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Study of the sensory properties of biscuits prepared by adding sesame flour and oil

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Abstract:-

The research aims to identify the importance and benefits of sesame and sesame oil, educate the community about the benefits of sesame and sesame oil, and whether sesame and sesame oil play a role in treating bone pain and arthritis. Does sesame oil play a role in maintaining dental health? Would society accept biscuits made from sesame and sesame oil? The research procedures were as follows: Two samples of biscuits were manufactured. Sample A was made using wheat flour, while sample B used sesame flour. The sensory evaluation of sample A in terms of color was 86.6%, taste 88.4%, fragility 85.7%, aroma 91.9%, and overall acceptance 93.7%. While the sensory evaluation of sample B in terms of color was 96.4%, taste 94.6%, fragility 94.6%, aroma 96.4%, and overall acceptance 98.2%. An electronic questionnaire was conducted to determine the community's awareness of the benefits of sesame seeds and sesame oil. It was found that 73.5% of people who include sesame seeds in their diet are compared to 26.5% who do not include sesame seeds in their diet. It was found that 74% of people know about the types of sesame seeds, while 12.5% do not know about the types of sesame. It was found that 64.5% of people know about the therapeutic benefits of sesame seeds, while 35.5% do not know. 18.5% of the participants had tried the sesame oil pulling technique, 9.5% sometimes tried it, while 72% had never tried the sesame oil pulling technique. 80.5% of the participants were found to be able to eat sesame flour and sesame oil biscuits, while 17% of the participants might eat them, while 2.5% did not eat them. The study therefore recommended eating 3 tablespoons (15g) of sesame seeds on an empty stomach and including sesame seeds in the diet as a good source of dietary fiber, which helps maintain digestive health and prevent chronic diseases such as heart disease and diabetes. We recommend adding sesame oil because it has a high nutritional value and suitable functional properties for food additives. We recommend replacing wheat flour with sesame flour, as sesame flour contains iron and calcium. Calcium is an essential element for bones and teeth. We recommend trying the sesame oil pulling technique.

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Introduction

Sesame Sesamum indicum) is the oldest cultivated oilseed crop known for its consumption.

(edible oil and seeds) as a food product and provides various health benefits (Biswas et al., 2018)

- Sesame oil is an edible vegetable oil derived from sesame seeds. In addition to its use as a cooking oil it is also popular in alternative medicine - from massage and traditional therapies to modern-day fads. Ongoing research also suggests that the presence of antioxidants and trans fats in sesame oil may help control blood pressure. (Mustafa Shihabi et al., 2003) Sesame seeds contain high levels of dietary fiber, and sesame can be classified into white sesame, black sesame, and yellow sesame, among which black and white sesame are the most common and most growing dominant types.

Sesame seeds are rich in protein and fat and have many health benefits. They contain antioxidants, lower cholesterol, regulate blood lipids, protect the liver and kidneys, protect the cardiovascular system, anti-inflammatory, anti-tumor, and other effects, which have great benefits for human .health. As a medicinally identical and edible food, sesame is used in various aspects of daily life Panpan Wei et al, 2022)Sesame is a rich source of fats, fatty acids, internal antioxidants, (proteins, carbohydrates and minerals. Sesame seeds are used as food, nutrients, minerals, vitamins and polyunsaturated fatty acids Medicinal extracts and their important plant components are widely used by both traditional and modern medicine systems to treat various medical conditions, including wound healing, liver problems, memory disorders, autoimmune encephalomyelitis, .atherosclerosis, cancer, and hypertensionDilipkumar pal et al, 2020) sesame contains a large number of bioactive ingredients such as peels and phytosterols that contribute to being a good source of antioxidants. The presence of sesamin and sesaminol in sesame seeds is due to its anti-inflammatory, antihypertensive, anti-hyperglycemic, antihyperlipidemic and anti-cancer properties. Sesame oil is also known for its antimicrobial activity. Sesame seeds are not only a good source of carbohydrates, protein and fats but are also rich in micronutrients and bioactive .elements

Shifa Mohammed and Dr Neeta Pattan, 2022))

