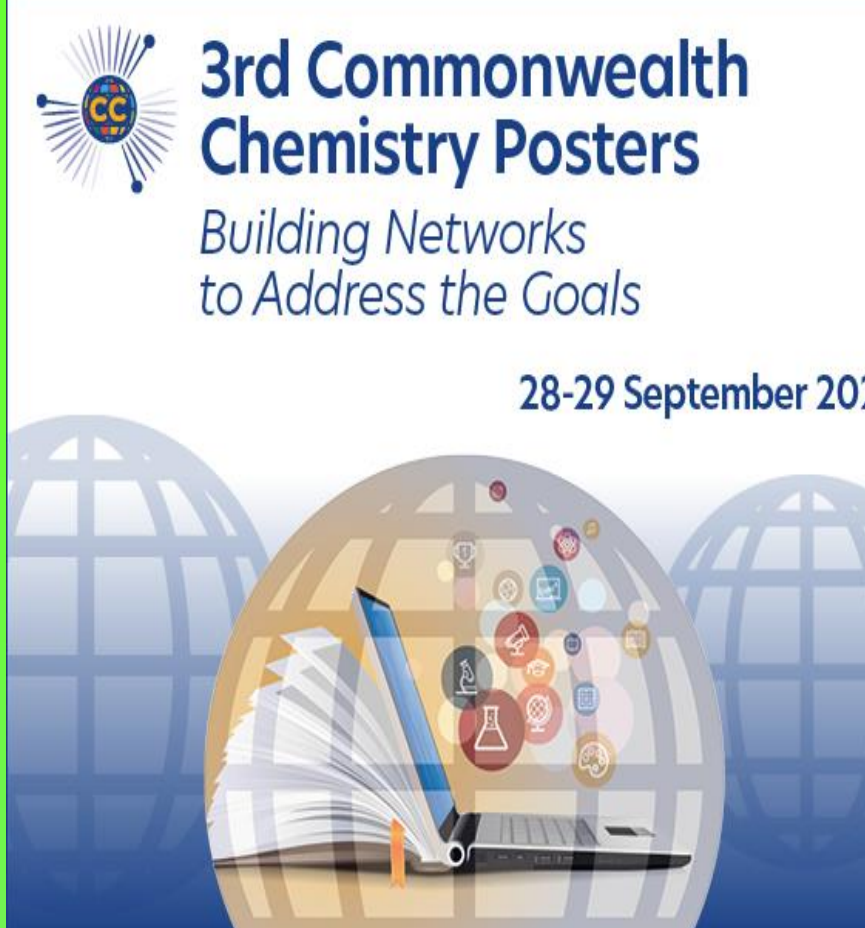




ASSESSMENT OF ARSENIC, CADMIUM AND LEAD IN SNUFF IN THE ASHANTI REGION OF GHANA



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INTRODUCTION

- Nicotiana tabacum is commonly referred to as tobacco. The leaves are smoked, chewed or sniffed either as a depressant or to induce sneezing during periods of lightheadedness or slight dizziness. They mix with saliva to aid in the release of nicotine into the mouth and body (Addo *et al.*, 2008).
- Tobacco snuff usually comes in the wet or the dry form. Based on the quantity of the leaves and preference, the leaves are finely ground either by using the local way of pounding (mortar and pestle) or the grinding stone (Okechi *et al.*, 2014).
- Research has shown that carcinogenic agents and toxic heavy metals could be present in the tobacco snuff as they are absorbed by the leaves during growth (Olowoyo *et al.*, 2011).
- In this study, the levels of Cd, Pb and As as well as the acceptable daily intake of these toxic metals in snuff obtained from transport terminals were determined in the Ashanti Region of Ghana.

METHODOLOGY

- Three transport terminals (Kumasi Metropolis (6.7252° N, 1.6566° W); Ejisu District (6.7151° N, 1.5091° W) and Offinso districts (7.3049° N, 1.7928° W) in the Ashanti region of Ghana were randomly selected for this study as shown in figure 1. Details of the methodology is given in Fig 3

