

**EVALUATION THE USE OF SWEET SORGHUM
(DOUGH STAGE) FOR MANUFACTURE OF
SOME FUNCTIONAL FOOD PRODUCTS**

By

YARA IBRAHIM HANAFY EL-GEDDAWY

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This thesis for M.Sc. degree has been approved by:

Dr. Abd EL-Aziz Nadir Shehata -----

Research Prof. of Food Technology, National Research Center

Dr. Mamdouh Helmi El- kalyoubi -----

Prof. Emeritus of Food science and Technology, Faculty of
Agriculture, Ain Shams University

Dr. Nessrien Mohamed Nabih Yasin -----

Associate Prof. of Food science and Technology, Faculty of
Agriculture, Ain Shams University

Dr. EL- Sayed Ibrahim Yousif Abou El Seoud -----

Prof. of Food science and Technology, Faculty of Agriculture, Ain
Shams University

Date of Examination: 25 / 11 /2013

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Under supervision of:

Dr. EL- Sayed Ibrahim Yousif Abou El Seoud

Prof. of Food Technology, Department of Food Science, Faculty of
Agriculture, Ain Shams university (Principle Supervisor)

Dr. Nessrien Mohamed Nabih Yasin

Associate Prof. of Food Technology, Department of Food Science,
Faculty of Agriculture, Ain Shams university

Dr. Samia S. El-Maghraby

Head of Research Emeritus of plant physiology, Department of
Physiology and Chemistry

تقييم استخدام الذرة الرفيعة السكرية (الطور العجيني) في تصنيع بعض المنتجات الغذائية الوظيفية

رسالة مقدمة من

يارا إبراهيم حنفي الجداوي

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للحصول على
درجة الماجستير في العلوم الزراعية
(علوم وتكنولوجيا الأغذية)

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للحصول على

**درجة الماجستير فى العلوم الزراعية
(علوم وتكنولوجيا الأغذية)**

وقد تمت مناقشة الرسالة والموافقه عليها

اللجنة:

د. عبد العزيز ندير شحاته

أستاذ باحث الصناعات الغذائية، المركز القومى للبحوث

د. ممدوح حلمي القليوبي

أستاذ علوم وتكنولوجيا الأغذية المتفرغ ، كلية الزراعة ، جامعة عين شمس

د. نسرین محمد نبیه یسن

أستاذ علوم وتكنولوجيا الأغذية المساعد ، كلية الزراعة ، جامعة عين شمس

د. السيد إبراهيم يوسف ابو السعود

أستاذ علوم وتكنولوجيا الأغذية ، كلية الزراعة ، جامعة عين شمس

تاريخ المناقشة: 2013 /11/ 25

جامعة عين شمس
كلية الزراعة

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اسم الدرجة: ماجستير في العلوم الزراعية (علوم وتكنولوجيا الأغذية)

لجنة الإشراف:

د. السيد إبراهيم يوسف أبو السعود
أستاذ علوم و تكنولوجيا الأغذية ، قسم علوم الأغذية ، كلية الزراعة ، جامعة عين شمس
(المشرف الرئيسي)
د. نسرين محمد نبيه يسن
أستاذ علوم و تكنولوجيا الأغذية المساعد، قسم علوم الأغذية، كلية الزراعة، جامعة عين
شمس
د. سامية سعد السيد المغربي
رئيس بحوث فسيولوجي النبات المتفرغ ، بقسم الفسيولوجي والكيمياء ، معهد بحوث
المحاصيل السكرية ، مركز البحوث الزراعية

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ABSTRACT

Yara Ibrahim Hanafy El-Geddawy: Evaluation the Use of Sweet Sorghum (Dough Stage) for Manufacture of some Functional Food Products. Unpublished M.Sc. Thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, 2014.