Osteoporosis is a globally prevalent problem, affecting one in three women and one in five men over the age of 50, and has attracted significant global attention in the last two decades. Being a silent disease, it goes undetected in many cases, and due to its spread around the world, it poses a risk to public health. Osteoporosis and low density are prevalent in Saudi Arabia by 37.8% and 28.2% among Men and women over the age of 50, vitamin D deficiency is still one of the main risk factors for the disease in the Kingdom of Saudi Arabia (Ministry of Health, 2019) Sesame seeds perform many therapeutic functions against many health problems, especially those related to bones, because they contain a rich percentage of calcium, vitamins, proteins, oil and carbohydrates. Extensive literature research from 2013 to date was conducted on reports related to sesame seeds and their bioactive ingredients. Sesamein, sesamemol, sesamemolin, and sesame are the main bioactive husks found in sesame seeds. Comprehensive literature reviews have revealed the protective role of sesame seeds towards bone health in postmenopausal osteoporosis. Sesame seeds have been observed to have a positive effect on postmenopausal women who suffer from bone-related problems, such as osteoporosis and arthritis. So explore the effect of sesame seeds on bone mineralization in women with menopause. Furthermore, to help balance hormones in women after postmenopausal disorder, highlight the effect of daily sesame seed intake in women. I conclude that adding sesame seeds in the regular diet shows a positive effect on bone health in cases of .postmenopausal osteoporosis

et al , 2023) (Ammara Arooj

One of the common problems is oral and dental health, as it is an integral part of public health, as the percentage of children with tooth decay in the Kingdom of Saudi Arabia for the age groups of 6 years: 96%, 12 years: 93.7%

Oil rinsing, an ancient oral health technique has been widely used as a folk remedy to prevent tooth decay, toothache, bleeding gums, dry teeth, mouth and chapped lips and

improve teeth whitening. Also, the process of later oil withdrawal reduces the chance of inflammation, thus improving various systemic diseases, rinsing with oil is an inexpensive and widely accessible oral hygiene system Freda Jia Xin Jong et al , 2023).

The reason I chose this topic is the large number of problems in the bones and joints due to malnutrition and dental problems in all age groups, the target group is people who suffer from osteoporosis and arthritis in all age groups.

Search problem:

1. Do sesame and sesame oil have a role in treating bone pain and arthritis?
2. Does sesame oil have a role in maintaining dental health?
3. Does society accept biscuits made from sesame and sesame oil?

Research Objectives:

1-Learn about the importance and benefits of sesame and sesame oil.

2-Educate the community about the benefits of sesame and sesame oil.

Importance of Research:

Use sesame to reduce the problems of osteoporosis and arthritis and benefit from sesame crops.

Research hypotheses:

1. Sesame reduces blood sugar readings and cumulative sugar.
2. Sesame reduces the prevention of iron deficiency that causes anemia.

Research Methodology:

Descriptive based on references from scientific research that benefit my study, experimental based on the manufacture of sesame biscuits , analytical by conducting an electronic questionnaire to find out the community's awareness about the benefits of sesame for their health.

Spatial boundaries:

Nutrition laboratories, Department of Home Economics, King Khalid University, College of Science and Arts, Tihama.

Time Limits: First Semester 1445 AH

Previous studies

Sesame Sesamum indicum) is the oldest cultivated oilseed crop known for its consumption (edible oil and seeds) as a food product and provides various health benefits (Biswas et al., 2018) and sesame oil is an edible vegetable oil derived from sesame seeds. In addition to its use as a cooking oil also popular in alternative medicine, ongoing research also suggests that the presence of antioxidants and trans fats in sesame oil may help control blood pressure. (Mustafa Shihabi et al., 2003) **Nutritional value of sesame seeds:**

Nutrients present per 100 g of sesame seeds:

Food Energy	**2,372 kJ (567 kcal)**

Carbohydrates	26.04 g
drunkenness	0.48 g
Dietary fiber	16.9 g
Threonine	0.704 g
Leucine	1.299 g
Lysine	0.544 g
Methionine	0.560 g
Sistine	0.342 g
Tyrosine	0.710 g
alanine	0.886 g
Aspartic acid	1.574 g
Glutamic acid	3.782 g
Gleesin	1.162 g
proline	0.774 g
Serene	0.925 g
Total Protein	16.96 g
water	5.00 g
Fat	48.00 g
Vitamin C	0.0 milligrams (0%)
calcium	131 milligrams (13%)
Iron	7.78 milligrams (62%)
Magnesium	346 milligrams (94%)

phosphorus	774 milligrams (111%)
potassium	406 milligrams (9%)
sodium	39 milligrams (2%)
zinc	7.16 milligrams (72%)

