**Table S1.** Variations in concentrations of As, Cd and Pb in sardine and swordfish flesh depending on the study areas

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** | **Study areas** | **N** | **Mean ± SE**  **(Max-Min)** | | |
| **As** | **Cd** | **Pb** |
| **Sardine**  ***(Sardinapilchardus)*** | **Algiers** | 15 | 1.24**c±** 0.30  (0.91- 2.17) | 0.01**c±-**  (ND- 0.01) | 0.02**b± -**  (ND- 0.02) |
| **Bejaia** | 13 | 2.98 **a**± 0.25  (2.60- 3.49) | ND | 0.02**b**± -  (ND- 0.02) |
| **Oran** | 15 | 1.40**b**± 0.13  (1.11- 1.53) | 0.01**a**± 0.001  (ND- 0.01) | 0.12**a**± 0.26  (ND- 0.83) |
| **Swordfish**  ***(Xiphias gladius)*** | **Algiers** | 20 | 0.95**d**± 0.24  (0.48- 1.25) | 0.011**b**±0.001  (ND-0.015) | ND |
| **Bejaia** | 13 | 1.63**c**± 1.57  (0.59- 6.57) | 0.01**c**± -  (ND- 0.01) | ND |
| **Oran** | 11 | 0.77**e**± 0.06  0.63- 0.84 | ND | ND |

The lower case letters showed the presence of difference or not according to the Kruskal-Wallis test.

*Heavy metal concentrations in the three study areas for each species*

Variations in the average concentrations of As, Cd and Pb in sardine and swordfish flesh depending on the study areas are listed in the Table 3.The order of concentration of these metals in the sardine flesh of the three study areas is as follows: Cd Pb As and in swordfish: Pb Cd As.In two species and in all three study areas, As is the dominant metal, with the highest concentration recorded in sardine of NE (2.9 ± 0.25 mg/kgw.w).The statistical test of Kruskal-Wallis showed a difference in the As concentration in the three study areas for the two species. Pb is also higher in sardine unlike lead in swordfish was undetectable since it was below the limit of quantification. The Kruskal-Wallis test showed no difference between the NC and the NE but it showed a difference between these zones and that of the NW. For Cadmium low concentrations were recorded that are equal to the limit of quantification in the NC and NW for sardine (0.01 mg/kg) and in the NC and NE regions for swordfish. The test Kruskal-Wallis showed no difference between NC and NE for sardine, but showed a difference between these two study areas and the NW. For swordfish this test showed no difference between NE and NW and a difference between these study areas and the NC.

**Table S2.** Estimated Dietary Intake (µg/kg/ body weight/day/week) for the intake of As, Cd and Pb in sardine and swordfish by region of study

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Heavy metals** | | **Species** | **EDI** | **EWI** | **Established PTWI by EFSA** | **Established PTWI by JECFA** |
| **As** | **Algiers** | Sardine | 0.20 | 1.4 | - | 15(As inorganic) (JECFA, 2017) |
| Swordfish | 0.153 | 1.07 |
| **Bejaia** | Sardine | 0.48 | 3.4 |
| Swordfish | 0.263 | 1.84 |
| **Oran** | Sardine | 0.23 | 1.61 |
| Swordfish | 0.123 | 0.90 |
| **Cd** | **Algiers** | Sardine | 0.0016 | 0.011 | 2.5  ([EFSA 2011](#_ENREF_8)) | 7  ([JECFA 2011a](#_ENREF_17)) |
| Swordfish | 0.0018 | 0.013 |
| **Bejaia** | Sardine | - | - |
| Swordfich | 0.00161 | 0.011 |
| **Oran** | Sardine | 0.0016 | 0.011 |
| Swordfish | - | - |
| **Pb** | **Algiers** | Sardine | 0.0032 | 0.0224 | - | 25  ([JECFA 2011b](#_ENREF_18)) |
| Swordfish | - | - |
| **Bejaia** | Sardine | 0.0032 | 0.0224 |
| Swordfish | - | - |
| **Oran** | Sardine | 0.02 | 0.14 |
| Swordfish | - | - |

# *Estimated Dietary Intake (µg/kg/body weight /day/week) for the intake of As, Cd and Pb in sardine and swordfish by region of study*

The results in Table 2 show that the estimated daily/weekly intake (EDI/ EWI) for each metal differs from one region to another for the same species of fish and also differs for each species. The highest EDI/ EWI value was observed in arsenic from sardine of the NE (0.20 μg/ kg/ bw/ day) (3.4 μg/ kg/ bw/ week). For cadmium, the highest EDI/ EWI value was recorded in swordfish of NC (0.0018 μg/ kg/ bw/ day) (0.013 μg/ kg/ bw/ week). For lead, the highest value of EDI/ EWI was estimated in sardine of NW (0.02 μg/ kg/ bw/ day) (0.14 μg/ kg/ bw/ week). While for swordfish, these doses are invaluable in three regions (Table 2).