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## **Study of aqueous and alcoholic husks of green apples against the bacterium *Streptococcus viridans* effect isolated from decayed teeth.**

**Hussein Ali Khayoon**

*College of Nursing / Al Muthanna University Iraq*

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### **ABSTRACT**

The results of this study, according to the stated her goals are to show identification counter the type of life and vegetation demodulator within the appropriate concentrations and the presence of a large and effective overlap when mixing anti-life with vegetable extract, as this study showed that the mixing of the anti-life process (Ceftriaxone), with vegetable alcoholic extract and concentration (8 %), the highest percentage inhibition of (16 mm), while the inhibition "damping-scale" space for an anti-life with an aqueous extract of green apple reached (11 mm), which refers to how effectively the synergistic mixture germ (*Streptococcus viridians* that causes tooth decay). Which leads us to think about using natural treatments rather than medical drugs and treatments chemical harmful health through the side effects harmful to their users, and costly economically income individuals and governments. So we recommend people with plenty of eating apples because it would interest at large to prevent disease and also said the wise old (one apple in the morning keeps the doctor away). That's what has been proven later through research conducted by a number of specialists in this area, where they are to complete the function of apples through the chemical components of effective clinically in the treatment of many diseases, particularly disease tooth decay, which is caused by bacteria (*Streptococcus viridians*) that what has been proven through experiences we had in this research and what has been proven in previous research to our present.

**Keywords:** *Streptococcus viridans*, Teeth caries, Ceftriaxone, amoxicillin, green apples

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\*Corresponding Author Email: [chemistry1315@gmail.com](mailto:chemistry1315@gmail.com)

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## INTRODUCTION

The problems that was rampant in the era before the discovery of life of antibiotics. Infectious diseases threaten the lives of human beings Fortunately, since the discovery of penicillin by Fleming became possible to many diseases and inflammatory diseases many to use the life of antibiotics treat bacterial resistance to antibiotics and become a problem over the growing treating bacterial infections due to changing mechanisms of resistance to this bacterial and get a resistance element these bacteria and other genetic changes, more recently become resistant pathogenic bacteria and life to antibiotics problem is a needy world attention to useful alternatives, where the focus was to find alternative ways of his sponsor to curb this problem, especially in third world countries (developing countries) .<sup>1</sup> Under epidemics that threaten many developing countries crashes and there is a growing interest in medicinal plants and natural as an alternative for industrial antidepressants herbal remedies available in the herbal medicine provides a large amount of undiscovered treatments and chemical compounds which can be used a lot and in which they can provide new treatments could be of during which the fight against many diseases and serve as an alternative to the current anti-life charge and with bad side effects, where the natural medical treatments with fewer side effects are very few as evidenced where the safety of up to 80% more than the life of antibiotics, where it has increased the use of alternative medicine pharmacists for the benefit of and herbs over the past decade. <sup>2</sup>

Where medicine plants offer the alternative of many compounds that have a significant impact in the elimination of many and bacterial diseases such as peptides, unsaturated aldehydes long series consisting of alkaloids, volatile and essential oils, phenol, ethanol, chloroform and water compounds soluble in butanol. <sup>3</sup> Especially green apples that contains many of the medical supplies that can be many substances that have a significant effect on the microbes that cause tooth decay, for example, which contain this plant derivation (green apple) (Mauls Sylvester's)) on minerals such as calcium, potassium, zinc, iron, magnesium and other metals that have a significant role in keeping the body balance and many other functions, as well as materials classified as anti-oxidants such as phenolic compounds such as ((Lipid peroxides, and anti-cancers, and organic acids such as boric acid, amino acids, and vitamins. <sup>4</sup> That the use of herbs and medicinal plants, such as the first medicine is a global phenomenon and used medicinal plant since ancient times and in all cultures on the globe and through the traditions and therapeutic characteristics. All plants, in particular, therapeutic drugs and in particular extracted from plants Guide books on the use of these natural resources (herbal) in Iran dates back to the history of the treatment itself, and there are a lot of scientific documents and books on a wide variety of topics,

but perhaps most famous for his laws of medicines containing the drafting of sections of Medicine, General Medicine and other topics that are discussed in detail and herbal medicines, and use it against many germs, these plant extracts used to extract fruit green apple that the fight against tooth decay, which can be used to eliminate tooth decay.<sup>5</sup>

Apples from the public fruit in the prevention, treatment, and for the taste of it on three types: - (sweet, bitter and sour), came in the common ideals, "one apple every morning, keeps the doctor away", and has considerable benefits section with some of them.

