Chapter One

Introduction

1.1 Preface

The use of analgesics had been increased recently and many of us take it for minimum symptoms.

One of these analgesics is Panadol which have been like water for many people without knowing its ingredients, action and side effects.

Panadol is a brand name including within other commercial terms around the whole world. And its follow the pharmaceuticals group which called analgesics and antipyretics [1].

The chemical formula for Panadol is $C_8H_9NO_2$ and its made of white crystals, its melting point between 167-172 and it dissolves easily in water , ethanol and acetone but difficult to dissolve in chloroform and ether .

The scientific term for Panadol is paracetamol which use as antipyretic and analgesic.

Paracetamol classified as a chemical drug works to relieve pain through its effect on chemicals material known as prostaglandin which is a chemicals that released in response to pain, and paracetamol work to prevent its secretion and reduce body temperature.

Unfortunately the Panadol is sold without prescription which led to its Random use [1].

1.2 Problem Search

Analgesics including in which Panadol behavior without recipe medical it can purchase from which place it is han died by the patient without consulting the doctor and this is analgesics contain article paracetamol leads that when increasing

the dose about 10mg to me death it is called a lethal dose and if you say that lead to renal failure and this is what most people complain about

1.3 Important of Research

- Discovery elements and weight and the atomic weight in extra Panadol and amidol
- comparison between extra Panadol and Amidol

1.4 Previous Studies

The journal of the American medical association jama in its issue dated 5-7-2006 and number 296 the study confirms it through clinical trials to install a medicine paracitamol increased incidence was observed high liver enzymes (alt) this study aims to assess the incidence and extent of liver enzymes in people who eat 4g of paracitamol daily or medication with a particular dwelling compared to people who do not eat paracitamol the study included 145 person a healthy adult in tow clinic in the united states of America from 39 person take a placebo another group consists of 80 person it deals 3 with pharmaceutical combinations of paracitamol with other analgesics the last group is dealt with paracitamol alone it is composed of 26 person each method is a treatment used paracitamol containing 4g daily and it is the maximum daily dose allowed for that 14 day the study showed major outcomes after they measure liver function and level paracitamol in the blood through the first eight days and then every day or two then the search result showed all the people who took the treatment phantom they did not score a high level liver enzymes more than three times the level natural while record high level liver enzymes triple level natural rate 31%-44% of those who take a drug paracitamol either alone or with other analgesics while the levels of paracitamol did not exceed the therapeutic limits either after stopping the drug I went down level paracitamol to me level unread by that is going down level liver enzymes the

beginning of the treatment of the disease paracetamol in doses 4g daily accompanying with high level liver enzymes whether accompanied by other painkillers or not [1].

1.5 Layout of Research

In chapter one Introduction, chapter two basic concept, chapter three methodology, chapter four result, discussion, conclusion and recommendation finally reference.

Chapter Two

Literature Review

2.1Panadol

A commercial term within other commercial terms all over the world and name paracetamol or acetaminophen it was announced by the food and drug administration (FDA) 55 a year ago.

Panadol capsules tablets and soluble tablets all contain of element active pracetamol it is medication simple pain relief it is used to relieve mild to moderate fever.

Despite widespread use for more than 100 year we still do not fully understand how it work paracetamol to relieve pain and reduce fever yet now he believes it works by reducing the output prostaglandin in brain and spinal cord prostaglandin is produced in body respond to certain diseases and diseases it is aware of nerve endings causing pain.

Paracetamol reduces production prostaglandin than reduces feeling pain

Paracetamol work on reduces fever about the way of influencing a region of the brain which regulates our body temperature but reverses aspirin has no adverse effect on inflammation.

Paracetamol it is used to relieve mild to moderate pain associated with condition such as headaches, migraines, dental pain, teething cold and flu

Mild pain is mild like headaches, migraines, dentalpain, teething cold and flu, Sore throat, the monthly cycle [1].

➢ Warnings when using Panadol

- Do not take this medicines containing on paracetamol.
- Overdose causes serious damage to liver and kidneys.

- **Use Panadol carefully in the following cases**
    - low kidney function
    - low liver function

2.2 Contraindications use drug

- Sensitivity or known sensitivity of any ingredient.
- Not suitable for children under the age of 12 years.
- Panadol soluble tablets contain sodium and may not be suitable for people with a low sodium diet.

2.3 Types of Panadol

- **Blue:**

Consists of 500 mg paracetamol, its uses: relieve fever and headache symptoms

- **Red:**

Panadol Extra consists of 500 mg of paracetamol and 65 mg caffeine.

Uses: Dental pain - Muscle pain - Male menstruation - Reducing temperature. It is not recommended to be used in cases of headache due to fatigue because the caffeine in it increases the alertness of the brain, which increases the headache.

- **Cold flu Panadol**

Consists of 600 mg paracetamol and 40 mg ascorbic acid (found in lemon)

Uses: Remove flu symptoms such as headache and fever

Side effects: causes drowsiness.

- **Sinus Panadol**

Consists of 500 mg paracetamol and 30 mg sodovidrine hydrochloride

Its uses: temporary removal of nasal congestion

- Not suitable for high pressure patients, atherosclerosis patients and patients with heart failure [2].

- **Night Panadol**

Consists of paracetamol and Diphenhydramine hydrochloride

Uses: Sleep aid - pain headache - migraines - back pain muscles - nerve pain - dental pain and menstrual cycle.

- **Normal Panadol**

Contains paracetamol.

Uses: It is used to relieve headaches and fever.

What is the difference between normal Panadol and extra Panadol?

Panadol Extra is added to the caffeine to strengthen its effectiveness because the substance of caffeine works to expand the blood vessels and accelerate the arrival of paracetamol.

