

HEAVY METALS IN TUNA SPECIES MEAT AND POTENTIAL CONSUMER HEALTH RISK: A REVIEW

A A Norhazirah¹, N A M Shazili², Y Kamaruzzaman³, S F Sim⁴, A Ahmad⁵ and M C Ong^{1}*

¹School of Marine and Environmental Science, Universiti Malaysia Terengganu, Universiti Malaysia Terengganu, Kuala Nerus, 21030, Terengganu, Malaysia

²Institute of Oceanography and Environment, Universiti Malaysia Terengganu, Kuala Nerus, 21030, Terengganu, Malaysia

³Kulliyah of Science, International Islamic University Malaysia, International Islamic University Malaysia, Kuantan, 25200, Pahang, Malaysia

⁴Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, Universiti Malaysia Sarawak, Kota Samarahan, Kuching, 94300, Sarawak, Malaysia

⁵Marine Fishery Resources Development and Management Department, Southeast Asian Fisheries Development Center (SEAFDEC), 21080 Chendering, Terengganu, Malaysia

ong@umt.edu.my

Abstract. Marine fishes are one of the protein sources and they form a significant part of human diet around the world. In particular, tuna fisheries are considered as the largest and most specialized commercially important group of species among all commercial fishes. The preparing tuna methods such as cooking and canning might alter the level of heavy metals inside the meat. The heat that applied to the meat might be decreased the moisture content in tuna meat, thus give some effects to the heavy metal level. Other than that, the different composition and function of different parts of tuna can contribute to the various level of heavy metals analysed. The metal contamination in tuna species meat has put serious question to the safety level of fish intake to the community. It represent an abiding threat to human health as it has been linked to some adverse health effects such as mental retardation, kidney damage, and various types of cancer and even worse, death could occur. The following review articles presents the findings of the work carried out by the various researchers in the past on the heavy metal pollution in samples of Tuna species around the world.

1. Introduction

In the recent decades, world consumption of fish has been increased along with the rapid growing concern on their nutritional and therapeutic benefits [1]. Fish also being as an important protein sources for human health [2]. In our daily life, an adequate human diet should contain all the requirements for the energy and nutritive components. It is including essential polyunsaturated fatty acids, essential amino acids, mineral components, vitamins and fat [3,4]. According to Usydus et al. [4], resulting from the consistent content of essential polyunsaturated fatty acid like eicosapentaenoic and docosahexaenoic acid, fish known to

