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GOIDI AMERICAN JOURNAL



GENERAL DEFINITION

GOIDI

U.S Journal Considers As One Of The International Authority Of Inventions, Development And Investment's Institutions And Issued From America With All The Rights And Privileges.

GOIDI Is A Scientific, Cultural And Educational For All Thinkers, Academics, Inventors, Writers And Students For All Nationalities Worldwide.

The Journal Is Published In English And Arabic Languages And Issued Online And On Papers Every Three Months Periodically During The Year (Presenting Invention's Pioneers As Well As Global And Social Figures)

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THE WORD OF THE FOUNDER

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DR. IBRAHIM YASEEN

We are in this era of time facing as an enormous many number of sciences and institutions and the limitation of their ubiquitous. The colors of knowledge and science have various steadily and very huge. There is no longer a shortage in the doors of science or its institutions, but the information has become easily accessible by the simplest means and the push of a button on a communication device. Thus, we are overwhelmed b

y science, but what we are introducing in our journal and what we are looking for that is the kind in its literal, scientific and technical meaning and the ways to benefit from millions of information, which has become a burden on the competent researcher individuals and institutions to obtain real science, not theoretical.

This is the reason we had to publish this unique and unique journal in its kind internationally and in the mechanism of its presentation and method of submission and the quality of its competent sections and the confidence of its institutions organizing them, as we worked to provide realistic science and investigator at the

Highest international standards to save that effort, time and money. This decision

came after research and access to the international arena, and we found a large vacuum needs to work to fill the gaps and provide all useful and thoughtful to an important sector and vital dynamic that is the main engine of human life all and contributes to its growth and prosperity and development, which is the field of invention, innovation and creativity.



Therefore, we have the desire to allocate an institution to adopt this vision in order to complete this high-importance sector because of the presence of a large proportion of science owners working in the sector of creativity, innovation and invention need to focus on them and their work to promote and publicize them internationally.

We have also been keen to highlight the role of investors and businessmen to support this work and these creative projects, so that they will be partners with us in this scientific journey, which will reflect positively on communities, individuals and institutions.

Which every industrial, productive, service, scientific and administrative competence find all his aim will be achieve

This work facilitates his mission in spreading his knowledge and presenting it to local and international specialists.

Institutions, individuals and groups, thus we will creating a systematic scientific environment. Its data has been verified at the highest international level by well-known jury committees, and we have maintained integrity and transparency in

Feeding all in tester with real, internationally valued science from many relevant parties and we cannot doubt as to their incompetence or lack of their owner

In conclusion, we have saved time, effort and money for every truth-seeking and aspirant to develop his projects, institutions and works, hoping to be successful in providing all that contributes to the comprehensive development in all fields of life.



DEFINITION OF THE JOURNAL

Vision

To become a journal for the inventors, innovators, creator and academic researchers and their sciences, and the bridge of global transit with the least effort, time, costs and a point of contact with investors, businessmen and all institutions with competence in this important sector

The message

Provide the appropriate environment for inventors, innovators, creators, businessmen or research and scientific institutions so that they meet in one place and one platform to see their interests and projects until their research reaches the decision-makers and interested from local and international institutions, universities and scientific research centers and incubators to provide them with science and projects achieved internationally to the highest approved standards

Objectives

- Definition the role of our organizations in driving the vehicle of international invention.
- Definition of the most important international programs to be held.
- Define their scientific identity to inventors.
- Introducing investors and entrepreneurs.
- Introducing the most important international institutions in the invention sector.
- Introducing international scientific research institutions and scientific incubators.
- Providing international programs for international exhibitions and scientific competitions.
- Dissemination of inventions in all scientific sectors.
- Marketing the most important international inventions for interestors from all international initiations.
- Participate in spreading a culture of innovation and to motivate it among young people.



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- Participate in the transfer of information in a scientific, smooth, simple way and simply arrive to all without any tired.
- Showing the most important inventions and solutions to various life problems.
- Bridging communication and building practical relationships among formal instantiations ,international and inventors

Definition of the institution

- GOIDI American Journal for Invention, Development and Investment is one of the institutions of GOIDI American group of Invention, Development and Investment
- It is an international non-profit, non-governmental organization that is based in the United States
- The journal is a scientific cultural development awareness's to publish all scientific articles and publish inventions and definition inventors, innovators and creators from all countries of the world and all nationalities away from politics or religion and expresses the opinion of publishers

Journal summary definition

It is one of the branches of the International Commission for Invention, Development and Investment (GOIDI) and is officially registered in the United States

Journal categories

- Inventors, businessmen, investors, invention and scientific research institutions
- Definitions

- The journal is published internationally
- Editorial team from all countries
- The journal will be published from the official US headquarters
- Two electronic versions and one hard copy are issued
- Published in Arabic and English
- Distributed in all international conferences and sent to the most important international private and governmental institutions



GOIDI AMERICAN JOURNAL



The idea of founding

Founder /Dr.Ibrahim Alyaseen

The idea of the founder comes complemented the programs and institutions of the US GOIDI and business integration and cover various aspects of life important and compatibility with the programs of the organization

Where there is a need for the community for a specialized and public journal in the same time and that it is specializes researchers, academics, inventors and creators from all countries and in order to highlight the leading international personalities and highlight the pioneers of invention and international personalities that serve the

International community and show them to the community in appreciation of them and definition international society to the most important businessmen who are interested in supporting the process of scientific research and

the introduction of the institutions of invention and scientific research to introduce the identity card for the GOIDI American international group and all their international programs

International Protocols

The possibility of establishing cooperation and twinning protocols with universities, scientific research institutions and international institutions to form strategic partnerships in support of the journal scientifically to contain the equivalent of prominent international journals

PUBLISHING RULES**قواعد النشر/****سياسات وقواعد واجراءات النشر في المجلة العلمية****أولاً: سياسة النشر**

تنشر مجلة جويدي العلمية البحوث العلمية المكتوبة باللغتين العربية والانجليزية في أي مجال من مجالات العلوم بكل تخصصاتها، وترحب المجلة بنشر البحوث العلمية للباحثين من مختلف دول العالم، التي من شأنها أن تعمل على تطوير النظرية العلمية ، وإثراء ممارساتها، وتعطي الأولوية للبحوث العلمية التي تقدم اضافة علمية للمعرفة الانسانية، والتي تقدم الحلول العلمية والعملية للمشكلات العلمية التي تواجهها المنظمات.

تسجيل المجلة دولياً

مجلة جويدي مسجلة في مكتبة الكونجرس الامريكي للارقام المعيارية ل issn وسجلة في المنظمة الدولية للمعايير الدولية لارقام issn

ثانياً: قواعد النشر في المجلة

- 1) تنشر المجلة البحوث العلمية التي تتميز بالحدثة والأصالة، والاضافة العلمية، والسلامة الفكرية، في مجال العلوم.
- 2) تنشر المجلة البحوث التي تتبع منهجية علمية سليمة، وتراعى الترتيب في كتابة البحث (عنوان البحث، المستخلص، الكلمات المفتاحية، المقدمة، المشكلة، الأهمية، الأهداف، المنهجية والإجراءات، النتائج ومناقشتها، الاستنتاجات، التوصيات الموجهة إلى الجهات ذات العلاقة بموضوع البحث، قائمة المراجع أو المصادر).
- 3) تنشر المجلة البحوث التي تتميز بعمق التحليل، وجودة لغة البحث، وأسلوب عرض الأفكار، ودقة تحليل البيانات والمعلومات، وملائمة النتائج النهائية لأسئلة البحث وأهدافه وفرضياته.
- 4) أن لا يكون البحث المقدم للنشر قد قدم للنشر أو نشر في مجلات أو دوريات أو مؤتمرات أو ندوات أو مسئل من كتاب أو رسالة ماجستير أو أطروحة دكتوراه، ويقدم الباحث تعهد خطي بذلك حسب النموذج المعتمد من هيئة التحرير.
- 5) أن يتبع الباحث الأسس العلمية السليمة المتعارف عليها في اقتباس النصوص والتوثيق من المصادر والمراجع العربية والانجليزية المتنوعة، مع مراعاة تطابق توثيق المصادر والمراجع في المتن مع عرضها في نهاية البحث، وترتيبها ابجدياً.

- 6) أن تكون نصوص البحث مطبوعة برنامج (Word 2010) على الأقل، بخط نوع (Simplified Arabic) حجم (14) والهوامش بحجم (12)، والبحوث باللغة الانجليزية تطبع بخط نوع (Times New Roman) حجم (12) والهوامش حجم (10).
- 7) أن تكون جميع أبعاد هوامش الصفحات الأربعة (العليا، السفلى، اليمنى، اليسرى) (3) سم، والمسافة بين الأسطر مفردة.
- 8) أن لا تزيد عدد صفحات البحث عن (20) صفحة، بما فيها المصادر، والملاحق، وأن ترقم الصفحات ترقيم متسلسل.
- 9) أن تكون الجداول والأشكال مدرجة في أماكنها الصحيحة، ومراعاة ترقيمها باستخدام الأرقام العربية، وأن تشمل العناوين والبيانات الايضاحية الضرورية، ويكون حجم الخط داخل الجدول (12).

ثالثاً: إجراءات النشر في المجلة:

- 1) أن يرسل الباحث بحثه إلكترونياً إلى عناوين المجلة المعلن عنها من هيئة تحرير المجلة). (sj.editor@goidi-usa.org)
- 2) أن تحتوى الصفحة الأولى من البحث على عنوان البحث، وأسم الباحث أو الباحثين الثلاثي، ومرتبته العلمية، ومكان العمل واسم الدولة، والبريد الإلكتروني، بحجم خط (12).
- 3) أن يرفق الباحث ملخص دقيق لبحثه باللغتين العربية والانجليزية بما لا يزيد عن (300) كلمة، وكلمات مفتاحية (Keywords) أسفل الملخصين بما لا يزيد عن سبع كلمات.
- 4) أن يرسل الباحث سيرة ذاتية موجزة تتضمن الاسم الثلاثي للباحث / الباحثين ودرجته العلمية، والمؤسسة العلمية التي يعمل بها، وأهم مؤلفاته، والمناصب التي شغلها.
- 5) يتم اشعار الباحث باستلام البحث خلال أسبوع من تاريخ استلام البحث من قبل سكرتير التحرير، والعرض على هيئة التحرير للتأكد من مدى صلاحيته للتحكيم.
- 6) في حالة صلاحية البحث للتحكيم مبدئياً يتم عرضه على محكمين من ذوي الاختصاص في مجال البحث، ويتم اختيارهم بسرية تامة، ولا يعرض عليهم اسم الباحث أو بياناته، وذلك لإبداء آرائهم حول مدى أصالة البحث، وقيمته العلمية، ومدى التزام الباحث بالمنهجية العلمية السليمة، وتحديد مدى صلاحية البحث للنشر في المجلة من عدمها.
- 7) في حالة ورود ملاحظات من المحكمين ترسل تلك الملاحظات إلى الباحث لإجراء التعديلات اللازمة بموجبها، على أن يعاد إرسال البحث المعدل للمجلة خلال مدة أقصاها شهر.
- 8) تتم مراجعة النسخة النهائية للبحث مع نسخة المحكم فنياً للتأكد من قيام الباحث بإجراء التعديلات والتصويبات المقترحة من المحكم، وكذلك اتباعه قواعد واجراءات النشر في المجلة، من قبل مدير التحرير وسكرتير التحرير لإقرار صلاحية البحث للنشر بالمجلة.



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- (9) يخطر الباحث بقرار صلاحية بحثة للنشر من عدمها خلال شهر على الأكثر من تاريخ استلام البحث المعدل، وبموعد النشر، ورقم العدد الذي سينشر فيه البحث، ويمنح نسخة الكترونية من عدد المجلة المنشور فيها.
- (10) تعبر الأبحاث العلمية التي تنشر في المجلة عن آراء المؤلفين دون تحمل المجلة أدنى مسؤولية تجاه ذلك.
- (11) تكاليف النشر في المجلة منحة للباحثين المتميزين.

Publication policies, rules and procedures in the scientific journal

First: Publishing Policy

The Goidi Scientific Journal publishes scientific research written in both Arabic and English in any field of science with all its specializations, and the journal welcomes the publication of scientific research by researchers from various countries of the world, which would work to develop scientific theory, enrich their practices, and give priority to scientific research that provides an addition Scientific human knowledge, which provides scientific and practical solutions to the scientific problems faced by organizations.

Register the journal internationally

Goidi magazine is registered in the US Congressional Library of the Standard Numbers of the issn and registered with the International Organization for International Standards for ISNs



Second: publishing rules in the journal

- 1) The magazine publishes scientific research that is characterized by modernity, originality, scientific addition, and intellectual integrity, in the field of science.
- 2) The journal publishes research that follows a sound scientific methodology, and takes into account the order in writing the research (title of the research, abstract, keywords, introduction, problem, importance, objectives, methodology and procedures, results and their discussion, conclusions, recommendations directed to bodies related to the topic of the research, List of references or sources).
- 3) The journal publishes research that is characterized by the depth of analysis, the quality of the research language, the style of presenting ideas, the accuracy of the analysis of data and information, and the relevance of the final results to the research questions, objectives and hypotheses.
- 4) That the research submitted for publication has not been submitted for publication or published in magazines, periodicals, conferences, seminars, or drawn from a book, master's thesis, or doctoral thesis, and the researcher submits a written undertaking to do so according to the form approved by the editorial board.
- 5) The researcher must follow the sound scientific principles recognized in quoting texts and documenting from various Arabic and English sources and references, taking into account the conformity of the documentation of the sources and references in the text with their presentation at the end of the research, and their alphabetical arrangement.
- 6) The research texts should be printed in (Word 2010) at least, in Simplified Arabic font (14) size and margins (12), and the papers in



English are printed in Times New Roman font ((12) size and the margins (1).

