**METAL TOXICITY AND HEALTH PROBLEMS LINKED TO THE CONSUMPTION OF ARK SHELLS (*ARCA NOAE* L.) FROM A TUNISIAN COASTAL LAGOON**

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**ABSTRACT**

Trace elements (TEs) in coastal systems are a major problem as these elements contribute to the regular degradation of the environment because of their continuous inputs, persistence, toxicity and ability to concentrate in organisms through food webs. The levels of cadmium (Cd), Nickel (Ni), chromium (Cr) and lead (Pb) in the edible tissue of the edible bivalve *Arca noae* (L. 1758), sampled monthly from the Tunisian coastal lagoon (Bizerte lagoon) during 2013-2014, were determined by inductively coupled plasma mass spectrometry (ICP-MS). The impact of Cd, Ni, Cr and Pb on consumer health was considered and several parameters were used to assess the potential human risk (estimated weekly intake (EWI), target hazard quotient (THQ), total target hazard quotient (TTHQ) and target hazard risk (TR)). Results showed that Cd, Ni, Cr and Pb concentrations on a wet weight basis (mg kg-1 WW) in *A. noae* flesh from the lagoon of Bizerte were well below international food safety standards. Regarding health risk assessment linked to *A. noae* consumption, all sanitary indicators (EWI, PTWI, THQ, TTHQ and TR) related to Cd, Ni, Cr and Pb levels bioaccumulated in its flesh were below values considered at risk for human health. It can be concluded that continued consumption over long periods of this shellfish may not represent a potential risk to the health of consumers regarding Cd, Ni, Cr and Pb. Consequently, this shellfish can be considered safe for human consumption and does not pose any sanitary problems. This preliminary study presents prospects for the valorization of this seafood product in Tunisia's food sector.

**Keywords**: Trace elements; Toxicity; Risk assessment.