave Digestion* pada temperatur 185 °C selama 2x20 menit. Sampel diencerkan dengan *ultra pure water* hingga 25 mL kemudian dilakukan analisis menggunakan *Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES)*. Hasil konsentrasi logam digunakan untuk mengukur analisis *Estimated Daily Intake (EDI)*, *Target Hazard Quotient (THQ)*, *Hazard Index (HI)*, *Target Cancer Risk (TR)*, *Maximum Weekly Intake (MWI)*, dan Batas Aman Konsumsi (BAK).

Urutan konsentrasi logam dari nilai yang terbesar hingga terkecil yakni Cu>As>Ni>Pb>Cd. Sementara nilai *Target Hazard Quotient* As melebihi batas ambang sehingga nilai *Hazard Index* sampel juga melebihi batas ambang aman. Nilai *Target Cancer Risk* untuk As dan Ni termasuk dalam batas sedang. Batas Aman Konsumsi terkecil untuk siput gonggong terdapat pada logam Cd sebesar 907 gram/berat badan per minggu sehingga penerapan Batas Ambang Konsumsi siput gonggong per minggu mengacu pada batas aman logam terkecil yaitu Cd.

Kata kunci: akumulasi, ICP-OES, logam, *L.canarium*

***HEAVY METALS ANALYSIS AND FOOD SAFETY LEVEL OF
GONGGONG SNAIL IN BINTAN ISLAND WATERS, RIAU ARCHIPELAGO
USING INDUCTIVELY COUPLED PLASMA – OPTICAL EMISSION
SPECTROMETRY (ICP-OES)***

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ABSTRACT

Research on the analysis of heavy metals As, Cd, Cu, Pb, Ni and the level of Gonggong snail food safety in Bintan island waters, Riau Archipelago has been done. The aims of this research are to determine the content of metals accumulation (As, Cd, Cu, Pb, Ni) in gonggong snail (*Laevistrombus canarium*) from Bintan ialand waters, find out the food safety status of sample, and determine the food safety level of the sample in each week. Determination of metal was carried out by wet destruction. The muscle of sample was separated to dried by microwave, then sample was crushed to become powder. The powder of sample with amount of 0,2 gram has been analyzed to measure As, Cd, Cu, Pb, and Ni contentration. The powder of sample was dissolved by *double deionized water* and HNO₃ concentrated until 10 mL, then digested by *Microwave Digestion* at 185 °C for 2×20 minutes. Sample was mixed with ultra pure water until 25 mL for analysis using *Inductively Coupled Plasma-Optical Emission Spectroscopy* (ICP-OES). The results of metals concentration were used to measure *Estimated Daily Intake* (EDI), *Target Hazard Quotient* (THQ), *Hazard Index* (HI), *Target Cancer Risk* (TCR), *Maximum Weekly Intake* (MWI), and thereshold consumption of snail.

The metals concentration from the largest value to the smallest value in *L.canarium* are Cu>As>Ni>Pb>Cd. The value of *Target Hazard Quotient* As is over the limit then affect the *Hazard Index* value to be over the limit. The value of *Target Cancer Risk* As and Ni still on moderate range. The smallest threshold consumption for *L.canarium* was found in Cd with 907 gram/weight for each week, then the threshold consumption for gonggong snail each week refers to the smallest threshold value that was Cd.

Key words: accumulation, ICP-OES, metals, *L.canarium*