- 7) he dimensions of the margins of the four pages (top, bottom, right, left) should be (3) cm, and the space between the lines should be single .
- 8) That the number of the research pages does not exceed (20) pages, including sources and appendices, and that the pages are numbered sequentially.
- 9) That the tables and figures are listed in their correct places, taking into account their numbering using Arabic numerals, and that they include titles and the necessary explanatory data, and the size of the font inside the table (12).

Third: Procedures for publishing in the journal:

- 1) That the researcher sends his research electronically to the journal titles advertised by the journal's editorial board) .(sj.editor@goidi-usa.org).
- 2) The first page of the research should contain the title of the research, the name of the researcher or triple researchers, his scientific rank, place of work and name of the country, and the e-mail, in font size(12)
- 3) That the researcher attaches an accurate summary of his research in both Arabic and English, with no more than (300) words, and key words at the bottom of the two abstracts, with no more than seven words.
- 4) That the researcher sends a brief CV that includes the triple name of the researcher (s), his academic degree, the scientific institution in which he works, his most important books, and the positions he / she occupied.
- 5) The researcher is notified of receiving the research within one week from the date of receiving the research by the editorial secretary, and it is presented to the editorial board to ensure its suitability for arbitration.
- 6) In the event that the research is eligible for arbitration in principle, it is presented to arbitrators who are specialized in the field of research, and they are chosen in complete confidentiality, and the name or data of the researcher are not presented to them, in order to express their views on the extent of the research's originality, its scientific value, and the extent



of the researcher's commitment to sound scientific methodology, and to determine The validity of the research for publication in the journal or not.

- 7) In the event that notes are received from the arbitrators, those notes shall be sent to the researcher to make the necessary amendments accordingly, provided that the amended research is re-sent to the journal within a maximum period of one month.
- 8) The final copy of the research is reviewed with the referee's copy technically to ensure that the researcher makes the amendments and corrections proposed by the arbitrator, as well as follows the rules and procedures for publishing in the journal, by the editor-in-chief and the editor-in-chief to confirm the validity of the research for publication in the journal.
- 9) The researcher shall be notified of the decision whether or not a research is valid for publication within a month at most from the date of receiving the revised research, the date of publication, and the number of the issue in which the research will be published, and he shall be given an electronic copy of the number of the journal published in it.
- 10) Scientific research published in the journal expresses the opinions of the authors without the journal bearing any responsibility for that.
- 11) Publication costs for the journal are a grant for distinguished researchers.



Research papers

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Research Article

The Relationship between the Vitamin E and Intelligence Level among Islamic High School Students girls (Maymouna Bint Al-Harith High School as a Model

D. Arwa Mohamed Hashem Al-Mulesy

Iraq

Summary:

A study was conducted to determine the relationship between vitamin E and intelligence (academic achievement) for students of Islamic schools, where the students were divided into four groups according to their academic rates, as following:

G 1 excellent rate group.

G 2 very good rate group.

G3 good rate group.

G 4 medium rate group.

This research included the measurements of Some biochemical parameters which are: Vitamin E level, SOD activity, glutathione level, peroxy nitrite level, cholesterol level and triglyceride level). also BMI mass rate was measured. The results showed there was no significant differences at the level of significance ($P \leq 0.05$) between the vitamin E and intelligence, but there is a non - significant increase in the vitamin level as the higher the intelligence. There were no significant differences ($P \leq 0.05$) between the activity of the superoxide dismutase enzyme (SOD) and intelligence, but there is no significant increase in the level of the enzyme with the higher of the intelligence. There were no significant differences at the level of significance ($P \leq 0.05$) between glutathione and intelligence, but there was a non - significant decrease in the level of it with the higher of the intelligence.



There is no significant differences ($P \leq 0.05$) between peroxy nitrite and intelligence, but there is non-significant increase in peroxy level as intelligence increases.

Also the results showed a significant differences ($P \leq 0.05$) between cholesterol and intelligence where there is a decrease in cholesterol level as the higher the intelligence. There were no significant differences ($P \leq 0.05$) between triglycerides and intelligence, but there was a non-significant decrease in the level of this lipid as the intelligence higher. There was no significant differences ($P \leq 0.05$) between the rate of body mass index and intelligence, but there is non-significant decrease in the level of BMI the higher the intelligence.

The correlation between vitamin E and biochemical data was found. The results showed that the relationship between vitamin E and (SOD) enzyme was positive in groups G1 and G4 while negative for groups G2 and G3. G4.

The results showed that the relationship between the level of vitamin E and the level of peroxy nitrite was positive in groups G1, G2 and G4 while negative in the group G3. The results showed that the relationship between vitamin and cholesterol was positive in groups G1 and G4 while it was negative for groups G2 and G3. The results showed that the relationship was positive between vitamin and body mass index in group G1, while the relationship was negative in groups G2, G3 and G4. The results showed that the relationship between vitamin E and intelligence was positive in all groups G1, G2, G3 and G4.

Introduction :

Vitamin E is a major lipid-soluble antioxidant in the cell's antioxidant system. (1) (2) Vitamin E protects polyunsaturated fatty acids and other components of cell membranes and low density lipoproteins from oxidation by free radicals. It is obtained exclusively from the diet. (1) Vitamin E was first discovered by Evans and Bishop in 1922, (3). Since then, vitamin E has been well described as a powerful lipid-soluble antioxidant through extensive research has been confirmed as effective as antioxidants and the results have confirmed its ability to scan reactive oxygen species (ROS) in cell membranes (4) (5) (6).

Sources of Vitamin E

Vitamin E consists of a mixture of tocopherols (TOCs) and tocotrienols (TCTs), available in a number of foods and plants, ranging from edible oils to nuts.

Some foods containing vitamin E include wheat, rice bran, barley, oats, coconut and bran (7) (8). Other sources include walnuts, hazelnuts, poppies, corn, grape seeds and pumpkins. Vitamin E derivatives were also detected in breast milk (9) and dates (10). Among the many sources of vitamin E, rice bran, palm oil and coconut oil were described as the richest sources of TCTs (11).



Superoxide Dismutase (SOD)

Superoxide dismutase SOD, (EC 1.15.1.1) is an enzyme that alternately stimulates the dismantling (or splitting) of the oxide root (O_2^-) into any ordinary molecular oxygen (O_2) or hydrogen peroxide (H_2O_2). Superoxide is produced as a by-product of oxygen metabolism, and if not regulated, it causes many types of cell damage. (12) The most important function of this enzyme is to restore cell viability, reduce its speed of destruction and offset a type of free radicals called super oxide, perhaps the most dangerous (13).

Cholesterol

Cholesterol is a waxy substance found with other lipids in the bloodstream and in all cells of the body. About 80% of blood cholesterol is Cholesterol esters, whereas 20% is free cholesterol (16).

Triglycerides-TG

It is a form of fat found in the blood plasma and is a source of energy storage and transport, and consists of the glycerol esterification with three molecules of fatty acids (17), and triglycerides are the main compound in the daily dietary fatty substance, is a simple and abundant fat, which is stored Subcutaneously within the fatty tissue of the animal (18),

The current study aims to find out whether the (vitamin E) has a relationship with intelligence and its relationship to body mass index; since the role of vitamin E as an antioxidant and reduce the impact of fat in the body (19), where recent studies have been interested in the role of antioxidants in the prevention of oxidative stress that occurs in abnormal situations, as the body has several defensive mechanisms to control the production of free radicals, to determine their risks or to rebuild tissue damage.

Antioxidants have several mechanisms by which they can detoxify the body's harmful oxygen-mediated oxygen compounds, including breaking chain reactions such as glutathione, or acting as free radical sweepers such as the superoxide oxidase enzyme, which captures the root of superoxide and acts as chelating transition metals (20).

The study also aims

1. To know whether the level of vitamin E in the serum is related to the level of intelligence among students of Islamic schools
2. If there are statistically significant differences at the (0.05) level between the groups and the biochemical variables for vitamin E, the activity of the (SOD) enzyme, glutathione, peroxy nitrite, cholesterol, and triglycerides in female serum, and body mass index (BMI) in the excellence group, Very good, good, average.
3. There is a correlation between vitamin E and biochemical data in the sera of female students in the groups of the level of excellence, very good, good, and medium.



Material and Methods

Materials: High purity materials are used from international origins such as DBH, Fluka, Sigm.a

Blood samples collection

The samples were collected from Maimouna Bint Al-Harith Islamic High School students for girls in January 2019, where 42 samples were collected.

About 4-5 cm³ of blood was withdrawn intravenously, in single-use plastic test tubes and then the serum was separated by centrifuge at a speed of 2000 r / min for 10 min, and the serum was kept at -20 ° C until the time of Biochemical tests.

The following information was measured:

The body mass index (BMI) was measured in meters by the equation:

$$\text{Weight (kg) / Square Height (m}^2\text{)} \quad (21) \quad (22)$$

The BMI ranging between normal to high the students girls who have BMI more than 25kg were (20 students), while the student have a normal BMI were 22.

Table (2-1)

GROUPS	BMI
normal	18.5-24.9 kg
obesity	More than 25 kg

The students were divided into groups according to the study rates where they were divided into four groups as in table (2-2))

Table (2-2)

The groups	The rats
G1 excellence	90-99%
G2 very good	80-89%
G3good	70-79%
G4 moderate (average)	60-69%



Fasting samples were taken for the measurement of triglycerides and cholesterol, the measurement of vitamin E, the evaluation of the superoxide dismutase (SOD) activity, glutathione and the peroxy nitrite.

Vitamin E was measured in serum. This method was based on the reaction of Emmerie - Engel (23). The serum peroxy nitrite was also estimated using Modified photochemical Nitroblue Tetrazolum (NBT) method of the Vanuffelen et al (26).

Kits were used to measure other biochemical data according to the method supplied with the ready kits. (30) (31).

Statistical analysis:

The results were statistically analyzed using ANOVA and Minitab. The mean averages were determined to determine the differences using Duncun's Multiple Range test with a probability level ($P \leq 0.05$).

Results and Discussion

1. The level of vitamin E activity in the blood serum:

Effectiveness levels of vitamin E in the serum of female students were measured. Table (4-1) shows that the mean \pm standard deviation of the vitamin was (1.33 ± 0.55) units / l for the excellence group and (1.25 ± 0.109) units / l in the serum of the group was very good rats, while, (1.005 ± 0.319) units / L and (1.10 ± 0.08) units / l in serum of the two groups good and average as in Figure (4-1).

Vitamin E have non-significant increases as the level of education increase, and this indicates that the vitamin is affected by the level of education and this is what we wanted to prove that vitamin E changes and increases with the increase in the level education. The literature did not indicate that the level of education linked to vitamin E, but most research indicates the role of vitamin E is to reduce the incidence of Alzheimer's. Brodaty et al. have proven that the vitamin E has a protective role against Alzheimer's disease, reduces its symptoms and reduces brain damage and has an antioxidant effect.

Table (4-1) mean \pm Standard Deviation of Vitamin E Level, (SOD) enzyme activity, glutathione, Peroxy Nitrite in Female Serum in Academic Level Groups Excellence, Very Good, Good, Medium.

groups	Vit. E	SOD	Glutathione	peroxy nitrite
G1 excellence	1.33 \pm 0.55	\pm 0.144 8.17	\pm 2.162 25. 74	\pm 7. 298 20. 46
P >0.05	NS	NS	NS	NS
G2 very good	1.25 \pm 0.109	8.433 \pm 0.69	27. 336 \pm 2.043	24. 29 \pm 7. 432
P >0.05	NS	NS	NS	NS
G3 good	1.005 \pm 0319	8.506 \pm 0.281	29.187 \pm 6.29	28.082 \pm 14.59
P >0.05	NS	NS	NS	NS
G4 medium	1.10 \pm 0. 08	8.159 \pm 1. 07	29.76 \pm 2. 626	27.193 \pm 5. 72
P >0.05	NS	NS	NS	NS

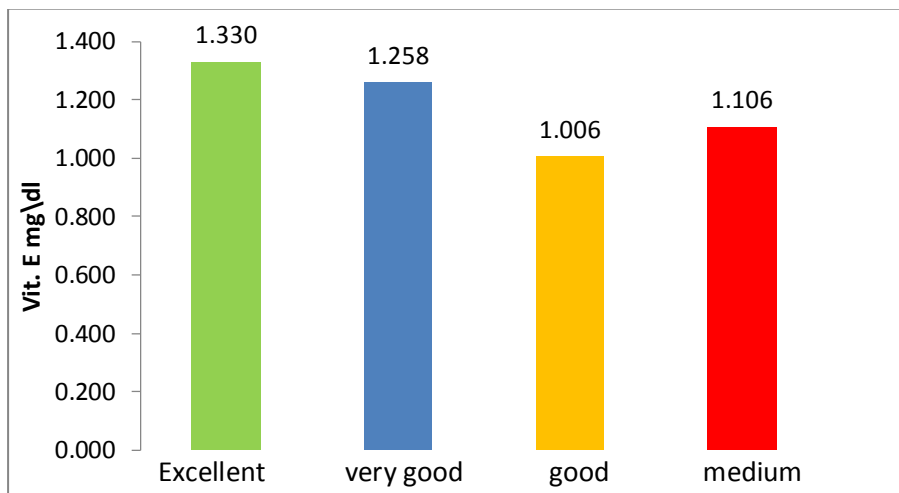


Figure (4-1): The levels of vitamin E (mg / dl) in the sera of female students in the excellence, very good, good, and medium level groups.

The level of super oxide dismutase (SOD) activity:

The levels of (SOD) were measured as shown in. Table (4-1) ,the mean \pm standard deviation of the enzyme was (44 0.1447 8.17) units / liter for the G1 group and (8.433 \pm

0.699) units / liter in the serum of the G2 group, while it was, (8.506 ± 0.281) units / L in serum group of G3 and (8.159 07 1. 07) units / l in G4 group as in Figure (4-2). The results show according to the table There are no statistically significant differences between the study rate (intelligence) and the effectiveness of the enzyme. here is a study between the activity of the enzyme and the level of emotional intelligence for irritable colon patients, where the results proved consistent with the results of this study where the level of enzyme decreased significantly for those with little emotional intelligence compared to others, this indicates that this enzyme is antioxidant (33).

