

ABSTRACT

This study deals with the analysis of some Jamaican foods for some essential elements and calculation of the mean intakes by the population in the years 1966, 1970 and 1973.

A review of the importance of the elements iron, copper, manganese, zinc, cadmium, cobalt, calcium, magnesium, sodium, and potassium is conducted in CHAPTER ONE. Special attention is paid to their function and to conditions caused by their deficiencies.

An outline of the purpose of the project is given in CHAPTER TWO. It recognizes the scarcity of analytical data for Caribbean foods and that these could help in the establishment of Recommended Dietary Allowances and also help nutritionists to plan diets for certain conditions.

Section A of CHAPTER THREE, constitutes a report in investigations in methods of sample preparation. Dry ashing followed by dissolution in 3M hydrochloric acid was the method adopted for use. This method was tested with National Bureau of Standards reference material and recovery experiments. Section B is a study of a possible relationship between the concentration of elements in the food and in the soil. A study of the effect of cooking by boiling on the concentrations of the elements is also reported in this section. Green (unripe) bananas (*Musa sapientum*) and yellow yams (*Dioscorea*) are the foods chosen for this study. In Section C, a comparison the elemental content obtained by analysis is made with data obtained from other sources for foods grown in other regions of the world. Two major drawbacks experienced are that none of the literature sources had data for all the elements being considered and not all the data obtained from the literature was original.

The data obtained from the analyses along with literature data for foods that were not analysed are used together with data from the Food Balance Sheets to calculate mean intakes of the elements under study by the Jamaican population. This is outlined in CHAPTER FOUR. A computer programme, written in FORTRAN IV is used to compute average intakes per person per day for 1966, 1970, 1973. Comparison of the mean intakes with the Recommended Dietary Allowances suggested adequate intakes of zinc, magnesium and iron. The data also suggest that over the years the same food groups were major contributors of particular elements in the diet. A comparison of intakes of copper, zinc and manganese with population groups in other parts of the world was made.

Data to satisfactorily assess the elemental intakes by various groups of the population was unavailable but the data contained in this work can be used as a basis for assessing trace element intake of groups in the population from future dietary surveys and to assess the effect of changing food intake patterns on the intake of the essential elements studied.

Data used in the computations are given in Appendices.