

Report requirements:

Consider the data for the CRM and samples in the spreadsheet provided.

- a) Determine the mean concentration of the elements (As, Cd, Co, Cr, Fe, Ni, Pb and Zn) in the CRM in mg kg^{-1} and present the data at the 95% confidence level with the standard error and standard deviation (you may use Excel Data Analysis to obtain the Descriptive statistics). Calculate the %RSD and % recovery and indicate if the method is valid based on your analysis.
- b) Determine the mean concentration and standard deviation of the elements in the plant samples in mg kg^{-1} for the ten different sites and compare these results to maximum permissible limits (MPLs) set by FAO/WHO and the MPLs set for food/leafy vegetable in your country if these are available (assuming the analysis was done in your country). Some limits are provided in the attached documents. You may reference other limits as well.
- c) As these plants are eaten by the locals for their nutritional value, estimate the percentage contribution of the essential elements in the plant to the diet of most individuals (ages between 14-70 years) by comparing to recommended dietary allowances (RDAs) or adequate intakes (AIs) and indicate if any of the elements exceed the tolerable upper intake levels (ULs). The complete data for Ca is provided as an example and the average concentration for Mn in 10 g (in mg/kg) is provided as you did not receive this information. Include the data for the rest of the essential elements and perform the analysis.
- d) Perform a health risk assessment by calculating the target hazard quotient (THQ) for determining the non-carcinogenic risk from exposure to high concentrations of elements and carcinogenic risk (CR) from exposure to toxic metals due to consumption. Indicate the elements and sites of concern, if any.
- e) All data should be provided in tabular form.
- f) Your report should include the following sections:
 - Results and Discussion
 - Conclusions
 - References
- g) Links to relevant information to assist you in your analysis can be found in section 8.11.