The chemical division of plants medical depends on the chemical compounds primary and secondary produced from plants or naturally occurring and which are of wide use in alternative medicine, including: apples teeth wash and strengthens the gums in order to contain the acid, oxalic (Oxalic acid), used to clean the yolk teeth which takes crust green apples and rub the teeth because they contain a high percentage of organic acids (organic acid) important to perform this task, apple is fighting the ill effects of a substance cholesterol ((cholesterol that accumulates the veins of the body in order to contain zinc, treats constipation, diarrhoea, extreme and so overwhelmed by the high percentage of materials cellulosic pectin ( Pectin when Cellulose fibril that facilitates addressing severe diarrhoea, fit on antibiotics bacterial ((anti-bacterial bacteria that cause cough, and materials of many mildly, an apple has a waterproof material for osteoporosis because they contain high levels of ((mineral and calcium minerals, calcium, and zinc important in support of the immune system, a substance anti-oxidants, which is important in maintaining the arterial blood pressure, is rich in acids and enzymes resistance to diseases of cancer, such as boric resistant to diseases of cancer and inflammatory diseases fungal and bacterial acid, ((Chromogenic acid, and ((Phloridzin and tartaric acid-resistant cancer the enzyme ((played Baroxads that reduces hydrogen peroxide that causes cancer, strengthens lung function and reduces the likelihood of lung cancer, contain fibre-rich bacteria that keeps the glasses skin, is considered a healthy food with high energy content without fit on any fat and fit on fructose easily absorbed and used by the muscles of the body, it is used to treat stomach and gastrointestinal upset because it contains a high proportion of fibre organization ((Fibril to the work of the stomach and intestines, fit on vitamins such as vitamin ((a is important to strengthen the look and protects against night blindness, as well as fit Vitamin ((B necessary for the safety and maintenance of the nervous system.<sup>6</sup> the bacteria streptococcus viridians were positive for the dye Cram, spherical shape, in pairs or be in large concentrations in the colonies, the bacteria Anaerobic living or pneumatic optional, grow some of the genera Staphylococcus aureus in the atmosphere at the presence of CO<sub>2</sub>) which are of the type: (Capnophilic), fermented sugars, and

be productive for acids milk (lactic), and be Streptococcus analyst for the blood of the complete decomposition type ((B-haemolysis. and cause many diseases to humans and animals alike, such as inflammatory diseases of the glomeruli college Glomerulonephritis, and inflammation of the lungs (pneumonia), and rheumatic fever etc

Of the most important types of Staphylococcus (Streptococcus viridians that cause tooth decay teeth caries)) that are approximately (30-60%) of the flora and natural in the mouth and intestines in the human body, which are the other type is a complete decomposition of the blood is (B-haemolysis as mentioned .<sup>7</sup> It is the kind of throw the living ((Saprophytes, always isolated from the mouth when you need to isolate it for the purpose of conducting research for the detection of cases of dental caries disease (Teeth caries), one of the important peculiarities of this type of bacteria that cause tooth decay to contain multiple sugars ((polysaccharide type (Rhamnose) SI C article. In addition contain these bacteria on a surface protein Surface protein, which in turn works to tooth decay and complement the former multi sugar work above the existing bacteria, which works to break down tooth enamel layer and cause of which decay, in addition to these bacteria when they exist in food fibers and descends with him to intestine they cause poisoning immune injury, this is what will be in the absence of a good cleaning of the teeth, as they may cause as well as in the case of transmission of food when it is not a good cleaning of the teeth and moving blood may cause digestive diseases and intestinal infections.<sup>8</sup>

## MATERIALS AND METHOD

### The method of work

#### Collecting samples of plant: -

The collection amount of apple green plant that we've cleaned from dust sticking out, dirt and impurities and sterilized well and ways known and tap water, we peel the apples to get the peels to benefit from the process of recovery and we also obtain seeds after isolated from the fruit.

Then put the peels and seeds in a pot inside a warm air furnace for the purpose of drying the samples and then was crushed in a dry powder and then put the powder nylon bags clean.

Then we prepare the aqueous extract

#### Preparation of aqueous extract

The weight of 50 grams of green apple powder by method of Harbrn.

1. Added 500 ml of distilled water in a volumetric flask.
2. Saves at room temperature for 3 days.
3. The solution is filtered through 4 layers of gauze.
4. Dried filtrate heat to get the powder is extracted.

