DETERMINATION OF TOTAL MERCURY AND CHRONIC DAILY INTAKE IN EDIBLE SEAWEED

Aline Luiza Simsen[1*]; Leticia da Silva Pedroso[1]; Julia Maciel Outeiro[1]; Filipe Soares Rondan[1]; Marcia Foster Mesko[1].

[1] Federal University of Pelotas, Center of Chemical, Pharmaceutical, and Food Sciences, Pelotas, RS, Brazil, 96160-000

*e-mail: simsen.aline@gmail.com

INTRODUCTION: Seaweeds are organisms recognized not only for their ecological significance but also for their cultural and economic importance in East Asian countries, such as China, Japan, and South Korea, where they are consumed daily as part of the diet.[1] Edible seaweeds have high nutritional value, offering a rich source of protein (up to 34%) and low fat content, making them an excellent and healthy option for consumption.[2] Numerous studies have focused on quantifying macro- and micronutrients in food, as well as potentially toxic elements. In recent years, concerns have been raised about mercury (Hg) levels in seafood due to its bioaccumulative nature and association with water contamination.[3] Mercury binds to proteins, particularly organic sulfur compounds, and to red blood cells, potentially causing damage to the brain and disrupting cellular metabolic functions.[4] **OBJECTIVE:** This study aims to quantify total mercury concentration in edible seaweed and calculate the Chronic Daily Intake (CDI) to evaluate potential toxicological risks. **MATERIALS AND METHODS:** Seaweed samples, all imported from China, were purchased in Brazil. The samples were homogenized by grinding in a knife mill to obtain uniform particles, dried, and stored in polypropylene flasks for subsequent analysis. For each sample, 100 mg was weighed in triplicate using nickel trays. Mercury levels were determined using EPA (Environmental Protection Agency) 7473 on a Direct Mercury Analyzer (DMA-80 evo). The CDI was calculated based on consumption patterns in Brazil and China. **RESULTS:** Mercury concentrations in the edible seaweed samples were as follows: 40.3 ± 0.2 μg kg^{-1} in Hijiki; 30.6 ± 0.6 μg kg^{-1} in Kombu; 11.7 ± 0.6 μg kg^{-1} in Nori; and 17.2 ± 0.1 μg kg^{-1} in Wakame. The mean CDI values were 2.5 x 10^{-3} μg/kg/day for China and 2.5 x 10^{-4} μg/kg/day for Brazil. **CONCLUSION:** The Hg concentrations in the analyzed seaweeds were higher than those reported in the literature. However, the calculated CDI values indicate that these levels do not pose a health risk based on current consumption patterns in Brazil and China.

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