# **Titre d’article**: Arsenic, mercury, cadmium and lead contents in Algerian continental and marine farming fish and human health risk assessment due to their consumption

**Abstract :**

This study evaluates the level of arsenic (As), mercury (Hg), cadmium (Cd) and lead (Pb) in the flesh of grey & red tilapia, sea bream & bass reared in sea and continental waters from four Algerian aquaculture farms. For this purpose, 145 fish samples, 15 samples of fish feed and 20 samples of farms waters were analysed using an accredited method based on inductively coupled plasma-mass spectrometry. The most abundant contaminant found in the fish samples was As (0.39–1.56 mg kg−1 wet weight (wet wt)) followed by Hg (0.02–0.08 mg kg−1 wet wt). A negative correlation was observed between the As level and the fish size, while this correlation was found to be positive for Hg. The levels of Pb and Cd were very low in all fish species, generally below the quantification limit. In fish feed, the contaminants levels were consistently higher compared to those in fish muscle, ranging from 0.03 to 0.09 mg kg−1 (wet wt) for Hg and from 0.9 up to 1.7 mg kg−1 (wet wt) for As. A positive correlation between the contaminant level in feed and in the fish muscle was observed only for As. The levels of Pb, Cd and Hg in the farming waters samples were below the detection limits, whereas As was quantified only in the water samples of Bejaia and Chlef farms (0.11 and 0.08 mg kg−1 , respectively). The estimated daily intake and the target hazard quotient related to the consumption of the fish species analysed in this study indicate no non-carcinogenic adverse effects on humans. The carcinogenic risk related to As in red tilapia (3.75 × 10−4 ) and sea bream (2.03 × 10−4 ) exceeded the acceptability thresholds (10−4 ). This indicates that over their lifetime, an individual consuming the above mentioned fish species, may be at a higher risk to develop cancer.