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**ANALYSIS OF MARKET “CHINESE ROLL” SAMPLES IN
KANDY MUNICIPALITY AREA FOR ACRYLAMIDE;
A PROBABLE CARCINOGEN**

A PROJECT REPORT PRESENTED BY

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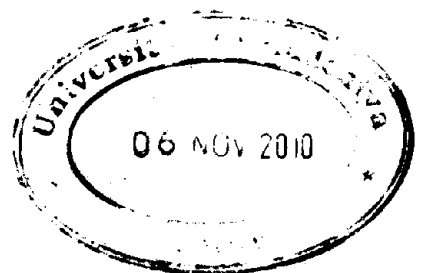
MASTER OF SCIENCE IN ANALYTICAL CHEMISTRY

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**ANALYSIS OF MARKET “CHINESE ROLL” SAMPLES IN
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Acrylamide is classified as a probable carcinogen or group II carcinogen to human (International Agency for Research on Cancer - IARC). This has several harmful effects on mammals; neurotoxicity being the major effect. It does adversely affect on the reproductive tissues and results in infertility. Acrylamide is formed during high temperature processing (over 120 °C) of starch rich foods. The main precursors of acrylamide are the amino acid asparagine and reducing sugars. These react at high temperature forming acrylamide. Other than that acrylamide is formed during Strecker Degradation and Maillard Browning (Friedman, 2003). “Chinese Roll” is highly popular starch rich fast food in the society and several samples from Kandy municipal area used for the analysis. High Performance Liquid Chromatography was used for analysis of acrylamide.

The accuracy and the precision are two parameters used to describe the validity of experimental data. The former is determined by calculating the recovery percentage of the analytical method. Recovery percentage of acrylamide varies from 77% to 86% with a percentage standard deviation of 2.72% to 6.40%. The relative standard deviations of the average analytical concentrations vary from 3.1% to 8.4%. The recoverability percentage increases with increasing analyte concentration from 77% to 86%. The validity of the calibration curve is determining by using the correlation coefficient. Correlation coefficient shows the strength of the relationship of the two variables. The correlation coefficient of the standard curve is 0.993 (<0.950). Hence the calibration curve is statistically significant.

Minimum Detection Limit (MDL) and Minimum Quantification Limit (MQL) are two important parameters. These determine the reliability of a method that can be used for analysis of minute quantities of an analyte. The MDL of the method is 14 ppb with 3 ppb standard deviation and MQL is 45 ppb with 9 ppb standard deviation. Acrylamide availability of market samples has been found to be minimal. There are only 3 samples that show detectable amount of acrylamide among 30 market samples analysed. The maximum detected amount of acrylamide is 25 ppb.

