

CHAPTER V

CONCLUSION AND RECOMMENDATION



5.1 Conclusion.

Since some countries still carry on their nuclear weapons testing in the atmosphere, the radioactive fallout have been contaminated in food and food products. This is the purpose of the study to investigate the radiation concentrations of long-lived fission products in imported food and food-products.

The study of gross beta activity and content of Sr-90, Cs-137 as fission products and K-40 as natural radioisotope were carried out in various types of imported food and food products. Food samples were purchased monthly during 1976-1977 from general wellknown supermarkets and local grocery stores up to the total of 89 samples.

The individual sample was firstly blended and contained in the Marinelli beaker and counted for 18 hours on 3" x 3" NaI(Tl) crystal detector associated with the 128 channel pulse height analyzer. The activity concentration of K-40 and Cs-137 was measured. The limit of detection under the conditions used for K-40 and Cs-137 was 0.04 and 0.03 pCi/g wet weight respectively.

After gamma-counting the sample was ashed and measured for gross beta activity using a low background anti-coincidence G-M counter. Furthermore, the sample was wet-ashed and determined for the content of Sr-90 by solvent extraction. The reproducibility of the technique for Sr-90 determination was checked with standard Sr-90. The result of 4 investigation was 5.66 ± 0.141 pCi compared with added Sr-90 6.0 pCi. The chemical yield for the extraction was found to be closed to 100 %.

The analysis of the IAEA standard reference water sample (W-2) gave the result of 3.03 ± 0.189 pCi/ml which was in good agreement with the certified value of 3.08pCi/ml.

The range of radiation concentration of gross beta activity potassium-40, cesium-137, Strontium-90 and strontium-90 to calcium ratio in sample were as follows:

sample type	amount of sample analyzed	range of wet wt. ash wt	range in concentration of				
			gross β activity pCi/g ash	K-40 pCi/g wet wt	Cs-137 pCi/g wet wt	Sr-90 pCi/g ash	Sr-90 pCi/g Ca
fish and shell-fish	59	28-44	56-626	<0.04- 0.575	<0.03 5.69	2.04- 12.47	17-128
meat	6	30-48	86-587	0.052- 0.971	-	5.97- 10.32	576-3120
cereals	24	17-29	59-353	<0.04- 0.952	<0.03- 2.98	4.62 13.53	23-664

5.2 Recommendation

5.2.1 Survey of typical adult diet and typical infant diet should be made in order to evaluate total ratio of Sr-90 to Ca and Cs-137 to K in man.

5.2.2 The continuous measurements of samples especially those from France, China and Japan are essential. In addition the baseline level of those radionuclides in imported food and food products must be evaluated.

5.2.3 The adequate radioactivity surveillance in environmental matrices such as rice, crops etc. in the country is essential and must be performed immediately and in routinely.