U.S. Department of Agriculture Food Database (1997)

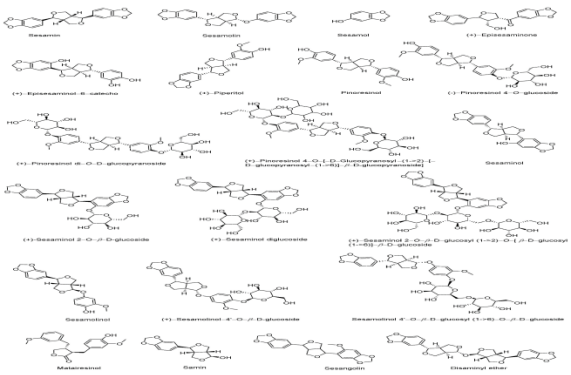
Nutrients:

The nutrients of sesame seeds are rich in fat, protein, minerals, vitamins, dietary fiber and sesame oil, obtained through traditional oil production methods, is rich in unsaturated fatty acids, fat-soluble vitamins, amino acids and others. Studies have found that sesame seeds contain 21.9% protein and 61.7% fat, and are rich in minerals such as iron, calcium et al, 2018 (Rout, K) and sesame seeds are rich in nutrients and have a reputation for being a "multi-purpose food bank" and "eight-bead crown".

Antimicrobial, anti-inflammatory, antidiabetic, anti-cancer, anti-hyperlipidemia, liver protective, anthelmintic, anti-leishmaniasis, anti-stomach, larvicide

Medicinal Spices and Vegetables , 2017))

:The chemical composition of sesame seeds



Dar, A.A.et al,2019**))**

Sesame and osteoporosis:

Osteoporosis is a skeletal disorder during which the fine structure of bone tissue changes., osteomyphobic cells are more active than osteocytes, resulting in porous bones showing less strength and increased fragility, is a disease with a hidden beginning and is usually diagnosed when a fracture occurs. For this reason, it can be described as a "silent" disease. Postmenopausal osteoporosis is mainly treated with medications whose use is associated with side effects. For this reason, alternative therapies and extracts are usually suggested. More specific vegetarianism, which is mainly based on folk medicine, mice and humans share common functions and have many similarities to that at the National Technical University of Athens (NTUA)

Sesame and arthritis:

Rheumatoid arthritis (RA) is an autoimmune disease known to be the leading cause of disability with a high mortality rate. Rheumatoid arthritis is mainly characterized by chronic synovitis and joint injury. Currently, traditional treatment strategies, primarily for disease-modifying antirheumatic drugs as well as glucocorticoids, are the main treatment regimens for rheumatoid arthritis patients. In recent years, bioactive compounds extracted from plants have been developed. Natural medicinal is well established as new agents for the management of rheumatoid arthritis. Extract from traditional Chinese medicinal herbs can improve rheumatoid arthritis diseases

Sesame Diabetes:

Diabetes is one of the leading causes of death in the world. Approximately 2.2 million people die from diabetes worldwide each year. In fact, diabetes is a manifestation of metabolic disorders. High blood lipids and high blood sugar lead to inflammation and oxidative stress damage. When the body cannot control blood sugar levels, it indicates blocking insulin secretion or responding to insulin, leading to diabetes. Sesamin treatment for mice with spontaneous diabetes can reduce fasting blood glucose levels, cholesterol and triglycerides and improve the ability to bind insulin to raw plasma membranes in the liver

Sesame and blood pressure:

High blood pressure is the most common chronic disease and the most dangerous factor in causing cardiovascular and cerebral diseases.

Long-term high blood pressure can lead to impaired heart function, cause enlargement and death of cardiac muscle cells, and eventually lead to heart failure. Medical treatment is an important means of preventing and treating hypertension. Natural compounds such as sesamine have been found to have good effects in lowering blood pressure.

