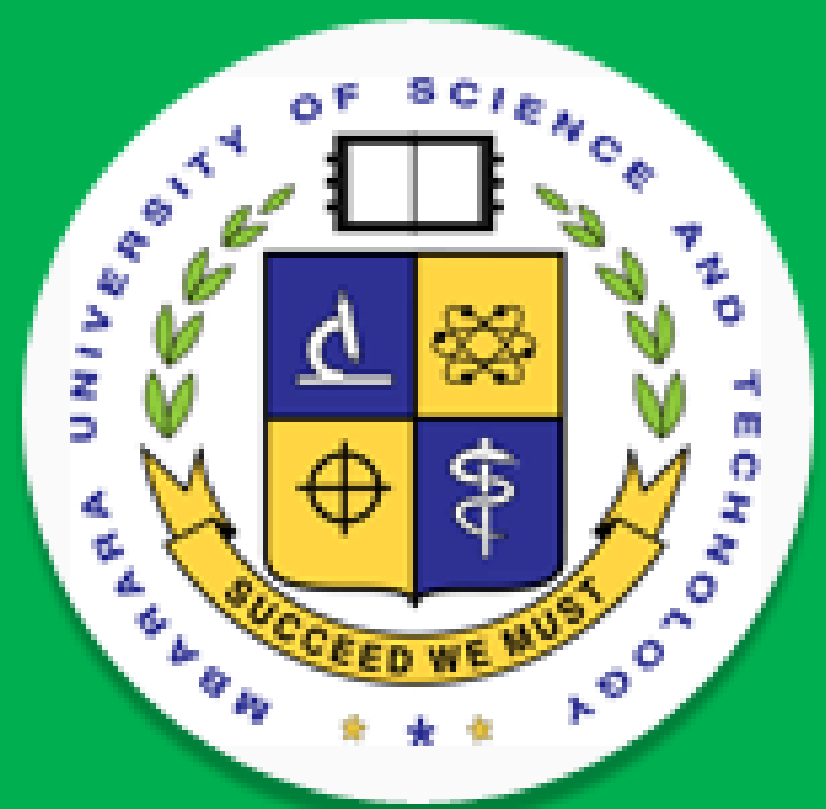




Toxic legacy: Heavy metals in Kiteezi landfill's leachates, water, sediments and *Colocasia esculenta* before the 2024 tragic collapse



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Introduction

Kiteezi landfill reached its maximum capacity in 2012, and instead of it being decommissioned or expanded, the landfill continued to operate, creating a pile of waste.

On 9th August 2024, a devastating collapse of the pile occurred in which at least 35 people died and 1,000 others were displaced. [1]

Methods and Materials

Samples of leachates (n = 36), borehole and stream water (n = 36), sediments (n = 48) and *Colocasia esculenta* (n = 6) were taken in the dry and wet seasons of 2022 (**Figure 1**).

Conductivity, pH, temperature and oxidation-reduction potential) and heavy metal (Cu, Zn, Pb, Cr and As) concentrations were analyzed using standard methods and ICP-OES, respectively. [2,3]

