

**TARTRAZINE AND SUNSET YELLOW ANALYSIS IN SOFT
DRINKS BY SPECTROPHOTOMETRIC METHOD**

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
LIST OF SYMBOLS	x
ABSTRACT	xi
ABSTRACT	xii
CHAPTER 1 INTRODUCTION	
1.1 Background of Study	1
1.1.1 Food Additives	1
1.1.2 Tartrazine (Tz) as Food Dye	2
1.1.3 Sunset Yellow (SY) as Food Dye	3
1.1.3 Health Effect Caused by Food Dyes	4
1.2 Problem Statement	5
1.3 Significant of Study	5
1.4 Objective of Study	6
CHAPTER 2 LITERATURE REVIEW	
2.1 Chromatography Determination of Food Dyes	7
2.2 Capillary Electrophoresis (CE) Determination of Food Dyes	9
2.3 Voltammetric Determination of Food Dyes	11
2.4 Spectroscopy Determination of Food Dyes	12
CHAPTER 3 METHODOLOGY	
3.1 Instrumentation, Material and Reagent	14
3.1.1 Instrumentation	14
3.1.2 Equipment and Apparatus	15
3.1.3 Chemical and Reagents	15
3.2 Reagents and Chemical Preparation	15
3.2.1 Reagents	15
3.2.2 Food Dyes Stock Solution	15
3.2.4 Sunset Yellow (SY) Standard Solution	16
3.2.5 Tartrazine (Tz) Standard Solution	16
3.3 Analytical Technique	16
3.3.1 Method Validation	16
3.3.1.1 Linearity	16

3.3.1.2	Limit of Detection (LOD) and Limit of Quantification (LOQ)	17
3.3.1.3	Precision and Repeatability	17
3.3.1.4	Accuracy	17
3.3.1.5	Ruggedness	17
3.3.1.6	Robustness	18
3.4	Analysis of Food Dyes in Soft Drinks	18
3.4.1	Collection and Preservation of Soft Drinks	18
3.4.2	Spectrophotometric Determination of Food Dyes in Soft Drinks	18
3.4.3	Recovery of Food Dyes Standard Solution in Soft Drinks	19

CHAPTER 4 RESULT AND DISCUSSION

4.1	Spectrophotometric Study of Food Dyes	20
4.2	Estimation of Maximum Absorption (λ_{max}) of Food Dyes	20
4.3	Calibration Curve of Food Dyes and Validation of the Proposed Spectrophotometric Technique	23
4.3.1	Calibration Curve of Food Dyes	23
4.3.2	Limit of Detection (LOD) and Limit of Quantification (LOQ)	26
4.4	Validation of the Proposed Spectrophotometric Technique	27
4.4.1	Precision and Repeatability	27
4.4.2	Accuracy	28
4.4.3	Ruggedness	33
4.4.4	Robustness	36
4.5	Recovery Studies of Food dyes in Soft Drinks	38
4.6	Spectrophotometric Determination of Food Dyes in Soft Drinks	40

CHAPTER 5 CONCLUSION AND RECOMMENDATION

5.1	Conclusion	41
5.2	Recommendation	42

CITED REFERENCES	43
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APPENDICES	48
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CURRICULUM VITAE	55
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LIST OF TABLES

Table	Caption	Page
Table 4.1	The λ_{\max} obtained for T _Z from present study and previous studies by another researchers	21
Table 4.2	The λ_{\max} obtained for SY from present study and previous studies by another researchers	22
Table 4.3	The regression equation and R ² value for T _Z obtained from present and previous studies	24
Table 4.4	The regression equation and R ² value for SY obtained from present and previous studies	25
Table 4.5	LOD and LOQ of T _Z obtained from the present and previous studies.	26
Table 4.6	LOD and LOQ of SY obtained from the present and previous studies	27
Table 4.7	Absorbance obtained from intra-day and inter-day precision measurement for T _Z standard solution	29
Table 4.8	Absorbance obtained from intra-day and inter-day precision measurement for SY standard solution	30
Table 4.9	Mean values for recovery of T _Z standard solution (n=3)	31
Table 4.10	Mean values for recovery of SY standard solution (n=3)	32
Table 4.11	Ruggedness result for T _Z standard Solution (n=3)	34
Table 4.12	Ruggedness results for SY standard solution (n=3)	35

ABSTRACT

TARTRAZINE AND SUNSET YELLOW ANALYSIS IN SOFT DRINKS BY SPECTROPHOTOMETRIC METHOD

Food dye is one of widely used additives in food industry to improve and enhance the attractiveness of the foodstuff. Tartrazine and sunset yellow are synthetic food dye which contain azo (N=N) functional group in their chemical structures. These dyes can become carcinogenic as the azo groups can transform into aromatic amine after being metabolized by gastrointestinal microflora. Hence, a sensitive, accurate, simple, rapid and low cost analytical method is required for the determination of tartrazine and sunset yellow. The spectrophotometric method has been proposed for the quantitative analysis of tartrazine and sunset yellow. The calibration curve was linear from 2 mg L⁻¹ to 10 mg L⁻¹ with regression coefficient of 0.9998 for both tartrazine and sunset yellow. The measurement was carried out at maximum wavelength (λ_{\max}) of 426 nm for tartrazine and λ_{\max} of 515 nm for sunset yellow. The limit of detection (LOD) and limit of quantification (LOQ) for tartrazine were 0.035 mg L⁻¹ and 0.12 mg L⁻¹. Meanwhile, the LOD and LOQ for sunset yellow were 0.04 mg L⁻¹ and 0.14 mg L⁻¹, respectively. The proposed technique is precise as all the calculated RSD for intra-day and inter-day precision less than 2 %. The percentage of recoveries for tartrazine in soft drink sample for 2 mg L⁻¹ and 5 mg L⁻¹ of tartrazine standard solution was 75.15 % and 80.45 % while the percentage of recoveries for sunset yellow was 81.50 % and 83.00 % respectively. The sunset yellow content in S6, S3, S4, S9 and S10 were 0.6, 0.47, 0.77, 0.55 and 0.86 mg L⁻¹. There were no tartrazine detected in the all soft drink samples. It can be concluded that the proposed spectrophotometric technique is simple, rapid, accurate, precise, rugged and robust.