Sesame and asthma:

Bronchial asthma is a significant burden on both individual patients and overall health . SesameN is a natural peel that relieves asthma Sesamein mechanism in inhibiting airway inflammation in asthma patients has been revealed, Sesame effectively inhibits inflammatory cell infiltration, and inflammatory cytokines in broncholcholainating fluid.

Sesame and its effect on cancer:

Cancer has always been a big problem that humans need to overcome. Chemotherapy is still the main method of cancer treatment nowadays. However, chemotherapy also has the disadvantage of its low efficiency and significant side effects. Therefore, the development of natural anti-cancer drugs should be a new research direction. Studies have shown that sesame can effectively inhibit a variety of tumors, providing a new idea for drug development

Sesame anti-inflammatory:

Inflammation is part of the body's defense mechanism and is usually characterized by pain, swelling and fever. Pathogenic infections, chemical stimulation, physical injury, allergic reaction, etc. can cause an inflammatory reaction. Some uncontrolled chronic inflammation often leads to many diseases.

Sesame allergy:

Sesame seed allergy has increased in the twenty-first century It is an immune hypersensitivity to the proteins and lipophilic proteins in sesame seeds and foods made

from sesame seeds, including sesame food oil, symptoms can be rapid or gradual in appearing, and occur within minutes to days, a rapid allergic reaction may include anaphylaxis, a condition that may be life-threatening and require treatment with epinephrine Other slow symptoms may include dermatitis or esophagitis in addition to Water-soluble allergen proteins Sesame seeds, peanuts and hazelnuts, share a class of allergenic proteins known as oleocins.

(Bloomsbury Publishing Plc., 2021) So allergens should be avoided and patient education.

Sesame oil:

It is an ancient oilseed crop with a high percentage of fat (45-55%) and proteins (20-25%) beneficial to human health. (Shi, L.k et al,2017) widely used for the production of confectionery, bakery products and sesame butter. Sesame oil is one of the most popular flavoring essential oils, and about 0.4 million tons are consumed.

Sesame oil for atherosclerosis:

Atherosclerosis is a chronic inflammatory disease. Under the influence of risk factors such as hyperlipidemia and high blood pressure, it is easy to cause disorders of fat metabolism in the body and lead to the accumulation of a large amount of fat under the inner layer of blood vessels, leading to chronic inflammation (H. Wang et al,2021). According to reports, between 8 and 10 million people die annually from cardiovascular disease and stroke caused by atherosclerosis.

Sesame oil and antioxidants:

Antioxidants protect the body's cells from various diseases by eliminating free radicals generated during biochemical treatment. A combination of synthetic antioxidants, such as butyl hydroxylanisol (BHA) and butylhydroxytoluene (BHT), can stabilize free radicals and are therefore widely used in food processing industries to reduce food degradation. There are reports about the use of sesame oil as a natural antioxidant

Sesame, viral infections and COVID19:

Adding sesame seeds to our daily diet in different forms during This COVID-19 pandemic situation shows different health benefits (Kumar,2020) One popular way is adding sesame oil to the nostrils can prevent the spread of the SARS-CoV-2 virus ,

Sesame and burns:

Burns and injuries are the leading causes of death and disability worldwide. Patients need rehabilitation, reconstruction, and physical and psychological support Previous studies in laboratories have shown that sesame oil stimulates the production of fibroblasts in wounds. et al, 2017) Seyed Mahdi Tabatabaei)

Sesame oil and dental health:

One of the oral and dental health techniques that has been used as a folk remedy is oil rinsing, evidence suggests that weeks of the oil rinsing regimen significantly reduced the number of bacteria (such as Streptococcus mutagenicus, lactobacilli), plaque index, and gum index.

Sesame oil in the pharmaceutical industry:

The myriad beneficial health properties of sesame husks such as sesamemol, sesamemolin, sesamemin and sesameminol make them profitable agents in the pharmaceutical industry.

Interestingly, sesame peels are similar to medicines, suggesting their effectiveness and suitability as established remedies (Chakraborty et al, 2023). Sesame oil has long been used in Ayurvedic (Indian medicine) 2009 , Lahorkar et al) and Chinese medicine (Zhang et al.). 2013) due to its nutritional and therapeutic properties.