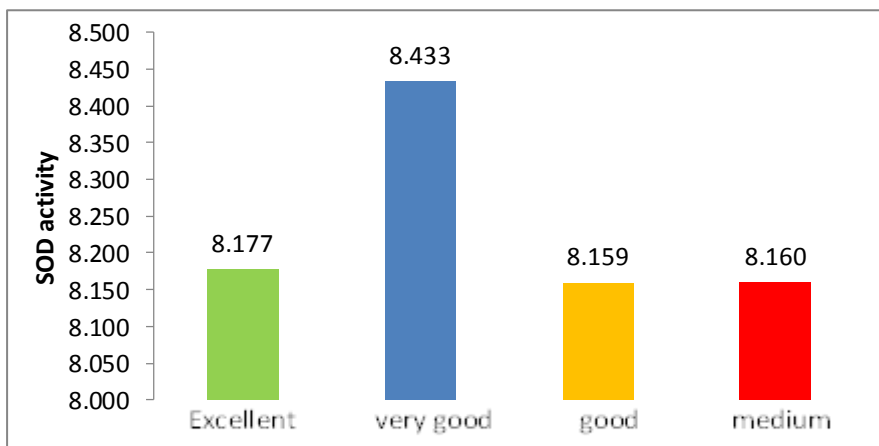


Figure (4-2): The average levels of the activity of the enzyme (SOD) in the sera of female students groups (G1, G2, G3, and G4)

The level of glutathione:

The serum levels of glutathione were measured in female serum. Table (4-1) shows that the mean ± standard deviation was (2.162± 62 25.74) units / l for the excellence group and (27.333 ± 2.043) units / l in the very good serum group, whereas, it was (29.187 29). 6.29) units / l and (29.762 ± 2. 626) units / l in the serum of the two groups of good and medium as shown in in Figure (4-3).

We noting that there is a significant increase in the level of glutathione as the study level of the students is decreases. That may be caused by the anxiety and for the excellence students group, this result agree with a finding at the University of Samarra about the effect of anxiety before and after the exam on the level of glutathione which was decreased before the exam and increase after the performance of the exam because of the fact that antioxidants are exceed free radicals (35) this result also agree with (36)

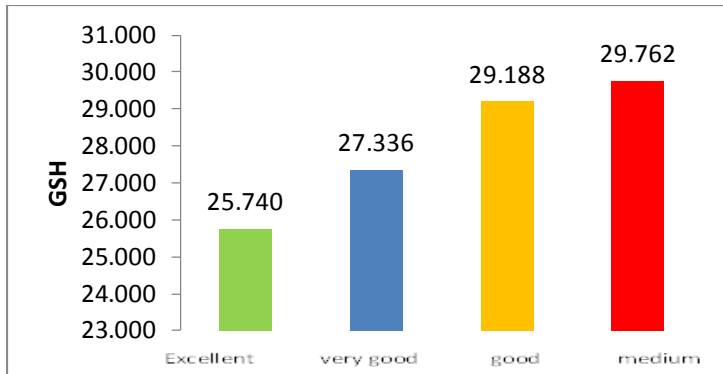


Figure (4-3): The average levels of glutathione (mmol / L) in sera of female students in the study groups.

Peroxy Nitrite Level:

The efficacy levels of peroxy nitrite in female serum were measured. Table (4-1) shows that the mean \pm standard deviation was (20.46 ± 7.298) units / liter and (27.1933 ± 5.72) units / liter in the serum of the two groups of good and medium rat as shown in Figure (4-4), as we note a significant increase in the level of peroxy nitrite whenever the lower level of study level of students and the reason is due to increased oxidative stress may contribute to impaired brain function and lack of cognitive activity, while peroxy nitrite decreases with higher level of study level this is led to decrease id free radicals and lipid peroxidation. The intelligence have a Good effect on the composition of the elimination of free radicals. The literature did not refer to of a relationship between the level of intelligence and oxidative stress.

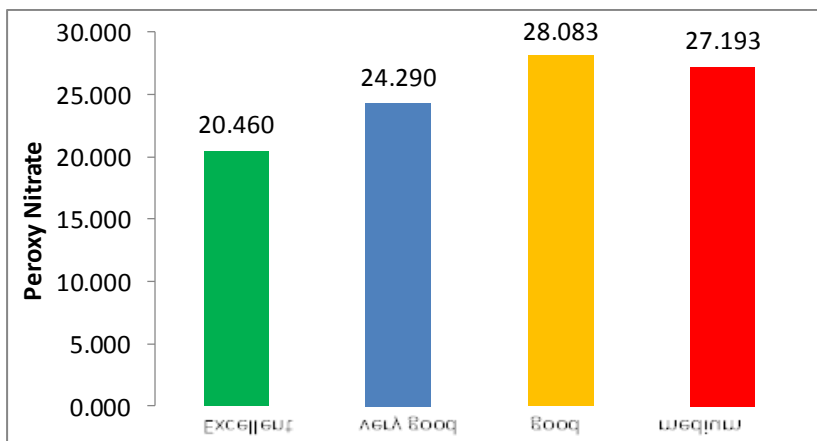


Figure (4-4): The average levels of peroxy nitrite (mmol / L) in the sera of female students in the fourth groups.



Serum cholesterol level:

Female serum cholesterol levels were measured. Table (4-2) shows that the mean \pm standard deviation was (129.4286 ± 17.15476) mg / 100 cm^3 for the excellence group (G1) and (153.8889 ± 18.14831) mg / 100 cm^3 in the serum of the very good group (G2), while it was (142.75 ± 17.75025) mg / 100 cm^3 and (183.5 ± 17.4069) mg / 100 cm^3 in serum of the two groups (G3, G4) of good and medium rate as in Figure (4-5) that the level of cholesterol decreased significantly at the level of significance ($P \leq 0.05$) in the (G1)group, while the level of cholesterol significantly increased with the increase of the study level ($P \leq 0.05$). i. e, in the average group and this proves that cholesterol is affected by the level of study level where less with the high level of study, that this decline in the level of Cholesterol shows that intelligence and mental activity have reduce the cholesterol level of the excellence group while the level of cholesterol has increased due to lack of mental and cognitive activity of the medium group, as well as irregular exercise, eating an unhealthy diet, not maintaining a healthy weight, and stress all these factors effects on cholesterol and raises its level and this is consistent with research (Emeka E.N, and others) which shows the high cholesterol in university students under the pressure of the exam compared to the non-exam period (37).

Table (4-2) Average \pm Standard deviation of cholesterol level, triglycerides, and the rate of mass in female serum in the study group totals Excellence, Very Good, Good, Average.

groups	Cholesterol mg/100cm ³	Triglycerides mg/100cm ³	BMI kg/m ²
G1 excellence	129.4286 \pm 17.1547	51.888 \pm 18.5704	23.25 \pm 3.535
P >0.05	0.05	NS	NS
G2 very good	153.888 \pm 18.1483	55.3088 \pm 12.4269	24.8 \pm 4.391
P >0.05	0.05	NS	NS
G3 good	142.75 \pm 17.7502	57.041 \pm 28.609	24.18 \pm 3.572
P >0.05	0.05	NS	NS
G4 medium	183.5 \pm 17.4069	61 \pm 25.4263	26.4 \pm 5.594
P >0.05	0.05	NS	NS

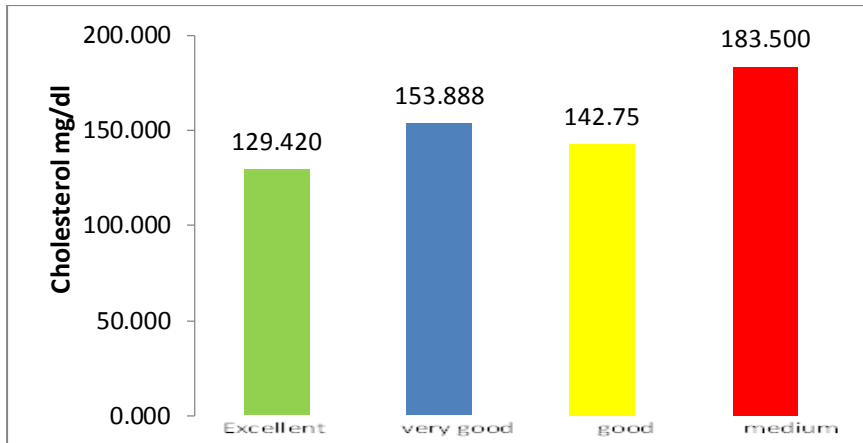


Figure (4-5): The average of cholesterol levels (mg / 100 cm³) in the sera of female students in the study groups.

Level of serum triglycerides:

Triglyceride levels were measured in female serum. Table (4-2) shows that the mean \pm standard deviation was (51.888 ± 18.5704) mg / 100 cm³ for the G1 group and (55.3088 ± 12.4269) mg / 100 cm³ in the serum of the G2 group, whereas, (57.041 ± 28.609) Mg / 100 cm³ and (61 ± 25.4263) mg / 100 cm³ in serum of the two groups good and medium (G3,G4) as in Figure (4-6) as we note a significant increase in the level of triglycerides with the lower of the study level that the study level has a good effect in reduce the level of lipids in the first group and the higher the ratio, the lower the study level in the average group because they have fast meals and irregular food, especially sweets and dressing and not eating fruits and replaced with industrial juices and soft drinks and not eating healthy meals, and eating in front of television and telephone therefore increased the proportion of lipids, our result agree with the result (Mervat Theeb) where the percentage of body fat increase with the lower of the study level (38).

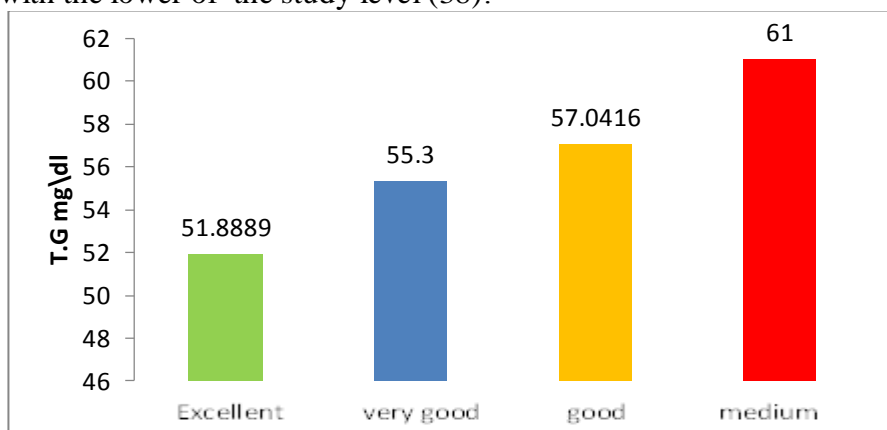


Figure (4-6): cholesterol levels (mg / 100 cm³) in serum of female students in the study group.

BMI:

BMI levels were measured in female serum. Table (4-2) shows that the mean \pm standard deviation was (23.25 ± 3.535) kg / m² for the excellence group (G1) and (24.8 ± 4.391) kg / m² in the serum of the very good group (G2), while it was (24.18 ± 3.572) kg / m² and (26.4 ± 5.594) kg / m² in the serum of the two groups (G3, and G4) as in Figure (4-7), where we note a significant increase in the level of BMI as the study level decreased. The BMI is lower in the excellence group. The students with the G1 group level have a good BMI, which indicates the activity and effort exerted by the students and their lack of interest in food and fast food and their interest in healthy food and study. Obesity may be associated with a significant decrease in brain size and a lower density in the capillaries feeding it, according to a study (39). Reduced in the size of the gray and white area (Gray & White Matter) These two areas, have roles in the control of perception, memory and information retrieval, and these data may be the cause of the negative impact of obesity on the level of student achievement, and thus we conclude that the, physical and psychological effects the social factors associated with obesity can be a cause and effect factor for low level of academic achievement.

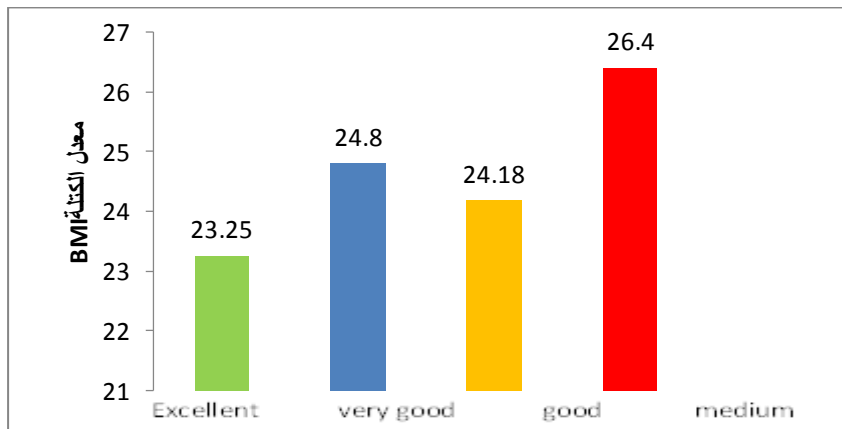


Figure (4-7): levels of BMI (kg / m²) in the sera of female students in the study groups.

Study the correlation coefficient between the level of vitamin E and the measured data :

The correlation coefficient values (r) were studied between the level of vitamin E and the data measured in female serum, which included the level of superoxide dismutase (SOD), glutathione, peroxy nitrite, triglycerides, cholesterol, and BMI..

Effectiveness of SOD

The results showed a positive correlation between the level of vitamin E and the activity of the superoxide dismutase (SOD) in groups G1 and G4, where the correlation coefficient values were positive (0.144891, 0.972878), respectively, as in Figures (1, 4) in Appendix A in While the relationship was negative in groups G2 and G3, the correlation coefficient



values (-0.832 and -0.1024) respectively, as in Figures (2, 3) in Appendix A. the level of inzyme has been increased in the first group (excellence), and G3(medium) groups, this is shows that the higher the enzyme the higher the level of vitamin E, and this indicates that both the vitamin and the enzyme antioxidants and this agree with the result (Giray B, et al) of the effect of vitamin E on the antioxidants enzyme of dialysis patients where high vitamin led to an increase in the level of enzyme (SOD) where there is a weak positive relationship between them. (40).