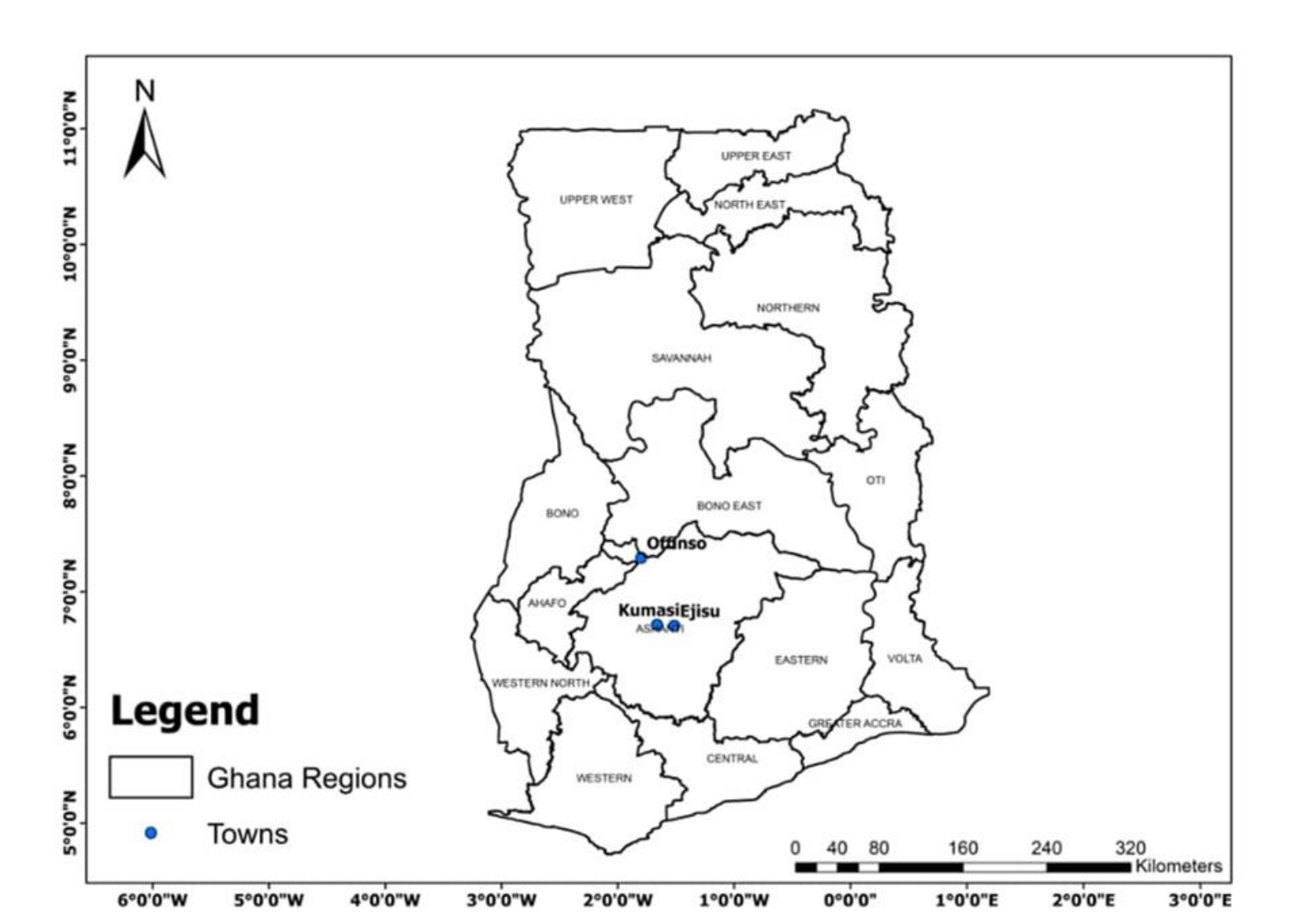


Fig 1: Map of Ghana showing the various sampling sites



Fig 2 : A image showing snuff after it has been ground and sieved

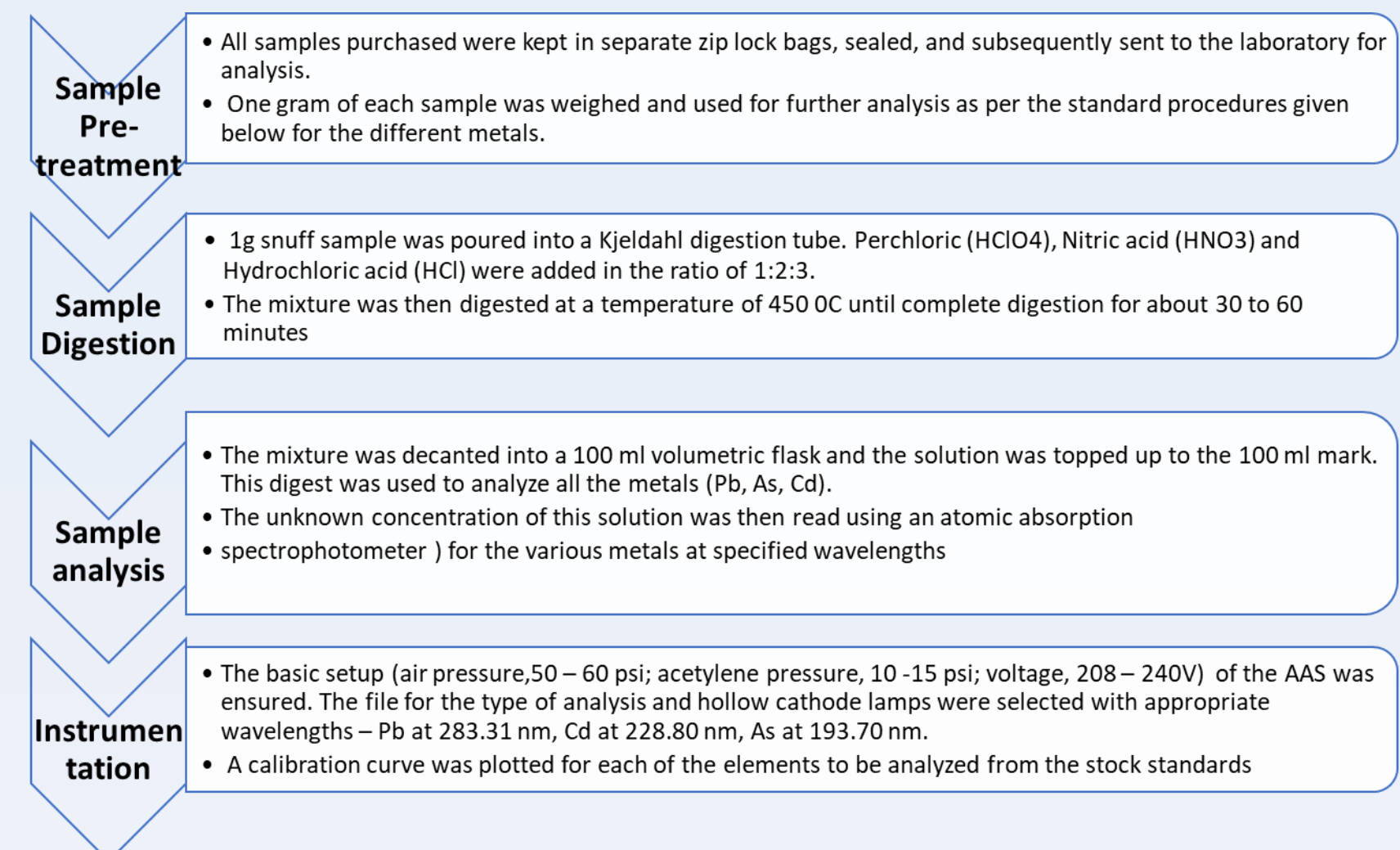


Fig 3: Details of the methodology used



Fig 5 : Pictures showing the various steps in the methodology. a(Weighing of sample), b(Decantation of the mixture after digestion), c(Sample preparation for analysis), d(Analysis of sample by the Atomic Absorption Spectrophotometer).