Adding sesame in the food industry:

Manufacturers are interested in producing high-quality, gluten-free bakery products, and many have turned to additives to improve their texture, taste, and appearance. One such additive is sesame protein isolate (SPI), a by-product of the production of sesame oil with high nutritional value and functional properties suitable for food additives.

Masoumeh Rahim et al,2023)) in the food industry is mainly used as oilseed crops for the production of sesame oil used in cooking and salad preparation. In addition, sesame seeds are commonly used in bakeries in addition to being a key ingredient in the production of confectionery, snacks and spice products,

How to conduct research

An experiment was conducted by manufacturing two samples of biscuits, sample A of wheat flour and sample B of sesame flour and sesame oil, and the materials used in the manufacture of biscuits were purchased from the markets of Muhayil Asir and we conducted the experiment in the nutrition laboratories of the Department of Home Economics at the College of Science and Arts in Muhayil Asir and was evaluated by faculty members, employees and students, and the number of residents was 14 people.

Amounts of biscuits of wheat flour and sesame oil sample A:

1- two eggs
2- 100g powdered sugar
3- 150ml sesame oil
4- 40g milk powder
5- 10g Baking Powder
6- 5g vanilla
7- 5ml vinegar
8- 5g salt
9- 370g wheat flour

Biscuits of sesame flour and sesame oil sample B:

1- two eggs
2- 100g powdered sugar
3- 150ml sesame oil
4- 40g milk powder
5- 10g Baking Powder
6- 5g vanilla
7- 5g vinegar
8- 5g salt
9- 188g wheat flour
10- 188g sesame flour

How to prepare biscuits

Sample A:

First add the eggs in the mixer and mix well and add sugar powder and then mix and then add sesame oil and mix then add milk powder and then add baking powder, vanilla, vinegar and salt and then mix well and then add wheat flour and stir well and knead until the dough becomes coherent and then form the dough circles and decorate with sesame and sugar and stacked in a suitable tray and then put the biscuits in the oven at a temperature of 180 ° C until cooked.

Sample B:

First the sesame seeds were roasted and then grinded and sieved, add the eggs in the mixer and then add the sugar powder and then add sesame oil and mix then add milk powder and then add baking powder, vanilla, vinegar and salt and then mix well and then add half the sample amount A wheat flour and half sesame flour and stir well and knead until the dough becomes coherent and then form the dough in a round shape and decorate with sesame and sugar and stacked in a suitable tray and then put the biscuits in the oven at a temperature of 180 ° C until Cooked.

After manufacturing, the biscuits were evaluated sensually by the faculty members, staff and students at the College of Science and Arts in Mahayil Asir

Through the attached table:

Sensory assessment test for sesame biscuit sample:

General Admission	Smell	Fragility	Bait	Color	Sample
					A
					B

The test for the sample and give the grades as follows:

