



Nutritional and medicinal effects of Aldo fruits

L. O. Mallasiy

Muhayil Asir, Applied College, King Khalid University, Abha 61913, Saudi Arabia,

Email: lohosain@kku.edu.sa

Abstract:-

Dom is a fruit found in the Sahara Desert and in Egypt and western India grows to a height of up to 6 to 9 meters and is considered one of the beneficial plants in the world and is rich in fiber, carbohydrates and some antibiotics, vitamins and salts, which is useful for many diseases, including high blood pressure, diabetes and kidneys and gives desirable sensory qualities in bread products. Three samples were manufactured cake A, B, C, sample A was a control (control) free of dom and sample B contained 15% of dom and sample C contained 20% dom and after sensory evaluation of the three samples the results were as follows We find that sample B was accepted in terms of flavor , color and general acceptance more than the two samples A and C As for the sample C, it found more acceptance in terms of taste and crispness among the residents, so the addition of dom to the cake led to an improvement in the properties of the cake in terms of taste, color, crispness and flavor compared to the dom-free sample.

Received:18 Jun 2024

Revised: 30 July 2024

Accepted:25 Aug 2024

Introduction

Dom of perennial trees, a family of desert palm is found in the sub-Saharan desert, Egypt and western India grows up to a height of 6 meters or 9 meters is considered one of the beneficial plants in the world, Dom type of palm grows in Upper Egypt, fruits are very hard in the size of an apple almost used leaves in the work of baskets and ropes and wood in carpentry and fruits Dom found abundantly in the tombs of the ancient Egyptians is a type of palm tree which is oval shape edible as used juices In the treatment of fistulas and hemorrhoids and schistosomiasis, as well as ulcers that affect the mouth and the treatment of some skin diseases and the relief of foot and leg pain. It can be used in the manufacture of dyes and coloring of paints and toothpastes (Fletcher, 1997)

The fruit of Dom is a good source of vitamins and minerals and can be said to be a fruit that provides essential nutrients and can help to address many problems related to food such as diabetics, high blood pressure, kidney stones and the fruit of Dom is provided either in its natural form after separating its fruit or in the form of a fine powder and is presented as a hot and cold drink after dissolved in water and sweetened by a small percentage of sugar Waleed et al, 2014)

And its fruits are the largest pressure regulator and the fruits can be consumed in their fresh form as the kernel can be removed from them and then dry the fleshy layer and grind and get them in the form of fine powder,.

Also, one of the advantages of this fruit is that it can be used in bread products because it has an impact on (Coimbra, 2011) texture, flavor and nutritional value.

Because the Saudi citizen does not know about the benefits of doom and the lack of studies in it I chose this topic

Search problem

1. What is the nutritional value of dom.
2. What is the role of Dom in the treatment of many diseases
3. What is the effect of adding dom to cake and sensory evaluation of samples

Research Objectives:

1. Recognize the nutritional value of dom
2. Introducing Dom into the diet of diabetics, hypertension, kidney and cholesterol patients

Add dom in bread products such as cake to raise nutritional value and improve sensory properties.

Research hypotheses

1. Dom treats cancer
2. Adding Dom improves the properties of bread products
3. Drinking doom leads to intestinal problems
4. Using DOM for teeth whitening

Research Methodology:

The research took the descriptive experimental approach, in which references are relied upon from scientific books, research and periodicals that serve the subject of the research, then make an experiment by adding the dom to the cake

Spatial boundaries:

King Khalid University College of Science and Arts - Girls - Muhayil Aseer - Department of Home Economics

Time limits:

Second Semester 1436-1437 AH

Previous studies

Dom palm (Dom Taiba) is found in the Sahara Desert and in Egypt and western India grows to a height of up to 6 to 9 meters and is considered one of the beneficial plants in the world (Fletcher, 1997)

The pulp of the dom is fibrous and tastes like ginger and is large in size covered with edible fruit and is often dried, crushed and added to food as a debilitating substance (Orwa, et al, 2009). Drone, 1997 also added that the fruit is used in cooking in different ways and the pulp can also be used and the viability of eating the pulp varies while the immature kernel is inedible.

