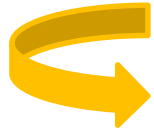


# TRACE METALS IN SOFT TISSUE OF MARINE BIVALVE NOAH'S ARK (*Arca noae*) FROM BIZERTE LAGOON (NORTHERN TUNISIA)

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Is the edible marine bivalve *Arca noae* a healthy and safe food for human consumption?



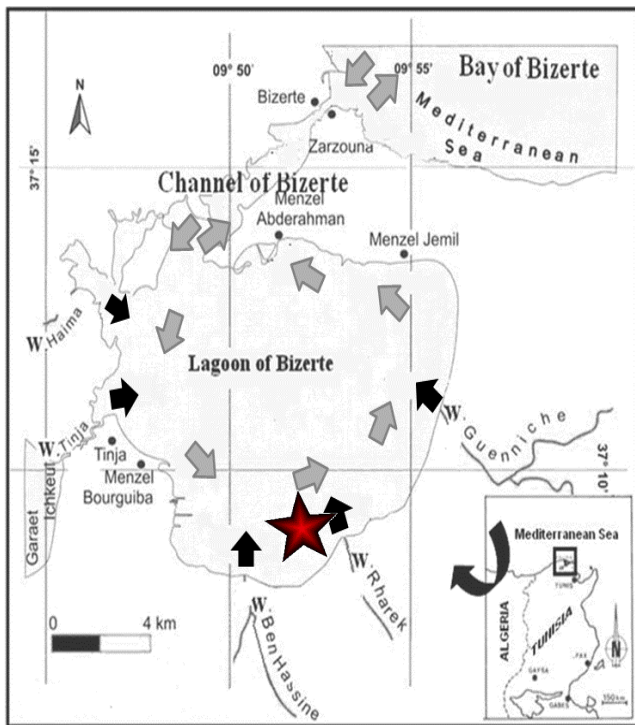
Our study aimed to monitor the bioaccumulation of 5 Traces metals (Zn, Fe, Cu, Cd, and Pb)





**Our Objective is to assess the nutritional quality of this bivalve and to promote its consumption as marine resource in Tunisia.**



- Arcidae
- Epifaunal / fixed on rocky grounds
- Mediterranean sea / Black sea / Atlantic ocean
- Northern and southern Tunisian coasts
- Important commercial value in Croatia and Italy



 Fresh water   
  Sea water

★ sampling site is located far from urban and industrial sources of pollution but remained influenced by agricultural inputs.

	Autumn 2013	Winter 2014	Spring 2014	Summer 2014	Autumn 2014
<b>Zn</b>	37,44 <sup>a</sup> ±4.52	42,02 <sup>a</sup> ±5.32	42,23 <sup>b</sup> ±4.61	42,41 <sup>b</sup> ±3.79	75,02 <sup>c</sup> ±20.12
<b>Fe</b>	36,81 <sup>b</sup> ±8.688	33,20 <sup>b</sup> ±5.819	30,06 <sup>b</sup> ±2.504	45,73 <sup>c</sup> ±17.48	46,94 <sup>c</sup> ±0.00
<b>Cu</b>	1,06 <sup>b</sup> ±0.19	0,97 <sup>a</sup> ±0.08	1,26 <sup>c</sup> ±0.17	1,56 <sup>c</sup> ±0.14	1,12 <sup>b</sup> ±1.16
<b>Cd</b>	0,14 <sup>a</sup> ±0.00	0,20 <sup>b</sup> ±0.03	0,21 <sup>b</sup> ±0.03	0,23 <sup>b</sup> ±0.05	0,31 <sup>c</sup> ±0.42
<b>Pb</b>	0,29 <sup>b</sup> ±0.17	0,13 <sup>a</sup> ±0.01	0,28 <sup>b</sup> ±0.26	0,48 <sup>c</sup> ±0.43	0,40 <sup>c</sup> ±0.44

**Zn > Fe > Cu > Pb > Cd**

- Essential (e.g. **Zn**) TEs were accumulated at higher levels than non essential toxic ones (e.g. **Pb**, **Cd**).

- Significant differences ( $p < 0.05$ ) were observed between mean seasonal TEs concentrations in *A. noae* flesh

-The highest values of all trace elements were recorded during summer 2014 and autumn 2014 (warmer compared to autumn 2013) and the lowest ones during winter 2014

# Conclusion



All metals in *A. noae* from the present study were well below the food safety standards set for bivalves by the Food and Agricultural Organization (FAO)



This result is very encouraging from an economic point of view to enable future commercial exploitation of *A. noae* in our country