الآية

بسم الله الرحمن الرحيم

:قال تعالي

(إقرأ بإسم ربك الذي خلق (1) خلق الإنسان من علق (2 (إقرأ وربك الأكرم (3) الذي علم بالقلم (4 (علم الإنسان ما لم يعلم (5

صدق الله العظيم

سورة العلق

(الآية (1-5

n-1!--

I dedicate this work to:

Soul of my Father

My Mother

My Uncle

My Brother

Acknowledgment

I must thank the Almighty Allah for blessing me and helping me with everything I needed throughout my studies.

I would like to thank my supervisor, Dr. Malik Abdalla Abdelarhman. To his help, supervising and great efforts to explain things clearly and simply. Also I would thanks Dr. Adel Alhaj to continue supervising me.

My very special thanks go to the two people whom I owe everything I am today, my Mother And my Uncle Abdalhalem Araki, for their patience and continued support, encouragement throughout my studies and their unwavering faith and confidence in my abilities and in me is what they shaped me to be the person I am today. Thanks for everything.

I am grateful to the Chemistry laboratory staff in College of Science and College of Education for their great help and special thanks are due to Mr. Babiker Yagoub for being available willingly to provide help when being asked.

Abstract

Two samples of non-alcoholic beverages (Champion and Veno) and two local home product (Sharboat and Yogurt) were stores for the following up of the chemical development of the ethyl alcohol during storage for 4, 8, 10, 12, 16, 20 and 30 days under different temperature conditions .Gas chromatography was used to test the samples, the results show that ethanol content varies with time and condition of storage.

All samples showed the presence of ethanol when initially examined except Yogurt. All samples showed increase in alcoholic content up to 0.194% in Sharboat, when stored for 8 days at room temperature with addition of yeast extracts,

When the samples (Champion and Veno) were stored for 10, 20 and 30 days in a refrigerator, room temperature and sun light (for 4 hours on day), indicated a continuous increase in alcoholic content with time of storage .But in Sharboat drink the alcoholic content increased with time of storage until 8 day and after that decrease in 12 and 16 days at room temperature with addition of yeast extracts.

الملخص

فى هذه الدراسه تم اخذ عينتين من المشروبات الغير كحوليه (شامبيون وفينو) وعينتين من المشروبات المحليه ذات الانتاج المنزلى مثل الشربوت والروب وتم تخزينهم لمتابعة التغير فى كمية المحتوى الكحولى خلال 4و 8و 10و 12و 16 و 20 و 30 يوما عند ظروف مختلفه من درجات الحرارة وتم فحص العينات باستخدام كروماتوغرافيا . الغاز واظهرت النتائج ان كميه الايثانول تتأثر بالتغير فى درجات الحرارة والزمن

جميع العينات اظهرت وجود الايثانول عند الفحص المباشر(بعد الانتاج مباشره) ما عدا الروب, اظهرت زياده فى المحتوى الكحولى وصل الى 0.194% فى الشربوت عندما .خزن لمدة 8 أيام فى درجة حرارة الغرفه مع اضافة مستخلص الخميره

الشامبيون والفينو عند جميع ظروف التخزين وجميع فترات التخزين زاد المحتوى الكحولى لكن فى الشربوت وقفت هذه الزياده تماما بعد 8 ايام عند التخزين فى درجة حرارة الغرفه مع اضافة مستخلص الخميره كما نقص المحتوى الكحولى مع التقدم فى .(الزمن (بعد 12 و 16 يوما

Table of Content

Figure	Contents	Page
		no.
	الاية	i
	Dedication	ii
	Acknowledgment	iii
	Abstract (English)	iv
	Abstract (Arabic)	V
	Contents	vi
	List of Tables	х
	List of Figures	xi
	Chapter One- Introduction	
1	Introduction	1
1-1	Definition of alcohol	1
1-2	Ethanol	2
1-2-1	Physical properties	4
1-2-1- 1	Hydrogen bond	4
1-2-1- 2	Boiling point	5
1-2-1- 3	Polarity	5
1-2-2	Production of ethanol	5
1-2-2- 1	In industry	5
1-2-3	Uses of Ethanol	6

1-2-3- 1	In medicine	6
1-2-3- 2	In industry	7
Figure	Contents	Page
		no.
1-2-4	Biological effects	8
1-2-5	Toxicity of ethanol	8
1-3	Alcohol intake and absorption	9
1-4	Alcohol metabolism	9
1-5	The effect of alcohol's on the brain	10
1-6	Blood alcohol content (BAC)	10
1-7	Fermentation process	11
1-7-1	Yeast fermentation	12
1-7-2	How materials are fermented	13
1-8	Alcoholic beverages	15
1-9	Non-alcoholic beverages	15
1-9-1	Process for production of non – alcoholic beverages	15
1-10	Barley beverages	16
1-10-1	Scientific classification	17
1-11	Local Sudanese Drink(Sharboat Drink)	18
1-11-1	Date palm	18
1-11-2	Scientific classification	18
1-11-3	Origin and distribution	19
1-11-4	Sugars contents of date fruit	19
1-11-5	Date juice	20
1-12	Yogurt	20