Excellent:4 Very Good:3 Good:2 Weak:1

:E-Questionnaire

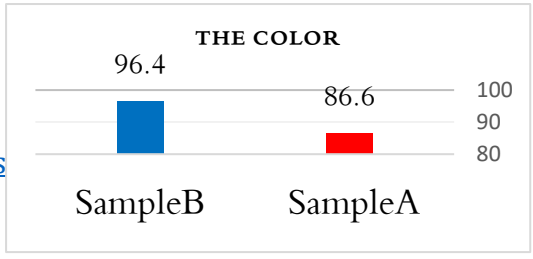
https://forms.gle/Aott1oSPQzSPW7M16

Results and discussion

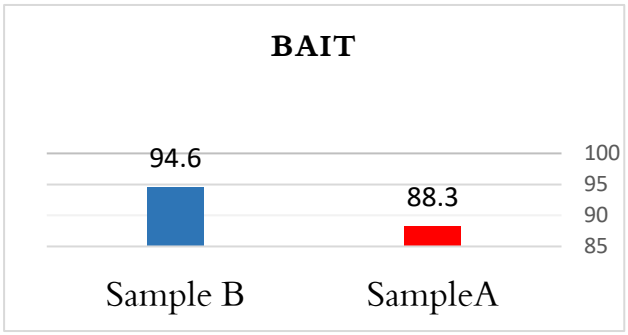
Two samples of biscuits were manufactured and sample A was a biscuit with wheat flour and sample B with sesame flour and sesame oil to increase the benefits of biscuits for osteoporosis, arthritis and dental health as sesame flour is a good source of protein, which increases the value of protein in food products It has been noted that the protein content increases significantly in biscuits using sesame flour and conducted studies and research in the mineral analysis of sesame flour that it contains Iron, calcium, potassium, magnesium and phosphorus. Calcium is an essential element for bones and teeth, which is essential for proper nerve functioning, muscle contraction and relaxation, and a healthy immune system. Biscuits were organoleptically evaluated by faculty members at the College of Science and Arts in Muhayil Asir

For lack of laboratories to carry out the necessary analyzes, the results of the sensory evaluation of the two samples A and B are as follows:

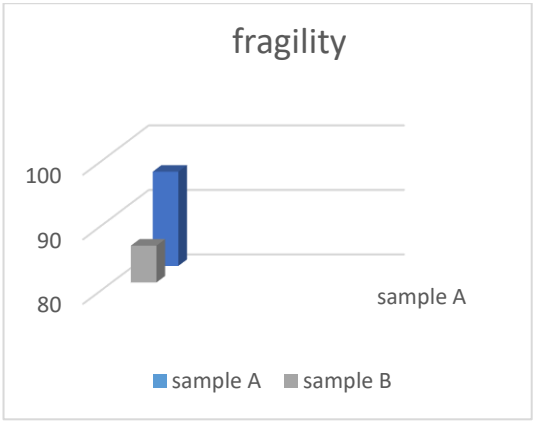
Sensory assessment scheme for biscuits A, B:



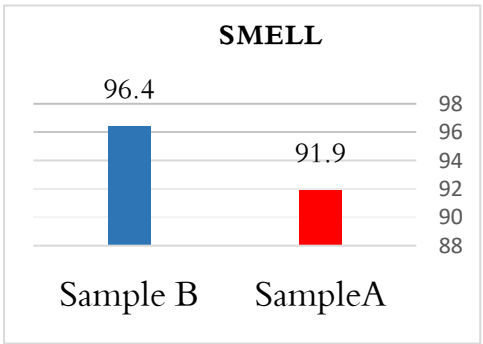
As shown in the color chart of sample B, the highest rating was 96.4% for containing sesame flour and sesame oil, while sample A had the lowest rating at 86.6%.



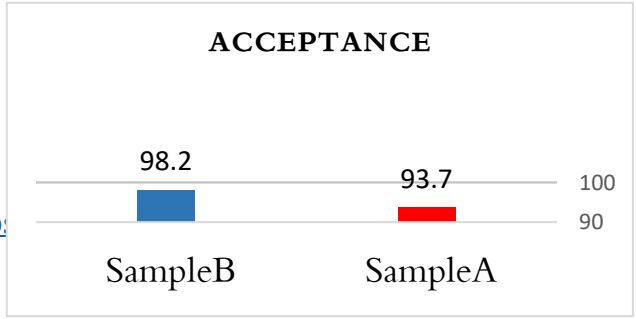
As shown in the taste graph in sample B, the highest rating was 94.6 for containing sesame flour and sesame oil, while sample A was 88.3% lower.



As shown in the graph of fragility, sample B has the highest rating of 94.6 because it contains sesame flour and sesame oil, while sample A is 85.7% lower



As shown in the odor graph in sample B, the highest rating is 96.4% for containing sesame flour and sesame oil, while sample A has the lowest rating at 91.9%.



As shown in the general admission chart, sample B has the highest rating with 98.2 because it contains sesame flour and sesame oil while sample A has the lowest rating at 93.7% The sample of sesame flour biscuits is characterized by the fact that manufacturers produce high-quality products that are gluten-free, and many of them have turned to additives to improve their texture, taste and appearance.