Level of Glutathione:

The results showed that the relationship between the level of vitamin E and glutathione was positive in the groups (G1, G2, G3 and G4), where the correlation coefficient values was (0.104, 0.26054, 0.21649, and 0.54699) respectaively, as shown in Figures (5, 6, 7 and 8) in the appendix (B).

The strong positive relationship between vitamin E and glutathione for all groups is a proof that the vitamin is antioxidant as glutathione, where the vitamin increases with the increase of glutathione level, and that antioxidants increase the effectiveness of students have thus increased the vitamin, and this is consistent with the result of (Jain SK. et al) which they found Positive linearity between the level of glutathione and vitamin E for children with type 1 diabetes (41).

Peroxy nitrite level:

The results showed that the relationship between the level of vitamin E and the level of peroxy nitrite was positive in groups G1, G2 and G4 where the correlation coefficient values (0.16325, 0.23411, and 0.89336, respectively, as in Figures (9, 10 and 12) in Appendix (C). While the correlation was negative in the G3 groups, the correlation coefficient was (0.078 -, as in Figure (11) in Appendix (C).

The good positive relationship between the level of peroxy nitrite and vitamin indicates that the rise of free radicals peroxy nitrite the higher the level of Vitamin aggregates for excellence, very good, and medium academic level, as it can increase oxidative stress in spite of Vitamin ;is especially important in places such as artery walls, brain, liver, eyes and skin, which is essential in all tissues in the body and is a powerful fat-soluble antioxidant, plays important roles in removing free radicals and neurological function. The literature suggests a correlation between peroxy and vitamin E.

Triglycerides:

The results showed that the relationship between vitamin E level and TG level was positive in groups G1, G2 and G4, where the correlation coefficient values (0.0407, 0.15644 and 0.61728) respectively, as shown in Figures 13, 14 and 16 in Appendix (D). The relationship was negative in the G3 group, where the correlation coefficient was (-0.225) as shown in Figure (15) in Appendix (D). The positive relationship of the groups G1, G2 and G4 means an increase in the level of lipids in the blood as high levels of triglycerides can prevent



the vitamin E from reaching the tissues that are particularly needed for those who are obese or have Metabolic Syndrome, where they are exposed to low absorption of this vitamin. The high level of lipids in the blood, which causes an increase in the level of oxidative stress, where the vitamin role is the removal of free radicals oxidized, but because of the high fat remains stuck in the blood circulation instead of access to tissues (42) This corresponds to the study where the vitamin rose fat.

Cholesterol:

The results showed that the relationship between the level of vitamin E and the level of cholesterol was positive in groups G1 and G4, where the correlation coefficient values (0.3369 and 0.59785) respectively, and as in Figures (17 and 20) in Appendix E, while the relationship was negative in The G2 and G3 groups had the correlation coefficient values of (-0.2406 and -0.2503), respectively, as in Figures 18 and 19 in Appendix E.

The negative relationship between cholesterol and vitamin E can be attributed to an increase in the level of vitamin and low level of cholesterol, because of absorption by the cells. (LDL) contain a large amount of vitamin E and that LDL enters cells through the mechanism defined by receptors and therefore the positive link between cholesterol and vitamin E corresponds to a study on the transport of vitamin E in plasma and its binding to lipoproteins in plasma of non-approved diabetes on insulin (43).

BMI:

The results showed that the relationship between vitamin E level and BMI was positive in the G1 group where the correlation coefficient values were (0.79901) and in Figure (21) in Appendix F, while the relationship was negative in the groups G2, G3 and G4 where The correlation coefficient values (-0.0613, -0.0868 and -0. 5883), respectively, as in Figures 22 (23, and 24) in Appendix (F). The positive value of the correlation between the vitamin and the BMI of the excellence group indicates that the vitamin increases with increasing BMI while the lower the level of academic study the higher the rate of mass and the lower the level of vitamin increases the BMI, and this is proved as the relationship became negative with the rest of This finding is consistent with a study of correlations between BMI and prevalence of low micronutrient levels among adults in the United States (44) where the correlation between the vitamin and the body mass index was negative, ie, the lower the vitamin level increase the BMI. The vitamin concern as antioxidant thus reduce oxidative stress and lipid level, thus reduce BMI.

Intelligence level - :

The results showed that the relationship between the level of vitamin E and the level of intelligence was positive in the groups G1, G2, G3 and G4 where the correlation coefficient values were (0.104, 0.26054, 0.21649, 0.54699) respectively, as in Figures (25, 26, 72 and 28) in a Bendix.



The result of the wave and for all groups of correlation between the level of intelligence and the vitamin indicates that the greater the level of vitamin increased intelligence and this is what we wanted to prove during the study where the vitamin has a good effect of mental development, intelligence and high in the level academic study, after it has been scientifically proven that the presence of Vitamin E in the body helps memory Significantly in recording and retrieving information seamlessly, as a Vitamin E has an effect on cell activity as it is an antioxidant and helps the quality of the nervous system to regulate glucose in the brain, which is the main brain food. This results consistent with the study of relationship between the antioxidants vitamins in period of birth and Heavy metals, growth, and cognitive development for children aged 5 years. (45).

Conclusions

After conducting this study on the students of Islamic schools to find out whether vitamin E has any effect on the level of intelligence has been concluded that:

Vitamin E has a good effect on the academic level and since it is an antioxidant; it raises the level of the academic study higher the level of vitamin.

It also has a good effect on lipids, especially cholesterol, as the level of the excellence group decreased and rose at the medium group.

It also reduced the oxidative stress to the group of excellence and raise the oxidative stress at the medium group and this also confirms that the vitamin reduces oxidative stress

It also reduced the BMI level of the excellence group and this confirms that it reduced obesity.

Recommendations

1. I recommend studying the effect of vitamin on the study level for both sexes and make a comparison between them.
2. Study the effect of vitamin D3 on intelligence, especially female students where it is known that poor diet and obesity is one of the causes of low vitamin D3.
3. Studying the effect of ready foods and not eating breakfast on vitamin B12 for Islamic school students.

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Research Article

The concept of Chinese Zodiac Signs and their relation to the characters in the Japanese anime series 'Fruits Basket'. A semiotic perspective

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Abstract

A unique feature of anime series is that it connects both children and adults in a way that live-action films often miss out on. The visually rich narrative structures in these series allow diverse interpretations and understandings of the messages. By understanding the main characters of the Sohma family, the study seeks to understand the visual meanings of the Chinese Zodiac Signs in this anime. It also seeks to understand how they relate to the characters. Fruits Basket's Sohma family suffers from the Zodiac Curse, a strange curse that causes certain members of the family to be possessed by the thirteen spirits of the Chinese zodiac. The research will analyze all the characters' personalities and their relationships in the series' narration. By Using indicator, indicative, and indicated structures, few scenes will be selected for semiotics analysis in the in the study. In different scientific studies, semiotics also refers to how people make meaning and convey it. Historically, it has been rooted in the study of how visual and verbal signs and signals convey meaning. This is a way of analyzing the environment and understanding how our society and landscape influence our unconscious behavior. The study of semiotics plays an essential role in ensuring that the interpretations desired by the sender are correctly understood by the recipient. The main purpose of this study is to analyze the semiotic information shown in this Japanese anime series. In addition



to being visually appealing, the anime uses symbols, indexes, and signs to connect the story and characters to both young and adult viewers. Semiotic elements will be discussed to understand how colors, visuals, cultural, social, and psychological elements contributed to the new world of the characters.

1. Introduction

A movie or anime series can have a tremendous impact on its audience because they are unique art forms. It is extremely entertaining to watch since it combines art, music, writing, drama, and technology. Our lives, the lives of others around us, and even the workings of society and culture may be improved by it. Messages and information can be delivered most effectively to a large group of people assembled at a single location through these mediums. Cultural learning can also be achieved through animation and movies. It is through anime series that audiences are able to learn a lot about culture, both the culture of their civilization and the culture of other nations. Sobur (2003) argues that audiences can easily learn about other cultures in their spare time for little or no cost. Due to this, anime holds an essential place in cultural representation. Based on the discrepancy discussed in the background, the purpose of the study is to understand the visual meanings of Chinese Zodiac Signs in fruit basket anime. As a result, the study's research questions are as follows: 1. What are the visual meanings reflected in the anime through the zodiac signs? 2. How are the meanings of the denotations, connotations, and myths of each zodiac sign reflected in the 'Fruits basket' anime?

1.1 Semiotic

Signs are studied through semiotics, which is an analytical science. Historically, semiotics comes from the Greek semeion, which means sign, or seme, which means interpreter of signs. Hence, semiotics is the study of how signs live within society, according to Swiss linguist Ferdinand de Saussure. Symbols are anything that represents something, according to Charles Sanders Peirce. According to Barthes, semiotics is the study of how humans use things. Semiotics, on the other hand, pertains to signs and markings, according to Lechte. Using the definitions above, the writer concludes that semiotics is a branch of linguistics that studies signs and learns everything about their meaning. Pateda (2011) describes nine types of semiotics: analytic semiotic, description semiotic, zoo semiotic, cultural semiotic, social semiotic, narrative semiotic, natural semiotic, normative semiotic, and structural semiotic. As the target of this study is a social-themed movie, it is intended to use cultural semiotics. Ferdinand de Saussure was a teacher or follower of Roland Barthes. Therefore, Barthes' model of semiotics is the development of Saussure's thinking about semiology. In his work, Barthes sought to implement semiotics into the concept of culture. Barthes proposes three stages of meanings, namely denotation, connotation, and myth.

The original sign in the first level is referred to as denotation, whereas the sign in the second level is referred to as connotation. According to Barthes, a denotation is obvious, like common sense. While the term connotation defines one of the three ways that signals function in the second order of signification. The denotation of a sign evolves into a connotation, and the connotation becomes a myth of the connotation. After converting



denotation into connotation, the meaning of myth is revealed. Denotation, as described above, is the categorical, 'literal,' 'obvious,' or 'common sense' meaning of a sign, while connotation is the secondary cultural meaning of that sign. As part of the second sign system, sign users connect with gender, emotional, psychological, religious, and cultural connotations. The function of myth is to conceal or mask contradictions within a society, and its role can be viewed as ideological in some way. By categorizing the sign into two parts, Barthes aims to enlighten viewers about movies' misinterpretation. There are both verbal and visual signs.

In terms of linguistic and visual features, Dyer (1986) contends that people communicated both verbally and visually through language. Verbal and visual signs are heavily used in anime. In communication, signs include both spoken and written language, such as dialogue and narration. A visual signal, on the other hand, is an image that describes a gesture or expression. Verbal and visual communication semantics are related, although there are significant variances. Verbal communication is a language in which letters, words, or phrases are used to communicate a thought. While visual communication is contrary to verbal communication. It is one of the most crucial information exchange methods. Symbols and pictures are used to convey ideas and thoughts.¹⁹ Visual communication is divided into five categories. There are four appearance categories: age, gender, nationality and racial, hair, body, and size, and appearance; manner categories include expressions, eye contact, poses, and clothes; activity categories include touch, body movement, and positional communication; props and settings are divided into focus and depth of vision, close-ups, lighting and color, cropping, camera angle, and special effects or montage.

1.2 Chinese Zodiac

For centuries, language and culture have been important topics. Panther (2014: 2) noted that “the lexico-grammatical structure of a language can indeed be affected by cultural or folk models.” Gumpez and Levinson (1996:2) believed that culture, thought, and language are deeply intertwined. There is also a connection between rhetorical constructions and culture. Li (1999: 15) claims that “culture can influence the choice of simile connectives and produce some culture-specific tropes.” In this study, we will examine a culture-specific construction derived from the traditional Chinese zodiac. Chinese zodiac culture indicates people's birth years by using a 12-year cycle (with each year corresponding to an animal such as the mouse, the ox, the tiger, the rabbit, the loong, the snake, the horse, the sheep, the monkey, the Rooster, the dog, and the pig). According to Chinese folkways, a person's personality is determined by the characteristics of their zodiac animal. It is said that those born in the year of the Dog are loyal and faithful, while those born in the year of the Ox are hard-working but stubborn.

There is a myth that the twelve animals of the Chinese zodiac were chosen by race. The purpose of this race is to create a time measurement for people. Only twelve animals could win, and to win, they had to cross a rapid river current and reach the finish line on the shore. In contrast to the Greek and Roman zodiacs, the Chinese zodiac follows the moon instead of constellations. A cat and a rat originally hated each other intensely. The thought of them once being friends seems impossible. They were both the worst swimmers in the animal kingdom,



but they were both intelligent. Their discovery was that jumping on top of the ox was the fastest way to the river. It was a generous ox that offered to carry them across the river. However, the rat was so eager to win that he threw the cat into the water, so the cat never forgave him and was not allowed to participate. As another variation of the story goes, the cat never heard about the race and the rat never even participated. Eventually, the ox and rat reached the shore. When the race began, the rat jumped in front of the ox and won. The ox came in second and the tiger finished in third. The rabbit suddenly thumped loudly: it was the rabbit. It jumped from one stone to another and was doing well until it slipped.

Fortunately, a log floated by and it grabbed hold of that log and floated to the finish line, earning fourth place. There was a dragon in fifth place, but everyone expected it to come in first since it could fly. A couple of times, it had to stop to help some villagers, it told the Jade Emperor. When it saw a small rabbit on a log, it decided to give it a puff of air to help it reach the shore. The horse galloped to the finish line after the dragon. Behind the horse's foot was the sneaky snake. A sudden appearance scared the horse. This resulted in the snake landing in sixth place, and the horse in seventh. As soon as the monkey, rooster, and sheep arrived on shore, the rooster cried out in pain. This three were actually helping each other to reach the finish line, unlike some of the previous animals. The rooster found a raft, and the monkey and sheep hopped on. Working hard together through the water currents and the weeds, they reached shore: the sheep came in eighth place, the monkey in ninth place, and the rooster in tenth place. In eleventh place was the dog. Despite being a great swimmer, it was late. It told the emperor that it needed a bath, and the fresh water from the river was too tempting. Right when the emperor was going to close the race, an "oink" sound was heard: it was the pig. "Lazy little pig" originated from this story. The pig felt hungry in the middle of the race, so it stopped, ate something, and then fell asleep. After it awoke, it finished the race in twelfth place and became the last animal to arrive.