5. Attend the three solutions diluted (50, 75,100). According to.<sup>9</sup>

### **Preparation of alcoholic extract**

1. Weighed 50 grams of green apple powder by method of Harbrn.
2. Added 500 ml of alcohol (70%) and place it in a sealed vial.
3. After 24 hours, the content of the bottle is the nomination of four layers of gauze.
4. Filtrate takes to dry until its transformation into a powder.
5. Attend the three solutions diluted (50, 75,100). According to .<sup>9</sup>

### **Measurement of the biological potency of water and alcoholic extracts tested the sensitivity drilling**

1. Container is prepared on a sterile Petri dishes amid Muller Hinton agar))
2. After hardening of the centre (Mueller Hinton) we dug a center-drilled diameter equally divided and placed at distances equal, and 1 cm from the edge of the dish.
3. This drilling fills alcoholic extracts and water separately.
4. Then we planted a purified bacterial samples for bacteria al (streptococcus viridans, and a way to take the mat brushes (0.1) ml per hole.
5. This cultivated dishes placed the container on alcoholic extracts and water in the incubator (incubator) for 24 hours and a temperature of 37 m.
6. Then read the result measured the diameter of inhibition zone by the ruler (zone inhibition).<sup>10</sup>

### **Allergy test using antibiotics Life**

1. We prepare sterile Petri dishes container on the centre (Muller Hinton agar).
2. After hardening of the centre, we planted a pure samples of bacteria (Streptococcus viridans), and in a way brushes mat by taking Mulla Loop purified from bacterial sample, and then transplanted to the middle.
3. We use a number of antibiotics Life drives so we put antibiotics tablets of life at an equal distance from each other and the more distance (1 cm) from the edge of the dish, where we used the number of types of antibiotic tablets of life, namely: Ceftriaxone, amikacin, cephalosporin's (Cephalexin), Chloramphenicol, Cefazidime
4. Where is the pressure these drives quietly, taking into account the non-immersion these drives fully in central
5. We are urging dishes containing tablets antibiotics life in the incubator (incubator) and temperature (37 m) for a period (24 hours).

6. After the end of the incubation process for dishes containing antibiotics Life tablets we read the results measured the diameters of the anti-damping rings Life influential and effective by the ruler measured (zone inhibition).<sup>11</sup>

## RESULTS AND DISCUSSION

### Results of the examination sensitivity towards microbial plant extracts

After a series of purification for each bacterium taken stress tests for the purpose of examining the effectiveness of extracts the direction of these (*Streptococcus viridans*) diagnosed and confirmed as these extracts has inhibiting Most of these microbial growth rates slightly converging on the center nutritious to these germs and to identify the impact of these extracts which gave higher effectiveness (alcoholic extract and water to fruit - peel and seeds of green apple) and these extracts were conducted in three concentrations of each alcoholic extract and water each one with three concentrations are as follows (50,75,100%) showed results of the first disclosure of the extracts as Qatar rate of inhibition of the extract (green apple ) for these pathogenic prions as follows: -

Alcoholic extract (green apple) gave a concentration (100) reached (10 mm) and sizes other inhibition concentrations (75 and 50) was a (8 mm 0.6 mm), respectively, as shown in Pictures No. (5).

The aqueous extract (green apple) gave a concentration (100) was (8 mm) and sizes other inhibition concentrations (75 and 50) was a (5 mm and 4 mm), respectively, as shown in Pictures No. (6)

### Results of the examine the sensitivity to antibiotics Life

The next step is to check your allergies using antibiotics tablets of life, and through the use of a group of antibiotics Life tablets which gave varying rates in effect on isolates bacterial bacterium *Streptococcus* tooth decay, which has grown to Agar mueller Hinton and the proportions varying greatly. Some antibiotics life was not have any impact on isolates of bacterial cocci streptococcus, while others are from antibiotic life showed uneven effect on the isolates bacterial, there were four anti-life has shown an uneven impact on isolates bacterial, which ranges inhibition gradually (cephalexin which is 12 mm), while for Anti It is vital Amoxicillin (9 mm), but for the antibiotic (CEFADROXIL 5 mm), while for (amikacin scale inhibition was 2 mm