This study was conducted to produce syrup from stalks of two sweet sorghum varieties named sorghum Honey and Brands varieties at dough stage (115 to 120 days) and to determine the chemical composition of the final syrup. Chemical, physical and organoleptic characteristics of some food products i.e. biscuit and jelly where sorghum syrup was used as a sugar substitute material at different ratios (25, 50, 75% and 2, 4 and 6%) in biscuits and jelly, respectively were determined. Results showed that the effect of nitrogen fertilization on technological parameters i.e. juice extraction percentage, syrup extraction percentage, juice yield and syrup yield (JEP, SEP, JY and SY) of two sweet sorghum varieties was significant ($P < 0.05$). Regarding to physiochemical properties of sweet sorghum syrup brix, protein, ash, reducing, non reducing and total sugars percentages, refractive index and color significantly affected by the applied levels of nitrogen. Data obtained cleared that sweet sorghum syrup surpass Black honey (control) in total soluble solids (TSS), protein, ash, phosphorous, potassium, calcium, ferric, reducing sugars, refractive index and viscosity. Regarding to sweet sorghum bagasse results cleared that ash, crude fiber, water holding capacity (WHC), oil holding capacity (OHC) were significantly affected by nitrogen fertilization. Results showed that except ash, all other physiochemical and organoleptic properties of biscuits were influenced by different substitution ratios of sweet sorghum syrup. Also, significant differences ($p < 0.05$) existed in appearance, exterior color, interior color, odor, taste, sweetness, firmness and general acceptability of the biscuits, while cell uniformity insignificantly affected ($p > 0.05$).

Results showed that except Odor, Color, consistency and general acceptance all other physiochemical and organoleptic properties (taste) of jelly were significantly influenced by different substitution ratios of sweet sorghum syrup. Depending on general acceptance results cleared that best values appeared in Brands C with substitution ratio 4, 6 and 2% compared to control that record lowest acceptability.

Key Words:

Sweet sorghum, Syrup, Bagasse, biscuits, jelly, organoleptic properties, water holding capacity, oil holding capacity.

CONTENTS

	List of tables	VI
	List of figures	IX
1	Introduction	1
2	Review of literature	3
2.1	Juice Extraction Percentage (JEP) and juice yield (JY)	4
2.2	Physical properties and chemical components of juice produced from sweet sorghum	6
2.3	Sweet sorghum syrup processing	9
2.4	Syrup Extraction Percentage (SEP) and Syrup yield (SY)	12
2.5	Physical properties of syrup produced from sweet sorghum	15
2.6	Chemical composition of syrup produced from sweet sorghum	17
2.7	Sugar content of sweet sorghum syrup produced from sweet sorghum	20
2.7.1	Sucrose content	20
2.7.2	Reducing sugars content	21
2.7.3	Total sugar content	22
2.7.4	Fractionation of sugars	22
2.8	Chemical composition of bagasse	26
2.9	Physical properties of sweet sorghum bagasse	29
2.10	Recommended technological studies	30
2.11	The usage of sweet sorghum syrup as sugar substitute in some food products	32
2.12	Functional of sweet sorghum syrup	33
2.13	Technological studies on biscuits	37
2.14	Technological studies on jelly	40
3	Material and Methods	46
3.1	Materials and experimental design	46

I.	Technological process of sweet sorghum syrup	46
1.1	Sampling	46
1.2	Juice extraction	46
1.3	Concentration of juice	47
II.	Productivity traits	49
III.	Biscuits evaluation	49
IV.	Preparation of Jelly	53
3.2	Methods	55
3.2.1	Physical properties	55
3.2.2	Chemical analysis	55
	Moisture	56
	Total nitrogen content	56
	Crude Protein	56
	Titrateable acidity	56
	Ash content	56
	Reducing Sugar, non reducing and total sugar content	56
	Mineral Content	56
	Amino acids determination	56
	Quantitative determination of sugars using HPLC	57
	Crude oil	58
	NFE %	58
	Determination of crude fiber	58
	Dietary fiber	58
	Physical properties of bagasse	58
	Water holding capacity	58
	Oil holding capacity (OHC)	58

3.2.3	Physical measurements of biscuits	59
	Diameter (D)	59
	Thickness (T)	59
	Color	59
	Profile texture	59
3.2.4	Organoleptic evaluation	59
3.2.5	Physical properties of jelly	60
3.2.2.6	Organoleptic evaluation	60
3.2.7	Statistical analysis	60
4	Results and Discussion	61
4.1	Productivity traits	61
4.2	Quality parameters of sweet sorghum juice	65
4.3	Physical and chemical composition of sweet sorghum syrup	66
4.3.1	Brix %	66
4.3.2	Protein and ash %	66
4.4	Sugar components of syrup for two sweet sorghum varieties	68
4.4.1	Reducing sugars %	68
4.4.2	Non reducing sugars %	68
4.4.3	Total sugars %	69
4.5	Quantitative sugars in sweet sorghum syrup	71
4.6	Minerals % of syrup for two sweet sorghum varieties	74
4.7	Essential amino acids of syrup for two sweet sorghum varieties	76
4.8	Non essential amino acids of syrup for two sweet sorghum varieties	78
4.9	pH , Refractive index and titratable acidity (as citric acid) of syrup for two sweet sorghum varieties	81
4.9.1	pH values of sweet sorghum syrup	81