RESULTS

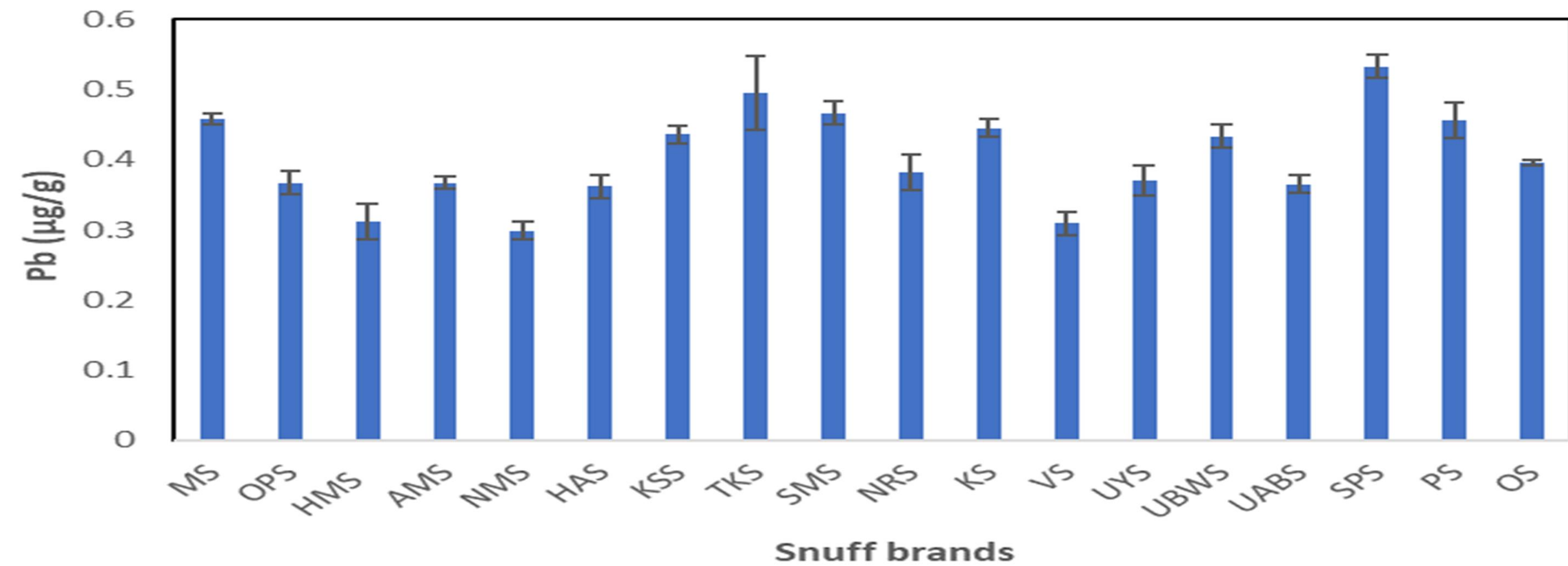


Fig 4 : Concentration of Pb in the 18 snuff brands

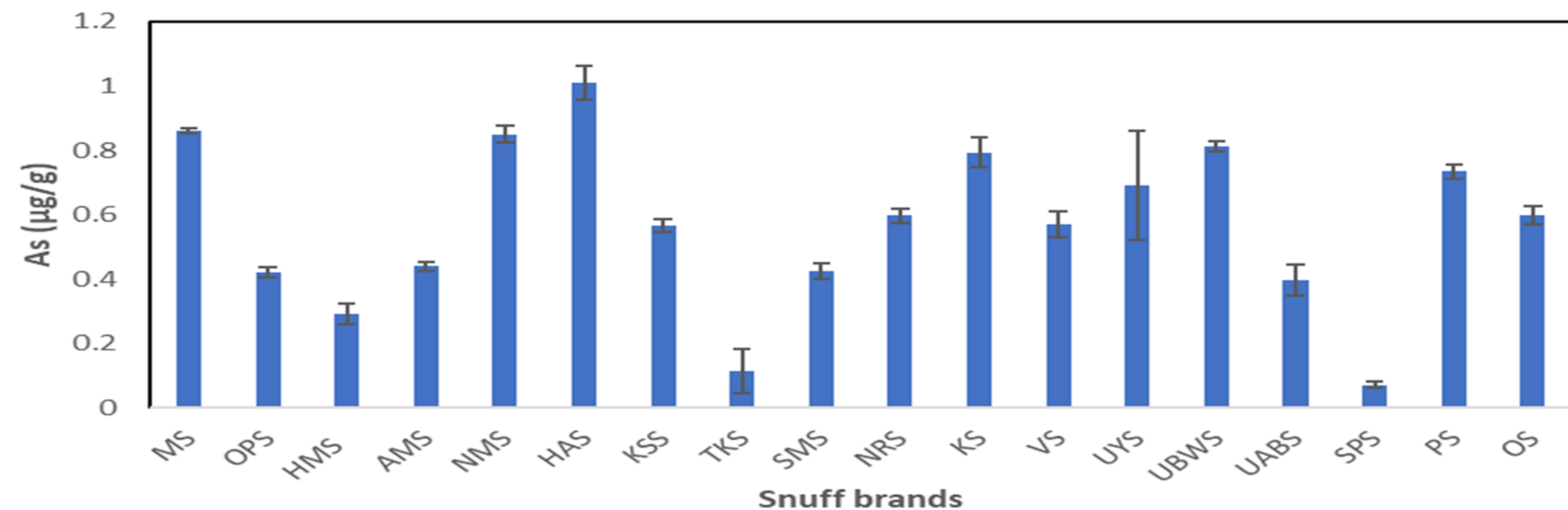


Fig 5: Concentration of As in the 18 snuff brands

RESULTS (CONT.)