Throughout China, Taiwan, and Singapore, every child knows the Chinese zodiac story, which is divided into a 12-year cycle. It's something they learn from birth," Sometimes zodiac signs become shorthand. The individual you're speaking to could begin to generate ideas about your personality after you divulge your zodiac sign. They could also begin figuring out your age. "I'm a pig" or "I'm a horse" are frequently used at universities in place of the phrase "I'm a freshman," according to ShaoLan. "We are aware of the social hierarchy in the group right away." The Chinese believe that some animals get along with people better than others, as ShaoLan points out in her discussion. Therefore, parents chose particular years to have children because they think that the perfect mix of animals working together may make families prosperous. These little decisions made by each household separately, she claims, "might seem small-scale, but it actually causes a fluctuation in consumer demand and impacts the economy."

1.3 Anime details

In Fruits Basket, the Sohma family suffers from the Zodiac Curse, a strange curse that controls certain members of the family with one of the thirteen Chinese zodiac spirits. After the death of a possessed member of the family, the Spirit is reborn in another member of the

family. When certain conditions are met, the possessed family member transforms into their animal form. It is important to note, however, that the possession causes changes that go beyond what is visible. Their corresponding zodiac animals are also present in the possessed members of the Sohma family. A Zodiac spirit affects a person differently depending on the person it possesses. Each of the main characters in this series has so much to offer. Among these factors are their challenging childhoods, their current relationships, and their uncertain futures. It is convenient to begin with the basics when getting to know one another. As far as characters, personalities, and behavior are concerned, Fruits Basket delves deep into psychology. In his new series, Natsuki Takaya explores these topics with such expertise that it seems he is an expert. Truth be told, the mangaka has a deep understanding of the human mind, as well as the effects of trauma on the mind. It is an absolute gold mine for those interested in human psychology to study and analyze Fruits Basket. With the cast's tragic and unfortunate pasts that haunt them and define who they are, the cast perfectly portrays the consequences of trauma, loneliness, and child abuse. The three main characters of Fruits Basket and their mental health woes are described here. One thing Fruits Basket is proficient at (besides characters) is foreshadowing and symbolism. The moments of melancholic anime seem disconnected at first, but they soon make sense.

2.Character Analysis

Each of the characters has two sides, one is the human side or picture and the other is the zodiac sign as an animal picture. These two sides are related to each other and shown clearly in the anima as shown in Figure 1 below:



Figure 1: the two sides of each of characters

According to semiotic analysis, there are different aspects as expressed below:

Indicator: normal human beings

Indicative: each character has a zodiac curse or an animal side

Indicated: Each side is affected by the other, whether in normal or personal life, throughout the anime series.

Straight meaning: normal humans of the same family

Side meaning: each of these human beings is cursed by the zodiac spirit, which affects both his/her life and personality

Normally in Japanese animation, one can notice one side of the characters or the line of their life but in this anime, the writer tries to put more than one side together by referring to the zodiac signs which will be explained by the personality of the main characters. As the Chinese zodiac years are not observed in Japan, but according to the calendar year instead, the first main character is:

A-Yuki Sohma

His name is the unique one from the Zodiacs, as it is pronounced like snow in Japanese, but not written. Yuki's name means 'a reason' and means 'hope'. So the meaning of his name is "a reason to hope".

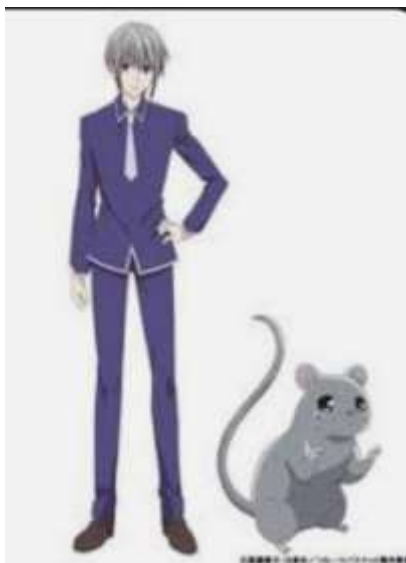


Fig 2: Kyo's both sides

In the Zodiac hierarchy, Yuki is possessed by the Rat, the first Spirit. As a result, the Zodiac considers the children of the Rat to be lucky as well. His effortless popularity at school proves that Yuki is smart, sharp-witted, and charming, like the Rat. Since Yuki is the first Zodiac, he is proficient at almost everything he does, and he can beat Kyo easily whenever they duel. The myth indicates that he and the cat 'Kyo' hated each other and this is evident in both Yuki and Kyo's characters that are affected by their zodiac spirits. Yuki is also very skittish and can easily scare people. As an example, he might have an anxiety attack after

being locked in a dark closet at school. He, along with most of his family, endured emotional abuse throughout his childhood and masks the pain by being friendly and inviting.

As a child, Yuki experienced manipulative treatment that led to low self-esteem. He feels a lot of loneliness even when around others, and still feels he can never truly be accepted by anyone. His friendship with Kyo and their rivalry may be the only thing keeping him from falling deeper into darkness, since they both lack self-esteem and suffered similar childhood abuse. As the common image of someone with low self-esteem is a shy and quiet person lacking confidence, Fruits Basket does an excellent job at portraying characters with low self-esteem. A person may seem confident but lack self-esteem or think lowly of themselves, yet appear to be the most confident person on the planet. One of the remarkable things about Fruits Basket is the tragic pasts of all the characters. Characters' feelings and thoughts regarding their backstories are explored in great detail in the series. Many psychology-related topics are subtly discussed or displayed for those with an interest in psychology.

B.Kyo Sohma

Kyo is the opposite of his cousin and roommate Yuki, who is loud and brash. He takes on the role of the Cat in the Zodiac, making him extra feisty and standoffish. He lost faith in his family and doesn't feel like he is a true part of the Zodiac, being taunted and degraded by his family members in his past. Similarly, the cat's character and life are related to the myth of his exclusion from the twelve zodiac signs.



Fig 3 : Kyo's both sides

As a child, Kyo was subjected to extreme neglect. From birth, Kyo was born, hated and despised for being a cat. His mother secretly thought he was disgusting because of his cat form, and she committed suicide. After this, his father disowned him, and the entire Sohma family hated Kyo for being the reason his mother died. Due to his cat status, he also understands that his destiny is to be the sacrifice for the Sohma -- that his fate is to be locked

up in prison until he dies. Despite his mother's best efforts, neither his mother nor his father cared for him or showed him love when he was a child. Child neglect, also known as child abuse, occurs when someone refuses to care for a child. Neglecting children early in life can cause low self-esteem, anxiety, anger issues, or even oppositional defiant disorder. An individual with ODD consistently displays rebellious and defiant behavior. Never listening to adults or constantly arguing with them are examples of this. Possibly this is why Kyo always acts out and fights with everyone, and struggles to build relationships. Even though Kyo acts unreasonably, knowing he'll be sacrificed to people who won't accept and hate him -- it's clear that this will affect many others' mental health in the same way it affects his.

C. Hatsuharu Sohma

Hatsuharu is possessed by the ox, the second Spirit of the Zodiac. The physical and personality traits of his animal Spirit are fully embodied in him. With his large sad eyes and white hair, he looks like a cow with his strength like an ox. There are two forms of Hatsuharu: White and Black. When he is in his white form, he is patient and kind, but when he is in his black form, he is aggressive and stubborn. Despite being mocked as a child for his intelligence, he is actually a rather mature Zodiac.



Fig 4 : Haru's both sides

D. Shigure

Dog is Shigure's animal Spirit in the Zodiac, and he is playful and carefree like his animal Spirit. In addition to being very generous, Shigure is also a patient schemer, as evidenced by his willingness to open his house to Tohru, Kyo, and Yuki. As shown by his constant mistreatment of his assistant, Mitsuru, he can be kind, but also cruel. Although he is playful and always joking around with other Zodiacs, he is diligently thinking about how to advance his own goals.



Fig 5: Shigure's both sides

E. Momiji

Among the Zodiac animals, Momiji is possessed by the Rabbit, the fourth Spirit. Momiji jumps from one moment to the next, always full of energy and cuteness. He is full of life and vitality, and his appearance is youthful and innocent. Among the most emotionally intelligent members of the Zodiac, he is popular, compassionate, and sincere. Although he can be quite immature at times, he is very perceptive and can see right through problems with ease.



Fig 6: Momiji's both sides

F. Hatori

Hatori is possessed by the Dragon, the fifth Spirit of the Zodiac, and is proud and regal like his Zodiac Spirit. Hatori is a calm and collected individual who takes life seriously at all times. His position as the Sohma family doctor demonstrates his fearlessness, charisma, and kindness. It is hard not to admire Hatori because he exudes confidence and authority, yet he is also incredibly sensitive and introspective. The seahorse's form may look like a dragon's, but deep down his heart is a seahorse's.



Fig 7 : Hatori's both sides

3. CONCLUSION AND DISCUSSION

1. 'Fruits Basket' is a Japanese anime about life's ups and downs and the seemingly insignificant things that make it worth living. This anime provides interesting details about characters and their behaviors. Every scene in the film relates to the major question of existentialism. It can be seen in the anime how these zodiac spirits control the characters' choices and actions.
2. The writer makes a clear similarity between the character in his/her human form and the zodiac spirit animal. This is done by the color of each of the character's hair, so one can distinguish characters.
3. The writer tried to convey the previous idea of how some characters think that the zodiac year in which the characters were born molded the character from what made it a constraint and at the end of the movie they were freed from what conveyed the idea that these years have no effect if the person wants to be free of them and by his will
4. The writer formulated the characters in the form and actions that made the viewer believe that all these characters really have an animal spirit inside them or those zodiac spirits that make them distinct from the rest of the natural characters that are unpossessed. This corresponds to the legend that states that the signs influence the characters that are born each year. This means that every person born in that year is affected in some way by the personality of the zodiac spirit, as the writer emphasizes by focusing on the extent to which the characters in the zodiac signs have influenced their lives, causing them to become cursed in some way.



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Research Article

إستخلاص السليلوز من أوراق نبات البمبر *Cordia myxa* وتحويله الى ايثانول حيوي

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م.ب. زهراء احمد فالح

م.ب. زهراء احمد طاهر

كلية التربية الاساسية- جامعة المثنى

الخلاصة

تضمن البحث إستخلاص السليلوز من أوراق البمبر *Cordia myxa* عن طريق معاملة مطحون الاوراق بقاعدة هيدروكسيد الصوديوم 5% وبإستخدام أشعة المايكرويف ، وكانت نسبة السليلوز المستخلص هي (18.75%) ، شخص السليلوز المستخلص بإستخدام تقنية المجهر الالكتروني الماسح (SEM) ومطيافية الاشعة تحت الحمراء (FTIR). تم تحلل السليلوز الناتج بإستخدام حامض الكبريتيك 4%ترك المزيج لمدة 4 أيام بدرجة حرارة المختبر ومن ثم التسخين حتى الغليان مع التحريك لمدة ساعتين وبعدها وضع في جهاز الاوتوكليف بدرجة حرارة 121°C ولمدة ساعة، بعد ذلك تم ترشيع الناتج ثم أضيف للراشح محلول كاربونات الصوديوم 5% حتى أصبح المحلول متعادل وأستخدم كاشف بندكت للكشف عن الكلوكون الناتج من عملية تحلل السليلوز ، تم تخمير الناتج من التحلل بإستخدام الخميرة الفورية *Saccharomyces cerevisiae* وبدرجة حرارة 32°C حيث وضعت بجهاز الحاضنة لمدة 24 ساعة ،بعد ذلك تم تقطير الناتج والكشف عن الايثانول بإستخدام كاشف كروميك وتم تقدير الايثانول الناتج بإستخدام تقنية الاشعة فوق البنفسجية - المرئية.



Abstract

This research included the extraction of cellulose from *Cordia myxa* leaves by treating the grinding leaves with 5% sodium hydroxide base and using microwave radiation, the percentage of extracted cellulose was (18.75%), the extracted cellulose was determined using scanning electron microscopy (SEM) and infrared spectroscopy (FTIR). The resulting cellulose was hydrolysis using sulfuric acid 4%. The mixture was left for 4 days at the laboratory temperature, then heated until boiling with stirring for two hours, and then placed at autoclave at 121 °C for an hour, after that which was filtered then 5% sodium carbonate solution was added to the filtrate until became neutral. Benedict's reagent was used to identify glucose result from cellulose hydrolysis process. The resulting glucose It was fermented using instant yeast *Saccharomyces cerevisiae* at a temperature of 32 °C, where it was placed in an incubator for 24 hours, after that the product was distilled and the ethanol was detected using a chromic reagent, and the resulting ethanol was estimated using the ultraviolet-visible technique.