- **Panadol Extra**

Panadol Extra contains analgesic paracetamol to ease fever and severe pain associated with headaches and muscle pain

Menstrual pain

Toothache

Sore throat

- **Instructions for use**

Adults

And children over 12 years old.

Taken orally

Take two tablets at a maximum of 4 times daily.

8 tablets within 24 hours

Do not exceed the prescribed dosage and do not take with this medicine any of the other products containing paracetamol

Not recommended for children under 12 years of age [2].

- **Each disc contains**

500 mg of paracetamol

65 mg caffeine

Overdose of the drug leads to the risk of cirrhosis of the liver may cause overdose of more than 10 grams of paracetamol in the injury of cirrhosis of the liver may include early symptoms of lupus, nausea, excessive sweating, general feeling of distress.

Excessive doses should be treated immediately by gastric lavage followed by intravenous injection of acetylcysteine or methyone without waiting for the results of plasma paracetamol levels. Anticoagulants are treated in the light of high levels of paracetamol in plasma and over time in overdose [2].

- **Caffeine**

An overdose of caffeine may cause any of the following symptoms:

Chest pain, vomiting, urinary retention), arrhythmias, nervous system (insomnia, restlessness, nervousness, nervousness, tremors, convulsions)

Quantities are related to the toxic effects of paracetamol on the liver

The use of extra Panadol during pregnancy is not recommended because of the increased risk of spontaneous abortion associated with caffeine intake.

2.4 Panadol pharmaceutical forms:

There are several formats such as tablets

Crushed tablets, chewing tablets, liquid solution, solutions and baby suspen

2.5 The mechanical work of Panadol

Mechanically, the work of Panadol is not known, but it lowers heat by working on the central temperature regulator of the brain, where the center is told to lower the temperature of the body when the temperature of the patient is low [2].

2.6 The fate of Pandol in the body

Small doses of Panadol are absorbed quickly as a whole, while the absorption of the larger doses is relatively different, depending on whether the stomach is full of food or feed. If the stomach is full of food, the absorption is more.

Panadol spreads very often in all body fluids. It is commonly found in saliva with a concentration equal to the concentration in blood plasma. The metabolism is first shown to be GlucorNides and Ether sulfate as it is converted to3 hydroxylation and followed by a process called the o- methylation to hydroxide group.

The process of oxidation to stimulate the metabolism to give acetyimin-p-bezioquinone and this is found in small quantities in the case of small doses of Panadol, but increases in the case of large doses. This metabolism seems to be responsible for the damage to the liver, which is due to the large doses of more than the doses prescribed by the drug [2].

2.7 The lethal doses of Panadol

The fatal dose of Panadol is 10 g, but the least of this occurs cirrhosis in the liver after 12 hours but it appears clearly between 4 to 6 days.

The side damage when increasing the number of doses below the specified rate

Hepatic poisoning may occur when the dose increases.

When taking a daily dose of Panadol for adults at a rate of 5-8 g for weeks or 3-4 g per day for a year resulting in cirrhosis in the liver [1].

2.8 Headaches

Headaches are more common among humans, and vary from mild headache to headache. In general, headache is not a disease. It is a symptom of the disease. It is undoubtedly one of the most common symptoms of a number of diseases that affect both the body and the soul. The headache is a pain that may be mild or severe. Headache or part of it may extend pain to the neck and may continue to headache for several hours or days. Causes of headaches due to many

circumstances, head injury by the injury or contraction of the muscles of the head or palpitations of the arteries that fill the scalp can all lead to headaches.

It can also lead to eye tension and inflammation of the sinuses or symptoms of allergic to headaches and in very limited cases, the headache is caused by a brain tumor or other brain diseases and there are two types.

Two headaches of severe or chronic headache and acute headache is rare and lasts for a short time mostly and most people suffering from acute headaches seek to consult the doctor because of their concern about the continuation of acute headache and in most cases the rest and non-abuse of drugs can lead to the removal of the patient's troubles either Chronic headache occurs Regularly and may continue for a few days, and the causes of headaches to the following main reasons [1]:

Stimulant headaches of stress and stress

Rhythm of troubles in the blood vessels and heart

- Headache for some cancers of the brain
- Headache caused by eye diseases
- Tension headache, headache, sunburn
- Migraines

People learn how to regulate blood flow, blood pressure, body temperature, brain waves, heart rate, and other internal functions of their bodies. The autonomic part of the nervous system usually controls the nervous system, such as the jugular processes. People can also use biofeedback as a result of an accident, the style of irritation and their hands without help and it is not the use of a lot and shaking method that would reduce the blood rush indirectly to the scalp which means reducing contractions and palpitations of the cerebral arteries [3].

2.9 Headaches can be treated in Ways other than Eating Panadol by Taking a Shake of Herbal Medicine:

- Laurel paper: The uniform known scientifically as the leaves and laurels contain compounds known as Parthenolides, which was found to have a distinct effect against headaches [2].

- Garlic: The onion is considered from blood thinners and platelets are considered platelets.

The formation of blood clots is also a headache, so garlic and onions reduce the formation of blood platelets

Ginger: Use fresh or dry ginger to prevent headaches and use turmeric in small doses with gingerremove headache

- Aljrgla: is a herbaceous plant containing a large quantity of magnesium has been recommended by specialists that enriching 600 mg of magnesium daily helps to stop the pain of headache
- BUNTER: John says drinking a lotion of a teaspoon of thyme powder to fill a glass of water once or twice a day helps stop muscle tension in the neck, shoulders and back of the head that causes headaches.
- Pure honey: Eating a tablespoon of pure honey leads to the disappearance of the pain of the headache after about an hour. Honey is known to be a general analgesic for the body.
- Steam water with vinegar: is another way

For the treatment of headache and it depends on inhalation and for this purpose put a mixture of vinegar and water in a pot on the fire to boil and spread steam in the air and then the person suffering from headaches face over the vessel and then inhaled about 75 joints, pain headaches gradually easing until completely disappear when finished Inhalation. [3].