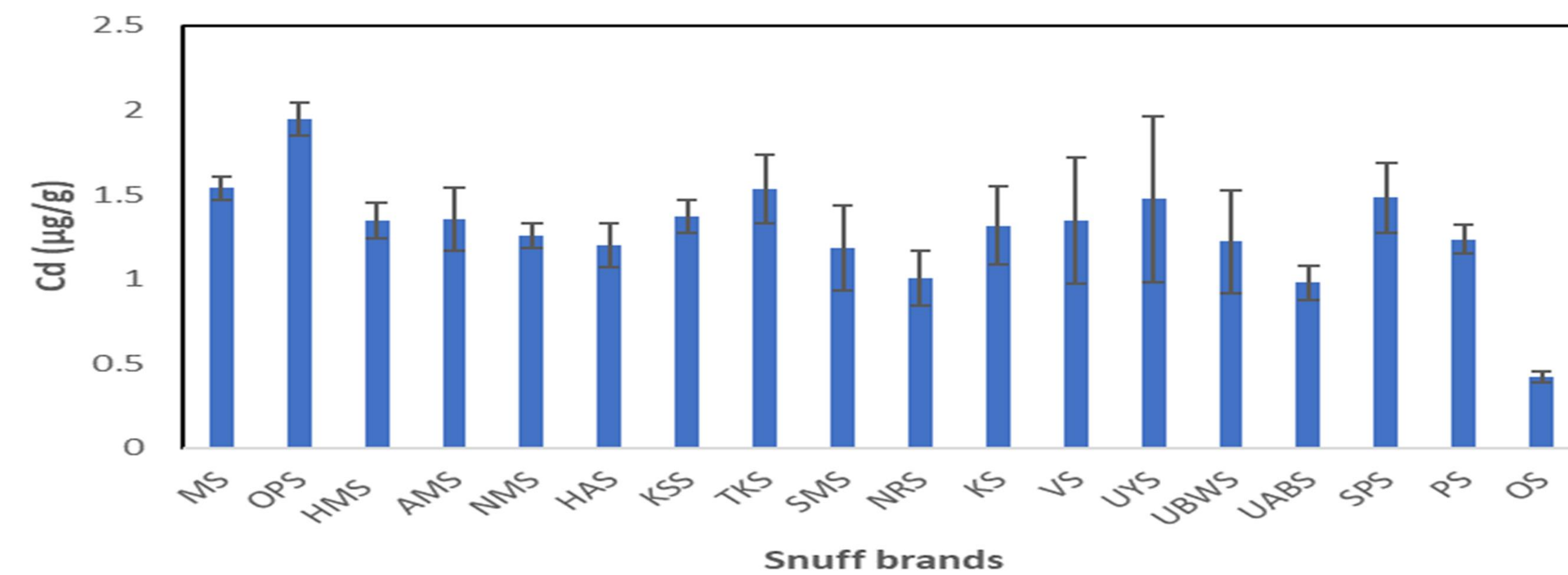


Fig 6: Concentration of Cd in the 18 snuff brands

CONCLUSIONS AND NEXT STEPS

- In summary, the 18 snuff brands tested had significant levels of metals as compared to other groups of smokeless tobacco in the range: Pb (0.298- 0.533 µg/g), Cd (0.977- 1.947 µg/g) and As (0.071 - 1.011 µg/g).
- In the case of Pb, all 17 samples were within the permissible limits of the WHO with the exception of only 1 sample which was higher than the permissible levels.
- For Cd, almost all their samples were above the permissible limits of the WHO while As had only three samples in the permissible limits of WHO.
- Further, the acceptable daily intake of the tested metals exceeded the allowable safe limits recommended by the FAO and the WHO.
- In addition, educative programs aimed at awareness creation among the youth and patronizes of snuff especially drivers be implemented to sensitize them on the dangers associated with snuff. Further research and screening of snuff and other local products (e.g., lipstick) displayed on the market for the presence of heavy metals and poisonous substances need urgent attention and consideration.

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