Hsu et al. (2006) pointed out that Dom is an antioxidant and anti-cancer because it contains a large amount of phenolic antihypertensive and anti-cancer contents. Dosurnu (2006) reported in his research that the aqueous extract of the Dom fruit revealed anti-activity against a wide range of fungal isolates.

(Waleed et al,2014) Dom is a source of essential minerals such as potassium, magnesium and phosphorus, moreover also that the fruit of Dom is available in B vitamins and also carbohydrates and fiber necessary for good nutrition and also can be used Dom in various important applications in the food industry and therefore we can say that the fruit of Dom has essential nutrients and possesses important technical properties that if exploited well can help in the treatment of many

From food-related problems such as diabetics, high blood pressure and kidneys.

Aremu , 2006) said that the Dom fruit contains high amounts of essential minerals and gives the body the ability to control high blood pressure, Kamis et al. (2003) said that the fruit infusion is widely consumed as a health stimulant and has been evaluated as containing rare minerals and it carries medicinal properties and the study showed that the pulp of the fruit contains protein, fatty acids and linoleic acid. Coimbra (2011) pointed out in his research that one of the advantages of this fruit is that it can be used in Khobar products because it has an effect on texture, flavor and nutritional value.

Diabetes has become humanity's third killer after cancer and cardiovascular disease is one of the most challenging diseases facing healthcare workers today. So there has been growing interest in the therapeutic use of natural products for diabetes, especially those derived from plants.

A study was conducted using 40 male mice and the results revealed the presence of ten fabricated flavonoids, including two new natural compounds, and the level of glucose was improved and

significantly reduced in the blood triglycerides and on the other hand kidney function was improved where a decrease in urea and creatinine levels in the blood serum was observed that were high and significantly decreased. Both glutathione peroxidase were also increased, along with reduced albumin and total protein levels. A significant decrease in the level of testosterone in the blood was observed with an increase in concentration in the kidney and prostate after treatment a very significant decrease in the kidney and prostate

(.Hossam et al, 2010) Medicinal plant extracts were found to improve diabetes control and at the same time reduce the side effects associated with them Industrial medicines The spread of medicinal plants for health purposes has increased significantly because of their great importance to public health Plant extracts were evaluated for antibiotic activities and bacterial activity was evaluated in plant extracts on microorganisms, so the results were more active against gram-positive bacteria than gram-negative bacteria and the aqueous extracts of the Dom fruit had effects Useful by virtue of its counter-activities.

(Kamis et al, 2003) in a study on 16 white mice were fed on Dom Taiba orally daily for 3 weeks, the biochemical and hematological measurements of the mice were measured by measuring the components of the blood: blood sugar level, urea, albumin, triglycerides, cholesterol, total fat, protein and globin, showed us a clear decrease in the level of fat, cholesterol, triglycerides and glucose.

As Ali Mohamed et al. said, 2015 The fruit of the Dom fruit of the fruits rich in fiber and sugars in addition to polyphenols has been conducted a study on mice to find out the effect of adding Dom in different proportions (5%, 10%) to the diet of mice rich in animal fatty substances and was biological evaluation and observed a clear decrease in the triglycerides and cholesterol in the blood of mice that feed on 5% of the fruit Dom in their diet.

Diabetes has become humanity's third killer after cancer and cardiovascular disease is one of the most challenging diseases facing healthcare workers today. So there has been growing interest in the therapeutic use of natural products for diabetes, especially those derived from plants.

A study was conducted using 40 male mice and the results revealed the presence of ten fabricated flavonoids, including two new natural compounds, and the level of glucose was improved and significantly reduced in the blood triglycerides and on the other hand kidney function was improved where a decrease in urea and creatinine levels in the blood serum was observed that were high and significantly decreased. Both glutathione peroxidase were also increased, along with reduced albumin and total protein levels. A significant decrease in the level of testosterone in the blood was observed with an increase in concentration in the kidney and prostate after treatment a very significant decrease in the kidney and prostate

(.Hossam et al, 2010) Medicinal plant extracts were found to improve diabetes control and at the same time reduce the side effects associated with them Industrial medicines The spread of medicinal plants for health purposes has increased significantly because of their great importance to public health Plant extracts were evaluated for antibiotic activities and bacterial activity was evaluated in plant extracts on microorganisms, so the results were more active against gram-positive bacteria than gram-negative bacteria and the aqueous extracts of the Dom fruit had effects Useful by virtue of its counter-activities.