2.10 pain killers

The pain reliever is called on any type of medication that is used to relieve pain. Painkillers work in different ways on central nervous devices. Painkillers differ from narcotic medicines that go temporarily.

The painkillers include paracetamol, known in North America as acetaminophen or simply APAP. NSAIDs also include NSAIDs such as salicylic acid and opioids such as morphine and oxycodone.

When painkillers are selected, the severity of the pain and the extent of the patient's response to other iodine are taken into account.

The World Health Organization (WHO) has been using mild painkillers as a first step and rising what they call painkillers if they do not respond.

The choice of painkillers also determines the type of pain, for example traditional painkillers appear to be less effective for neuropathy. In these cases, the benefit of drug use is often not taken into account as thalassic depressants and anticonvulsants.

Painkillers Categories:

- Paracetamol and NSAIDs
- Cyclolooxygenase inhibitors
- SEMi-opioids
- Flaubertin

Paracetamol Trade name: ANACIN, AMINOFEN, ASPIRIN FREE

Chemical formula: C8H9NO2

Molecular mass: 151.17 mol / g

- **Physical properties**
- Melting point: 169-C336
- Mass density: GKM ^ 31.263
- Water Characteristics: 20C, 12.78MG / ML
- Characteristics of the material [3].

Paracetamol is a white crystalline substance that is 170 degrees centigrade. This substance is used in alcohols as well as in boiling water, but it is very weak in cold water at 14 g / L at 20 ° C.

The density of the substance in the solid case is 1.293 g / cm and has a mass of 151.165 gm on the mole. Phenol has a weak acidity. The pH value of the solution is between 6.5-5.5 [4].

The migraine stunned the brain.

Paracetamol is classified as an analgesic for pain and hypothermia. Paracetamol acts to relieve pain through its effect on chemicals known as prostaglandins, a chemical that releases a response to pain or exposure to injury and works on paracetamol to prevent its secretion. This reduces the body's heat and shows the effect of paracetamol on the brain-controlled area at temperatures.

Panadol is sold without medical prescription (OTC), but may need medical description if available in the composition of another drug such as paracetamol.

Drugs that are sold without prescription can be obtained without visiting a supervision of a doctor. However, this does not mean that it is used doctor. Studies have shown that it is safe and can be used without the indiscriminately.

The administration of the US Drug and Drug Administration has issued some instructions and precautions related to Paracetamol to avoid any damage caused by the drug.

Paracetamol is rarely accompanied by side damage, but may be accompanied by redness of the skin and pimples on the skin and cause serious skin reactions even if it is taken in advance. If there is a reaction or a rash occurs during use, the patient is advised to stop immediately, Use paracetamol do not take a drug that is made up of paracetamol.

Paracetamol poisoning is caused by excessive use or overdose of paracetamol, which causes the first injury [4].

The liver, called paracetamol, is one of the most common causes of poisoning worldwide

The toxicity of paracetamol may not appear in many individuals at all in the first 24 hours after overdose, others may be initially unintentional, such as nausea,

abdominal pain and nausea. As the disease gradually progresses, signs of hepatic failure begin to form and shake. Acidity of blood and the ease of bleeding and hepatic encephalopathy, some symptoms disappear automatically, although non-treatment of cases leads to death

Liver injury or hepatotoxicity is not the result of paracetamol itself but of one of the results of the metabolism (metabolism) Of paracetamol (NAPQI) depletes the natural antioxidant of the liver glutathione causes direct injury to liver cells leading to liver failure, the risk factors that lead to poisoning include chronic excessive intake of alcohol and non-eating or loss of appetite

Active charcoal can be used to reduce the absorption of paracetamol. The patient was present for treatment after a short-term overdose. The antacid antidepressant, acetyl-cysteine, also prepares the glutathione synthesis to help the body form a new glutathione to prevent liver damage [4].

- **Toxicity**

The toxic dose of paracetamol is highly variable in adults. One dose is more than 10 grams or 150 mg of body weight. Poisoning can also occur when taking multiple small doses within 24 hours beyond shaking levels after the normal dose, one gram of paracetamol four times a day for two weeks the patient can expect an increase in the amino acid transaminase to three times the value of its natural studies [4].

It is unusual for liver toxicity to occur in children. An overdose of over 200 mg may lead to poisoning but rarely cause death, but with chronic doses above normal doses, it is a major cause of poisoning among children. In rare cases, paracetamol Normal use is due to the characteristic of the individual sensitivity of the drug and the differences in the formulation and activity of some enzymes in one of the metabolic pathways that deal with paracetamol [4].

- **Signs and Symptoms**

Signs and symptoms of paracetamol occur in three stages:

The first stage: start within hours of the overdose is nausea, vomiting, rheumatism and sweating and with your husband does not show the patient any specific symptoms or symptoms appear mild in the first 24 hours of poisoning

After a very large dose patients may experience symptoms of increased metabolic acidosis and gypsum in early stages of poisoning.

The second stage: occurs between 24 hours and 72 hours after overdose and are signs of liver damage is increasing and in general damage occurs in the liver cells when the process of metabolic representation of paracetamol and may suffer from the patient in the upper right quadrant of the abdomen and the increasing damage to the liver also changes biochemical markers For liver function and liver enzymes rise.

Trans Amines and Aspartate Transaminases to abnormal levels may also occur during the shaking phase of failure or syndrome in multiple organs. In some cases acute renal failure may be the first clinical expression of toxicity. In the case of shaking, it is suggested that toxic metabolic results are produced more in the kidneys than in the liver.