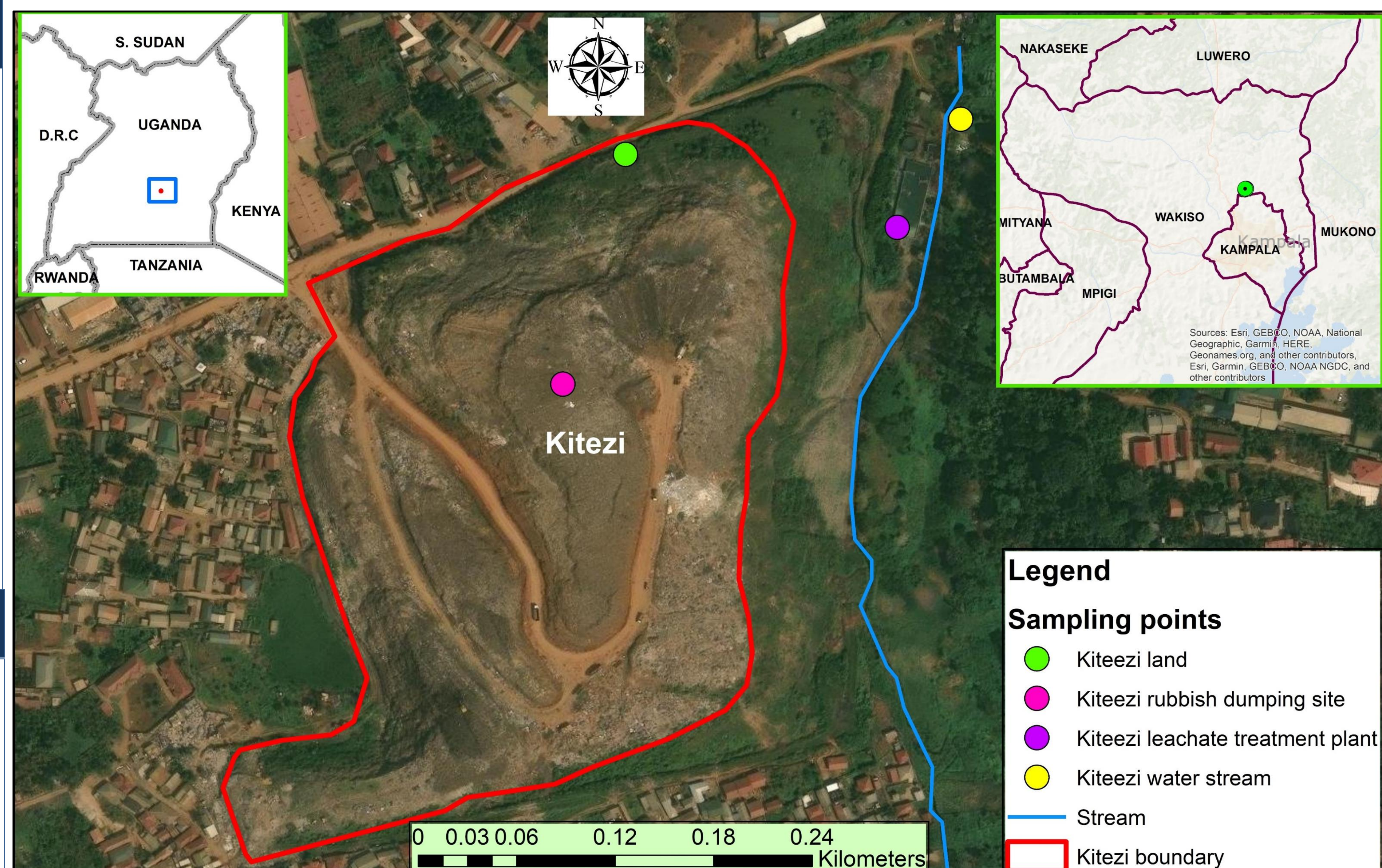


Figure 1. Kiteezi landfill, Uganda

Conclusions

Pollution indices indicated there is severe enrichment of Cu and Zn in the sediments. There are potential human health risks from consumption of yams. There is need for improved landfill management to prevent such pollution in future replacement landfills.