4.9.2	Refractive index (RI)	82
4.9.3	Titrateable acidity	82
4.10	Color of syrup for two sweet sorghum varieties	84
4.11	Rheological parameters of tested sweet sorghum syrups	87
4.12	Chemical Constituent of bagasse for two sweet sorghum varieties	90
4.12.1	Moisture %	90
4.12.2	Protein %	91
4.12.3	Ash %	91
4.12.4	Crude fiber %	91
4.12.5	Crude oil %	92
4.12.6	NFE %	92
4.13	Dietary fibers of bagasse for two sweet sorghum varieties	94
4.14	Selected functional properties of bagasse (WHC and OHC)	97
4.15	Application of sweet sorghum syrup	99
4.15.1	Proximate chemical composition of biscuits substituted with different ratios of sweet sorghum syrup	99
4.15.1.1	Physical properties of biscuits as affected by sweet sorghum syrup with different level of substitution	105
4.15.1.1.1	Biscuit diameter	105
4.15.1.1.2	Thickness	106
4.15.1.1.3	Spread ratio	107
4.15.1.1.4	Profile texture	108
15.1.2	Color of biscuits as affected by substitution of sweet sorghum syrup	110
15.1.3	Organoleptic properties of biscuit as affected by sweet sorghum syrup substitution.	113
15.2	Proximate chemical constituents of jelly substituted with different ratios of sweet sorghum syrup	122
15.2.1	Visual properties of jelly substituted with different ratios of sweet sorghum syrup	127

15.2.2	Color and pH of jelly substituted with different ratios sweet sorghum syrup	129
15.2.3	Sensory evaluation of jelly substituted with sweet sorghum syrup	132
16	Summary	137
17	References	144
18	Arabic summary	

LIST OF TABLES

Table		Page
1	Ingredients used for biscuits preparation with partial replacement of sucrose by sweet sorghum syrup	50
2	Ingredients used for jelly preparation with partial replacement of sucrose by sweet sorghum syrup	53
3	Mean values of yield for juice and syrup components of two sweet sorghum varieties	62
4	Mean values of yield properties for two sweet sorghum varieties	64
5	Weight of juice and syrup obtained during milling and concentration (Kg)	65
6	Proximate chemical constituents of syrup for two sweet sorghum varieties	67
7	Sugar components of syrup for two sweet sorghum varieties	70
8	Quantitative sugars (g/100g) for two sweet sorghum varieties	72
9	Minerals % of syrup for two sweet sorghum varieties	75
10	Essential amino acids (g amino acid/100 g sample) of syrup for two sweet sorghum varieties.	77
11	Nonessential amino acids (g amino acid/100 g sample) of syrup for two sweet sorghum varieties	80

12	PH , Refractive index and titratable acidity (as citric acid) of syrup for two sweet sorghum varieties	83
13	Color of syrup for two sweet sorghum varieties	86
14	Rheological parameters of tested sweet sorghum syrups	89
15	Proximate chemical composition of bagasse for two sweet sorghum varieties (dry basis%)	93
16	Dietary fibers of bagasse for two sweet sorghum varieties	96
17	Water holding capacity and oil holding capacity for two sweet sorghum varieties	98
18	Proximate chemical composition (% dry basis) and caloric values of biscuit substituted with sweet sorghum syrup	104
19	Physical properties of biscuit substituted with different levels of sweet sorghum syrup	109
20	Color of biscuit substituted with different level of sweet sorghum syrup	112
21	Sensory evaluation of biscuit as affected by sweet sorghum syrup substitution	116
22	Proximate chemical constituents and caloric values of jelly substituted with sweet sorghum syrup (% wet basis)	126
23	Visual properties of jelly substituted with different ratios of sweet sorghum syrup	128