### Results of Synergistic effect test

After that was done step precedent of test sensitivity against bacterial decay of the anti-life, it was to take the next step which is to test the synergistic effect as the work of a mixture of

alcoholic extract of green apple with the antibiotic, which gave the highest range or percentage of inhibition at the lowest concentration ((MIC, which was antibiotic (CEFADROXIL), who gave the highest inhibition ratio, which has been mixed with alcoholic extract of green apple to be prepared concentration (8%), which gave the highest scale inhibition at lower concentration and adult (8%) were also mentioned by the former which gave the percentage of inhibition and clear and adult (16 mm), which is the result of the inhibition of good in which they can make treatments for bacteria streptococci that cause tooth decay (*Streptococcus viridians*) while the aqueous extract of green apple when the concentration (8%), which gave the highest scale inhibition at lower concentration of ( 8%) were also mentioned by the former which gave the percentage of inhibition is clear and adult (11 mm), which is the result of the inhibition is weak compared with the alcoholic extract.

We note through those derived volumes, which were mostly good and high inhibition of MRSA they can be used as a source of therapy (alternative medicine) after testing of the effect of extracts on MRSA pathological cause tooth decay (teeth caries) we noticed a good effect on these bacteria, the percentages were good were conclusion through it possible to use these extracts for medical treatments against germ pathological mentioned earlier, which was sensitive to these extracts and the percentages were encouraging was the effect of alcoholic extract of the plant (green apple) is stronger than the aqueous extract of the impact of the same plant as shown forms damping set of extracts water and alcohol

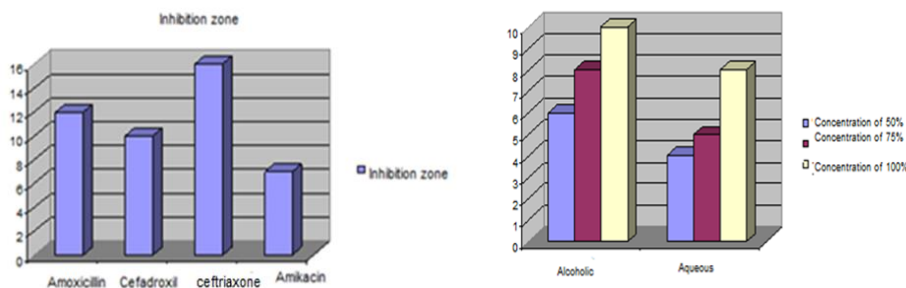
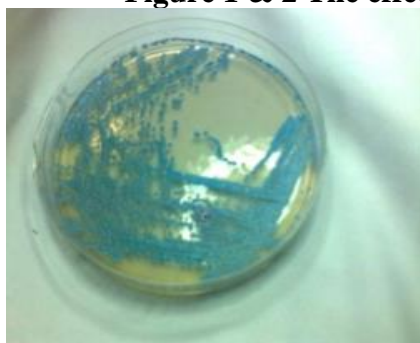
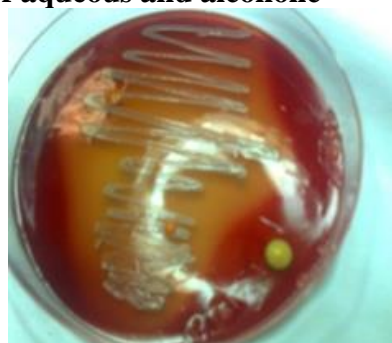


Figure 1 & 2 The effect of aqueous and alcoholic



Picture (1)

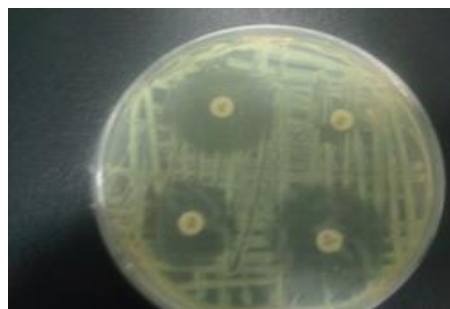


Picture (2)

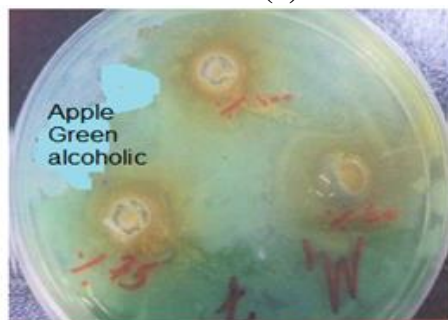




Picture (3)



Picture (4)



Picture (5)



Picture (6)