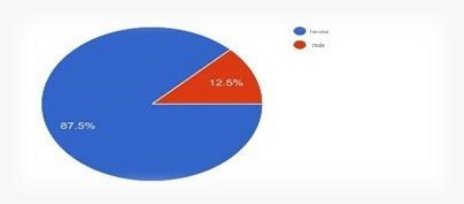
One such additive is sesame protein isolate (SPI), a by-product of sesame oil production with high nutritional value and functional properties suitable for food additives. Masoumeh Rahim et al,2023)

Questionnaire Discussion

An online questionnaire was conducted on community awareness about the importance and benefits of sesame seeds and sesame oil that help the community help treat them for osteoporosis and arthritis

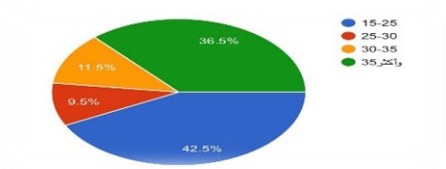
The link to the questionnaire was distributed on social media channels and the number of responses was (200) and the results of the analyzes were as follows:

1- **Sex:**



How much is shown above, the percentage of females is more engaged at 87.5% while the percentage of males is
15.5% less engaged

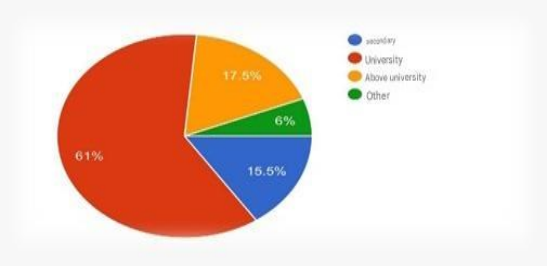
2- Lifetime:



How much is shown above in the figure The age group of 15-25 are the most engaged groups with 42.5%

While the percentage of the age group 35 and more constitutes 36.5%, while the percentage of the age group of 30-35 constitutes 11.5%, while the percentage of the least interactive age group is the group of 25-30 by 9.5%.

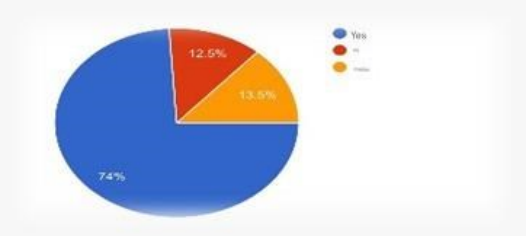
3- Education Level:



As shown above, the undergraduate stage is more interactive by 61%, while the percentage of the post-university stage is 17.5%, while the percentage of the secondary stage is 15.5%, and then another stage by 6%.

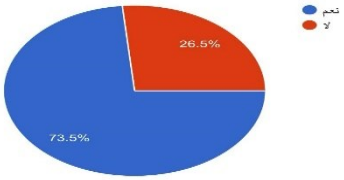
Where the questionnaire was distributed to students and employees of the College of Science and Arts in Mahayil Asir, Department of Home Economics

4- **Do you know the types of sesame seeds (white, black, yellow)?**



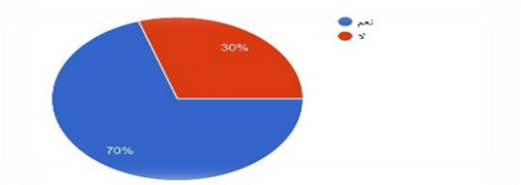
As shown in the figure above, the percentage of those who are known about sesame seed types is 74%, while the percentage of those who may be known about sesame seed types is 13.5%, while the percentage of those who do not know sesame seed types is 12.5%.

5- Do sesame seeds enter your diet?



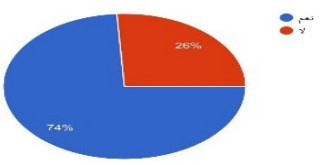
As shown in the figure above, the percentage of those who include sesame seeds in their diet is 73.5%, while those who do not include sesame seeds in their diet constitute 26.5%

6- Does sesame oil enter your diet?



As shown above, 70% of those who include sesame oil in their diet while 30% do not include sesame oil in their diet.

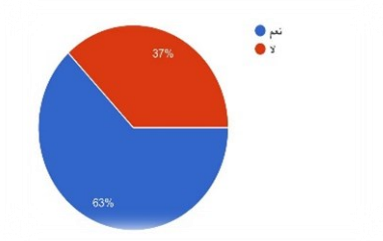
7- Did you know that sesame seeds contain proteins?