1- المقدمة

أعتمد ظهور الصناعة على التطورات التي عاصرتها الحضارات والشعوب فأستطاعت المجتمعات أن تتحول من رعية وزراعية معتمدة على رعي الماشية والزراعة الى مجتمعات صناعية متطورة ومتقدمة تمتلك مجموعة من المؤسسات والمنشآت التي تحول المواد الخام المنتشرة على سطح الارض او الموجودة داخلها الى صناعات وإنتاجات متنوعة حيث صنفت الصناعة الى صناعات تقليدية تشمل مجموعة من الحرف والأعمال اليدوية ، وصناعات حديثة تعتمد على المصانع والمعامل وذلك عن طريق إستخدام المواد الاولية وتحويلها الى مواد اخرى وتحتاج الصناعة الى عديد من المقومات أهمها المادة الخام وهي المادة التي يمكن من خلالها ومن خلال عدة عمليات صناعية نحصل على المنتج النهائي الذي يكون في يد المستهلك ومن هذه المواد الخام التي تدخل في صناعات كثيرة هي مادة السليلوز والتي تعتبر من أوفر المركبات الكيميائية على وجه الارض وأكثرها رواجاً حيث يشكل قرابة 33% من بنية النباتات وفي نبات كالكطن يمثل 80 % من بنيته و50% في الخشب ، ويشكل المادة الخام الاساسية في كثير من الصناعات المختلفة مثل صناعة الورق واللدائن والمنسوجات النباتية والجدير بالذكر إن السليلوز لا يوجد في الطبيعة بحالة نقية ابدأ وتعتبر الياف القطن هي الانقى، ويوجد في الأوراق وما شابه حيث يرتبط السليلوز بمواد اخرى مثل اللكتين وايضاً من مصادر السليلوز الطبيعية هي الالياف النباتية (Desai,2006).

يعد السليلوز البوليمر الحيوي الأكثر وفرة في الطبيعة والمنتج من عمليات البناء الضوئي في النبات (Schlesinger, 2015) وان الكتلة الحيوية للنباتات عالية السليلوز من المصادر المهمة في إنتاج الوقود، الاغذية الحيوانية، إضافة إلى تصنيع العديد من المواد الكيميائية المهمة (Bhat, 2000) حيث إن تحويل كتلة السليلوز الحيوية الى سكريات بسيطة بطرق التخمر باستخدام إنزيمات التحلل السليلوزي المشتقة من الأحياء المجهرية القادرة على التحلل السليلوزي من المقترحات المهمة لإنتاج الوقود البديل (الإيثانول) إضافة الى التخلص من التلوث البيئي (da Costa and et al, 2009) إن السليلوز هو المركب الأساسي في الخلايا النباتية وبالذات في جدار الخلية النباتية (Wang, 2021) (Sjöström, 2001) (Wang, 2008). يعتبر السليلوز من المواد الصعبة التلين بسبب الصلابة التي يمتلكها والنتيجة من الشبكة الكبيرة من الاواصر الهيدروجينية التي توجد بين وحدات الكلوكوز المكونة لمادة السليلوز مكونة ما يعرف بالتبلور والسبب الآخر هي درجة البلورة العالية. إن مجموع هذين السببين لهما تأثير مهم على عدم ذوبان مادة السليلوز في أغلب المذيبات العضوية وغير العضوية، ويصنف السليلوز على إنه ليس من البوليمرات المطاوعة للحرارة ولا من المتصلبة حرارياً ، كل هذه الأسباب جعلت منه مادة خاملة لأغلب التفاعلات الكيميائية; Perez, and Samain, 2010; (Rong et al, 2001 Filpponen. 2009; Chen, 2012).

إن تحلل السليلوز بتأثير الاحماض يؤدي في النهاية الى الكلوكوز ويتكون السليلوز من الكلوكوز حيث يفقد جزيء من الماء لكل جزيء من الكلوكوز وتكون سلسلة طويلة تمثل حلقاتها وحدات الانهيدروكلوكوز أما كيف تتصل هذه الوحدات بعضها ببعض فعن طريق ذرتي الكاربون رقم 1 و 4 في أحد وحدتي الكلوكوز اللتان ترتبطان برابطة كلايوكسيدية مع الوحدة المجاورة لها مع ملاحظة أنه في حالة السليلوز تدور الوحدة الثانية 180 درجة حول نفسها وتسمى بيتا كلوكوبيرانوز بينما النشا فيشبه السليلوز في التركيب ولكنه يتكون من الفاكلوكوبيرانوز (Zugenmaier, 2008). لقد لجأ الباحثون الى إستخلاص السليلوز بعدة طرق منها المعقدة والمكلفة ومنها الاقتصادية والرخيصة التكلفة وايضاً هناك الطرق المختبرية حيث تم إستخلاصه من عدة نباتات كالفطن وجفت الزيتون والنخيل حيث أستخلص من هذا الاخير من عدة أجزاء كالسعف والجريد والجمار ، كما تم إستخلاص السليلوز من قشر الرز ومخلفات الورق ومخلفات قصب السكر وذلك عن طريق معاملة تلك المواد بمحلول حامض الكبريتيك بتركيز 95% ومحلول هيدروكسيد الصوديوم بتركيز 7.5% (Aboody, 2013)، وفي دراسة تم إستخدام بذور النمر كمادة اولية للحصول على السليلوز وذلك بطحن البذور ومعاملتها بمحلول هيدروكسيد الصوديوم 5% في درجة حرارة 70°C ولمدة 160 دقيقة أعقبها عدة خطوات لإستخلاص السليلوز بإضافة 10% هيدروكسيد البوتاسيوم ثم إضافة حامض البوريك لمدة 10 ساعات (Nabili et al, 2014) كما تم إستخدام سعف النخيل كمادة اولية لإستخلاص السليلوز وتم الإستخلاص بالمعاملة بمحلول هيدروكسيد الصوديوم بتركيز 4% وبدرجة حرارة 80°C ولمدة ساعتين مع التقليب المستمر أما مرحلة التبييض فتتمت بإستخدام هيبوكلوريت الصوديوم (Dungani et al, 2017; Nordin et al, 2017; Rasli et al , 2017). إن التوجه نحو الطاقة النظيفة واستخدام بدائل صديقة للبيئة دفع الباحثين الى انتاج الايثانول الحيوي من السليلوز ، و الإيثانول الحيوي هو كحول مُنتج من المواد العضوية المتجددة مثل السكريات والنشا عن طريق عملية التخمر

الحيوية باستخدام الخمائر أو البكتيريا. ويمكن استخدام الإيثانول الحيوي كوقود بديل للوقود الأحفوري مثل البنزين، كما يمكن استخدامه كمذيب ومادة خام لصناعة الكيماويات والأدوية والمستحضرات الصيدلانية. يتم إنتاج الإيثانول الحيوي بشكل رئيسي من محاصيل الذرة والسكريات الخام، وهو يعد بديلاً أكثر صداقة للبيئة من الوقود الأحفوري، نظراً لأنه ينتج كميات أقل من الانبعاثات الضارة التي تؤدي إلى تلوث الهواء والتربة والمياه كما أن استخدام الإيثانول الحيوي يمكن أن يساعد في تحقيق الإكتفاء الذاتي في الطاقة وتقليل الاعتماد على النفط والغاز (Fetyan et al, 2022).

هناك العديد من الأبحاث التي تهتم بإنتاج الإيثانول الحيوي، والتي تتناول مختلف الجوانب البيئية والاقتصادية لهذا الموضوع حيث ركز البعض على تحسين عملية التخمير الحيوية، حيث يتم تحسين عملية التخمير الحيوية باستخدام أنواع مختلفة من الخمائر والبكتيريا، وتحسين ظروف التخمير مثل درجة الحرارة ونسبة الرطوبة والتهوية والغذاء الأساسي للخميرة. البعض الآخر اهتم باستخدام المواد الخام البديلة للسكريات والذرة المستخدمة حالياً، مثل مخلفات الصناعات الزراعية، كما ركزت الكثير من البحوث على تحسين جودة الإيثانول وذلك باستخدام تقنيات التنقية والتصفية والتحليل الكيميائي إلى جانب آخر فإن العديد من البحوث ركزت على تقليل تكلفة إنتاج الإيثانول الحيوي، مثل تحسين كفاءة الإنتاج واستخدام تقنيات الإنتاج الأكثر فعالية وتحسين عمليات الاستخلاص (Maity et al, 2022; Patel et al, 2022). لقد أجريت دراسات بحثية عديدة لإنتاج الإيثانول من المواد الخام المختلفة على نطاق واسع والمواد الخام المحتوية على السليلوز مثل (القش والأخشاب والنفايات الورقية) والمواد المحتوية على النشا مثل (الذرة والقمح والشعير وقصب السكر والبنجر والسكر) من أكبر المواد الخام لإنتاج الإيثانول تمتلك المنتجات الزراعية محتوى واسع من الكربوهيدرات والنشويات والسليلوز وبالتالي تستخدم كمواد خام لإنتاج الإيثانول. إن تغير المناخ وندرة مصادر الطاقة التقليدية في بعض مناطق العالم دعت الباحثين إلى إيجاد وسائل بديلة، جميع تلك العوامل أدت إلى زيادة النتاج العلمي الخاص بالبحث عن إنتاج الوقود الحيوي و في نهاية عام 1990 كان إنتاج الإيثانول العالمي يتزايد من خلال تطور أبحاث التطوير الخاصه بجينات الكائنات الحية، كما ان تزايد ادى الى التركيز على استخدام انزيمات السليلوز في عملية التدوير الحيوي للمركبات العضوية وغير العضوية اضافة الى استخداماتها المهمة في المجالات الصناعية، الغذائية، الدوائية، إذ ظهر الوقود الحيوي بأجيال عدة 1- الجيل الاول يتضمن انتاج الإيثانول من تخمير السكريات والنشويات من المحاصيل الغذائية النباتية بواسطة الخمائر 2- الجيل الثاني يتضمن إنتاج الوقود الحيوي من المواد الأولية غير الغذائية خلال التحلل الانزيمي او الكيميائي في عمليات مختلفة 3- الجيل الثالث يتضمن توظيف الكائنات الدقيقة المنتجة للانزيمات الى تحلل البوليمرات النباتية كالسليلوز وتخمير السكريات الناتج Krishna, et al, 2001; Percy, 2009), وفي بحثنا الحالي تم استخدام اوراق نبات البمبر لإنتاج الإيثانول الحيوي وهو من الأشجار ذات الحجم المتوسط، والتي يُطلق عليها في بعض البلدان اسم السبستان، وتتمو فاكهة البمبر بشكل رئيسي في آسيا، وخاصةً المناطق المدارية، وتحتوي ثمار البمبر على نسبةٍ لا بأس بها من الفيتامينات، وعادةً ما يتم استخدام الفاكهة واللحاء والجذور والأوراق لإستغلال فوائدها بشكلٍ أوسع، وتساعد فاكهة البمبر في تهدئة السعال وأمراض البرد، بالإضافة إلى تأثيرها على مشاكل الهضم، كما يُستخدم خشب البمبر لأغراض النجارة، وبالتالي فإن جميع أجزاء البمبر يمكن استخدامها لمختلف الإستعمالات، حيث أظهرت الدراسات الحديثة التأثير الكبير لفاكهة البمبر في عملية تسكين الآلام،

وتنقل من أعراض الالتهابات، وذلك من خلال دراسات أجريت على الفئران عملت على مقارنة بعض أنواع المسكنات مع البمبر (Al-Snafi,2016)، يحتوي لب البمبر على مادة ذات التكوين اللزج، والتي تعمل على تهدئة الآلام الروماتيزمية، كما إنها تُساعد في القضاء على مشكلة الديدان. تدخل خلاصة البمبر في صناعة بعض الأدوية، مثل منتجات العناية بالثة، بالإمكان استخدام البمبر لعلاج تقرحات الفم، من خلال تأثيره على المنطقة كمادة مهدئة، أجريت بعض الأبحاث على الأرانب، ووجدت تأثير فاكهة البمبر على ضغط الدم، حيث تؤثر هذه الفاكهة من خلال توسيع الأوعية الدموية، وبالتالي تقليل الضغط، كما إن هنالك العديد من الأبحاث التي أكدت إن مستخلص أوراق البمبر يمتلك فعالية بيولوجية ضد أنواع محددة من البكتريا كما يمكن إستخدامه كمبيد نباتي بديلاً عن المبيدات الكيميائية لبعض أنواع الحشرات (Kumar et al,2016; Abdel-Aleem et al,2019).

1-2 الهدف من البحث :-

نظراً إلى أهمية الإيثانول الاقتصادية وذلك لما له من إستخدامات عديدة في كثير من الصناعات الغذائية والدوائية وإمكانية إستخدامه كبديل عن الوقود الأحفوري فعند إستخدام الـ bioethanol في وقود السيارات سيساعد على إنخفاض اول أكسيد الكربون في الجو وبالتالي خلق بيئة نظيفة للإنسان والحيوان والنبات كما إن أوراق اشجار البمبر تعتبر مصدر جيد للسليولوز وبالتالي يمكن إنتاج الإيثانول الحيوي منها كل هذا آثار إهتمامنا للإستفادة من أوراق أشجار البمبر وتحويلها الى مادة نافعة واقتصادية

2- المواد وطرائق العمل

1-2- تهيئة المادة الاولية: تم جمع المادة الاولية (أوراق البمبر) بتاريخ 2022\11\2، من منطقة الهلال- محافظة المثني، حيث تم غسل الاوراق بالماء العادي ثم بالماء المقطر عدة مرات لإزالة الاتربة بعد ذلك تم تجفيفها بدرجة حرارة الغرفة لمدة إسبوعان، ثم طحنها لتصبح جاهزة لمرحلة إستخلاص السليولوز.

2-2- إستخلاص السليولوز : تم إستخلاص السليولوز بالإعتماد على الطرق المذكورة في الادييات مع إجراء بعض التحويرات عليها (Camacho et al,2017) حيث تمت معالجة أوراق البمبر (20g)، بـ (300ml) من 5% هيدروكسيد الصوديوم (NaOH) تم تشيع العينة في الميكروويف بقدرة (800W) لمدة 15min. بعد المعالجة، تم ترشيح العينة وغسلت عدة مرات بإستخدام ماء مقطر ومن أجل التقليل من تكلفة الإستخلاص، تم إستخدام مبيض فاس والمتوفر في السوق المحلي لمدينة السماوة لقصر السليولوز حيث تم إضافة 35ml من (قاصر فاس) الى المادة الصلبة المتبقية من عملية الترشيح ثم سخن الخليط بدرجة حرارة 60°C، بعد ذلك تم الترشيح بإستخدام الترشيح تحت الضغط المخلخل وتم غسل العينة عدة مرات بإستخدام الماء المقطر، ثم ترك السليولوز المستخلص بدرجة حرارة المختبر لمدة إسبوع ليحفظ و تم حساب النسبة المئوية للسليولوز المستخلص.

