

**HEAVY METALS ANALYSIS IN COMMERCIAL APPLE
DRINKS BY INDUCTIVELY COUPLED PLASMA
OPTICAL EMISSION SPECTROMETRY (ICP-OES)**

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ABSTRACT

HEAVY METALS ANALYSIS IN COMMERCIAL APPLE DRINKS BY INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY (ICP-OES)

Heavy metals (Cu, Pb, Ni, Cr and Cd) concentration in seven brands of apple drinks, commercialized in Malaysia were determined using inductively coupled plasma optical emission spectrometry (ICP-OES). The apple drink samples were diluted with nitric acid before being analyzed by ICP-OES. The average contents of heavy metals in apple drink samples were found from 0.003 to 0.10 mg/L for Cu, and from 0.023 to 0.06 mg/L for Pb. Cd, Cr and Ni have lower concentration than the detection limit. Hence, all these metals cannot be detected in the all apple drinks. All these elements have below permissible limit of heavy metals allowed by the Malaysian Food Regulation 1985. All of the tested apple drinks are safe to consume. Determination of major elements such as Ca, Na, Mg and K in apples drinks will be carried out in future study.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVEATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Apples	1
1.2 Commercial Fruit Juices	2
1.3 Apples as Commercial Fruit Juice	3
1.4 Problem Statement	4
1.5 Significant of Study	4
1.6 Objective of Study	5
CHAPTER 2: LITERATURE REVIEW	
2.1 Analytical Methods for Heavy Metals Analysis of Drinks	6
2.1.1 Inductively Coupled Plasma (ICP) Method for Heavy Metals Analysis	6
2.1.2 Spectroscopy Method for Heavy Metals Analysis	8
2.2 Heavy Metals	9
2.2.1 Cadmium (Cd)	9
2.2.2 Chromium (Cr)	10
2.2.3 Copper (Cu)	10
2.2.4 Nickel (Ni)	11
2.2.5 Lead (Pb)	11
2.2.6 Zinc (Zn)	12
2.3 Possible Sources of Metals in Drinks	12
2.4 Effects of Heavy Metals to Human and Environment	13
CHAPTER 3: METHODOLOGY	
3.1 Instrumentation, Materials and Reagents	14
3.1.1 Instrumentation and Apparatus	14
3.1.2 Materials	14
3.1.3 Reagents	15
3.2 Methods	15
3.2.1 Cleaning of Glassware and Sample Container	15
3.2.2 Sample Collection	15

3.2.3	Sample Preparation	15
3.2.3	Standard Solution Preparation	16
3.3	Analytical Methods for Heavy Metals Analysis in Apple Drinks	16
3.3.1	Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) Analysis	16
CHAPTER 4: RESULTS AND DISCUSSION		
4.1	Calibration Curve	18
4.2	Heavy Metals Concentration in Commercial Apple Drinks	19
4.2.1	Lead (Pb)	19
4.2.2	Copper (Cu)	20
4.2.3	Nickel (Ni)	21
4.2.4	Chromium (Cr)	21
4.2.5	Cadmium (Cd)	21
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS		22
CITED REFERENCES		23
<i>CURRICULUM VITAE</i>		25

LIST OF TABLES

TABLE	TITLE	PAGE
3.1	ICP-OES operating conditions for heavy metals analysis	17
4.1	Regression coefficient for each metal analyzed by ICP-OES	18