Phase III: The stage of shaking in the next three to five days and characterized by complications in severe liver necrosis, leading to liver failure ointments with complications of thrombosis and hypoglycemia.

Renal failure, hepatic encephalopathy, hemorrhagic nephropathy, hemorrhage, multiple organ failure, and death. Survival of the third stage, hepatic necrosis and liver and renal function usually return to normal within a few weeks. The severity of paracetamol toxicity varies depending on the dose and what was received appropriate treatment [5].

- **Predictability of the Disease**

  The infant mortality rate of overdose of paracetamol increases after two days of ingestion, reaches the maximum and then gradually decreases,

acidity of the blood, which is the general indicator of possible deaths and the need to implant.

The mortality rate was 95% in patients without Zucchini with less than 7.30. Other signs of malignancy included renal insufficiency, grade 3, third grade or worse in hepatic encephalopathy, significantly higher prothrombin time, or high lactic acid level (Lactic acid) in the blood, Alzain patients suffer from poor expectations of the course of the disease usually recover completely and the expected yield and quality of life have a natural [5].

- **Physical Activity**

Paracetamol and NSAIDs are effective in relieving mild to moderate pain, but although both relieve pain, how they work is completely different. Paracetamol is believed to work mainly on the brain and appears to have an effect on many methods For example, paracetamol inhibits the secretion of certain chemicals called prostaglandins, which cause inflammation and pain. Prostaglandins are present throughout the body, but side effects are few. Recommended.

In addition, paracetamol has no effect on inflammation, and NSAIDs relieve pain in a different way. This leads to other important differences between shaking types of painkillers. For example, paracetamol may cause different side effects or interact with different drugs (which may cause To change the way your medicine works) and not necessarily as your husband to be suitable for each person and the lazza It is always important to read the information contained in the drug package to make sure it is appropriate to reduce the pain you use to know what is the appropriate pain relief for your need and the article entitled (Sister The right way to reduce the pain that is spent without prescription)[6].

2.11 Studies and Research

A US study reported that paracetamol-containing drugs should not be taken with Panadol tablets because shaking can lead to exceeding the maximum recommended daily dose of paracetamol and many cold and flu treatments and

more than prescribed paracetamol analgesics. The ingredients of any other medications before taking them or ask your pharmacist for advice. I also mentioned that cholestyramine reduces the absorption of paracetamol from the gastrointestinal tract of your follicle should not be taken within an hour of paracetamol and will reduce the effect of paracetamol [6].

- **Excessive intake of Panadol causes Cancer**

Dr. Anwar Al-Shahawi, Professor of Chemistry at the Faculty of Science, University of Assiut, praised the extravagant intake of paracetamol, the effective drug used in the treatment of cold-blooded anti-inflammatory drugs.

He pointed out that excessive intake causes the occurrence of side effects such as skin allergy. That some harmful effects on blood, kidney and breast milk, in addition to the effect of cancer, according to the portal of the uterus.

He pointed out that when the patient receives the drug paracetamol, it passes through the stage of metabolism, where it passes three stages, two of which are safe, do not cause harm, and the third stage, which oxidizes the enzymes of liver paracetamol, to a more aggressive compound (NAPQI).

has been shown that this compound draws an electron from the nucleic acid bases of the liver cell nucleus in the absence of glutathione, a natural substance in the liver that acts as an antioxidant, detoxifies the body and increases its immunity. In addition, glutathione converts NAPQI When a patient uses a drug containing paracetamol in a continuous or overdose dose, glutathione is quickly consumed completely from the liver [6].

When NAPQI is formed again in the absence of glutathione, it withdraws an electron from the hepatic cell nucleus, turning the hepatic cell nucleus into a free radical, and the liver cell turns into a cancer cell [7].

The Panadol contains paracetamol or acetaminophen, so the overdose is highly toxic to the liver. The number of doses per day should not exceed 4 g for adults. There is also a simple statistic conducted by the doctors. It is found that one out

of five people has an allergic reaction. Against the specific substances in the composition of the drug, so take more than 4 grams a day or when there is sensitivity to vomiting and severe sweat and the color of the eye and skin and yellow skin and a severe pain in the abdomen and dark urine, without any soft drinks, but eating a drink with him works on the speed of fragmentation Panadol It affects the prepared wall The probability of formation Baaladavh ulcers that sugars reduce the absorption of intestinal medicine [5].

Nanotechnology is widely used in many industrial, military and medical fields. For example, a large group of raw materials are improved to make a difference in the physical properties of small or nanoparticles, for example by increasing the structure of the surface area to the size ratio. And then become optical properties, including fluorine function of the diameter of the particle, and when they are incorporated into a heavy material, the nanoparticles strongly affect the mechanical properties of the material, including hardness or color, For example, conventional polymers can be reinforced by the incorporation of nanoparticles found in new materials, which may be used as lightweight substitutes for metals. As a result, the social benefits of nanoparticles can be expected to increase. The nanomaterials are able to reduce the associated weight by increasing stability and improving function. To nanotechnology process is represented by the need to increase the ability to deal accurately with the material according to the standards impossible in advance, thus providing a range of possibilities that others had not already imagined [4].

- **Nanoscience**

In which biomedical and medical research groups benefited from the unique properties of nanomaterials associated with different applications, and then used unique terms such as nanotechnology, biotechnological, biotechnological, and nanotechnology designed to describe that broad field.

In addition, the functions of nanomaterials can be added through their interaction and interaction with the majority of molecules and biochemical structures. Therefore, nanomaterials may be useful for the field of research and biomedical and industrial applications. The integration and integration of nanomaterials with biology resulted in the development of diagnostic devices, contrast factors, analytical tools, and drug delivery devices [6].