(Kamis et al, 2003) in a study on 16 white mice were fed on Dom Taiba orally daily for 3 weeks, the biochemical and hematological measurements of the mice were measured by measuring the components of the blood: blood sugar level, urea, albumin, triglycerides, cholesterol, total fat, protein and globin, showed us a clear decrease in the level of fat, cholesterol, triglycerides and glucose.

As Ali Mohamed et al. said, 2015 The fruit of the Dom fruit of the fruits rich in fiber and sugars in addition to polyphenols has been conducted a study on mice to find out the effect of adding Dom in different proportions (5%, 10%) to the diet of mice rich in animal fatty substances and was biological evaluation and observed a clear decrease in the triglycerides and cholesterol in the blood of mice that feed on 5% of the fruit Dom in their diet.

Research method and tools

An experiment was done to add dom to bread products because it contains vitamins, fibers, mineral elements and antioxidants, and because it is useful for patients with high blood pressure and diabetes,

and because it adds to bread products desirable sensory properties, and the sensory evaluation of cake samples added to Badra Al-Dom from Sudan was carried out at King Khalid University, College of Science and Arts in Mahayil Asir, in the nutrition laboratories in the Department of Home Economics, and the sensory evaluation was carried out by faculty members and students.

Three cake samples were made:

Sample A is (control) and is completely free of DOM.

The method of work is as follows:

2 eggs.

A glass of milk.

Half a cup of oil.

Half a cup of sugar.

1 spoon baking powder.

A cup and a half flour.

Sample B is a cake with 15% dom added

The modus operandi is as follows:

2 eggs.

A glass of milk.

Half a cup of oil.

Half a cup of sugar.

1 spoon baking powder.

45 g of Dora Dome.

185g flour.

Sample C is a cake with 20% dom added

The method is as follows:

2 eggs.

A glass of milk.

Half a cup of sugar.

Half a cup of oil.

1 spoon baking powder.

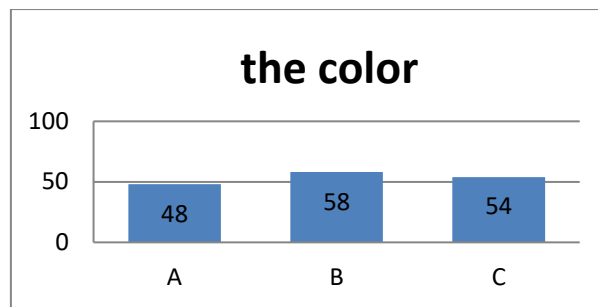
53 g of Dora Dome.

175g flour.

Results and discussion

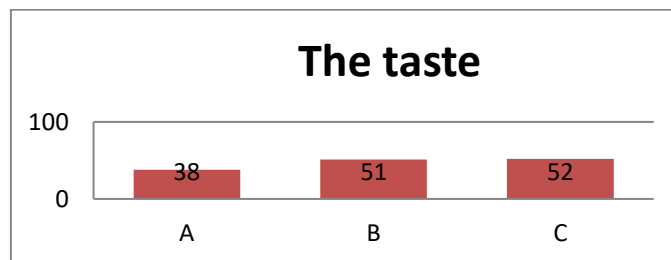
After conducting a sensory evaluation of the dom added cake samples compared to the dom-free control sample and analyzing the results statistically, it became clear as follows:

In terms of color: A, B, C comparison of the results of the three samples



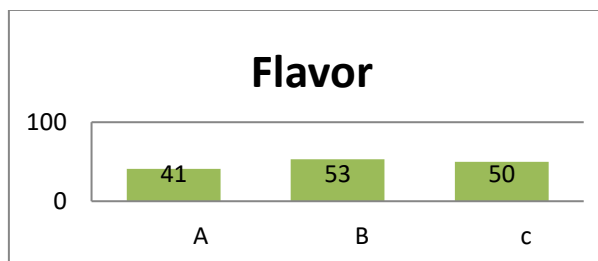
From the above figure, it turned out that the sample that contains 15% dom (B) is the best sample in terms of color, then followed by sample (C), which contains 20% dom, then sample (A) free of dom, and this means that adding dom improves the color of the cake according to the evaluation of the evaluators.