Results and Discussion

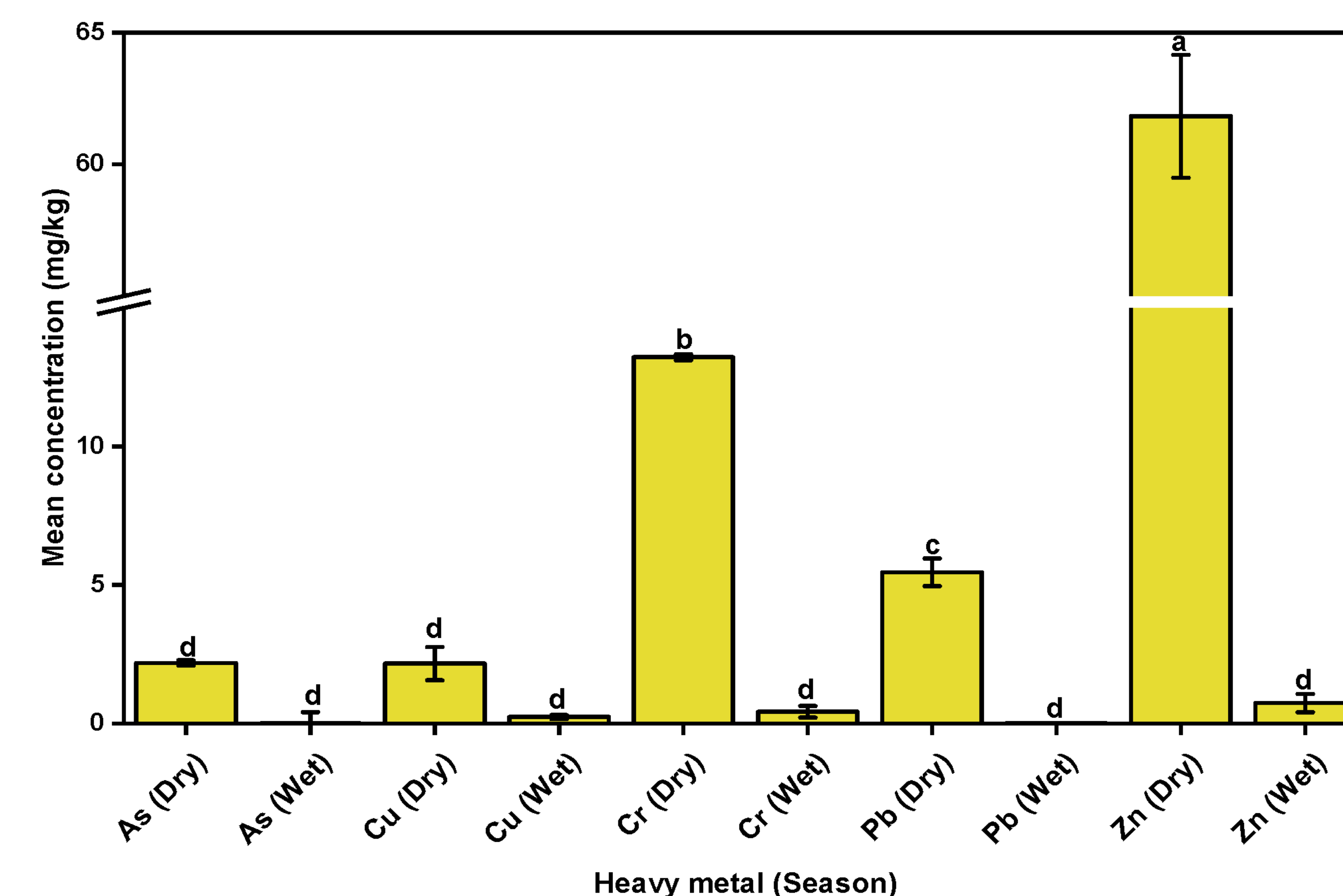


Figure 2. Heavy metals in *C. esculenta*

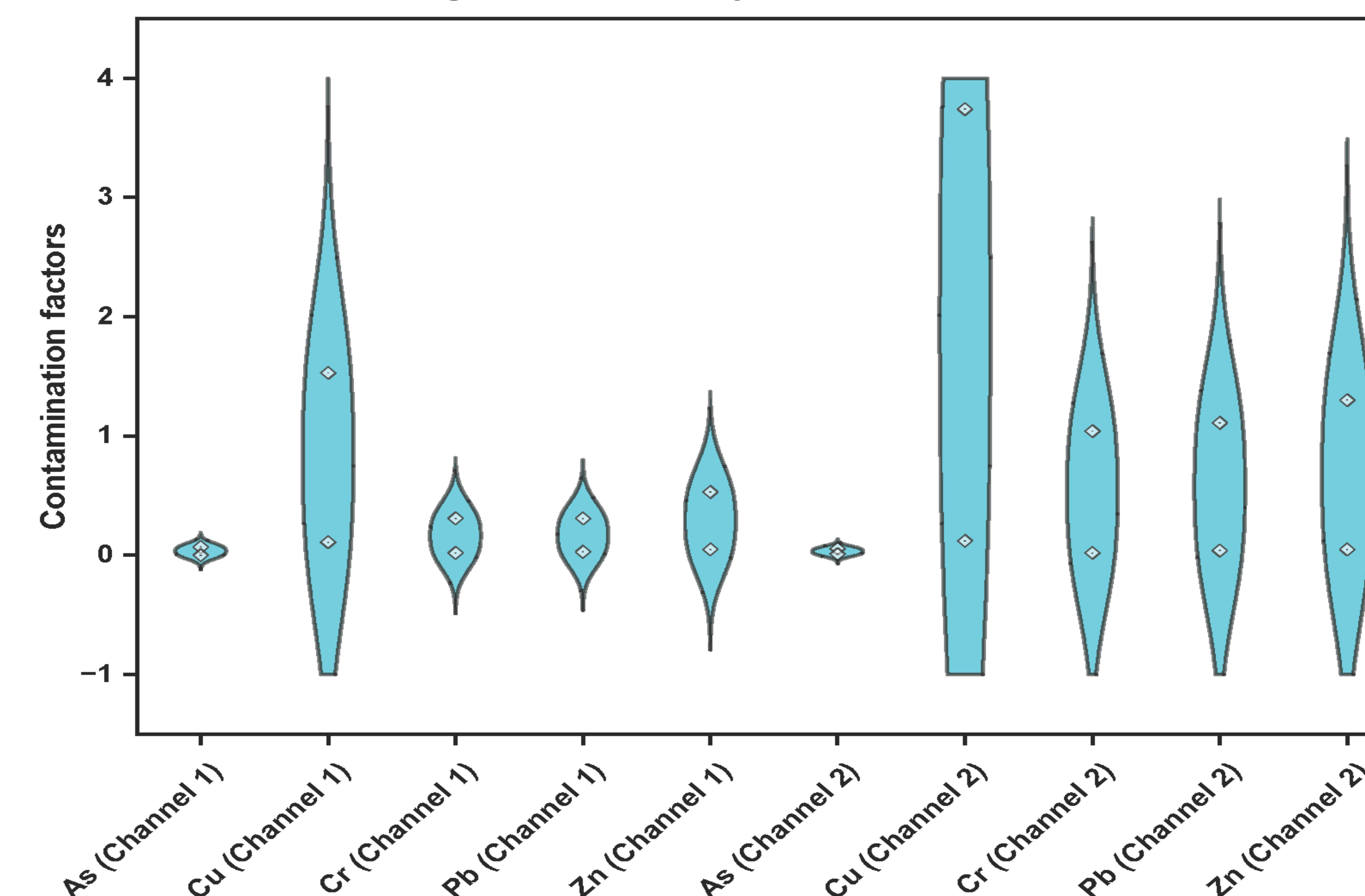


Figure 3. Contamination factors of sediments