- **Drug delivery**

Nanotechnology or nanotechnology is a breakthrough in the medical field with the possibility of delivering the drug to specific cells using nanoparticles. The process of total drug consumption in addition to the side effects of the drug can be reduced by the active agent in the patient area only and without any higher doses It is required, as this selective method reduces the cost and human suffering as well, and can be identified as one of the examples in the porous nanoparticles, another example is the use of common mass polymers, which form the compound (MICELLES) Used to maintain small drug molecules to help in their transition to the two points of landing, in addition to the presence of another vision

It is based on small electromechanical systems where research has been carried out in the field of electro - mechanical systems, which is the smallest generation of small electromechanical systems for the purpose of active release of drugs.

It includes some important applications in the treatment of cancer using nanoparticles or gold shields [4].

The target drug or person reduces the process of drug consumption and treatment costs as well, resulting in a comprehensive social benefit by reducing the cost of the public health care system. Nanotechnology also opens up new opportunities for implantable delivery systems, which are often preferred to be used with antiseptic drugs.

As a result, the latter often reviews movements of the first degree (where the concentration of blood increases rapidly but decreases with a slight passage of

Time). This rapid rise may cause difficulties with toxicity and the efficacy of the drug may fade as a result of the lower concentration of the drug than the required rate.

This technique also helps in reproducing or repairing damaged tissue

The technique of tissue culture is derived from the process of the spread of artificially stimulated cells through the use of growth factors and scaffolds based on appropriate nanomaterials. The engineering technique of tissue may replace the traditional treatment methods used today, including organ transplantation or artificial limbs. Advanced patterns of engineering technique may result from Life prolongation [8].

2.12 Scanning electronic microscope

First, insert into a packaging device known to help the degree of the sample this machine follow my x-ford oxford company, Tescan, a Czech – manufactured, working with vega3 the SEM unit device is part of the soft and hart:

first, hart consists of gun and contains the film and the film contains a specific period of time depending on the quantity of samples that it works and then gun generates electrons run through the internal bean and converted to photons light and hit the surface of the sample the device contains seven samples and must be the surface of the sample flat and the images are received by detector and the emitters are sent in a (SEM) screen and appear in clear –cut image format.

This device works in several fields (agriculture-pharmaceutical-medical and oil fields the (SEM) device is connected to another device called (E D X) where this is sent this image is sent from the (S E M) device to the (E D X) device and there is an important point to adjust the drawing (W D) distance between the detector and sample to be read in the (D E X) device in the form and at the top of the name of the item is written and these elements are grouped in different concentration and collected in the of vehicles complete the software that the (E D X) uses is called (I n c a) which is a soft word the machine operates within a millimeter to

one nanometer and contains two types of detector .the collector is the center of detector .this device is very to the point that it is prevented from sneezing eating and drinking inside the device .the device must be in a high humidity and be completely isolated from the dust , magnetic fields in the case of opening the room containing the samples vacuum is emptied by pressing the vacuum vent to allow the entry of air inside the room samples and in the case of the introduction of other samples are put pressure on the expulsion of the air inside the air chamber and lock rules for the seriousness of dealing with X and device (SEM) work zoom to the image until it reaches the degree of clarity of the image with different parameters and the determined by the specific filed and the sample is placed in the samples are three types of small and medium size and large on the basis of the sample and covered with aluminum during the preparation of the sample and put the sample from above and judging from the use of aluminum that does not absorb photons to be introduction in the sampling room.

.the program were the (SEM) is called (VEGA3) is automatically calibrated (SEM) Unit.

2.13- DEFECTS

It is necessary in this device to be the spring solid and in case of the presence of the sample is compressed so as to be in the form of a booth because of the disadvantages of this device dose not receive sample liquid and powders in addition to it affect the degree of room and dust and magnetic appliances near him

2.14- ADVANTAGES

One of the advantages of this device is that it is maintained by the company manufactured by remote by remote control by remote control program tem viewer and is controlled by Remote control and the device is operated entirely by the manufacturer and determine the holidays if .

2.15 Some Physical and Chemical Properties of some Elements Involved in the Manufacture of Panadol

2.15.1 Carbon

- **Chemical Properties**

Is chemical element with a symbol C and an atomic number (6) it is included in the elements of the second cycle and on the head of the group in the periodic table (14) as a major group element, a tetra-valence element which is the basis of organic chemistry and is one of the hardest metals found on nature.

- **Physical properties**
- Phase: solid
- Density: 2.267 graphite
- Sublimation point: 3915k
- Triple point: 4600kelven
- Fusion heat :117 graphite
- Heat capacity:8.517 graphite[9]

2.15.2 Oxygen

- **Chemical Properties**

Oxygen element is a chemical whose symbol is C and an atomic number (8) is included in the elements of the second cycle and at the head of group (16) in the periodic table, a major group element classified as non-metals it is characterized by its large chemical activity as it is a strong oxidizer and tends to bind to the formation of chemical compounds and under normal condition of pressure and temperature in the form of gas (O2) it has no color, taste or smell.

- **Physical Properties**
- Phase: gas
- Density: 101.325kilopascal
- Fusion point:54.36 kelvin

- Boiling point:90.20k
- Heat capacity:6.82kelojole
- Fusion heat :0.444kelojole
- Heat capacity: 29.37jole.mole^{-1}.kelvin^{-1}[10]

2.15.3 Lithium

- **Chemical Properties**

lithium element is a chemical whose symbol is Li and an atomic number (3) is included in the elements of the second cycle in the first group as the first alkaline metal, pure lithium is a silver-white metal that is soft and light as it is the least dense metal among the solid chemical elements in the standard conditions of pressure and temperature [11].

- **Physical Properties**

- Phase: solid
- Density: .0.534g.cm^{-3}
- Fusion point:453.69kelven
- Boiling point:1615k
- Heat capacity:24.860jole.mole^{-1}.kelven
- Fusion heat: 3.00 kelojole.mole^{-1} [11].