In terms of taste: A, B, C comparison of results between the three samples



As shown in the figure above, the sample (C), which contains 20% dom, is the best in terms of taste, but the difference is small compared to the sample (B), but the control sample got the lowest degrees in terms of taste, and this indicates that adding dom to the cake gives a better taste to the cake compared to the dom-free cake.

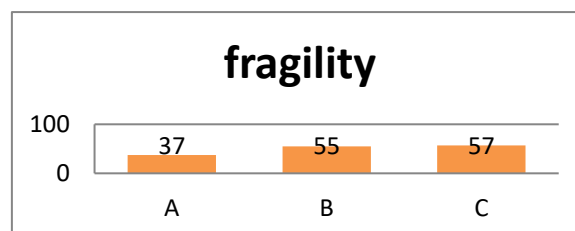
In terms of flavor A, B and C, comparison of results between the three samples.



As shown in the figure, sample B , which contains 15% dom, is the best in terms of flavor, followed by sample C, which contains 20 % dom, and the difference was slight between (B) and (C), and sample A was the least flavored, which is the control sample free of dom.

One of the advantages of this fruit is that it can be used in bread products because it has an effect on the texture, flavor and nutritional value of Coimbra (2011).

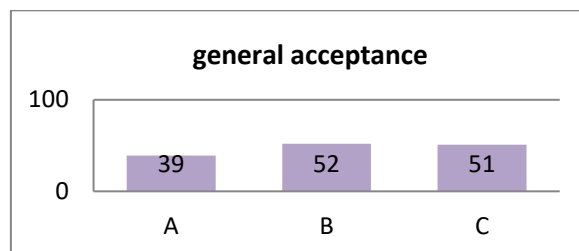
In terms of fragility: A, B, C comparison of results between the three samples



As shown in the figure, the fragility increased with the increase in the amount of dom added to the cake, as it is in sample C, which contains 20% of the dom, sample B is less than two degrees C, sample B contains 15% of dome, followed by sample A free of dom, which is the control sample, in which the fragility was

less than samples B and C, and this means that adding dom to the cake increases fragility according to the evaluation of the evaluators.

In terms of general acceptance: A, B, C Comparison of results between the three samples



We found that there is an acceptance of up to more than 50% of the cake added to it Dom and the sample (B) is the highest, which contains 15% of the Dom, followed by the sample (C), which contains 20% of the Dom, followed by the sample (A), which is the control sample free of Dom and it turned out that the addition of Dom to the cake is acceptable according to the evaluation of the evaluators.

Research Summary :

Through research and collection of information, we found that the fruit of the Dom contains a quantity of vitamins, dietary fiber, carbohydrates, necessary minerals, antioxidants and anti-fungal insulators, and it also turned out to be the fruit of the Dom a positive role in the treatment of many diseases, the most important of which are high blood pressure and the disease, which has become the third fatal disease after heart disease, which is diabetes and has a role in the treatment of kidney disease, and the sensory evaluation explained that the addition of Dom to the cake in different proportions 15% And 20% compared to the dom-free cake improves the characteristics of the cake in terms of flavor, color, taste and crispness, and therefore adding dom is one of the favorites

:Recommendations

- Adding Dome to bread products
- Introducing dom into the diet of diabetics, blood pressure and kidneys
- Take Dom juice to compensate for the loss of vitamins and mineral salts
- Eat dom because of its dietary fiber
- Eat Dom because it is considered an antioxidant

Acknowledgments :-

The authors extend their appreciation to the Deanship of Research and Graduate Studies at King Khalid University for funding this work through Large Research Project under grant number RGP.2/409/45.