2-3- تحلل السليولوز بالحامض (Olad et al,2020): تم إجراء تحلل السليولوز المستخلص بإستخدام محلول حامض الكبريتيك 4% حيث تم وضع (2 g) من السليولوز المستخلص في (300ml) من محلول حامض الكبريتيك، ترك الخليط لمدة 4 أيام بدرجة حرارة المختبر بعد ذلك سخن حتى الغليان مع التحريك لمدة ساعتان ثم تم وضعه في جهاز

الأوتوكليف عند درجة حرارة 121°C لمدة ساعة ، بعد التحلل الحامضي تم ترشيح العينات للحصول على الراشح ، ثم أضيف للراشح محلول كاربونات الصوديوم 5% حتى أصبح المحلول متعادل ، تم الكشف عن الكلوكوز الناتج من التحلل عن طريق كاشف مولش وهو كشف عام عن الكاربوهيدرات حيث إن ظهور الحلقة البنفسجية في الحد الفاصل بين الحامض ومحلول السكر دليل على الكشف الموجب، كما تم استخدام كاشف بندكت وهو كشف خاص بالسكريات المختزلة، حيث تم أخذ (1ml) من الراشح الناتج من التحلل وأضيف إليه (2ml) من كاشف بندكت ووضع في حمام مائي لمدة 10min. لوحظ تغير لون المحلول وتكون راسب احمر الى بني مما يدل حصول إختزال لأيونات النحاس في الكاشف وإن درجة اللون المتكون تعتمد على تركيز السكر المختزل في المحلول.

4-2 عملية التخمير والحصول على الايثانول (Mohagheghi et al,2006)

تم تخمير العينة الناتجة من التحلل الحامضي في حاضنة بدرجة حرارة 32°C باستخدام الخميرة *Saccharomyces cerevisiae* (2g)، تم إجراء التخمير اللاهوائي في قناني بلاستيكية التي تحتوي على الراشح الناتج من عملية التحلل ووسط التخمر ، تركت العينات لمدة 24 ساعة وبعد التخمر ، تم تقطير العينات للحصول على الايثانول ويظهر المخطط (1.2) خطوات انتاج الايثانول الحيوي.

5-2 الكشف النوعي عن الايثانول (Him and Huda,2018): تم تحضير كاشف كروميك بإذابة (0.09g) من داي كرومات البوتاسيوم في (2ml) من حامض الكبريتيك المركز ، ولغرض الكشف عن الايثانول تم اخذ (1ml) من المحلول الناتج من عملية التقطير وأضيف له قطرتين من كاشف كروميك لوحظ تحول اللون من البرتقالي الى اللون الاخضر مما يدل على الكشف الموجب

6-2 تقدير تركيز الايثانول (Pourkarim,2020) : تم تقدير تركيز الإيثانول بالطريقة اللونية بواسطة تقنية الأشعة فوق البنفسجية - المرئية، حيث تم اخذ حجوم مختلفة من الايثانول النقي (1,2,3,5,6,7,8,9 ml) في قناني حجمية سعة (10 ml)، وتم مزجها مع (2ml) من كاشف كروميك ، ثم اكمل الحجم بالماء المقطر ليصل إلى (10ml) ، أما الايثانول الذي تم تحضيره بالبحث والمراد حساب تركيزه فقد تم جمع (4ml) منه ومزج مع حامض كروميك (2ml) واکمل الحجم بالماء المقطر، وضعت العينات في حمام مائي عند 80°C لمدة 5 min ، وبعد التبريد ، تمت قراءة الامتصاصية عند طول موجي 580 nm باستخدام جهاز الأشعة فوق البنفسجية- المرئية ، ثم رسم المنحى القياسي لتحديد تركيز الايثانول المحضر.

3 - النتائج والمناقشه

تم استخلاص السليلوز من أوراق نبات البمبر بالمعالجة بالقاعدة وكما تم ذكره في الفصل الثاني من البحث، وقد تم حساب نسبة السليلوز المستخلص من المعادلة الآتية:

$$\text{نسبة السليلوز المستخلص} = \frac{\text{وزن السليلوز المستخلص}}{\text{مطحون أوراق البمبر}} \times 100\%$$

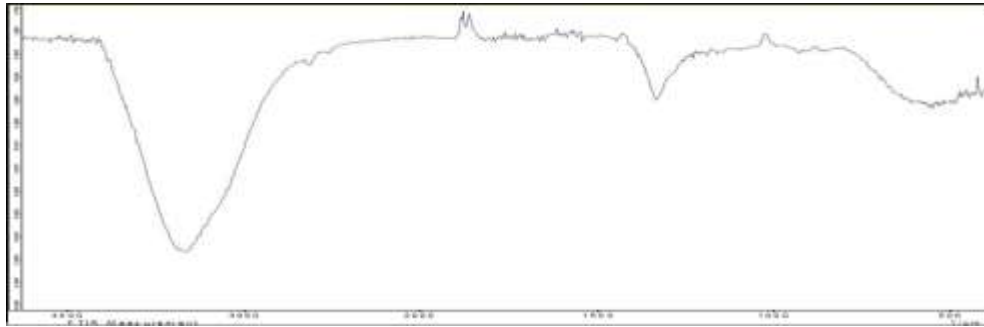
وكانت النسبة المئوية للسليلوز المستخلص = 18.75%

شخص السليلوز المستخلص باستخدام مطيافية الأشعة تحت الحمراء حيث تم التركيز على تشخيص بعض المجاميع الفعالة المهمة في طيف السليلوز منها مجموعة (OH) ومجموعة (CH₂) و ν(C-O-C) واستناداً إلى ماورد في الأدبيات (Hospodarova et al,2018; Fellak et al,2022) تم تحديد مواقع الحزم للسليلوز المستخلص حيث أظهر طيف الأشعة تحت الحمراء للسليلوز المستخلص كما في الشكل (1.3) حزمة عريضة الشدة في المنطقة (3400 cm⁻¹) للسليلوز المستخلص تعود إلى التردد الامتطاطي لمجموعة (OH) ويمكن تفسير ظهور حزمة مجموعة (OH) بهذا الشكل إلى التأصر الهيدروجيني بين مجاميع (OH) في السليلوز والتي كثيراً ما تظهر في اطياف الأشعة تحت الحمراء للكربوهيدرات (Aboody, 2013). أما الحزمة حزم تردد مط (CH₂) فلم تظهر بسبب انطباقها مع حزمة OH العريضة، كذلك يحتوي الطيف على حزمة متوسطة الشدة في المنطقة (1360.65cm⁻¹) تعود إلى تردد مط مجموعة ν(C-O-C)، أما المنطقة الواقعة من (1000 cm⁻¹) فما دون فهي ليست بذات أهمية لأنها تعود إلى التردد تآرجح وانحناء الأصرة C-C والتي لا يخلو منها اي مركب عضوي وهذا ما أكدده (Silverstein, 2000).

جدول (1): يبين قيم امتصاصات طيف الأشعة تحت الحمراء للسليلوز المستخلص

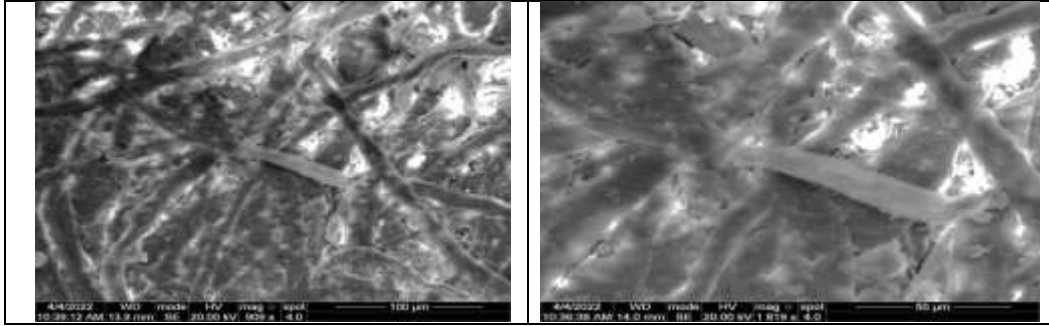
ν(OH)	ν(CH) _{asym., sym.}	ν(C-O-C)
3400 b	----	1360.65 m

Where: m=medium, b:broad



شكل (1): طيف الأشعة تحت الحمراء للسليلوز المستخلص

تم استخدام تقنية المجهر الإلكتروني الماسح لدراسة خصائص سطح السليلوز بمسافة مقطع عرضي 50-100 μm و قوة تكبير KXMag=20.00 ، وحسب ما موضحة في الشكل (2) ومن خلال دراسة خصائص السطح Morphology للسليلوز المستخلص ظهر السليلوز المستخلص على هيئة ألياف طويلة وهذا يتفق مع نتائج الأبحاث الأخرى التي أظهرت أن بلورات السليلوز تكون على شكل الألياف ، على الرغم من أن طول الألياف يكون مختلفاً وهذا يعتمد على الطريقة المستخدمة لإستخلاص السليلوز (Adel and et al, 2010) ويتضح لنا من صورة SEM للسليلوز المستخلص الاختلاف في أطوال الألياف السليلوز ربما يعود إلى عملية المعالجة بالقاعدة أدت إلى تحطم و تقصير طول الألياف للسليلوز المستخلص.

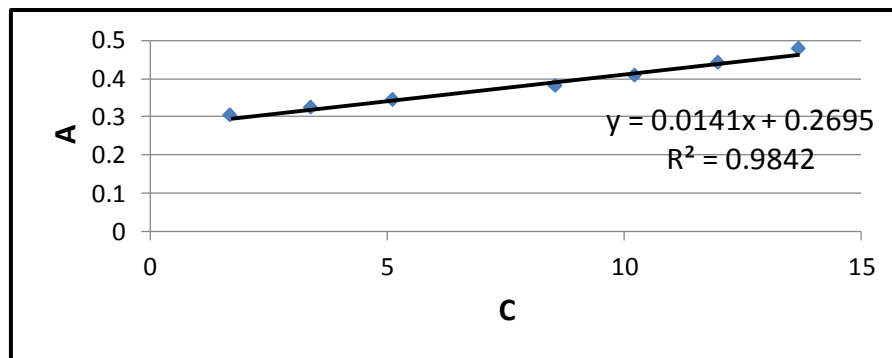


الشكل (2): صور الياف السليلوز تحت المجهر الإلكتروني الماسح .

تم استخدام حامض الكبريتيك 4% لتحلل السليلوز إلى كلوكوز وكانت نسبة السليلوز المتحلل 65%، وتم استخدام كشف مولش وبنديكت للكشف عن الكلوكوز الناتج من التحلل، حيث إن محلول بندكت يحتوي على كبريتات النحاس المحضرة في وسط قاعدي، ويكون محلول بندكت باللون الأزرق، ولكن عند تفاعل محلول بندكت مع سكر الكلوكوز، يختزل محلول بندكت ويتغير لونه، فيتحول إلى اللون البني، أو اللون الأحمر مع تكون راسب، حيث إن التغيير في درجة اللون يعتمد على تركيز سكر الكلوكوز في المادة.

تم إجراء عملية التخمر اللاهوائي لناتج التحلل باستخدام الخميرة الفورية وبدرجة حرارة 32°C حيث وضعت بجهاز الحاضنة لمدة 24 ساعة، بعد ذلك تم تقطير الناتج للحصول على الإيثانول .

تم تقدير تركيز الإيثانول باستخدام الطريقة اللونية (Pourkarim et al,2020) ، حيث تم قراءة الامتصاصية للإيثانول المجهول التركيز والمحاليل القياسية عند الطول الموجي 580 nm وكان تركيز الكحول الحيوي الذي تم الحصول عليه (2M)، شكل(3) .



شكل (3) تقدير تركيز الإيثانول

4- الإستنتاجات

- بعد إنهاء البحث يمكن ان نستنتج منه بعض النتائج وهي:
1. أن طرائق التحليل المستخدمة في الحصول على نتائج هذا البحث أظهرت كفاءة جيدة.



2. تشير النتائج التي حصلنا عليها من هذا البحث أن صفات السليلوز المستخلص تضاهي صفات السليلوز النقي.
3. أظهرت النتائج إن نسبة تحلل السليلوز الى كلوكوز بالطريقة المتبعة بالبحث هي %65.
4. إن تركيز الايثانول الناتج من عملية التخمير يساوي 2M

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Research Article

Tribolium تأثير مستخلص نبات الحنضل **Citrullus colocynthis** الكحولي على خنفساء الطحين الصدئية **castaneum**

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الخلاصة

أظهرت نتائج الدراسة ان المستخلص الكحولي الايثانول لنبات الحنضل قد أعطى فعالية واضحة في مكافحة بالغات حشرة خنفساء الطحين الصدئية اذ بلغت نسبة الهلاكات التراكمية للبالغات باستخدام المستخلص الكحولي الايثانول لنبات الحنضل (32.00, 68.00, 70.00, 96.00 %) لتراكيز من (5 - 80 %) على التوالي بعد مرور 72 ساعة من المعاملة , وللمستخلص الكحولي الهكسان بلغت (23.33, 50.00, 53.00, 80.00 %) لتراكيز من (5 - 80 %) على التوالي من الناحية الأخرى بينت نتائج الدراسة وجود علاقة طردية بين نسب الموت والتركيز المستخدم , اذ بلغت نسبة الموت للبالغات اعلاها (96.00) عند اعلى تركيز (80%) بعد مرور 72 ساعة من المعاملة .

Abstract

The results of the current study showed that the alcoholic ethanol extract of the hibiscus plant gave clear effectiveness in controlling the adults of the red rice insect, as the cumulative mortality rate for adults using the hibiscus plant was (68.00, 32.00, 70.00, 96.00%) for concentrations of (5-80, respectively) after 72 years. An hour of treatment, and for the alcoholic extract, hexane amounted to (23.33, 50.00, 80.00, 53.00) for concentrations of (5 - 80%), respectively.