2.15.4 Full Reflection

The total internal reflection in physics and electromagnetism is a complete reflection of the falling beam Full reflection occurs only when two conditions exist:

• If the incident beam is exposed to a difference in the refractive index, and this occurs when crossing from one medium to another medium.

• If the fall angle is greater than the critical angle and less than 90.°

The critical angle value is not always constant but is altered by the media in which the light beam (or any electromagnetic beam in general) is transmitted. Note that

in any case, the angle of reflection is exactly equal to the angle of incidence shown in fig (2.1)

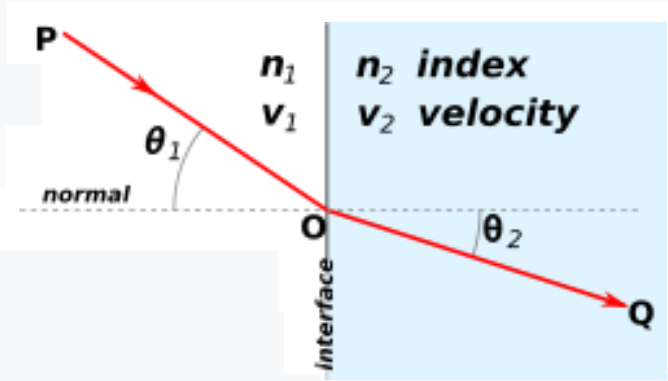

Figure (2.1) Refraction of radiation

- **Critical Angle**

Knowing the critical angle enables you to know when the falling beam can be fully reflected. To calculate the critical angle, the refractive index of each medium should be known. And then compensation in the law of Ibn SAHL (now known as the law of Snell)

$$n_1 \sin\theta_1 = n_2 \sin\theta_2$$

Since we are calculating the critical angle, we will look for a value of θ_2 that fully reflects the incident radiation. From the plot it is clear that θ_1 must be equal to 90 ° in order for a total beam bounce to occur.

So make $\theta_c = 90$ ° and compensation in law can calculate the critical angle θ_c

$$\theta_c = sin^{-1}\frac{n_2}{n_1}$$

So the amount of the angle of incidence θ_i that causes a complete reversal is

$$90 > \theta_i > \theta_c$$

Note that n_2 must be less than or equal to n_1, otherwise it does not conflict with the definition of sine.

- **Application:**

Figure (2.2) Illustration of the principle of fiber optic work

The most prominent applications of the phenomenon of full reflection are fiber optics. A light-loaded beam of data is sent over the optical fiber at a greater angle than its critical angle, so it does not bounce back completely until it reaches its target [12].

Chapter Three

Practical and Results

3.1Introduction

In this section learn about the materials used, machines and tools, method of work and results.

3.2 Materials Used

- Normal BANADOL (AMIDOL), solid and powder as showing in fig (3.1)

Solid **powder**

Figure (3.1) AMIDOL

- EXTRA PANADOL

solid and powder as showing in fig as showing in fig (3.2)

Solid **powder**

Figure (3.2) EXTRA PANADOL

3.3 Equipment Used in Preparation of the Sample

- Quorum as showing in fig (3.3)

Figure (3.3) Quorum

- **Scanning electron microscope (SEM).**

As showing in fig (3.4)

Figure (3.4) Scanning electron microscope (SEM).

- **Energy Dispersive X Ray (EDX)**

  As showing in fig (3.5)

Figure (3.5) Energy Dispersive X Ray (EDX)

3.4 Method Description

The sample is placed in a packaging device knowns (qurum) to in capsulate the sample with aluminum so it prevents the absorption of photons in the sample room and also helps to determine the clarity of the sample

Sample were included in the sample rooms containing small medium and large size according to the sample in the device ,scanning electron microscope (SEM) which contains two (hard part and soft part) the electrons in the (SEM)device are generated by the qun that contains the film the depending on the time on the quantity of sample it works the electrons moved through the internal beam and turned into photons that hit the surface of the flat sample and reflected an internal reflection the picture was received by the detector I was sent to the (SEM)screen and it appeared in a clear picture and was sent to another device that know me energy dispersive x ray (EDX) which is connected to the previous device and set the distance between the detector and sample until it was read in the (EDX) device in the form of a summit and bottom found at the top of the name of the elements with different concentration in the form of complete compounds and the results below illustrate this.

3.5- Results

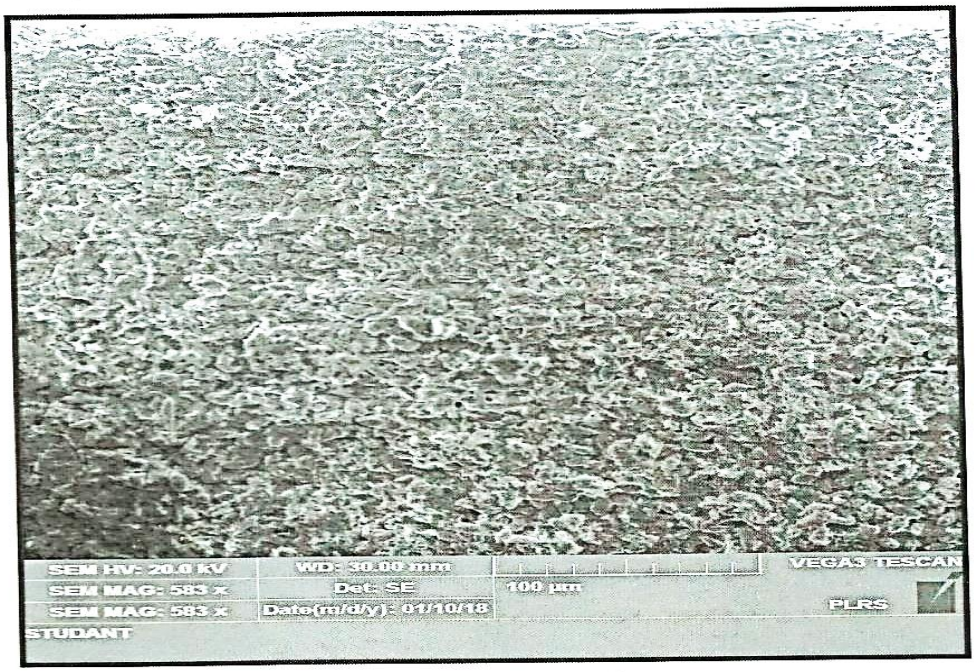

Figure (3.6) Internal for Panadol Extra within Limits 100 mm

B)