.References:-

1. Aremu, M. O., Olaofe, O., Akintayo, T. E. (2006). A comparative study on the chemical and amino acid composition .
2. .Coimbra, M. C. Jorge, N.(2011). Proximate composition of guariroba (*Syagrus oleracea*). jeriva (*Syagrus romanzoffiana*) and macauba (*Acrocomia aculeata*) palm fruits, food Research International (44) 2139-2142
3. Dorane, E. T . (1997). Vegetable ivory and other Palm nuts/seeds es an art/craft medium. Journal of the Intametonel palm Society (renamed as Palms since 1999), 41 (4), 18-25.
4. Dosurnu, O.O.,Nwosu, F.O, Nwogu, C.D (2006). Antimicrobial studies and photochemical Screening of extracts of *Hyphaene thebaica* (Linn) Mart fruits. International Journal of Tropical Medicine 1 (4): 186-189 ..
5. Fletcher, R. (1997). Listing of useful of the world. Australia New crops <http://WWW.newcrops.uq.edu.au/listing/hyphaenethebaica>

6. Hossam, El-Beltagi, E.S., Mohamed, Amal, A., Khalil, Ashraf, A. (2010) Antioxidant and antimicrobial properties of *Anastatica hieracuntica* and doum palm *Hyphaene thebaica* Grasse y Aceites. 2010; (1)67-75 DOI:10.3989/gya.064509
7. Hsu, B., Coupar, I. M., Ng, K. (2006). Antioxidant activity of hot water extracts from the Doum palm, (*Hyphaene thebaica*) food Chemistry, 98 (2), 317-328.
8. .Kamisi, A. B., Modu, S., Zanna, H., & Oniungu T. A. (2003). preliminary biochemical and haematological effects of aqueous suspension of Pulp of *hyphaene thebaica* (L) mart in rats. Biokemistri. 13 (1): 1-7
9. Orwa c., Mutua. A., Kindt, R., Jamnadass, R., Simons, A. (2009). "Agroforestry database: a tree reference and selection guide version 4.0". Url: <http://www.WorlDagroforestry.org/af/treedb/> Accessed on 10. Waleed Omer., Mallika Thapa (2014). Physicochemical, Nutritional and Functional Properties of the Epicarp, Flesh and Pitted Sample of Doum Fruit (*Hyphaene thebaica*). Science and Education 10-Sallam, A. A., El-Askary, H. I., Mohamed, M. F., & El-Gendy, A. N. (2022). *Hyphaene thebaica* (Arecaceae) as a Promising Functional Food: Extraction, Analytical Techniques, Bioactivity, Food, and Industrial Applications. Food Analytical Methods, 15(8), 2197–2216. <https://doi.org/10.1007/s12161-022-02412-1>
10. Ali, H. M., El-Gendy, A. E.-N. G., Alhaithloul, H. A. S., & Farooq, M. (2020). Metabolomic Profiling and Antioxidant, Anticancer and Antimicrobial Activities of *Hyphaene thebaica*. Processes, 8(3), 266. <https://doi.org/10.3390/pr8030266>
11. Al-Sheddi, E. S., Farshori, N. N., Al-Oqail, M. M., Al-Massarani, S. M., Al-Turki, M., & Alharbi, S. A. (2024). Bioactive Compounds Present in Doum Palm (*Hyphaene thebaica* L.) Trees in Saudi Arabia. International Journal of Applied Biology and Medical Research, 12(1), 45–55. https://ijabmb.journals.ekb.eg/article_362228.html
12. Odetokun, O. S., Alabi, A. O., & Fagbemi, T. N. (2021). Mineral Content, Proximate Composition and the Antioxidant Properties of the Ethanol Extract of *Hyphaene thebaica* L. Asian Journal of Advances in Agricultural Research, 17(4), 41–50. <https://journalajacr.com/index.php/AJACR/article/view/124>
13. Al-Okbi, S. Y., Mohamed, D. A., Hamed, T. E., & Esmail, R. S. (2019). Effect of Doum Fruit (*Hyphaene Thebaica*) Extract on Some Biochemical Parameters, Enzyme Activities and Histopathological Changes of Pancreas in Alloxan Induced Diabetic Rats. Food and Nutrition Sciences, 10(9), 1089–1105. <https://doi.org/10.4236/fns.2019.109078>
14. 1Ali Muhammad Bayoumi . Mr. Farhat Sayed Ahmed and Sherine Sayed Hafez Abu Saree . Properties of Dom palm fruits and its aqueous extracts that reduce lipids Experimental animals .Giza ,2015 . Department of Special Food Research and Nutrition :Food Technology Research Institute