On the other hand, the results of the study showed that there was a direct relationship between death rates and the concentration used, as the death rate for adult females reached the highest (96.00) at the highest concentration (80%) after 72 hours of treatment

1-1 المقدمة

تحظى الحبوب بأهمية بالغة في الزراعة العالمية وذلك لإرتباطها بالأمن الغذائي للشعوب إذ توفر الحبوب ومنتجاتها والأغذية المخزونة السعرات الحرارية التي يستهلكها المواطن , كما انها تعد من المصادر الأساسية التي توفر البروتين الضروري لغذاء الإنسان(السعيدى وغسان , 1989). تعد حبوب المحاصيل بكل أنواعها ذات اهمية اقتصادية في كثير من دول العالم ,حيث تستخدم حبوب الرز كغذاء في كثير من البلدان خصوصا دول شرق آسيا والرز الأسمر غني بالفيتامينات, كما تستخدم الذرة او القمح كل واحد على حدى كغذاء للإنسان في صناعة الخبز والفطائر او بعد خلطهما مع بعضهما بنسب مختلفة , فضلا عن استخدامهم في صناعة الأعلاف المركزة لتغذية الحيوانات , وان بذورهم غنية بفيتامين A , B (محمد ووضاح, 2012). تتعرض الحبوب المخزونة ومنتجاتها الى العديد من الآفات التي تسبب اضرار اقتصادية كبيرة , وتسبب تلف إلى ما يقارب 10% - 40% من حبوب المحاصيل المخزونة في العالم (الحديدي وآخرون , 2014). تعد خنفساء الطحين الصدثيه *Tribolium castaneum* احدى الآفات الحشرية المهمة في العراق ومناطق عديدة من العالم , إذ تهاجم العديد من المنتجات الغذائية مثل أنواع الدقيق, الحبوب , رقائق البسكويت , التوابل , الكعك والفواكه المجففة . وتعتبر هذه الآفة من أكثر حشرات المخازن أهمية حيث توجد في البيوت والمخازن , وتمتاز الحبوب المصابة بهذه الآفة برائحة مميزة وطعم متعفن نتيجة لإفرازات هذه الحشرة , كما تفقد الحبوب العديد من الخواص التي تجعلها غير صالحة للأستخدام , كما ان الحشرة تؤدي إلى خفض كمية ونوعية الغذاء وكذلك التغير في التركيب الكيميائي للحبوب المصابة (محمد ووضاح , 2012).

وعلى الرغم مما تقدمه المبيدات الكيميائية من حمايه للنبات ضد الآفات الحشرية التي تصيبه إلا أن ظهور صفة مقاومه لهذه المبيدات بالإضافة إلى تداخل هذه المبيدات مع المادة الوراثية للكائنات الحية إذ قد تتفاعل المادة الكيميائية للمبيد مع بعض مكونات الخلية الحية مسببه بعض التشوهات مما يؤثر بشكل سلبي عليها (Kacmare et al... , 1999), مما أدى إلى الحد من استعمالها ضد الحشرات التي تظهر فيها صفة المقاومه فضلاً على أنها تعمل على تلوث الهواء والماء والتربة الأمر الذي يؤدي الى تغير الصفات النوعية لهذه الأجزاء الحيوية وينتج عنها تأثيرات ضاره للإنسان والحيوان والنبات(العادل وكامل, 1979), لذلك فكر الباحثين بإيجاد وسائل بديله للمكافحه أكثر أمناً للبيئه وفعالیه بالقضاء

على الآفة أو الحد من أضرارها ومن بين أهم الطرائق البديله هو تصنيع مبيدات ذات أصل نباتي ، إذ تحتوي العديد من النباتات على مواد أما أن تكون طارده أو قاتله للحشرات الأمر الذي أدى الى اكتشاف العديد من المبيدات النباتية التي أظهرت كفايه عاليه في مكافحه الآفات الحشرية المختلفه (شعبان والملاح،1993).لذا بدأ الباحثون باستخدام المبيدات ذات الأصل النباتي Botanical insecticides والتي يمكن أن تكون بديلاً فعالاً وأميناً عن المبيدات الكيميائية المصنعه وذلك للأمتلاكها مواصفات مرغوبه منها تحللها السريع وأنخفاض سميتها للإنسان والحيوان (Saxena ,1983) كذلك لا يمكن عدها ملوثات بيئيه فضلاً عن عدم ظهور صفة المقاومة لها من قبل الآفات المعاملة بها .

2-1- الهدف من البحث :-

1- الحد من استخدام المبيدات الكيميائية واستبدالها بالمبيدات الطبيعية Botanical insecticides.

2- تقييم كفاءة المستخلص الكحولي لنبات الحنضل ضد بالغات خنفساء الطحين الصدئية تحت الظروف المختبرية

2- المواد وطرائق العمل

2-1- جمع العينات: تم جمع ثمارنبات الحنضل من الاسواق المحليه حيث اخذت ثمار نبات الحنضل وتم غسلها وتجفيفها طبيعيا في الظل لمدة 7 ايام بعدها جمعت الثمار المجففة ثم طحنت باستخدام طاحونه كهربائية ، وحولت الى مسحوق متناهي في الصغر (powder) لغرض تهيئته لعمليات الأستخلاص اللاحقة .حفظت هذه المساحيق في أكياس في الثلجة لحين الأستخدام.

2-2 جمع الحشرات: جمعت الأفراد البالغه لحشره خنفساء الطحين الصدئية من اكياس الطحين المحفوظة في المنازل ومخازن الأسواق المحلية وحفظت العينات في مختبر الاحياء قسم العلوم العامة - كلية التربية الأساسية لحين الاستخدام

2-3 تحضير المستخلص الكحولي لنبات الحنضل: وزن 30غم من المسحوق الجاف لثمار نبات الحنضل باستخدام ميزان حساس ثم وضع المسحوق في الانبوبة thumble الخاصة بجهاز الاستخلاص Soxhlet extracto والمجهز من قبل شركة Electromantle Mu اما في الدورق الخاص بالمذيب فقد وضع 250 مل من مذيب الايثانول تم بعدها تشغيل الجهاز لمدة اربع ساعات وبعدها تم رفع النموذج وجفف المستخلص لازالة المذيب بواسطه جهاز المبخر الدوار للحصول على مستخلص نقي ذو تركيز 100% (Ladd et al., 1978) و (المنصور، 1995). حضرت منه التراكيز التالية 5% ، 20% ، 40% ، 80% بعدها حفظت التراكيز في قناني زجاجية محكمة الغلق بعد تعليمها ، حفظت هذه القناني في الثلجة لحين الأستخدام(الموسوي ، 2014) اما تحضير المستخلص الكحولي الهكسان لتبعت نفس الطريقة لكن استبدل الايثانول بالهكسان.

2-4 تأثير المستخلص الكحولي لثمار نبات الحنضل على بالغات خنفساء الطحين الصدئية: - هيئت مجموعه من العبوات (القناني) وضع بداخلها بعض الطحين كغذاء وأدخل في كل قنينه 15 حشره من بالغات خنفساء الطحين الصدئية غطيت فوهه القناني بقماش الململ مربوط برباط مطاطي لمنع البالغات من الخروج , أخذت القراءة بعد 24 , 48 , 72 ساعة (الشمري, 2004) .

5- التحليل الاحصائي / تم استخدام البرنامج الاحصائي spss في تحليل البيانات لمعرفة تأثير التركيز المستخدم من المستخلص الكحولي لثمار نبات الحنضل في هلاك بالغات خنفساء الطحين الصدئية باختبار اقل فرق معنوي LSD

3- النتائج والمناقشه

أظهرت نتائج جدول (1) نسبة الهلاكات التراكمية لبالغات حشرة خنفساء الطحين الصدئية *Tribolium castaneum* باستخدام المستخلص الكحولي الهكسان حيث بلغت نسبتها (13.33-60.00%) بعد مرور 24 ساعه من المعاملة في حين بلغت (16.77-70.00%) (23.33-80.00%) بعد 48 , 72 ساعه من المعامله لتراكم من (5-80%) على التوالي . من خلال النتائج نلاحظ زيادة في نسبة الهلاك التراكمية للبالغات بزيادة فترة التعرض حيث بلغت نسبة القتل اعلاها بعد مرور 72 ساعة من المعامله تراوحت بين (23.33-80.00%) لتراكم (5-80%) على التوالي وقد يرجع السبب في ذلك الى تراكم المواد الفعاله للمستخلص في القناه الهضمية للحشرة فيؤدي الى هلاكها (الربيعي وآخرون, 2000) إذ اثبتوا أن المستخلص الكحولي قد سببت هلاكات تراكمية عاليه لبالغات حشره دوياس النخيل بعد مرور 72 ساعة من المعاملة بلغت 100% . وبين (البياتي , 2007) ان بالغات خنفساء اللوبيا قد وصلت نسبة هلاكها 100% خلال 1-2 يوم عند معاملتها بتركيز 70% من المستخلص وأشار (الظاهر, 2005) ان تراكم المادة الفعاله قد احتاجت الى فترة من الوقت لتحلل وبالتالي احداث تأثيرها في جسم الحشرة . كما نلاحظ من خلال جدول (1) زيادة نسبة هلاك البالغات بزيادة التركيز المستخدم فالتركيزين (40, 80) كان الأفضل في زيادة نسبة القتل للبالغات وهذا ما توصل اليه (الموسوي , 2014) ان التركيزين 80,60 للمستخلص الكحولي انبات النيم اعطى اعلى نسبة قتل لبالغات ذبابة الياسمين البيضاء بلغت (70.32-90.00%). وأشارت دراسة (الربيعي وآخرون, 2004) الى ان استخدام المبيدات بتركيز عاليه يؤدي الى نسب قتل بالغات الذبابة البيضاء *B. tabaci* قد تزايدت بزيادة التركيز المستخدم. وذكر (Aliero, 2003) ان المستخلص سبب هلاك 98% لبالغات خنفساء الحبوب الصدئية عند تركيز 80% وهذا يتفق مع نتائج الدراسة الحالية .

بينت نتائج دراسته جدول (2) ان هناك تفاوتاً واضحاً في نسب هلاك البالغات المعامله بالمستخلص الكحولي الايثانول لثمار نبات الحنضل *Citrullus colocynthis* بلغت (17.33-70.67%) لتراكم المستخدمة (5-80%) على التوالي بعد مرور 24 ساعة من المعاملة وبزيادة فترة التعرض ل 72,48 ساعة بلغت نسبة الهلاك التراكمي للبالغات (26.78-85.00%) و (32.00-96.00%) ولنفس التراكيز المستخدمة على التوالي جدول (2) ومن خلال النتائج

نلاحظ تفوق المستخلص الكحولي الايثانول لثمار نبات الحنضل على المستخلص الكحولي الهكسان في نسب الموت المتحققة للبالغات مما يدل على وجود مركبات قد يكون لها دور في تسمم الحشرة إذ بين (المنصور, 1995) ان للمستخلصات النباتية لأوراق نبات الحنضل تأثيرا على البالغات الذبابة البيضاء *B. tabaci*. وأن هذا التأثير أزداد بزيادة التركيز وفترة التعرض وهذا يتفق مع نتائج الدراسة الحالية . أما (AL-tememi,2013) فقد أشار الى أن المستخلص الكحولي الايثانول لأوراق نبات قرن الغزال ونبات الياس قد أعطى نسبة هلاك عالية مقارنة مع المستخلص الكحولي الهكسان بلغت 30.0% عند تركيز 80% للايثانولو 25.0% لمستخلص الهكسان عند نفس التركيز وجاءت هذه النتائج مقاربه لنتائج الدراسة الحالية. وأشار (الربيعي وآخرون, 2006) ان المستخلص المائي الحار للأوراق نبات قرن الغزال ونبات الياس كان أفضل من المستخلص المائي البارد في تأثيره على البالغات حفار ساق الذرة *Sesamia cretica* Led . ووجد (الربيعي وآخرون, 2004) ان معاملة البالغات الذبابة البيضاء *B. tabaci* بالمستخلص الكحولي للسبجج او النيم قد أدى الى حدوث تزايد في نسب القتل بزيادة التركيز المستخدم وفترة التعرض، وبين (Nardo, 1997) ان المستخلص الكحولي لثمار السبجج قد سبب هلاك لبالغات الذبابة البيضاء وصلت الى 70% بعد معاملتها بالمستخلص المائي . وقد يرجع سبب هلاك البالغات باستخدام المستخلصات الكحولية لثمار نبات الحنضل كون الزيت الموجود في هذه الثمار يعمل كحاجز لمنع وصول الأوكسجين الى الحشرة فتموت اختناقاً نتيجة لسد الفتحات التنفسية (شعبان والملاح , 1993) , او قد يرجع السبب الى كون البالغات تمتنع عن الغذاء المعامل بالمستخلصات الكحولية لثمار نبات الحنضل فتموت جوعاً (المنصور , 1995) .

جدول (1) تأثير المستخلص الكحولي الهكسان لثمار نبات الحنضل على البالغات خنفساء الطحين الصندية *Tribolium castaneum* .

نسبة الهلاك التراكمي للبالغات %			
التركيز المستخدم%	24 ساعة	48 ساعة	72 ساعة
5%	13.33	16.77	23.33
20%	36.67	40.00	50.00
40%	40.00	49.00	53.00
80%	60.00	70.00	80.00

جدول (2) تأثير مستخلص الكحولي الايثانول لثمار نبات الحنظل على بالغات خنفساء الطحين
الصدئية *Tribolium castaneum*.

نسبة الهلاك التراكمي للبالغات %			
التركيز المستخدم %	24 ساعة	48 ساعة	72 ساعة
5%	17.37	26.78	32.00
20%	49.33	56.00	68.00
40%	53.33	60.00	70.00
80%	70.67	85.00	96.00

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