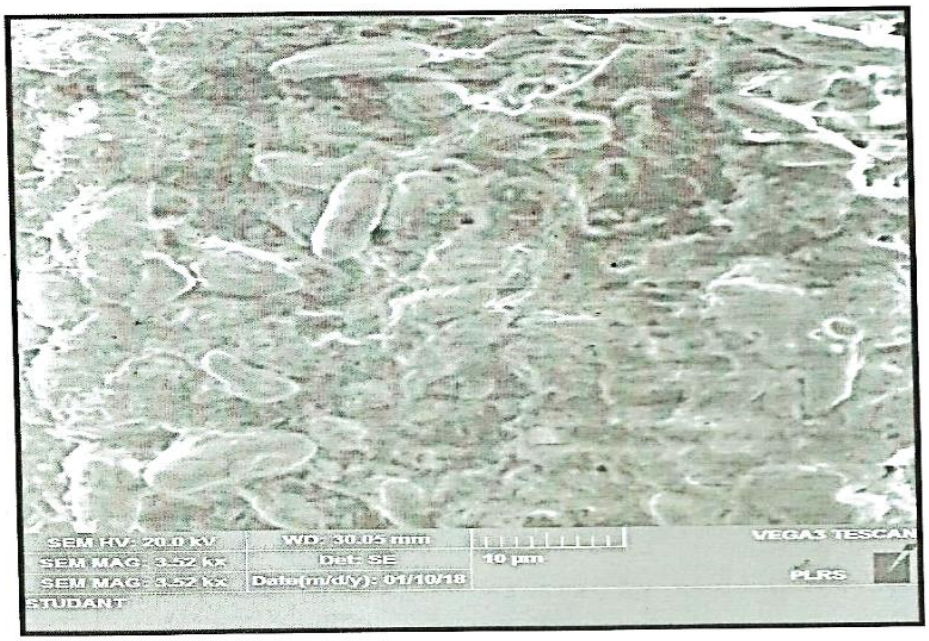

Figure (3.7) Internal for Panadol Extra within Limits 10mm

- **ELECTRON IMAGE** as showing in fig (3.9)

