CHAPTER I

INTRODUCTION

Activation analysis is a convenient method for determination of trace constituents in a wide variety of materials. It is the method of high sensitivity. Neutron activation analysis is carried out by means of sample bombardment with neutrons. In this case irradiations were performed at the Thai Research Reactor.

Optimum irradiation times are, of course, governed by the quantity and neutron absorption cross-sections of the particular elements and by the half-lives and radiation spectra of the induced radionuclides. However, the relative activation of the major constituents of the sample or the presence of interfering reactions may limit the length of the irradiation.

Usually, with samples in which the activity of interest has a half-life of only a few minutes, or less, samples are activated and counted one at a time. In such cases, a pneumatic tube is used to get the activated sample to the counter within a few seconds after the conclusion of the irradiation. With half-lives of the order of an hour, a number of samples can be activated simultaneously, then counted successively. With longer half-lives, very large numbers of samples can be profitably activated simultaneously.

In general, the method consists in simultaneously irradiating sample specimens and known standards in a reactor. Comparing the neutron-induced radioactivity in the sought-after elements in the matrix

with that in the standards yields the concentrations of the elements in the matrix. It usually yields more accurate analytical results with more convenience than the other techniques.

In this study, Al , Na , K , Mn , Cl , Zn and P were determined quantitatively from plants, such as, beans, leaves, grains .... etc.