**Figures 1-6: show The effect of antibiotics on the bacteria that cause decay using central Molar Hinton Agar**

The choice of the subject of the study because of the scientific importance and medical interest to this plant in the treatment of many diseases, particularly dental caries disease (Teeth caries) and come this importance through medical Hits performed by components biochemical plant (Green Apple) in accomplished and this material we include below: -

1. Organic acids such as oxalic acid. (Oxalic acid)
2. antioxidants such as (Boric acid, Chlorogenic acid, Phlorizin,
3. Lipo peroxidase)
4. fiber rich bacteria digestion.
5. Simple and multiple sugars such as fructose (. (Fructose
6. vitamins such as Vitamins (Vit A, vit B, vit C)
7. Anti-bacterial and mildly materials and other therapeutic substances.
8. many Flavones
9. Several Glycosides.

#### **And other chemical components.**

The purification and confirmation of bacterial isolates pathological diagnosed and isolated from decayed teeth and that caused the decay of these teeth. Then created to conduct allergy testing microbial direction of plant extracts, which took place as follows, according to the bacteria isolated, the bacteria showed high selectivity towards tests this mulch and sizes for different



regions of inhibition which extracts showed through which their effect on the bacteria that cause decay, as follows conducted screening sensitivity tests microbial Abstract direction different types of vegetation (alcohol and water).

Where the alcoholic extract and watery effect to plant apple green on mulch pathological causing decay was a concentration of (100) to extract alcohol green apple was the inhibition zone the (10 mm), and was in the concentration (75) has reached (8 mm) and the concentration (50) has reached the ratio (6 mm) and the aqueous extract of green apple has reached its impact on these germs pathological focus (100) of the germ gave inhibition area (9 mm) and the concentration (75) has reached (7 mm) the concentration (50) has reached (5 mm) and this was the asymptotic impact of what mentioned <sup>12</sup>

Where she worked in the chemical components discouraged work-causing bacteria contamination (Flavones, Glycosides, organic acids, and antioxidants, simple and multiple sugars, metals and numerous, etc.).

In the process of inhibition and this van for such compounds a strong influence on this microorganism and as was mentioned by scientists <sup>13</sup>, and the results of the extracts that we had larger than previously reported and that gave the decomposition of numerous bands and both extracts (alcohol and water) and the percentages were in sequence are as follows, according to the concentrations that we used antibacterial started our work on the purification and as mentioned above.

Then we used a total of antibiotics and life that have shown mixed results in its impact on the bacteria that cause decay in development of the central muller Hinton Agar which we have added antibiotic tablets Life mechanism through which knowledge of antibiotics and life affecting the growth of bacteria, we have used a total of antibiotics life that all of which have shown a dampening effect for the growth of bacteria except for some of them who has the task of damping a (amoxicillin, Cephalexin, ceftriaxone, amikacin), which showed different ratios to discourage this type of bacteria, the percentages were as follows:

ceftriaxone which showed the highest inhibition of scale (12 mm), which gave amoxicillin scale inhibition and less deep (9 mm), and ceftriaxone (10 mm), and amikacin (2 mm).

Through these results that appeared to us through the included volumes of inhibition given by antibiotics Life tablets and differences of these results we have selected the anti-life, which has given the highest percentage inhibition and at the lowest concentration where we have invested the results of this step of the work in the next step, a study of the extent of the synergistic effect when mixed Abstract vegetable green apple with a lower concentration than-life counter who

gave the highest percentage inhibition has also been deduced from step preceding a antibiotic (ceftriaxone and a concentration of 8%), where we mix this focus from the focus of the vital antibiotic with alcoholic extract of green apple, where we have obtained the concentration (8%), apple green alcoholic extract mixture with an antibiotic, where it is during this step knowing the synergistic effect of the extract with a counter, in which the value of inhibition is reached at this concentration (16 mm), while for the rest of antibiotics life has reached the size of inhibition at the same concentration of (8%) when mixed with alcoholic extract of green apple, as follows: for Cephalexin with the demodulator which gave scope of inhibition (10 mm), and for and amikacin (7 mm), and through these ratios were used antibiotic (ceftriaxone) with Abstract which gave the percentage of good that can be exploited for the treatment of tooth decay resulting from Staphylococcus Streptococcus causing decay, as an alternative to chemotherapy, which causes the effects of harmful side by a large margin and through the last step we can reduce the side effects of chemotherapy as it is possible to eliminate the side effects completely when using cosmetics or extracts plants especially green apples for the purpose of treating tooth decay or other diseases, and other disorders.

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