1-12-1	Fermented milk products	20
1-12-2	Making fermented milk products	21
Figure	Contents	Page
		no.
1-13	The Aim	21
	Chapter Two- Materials and Methods	
2	Material and method	22
2-1	Samples	22
2-2	Chemicals	22
2-3	Apparatus	22
2-4	Instruments	22
2-5	Method	23
2-5-1	Preparation of standard and samples	23
	Chapter Three- Result and Discussion	
3	Results	25
3-1	Results of Retention time and Peak area	25
3-2	Concentrations of ethanol in beverages and local	27
	products	
3-3	Discussion	39
3-3-1	Ethanol in Champion	39
3-3-2	Ethanol in Veno	40
3-3-3	Ethanol in Sharboat	41
3-3-4	Ethanol in Yogurt	42
3-4	Comparison between Amsterdam and Champion and	43

	Veno beverages (local beverages) in the percentage of	
	ethanol at different storage conditions	
3-5	Conclusion and Recommendations	44
3-5-1	Conclusion	44
Figure	Contents	Page
		no.
3-5-2	Recommendation	44
	References	52

List of Tables

Figu	Title	Page
re		no.
3-1	GC Retention times and peak areas of the samples before	25
	storage	
3-2	GC Retention times and peak areas for Champion sample in all	25
	stage of storage	
3-3	GC Retention times and peak areas for Veno sample in all stage	26
	of storage	
3-4	GC Retention times and peak areas for Sharboat drink sample	26
	in all stage of storage	
3-5	GC Retention times and peak areas for Yogurt sample in all	27
	stage of storage	
3-6	Ethanol content of Champion beverage at different conditions	39
3-7	Ethanol content of Veno beverage at different conditions	40
3-8	Ethanol content of Sharboat drink at different conditions	41
3-9	Ethanol content of Yogurt at different conditions	42
3-10	Comparison between Amsterdam and local beverages in the	43
	percentage	

3-11 Show Concentration and Area under peak for Sharboat drink 51before storage :(from above GC curves)

List of Figures

Figu	Title	Page
re		no.
1-1	Preparation of Ethanol	3
1-2	Hydrogen bonding in alcohol	4
1-3	Production of ethanol in industry	6
2-1	Schematic of typical gas chromatography	23
3-1	the percentage of ethanol in Champion and Veno before storage	27
3-2	the percentage of ethanol in Champion and Veno at refrigerator	28
	after 10 days	
3-3	the percentage of ethanol in Champion and Veno at refrigerator after 20 day	28
3-4	the percentage of ethanol in Champion and Veno at refrigerator	29
	after 30 day	
3-5	the percentage of ethanol in Champion and Veno at room	29
	temperature after 10 days	

3-6	the percentage of ethanol in Champion and Veno at room	30
	temperature after 20 day	
3-7	the percentage of ethanol in Champion and Veno at room	30
	temperature after 30 day	
3-8	the percentage of ethanol in Champion and Veno at room	31
	temperature and sun light after 10 days	
3-9	the percentage of ethanol in Champion and Veno at room	31
	temperature and sun light after 20 day	
3-10	the percentage of ethanol in Champion and Veno at room	32
	temperature and sun light after 30 day	
Figu	Title	Page
re		no.
3-11	the percentage of ethanol in Sharboat and yogurt before storage	32
3-12	the percentage of ethanol in Sharboat at refrigerator after 4 day	33
3-13	the percentage of ethanol in Sharboat at refrigerator after 8 day	33
3-14	the percentage of ethanol in Sharboat at refrigerator after 12	34
	day	
3-15	the percentage of ethanol in Sharboat at refrigerator after 16 day	34
3-16	the percentage of ethanol in Sharboat at room temperature after 4 day	35
3-17	the percentage of ethanol in Sharboat and yogurt at room	35
	temperature after 8 day	
3-18	the percentage of ethanol in Sharboat at room temperature after 12 day	36
3-19	the percentage of ethanol in Sharboat and yogurt at room	36

temperature after 16 days

3-20	the percentage of ethanol in Sharboat at room temperature with	37
	addition of yeast extracts after 4 days	
3-21	the percentage of ethanol in Sharboat at room temperature with	37
	addition of yeast extracts after 8 days	
3-22	the percentage of ethanol in Sharboat at room temperature with	38
	addition of yeast extracts after 12 days	
3-23	23 the percentage of ethanol in Sharboat at room temperature	38
	with addition of yeast extracts after 16 days	
3-24	Gas Chromatography curves for sharboat drink before storage	45-50
3-25	the Concentration of Sharboat drink before storage Vs Area	51
	under peak	