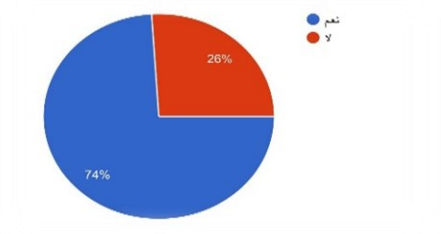
As shown above, the percentage of those who know that sesame seeds contain proteins is 74%, while the percentage of those who do not know that sesame seeds contain proteins constitutes 26%.

8- **Did you know that sesame seeds contain antioxidants?**

As shown above, the percentage of those who are known to contain sesame seeds contains



antioxidants (63%) while the percentage of those who do not know that sesame seeds contain antioxidants is 37%, there are reports of the use of sesame oil and olive oil as natural antioxidants (Lopez Pedrouso et al., 2020) is considered a healthy oil in Asian

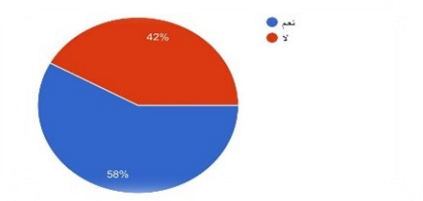


countries

9- **Did you know that sesame seeds contain a mine of vitamins and minerals**?

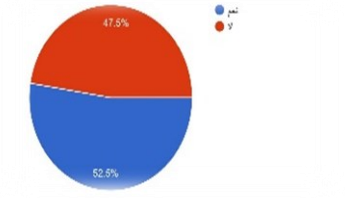
As shown above, 74% of those who are known to contain sesame seeds contain a mine of vitamins and minerals, while the percentage of those who do not know that sesame seeds contain a mine of vitamins and minerals is 26%. Sesame seeds are an excellent source of nutrients and are commonly used in immunization to add nutritional value to various food products.

10- Did you know that sesame seeds contain 13% calcium?



As shown above, the percentage of those who know that sesame seeds contain 13% of calcium is 58%, while the percentage of those who do not know that sesame seeds contain 13% of calcium constitutes 42%.

11-**Did you know that sesame seeds contain approximately 72% of zinc, which is**



important for bone density?

As explained above, 52% of those who know that sesame seeds contain 72% of zinc are while 47% of those who do not know that sesame seeds contain 72% of zinc are 47%. Sesame seeds are an excellent source of nutrients and are commonly used in immunization to add nutritional value to various food products.

The bottom line:

Two samples of biscuits were manufactured sample A was using wheat flour while sample B was using sesame flour and the sensory evaluation of sample A in terms of color was 86.6%, taste 88.4%, fragility 85.7%, smell 91.9% and general acceptance 93.7%, while the sensory evaluation of sample B in terms of color was 96.4%, taste 94.6%, fragility 94.6%, smell 96.4% and general acceptance 98.2%, and an electronic questionnaire was conducted to find out the extent of community awareness about the benefits of sesame seeds and sesame oil, and it turned out that the people who enter sesame seeds In their diet 73.5% while those who do not include sesame seeds in their diet 26.5% It turned out that people with sesame seeds 74% while they did not know about sesame seeds 12.5% People who knew about the therapeutic benefits of sesame seeds found 64.5% while they did not know 35.5%, while those who tried the technique of rinsing with sesame oil showed 18.5% and sometimes tried 9.5%, while they did not try the technique of rinsing sesame oil 72% and it turned out that it was possible to eat biscuits of sesame flour and sesame oil 80.5% While those who may eat 17% while those who do not eat 2.5%

Recommendations

1- We recommend eating (15g) 3 tablespoons of sesame seeds on an empty stomach
2- We recommend that sesame seeds be included in the diet as a good source of dietary fiber, which helps maintain digestive health and prevent chronic diseases such as heart disease and diabetes.
3- We recommend sesame oil additives because it has high nutritional value and suitable functional properties for food additives
4- We recommend replacing wheat flour with sesame flour for sesame flour as it contains iron, calcium, calcium is an essential element for bones and teeth
5- We recommend trying the technique of rinsing with sesame oil

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