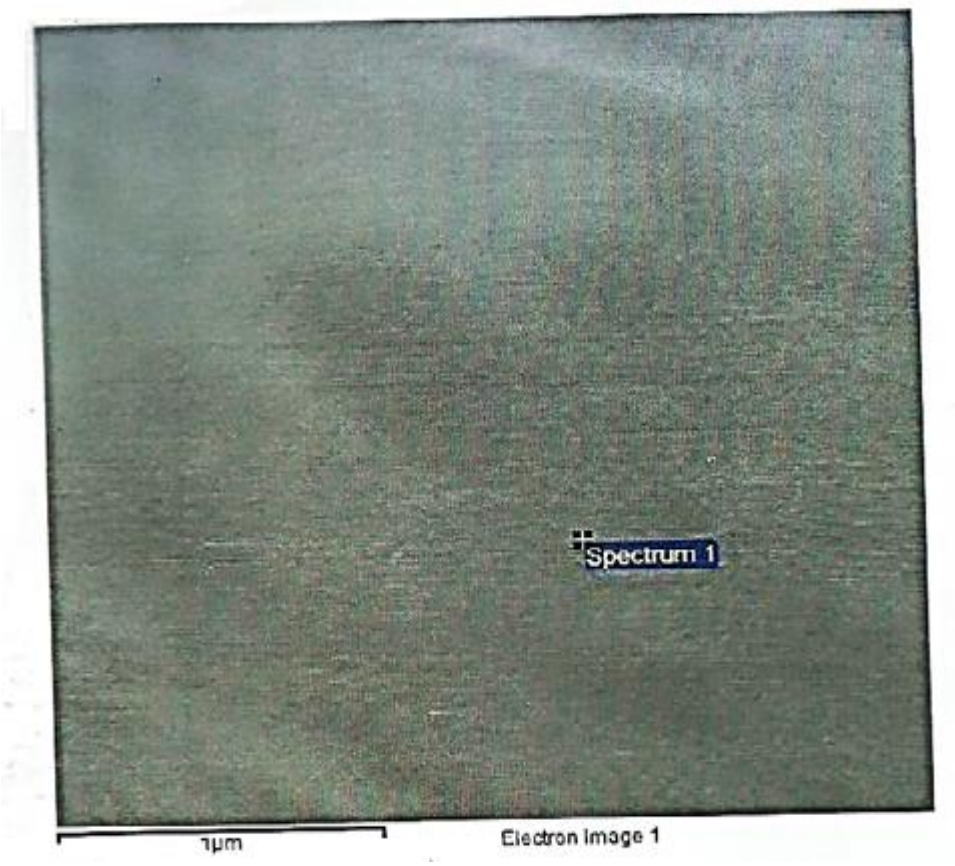

Figure (3.8) ELECTRON IMAGE

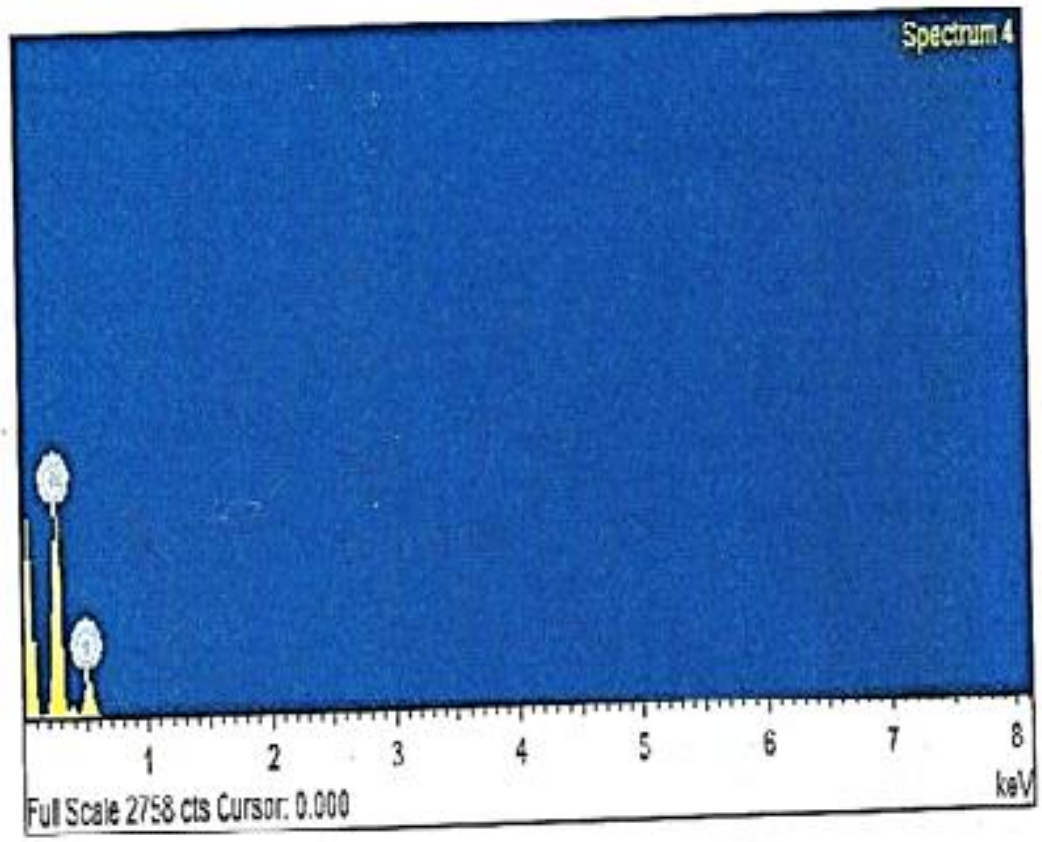

Figure (3.9) A graphic relationship showing the appearance of the components of an extra Panadol where the weight of the element begins to appear in the sample

Table (3.1) the components for Extra Panadol which appear according to the percentage of weight and atomic weight.

Element	Weight %	Atomic
C	**66.42**	**72.48**
O	**33.58**	**27.52**
Totals	**100.00**	

Table (3.1) showing the components for Extra Panadol which appear according to the percentage of weight and atomic weight, where the first two components were found, namely carbon and Oxygen

C)

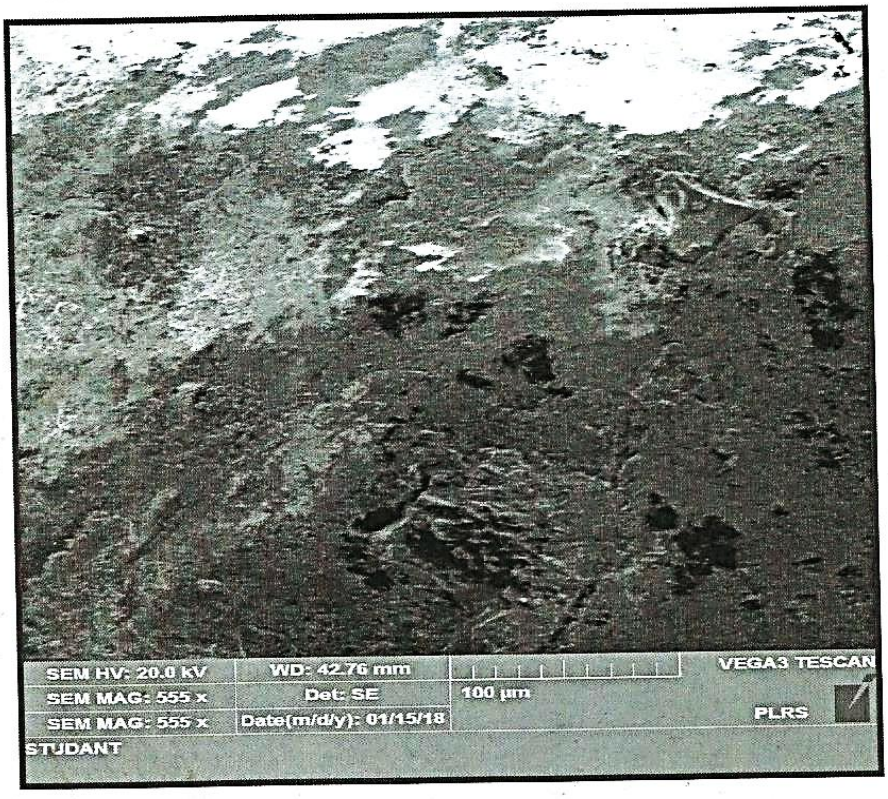

Figure (3.10) illustration by advice (SEM) showing the eternal shape for extra Panadol within limits 100 mm

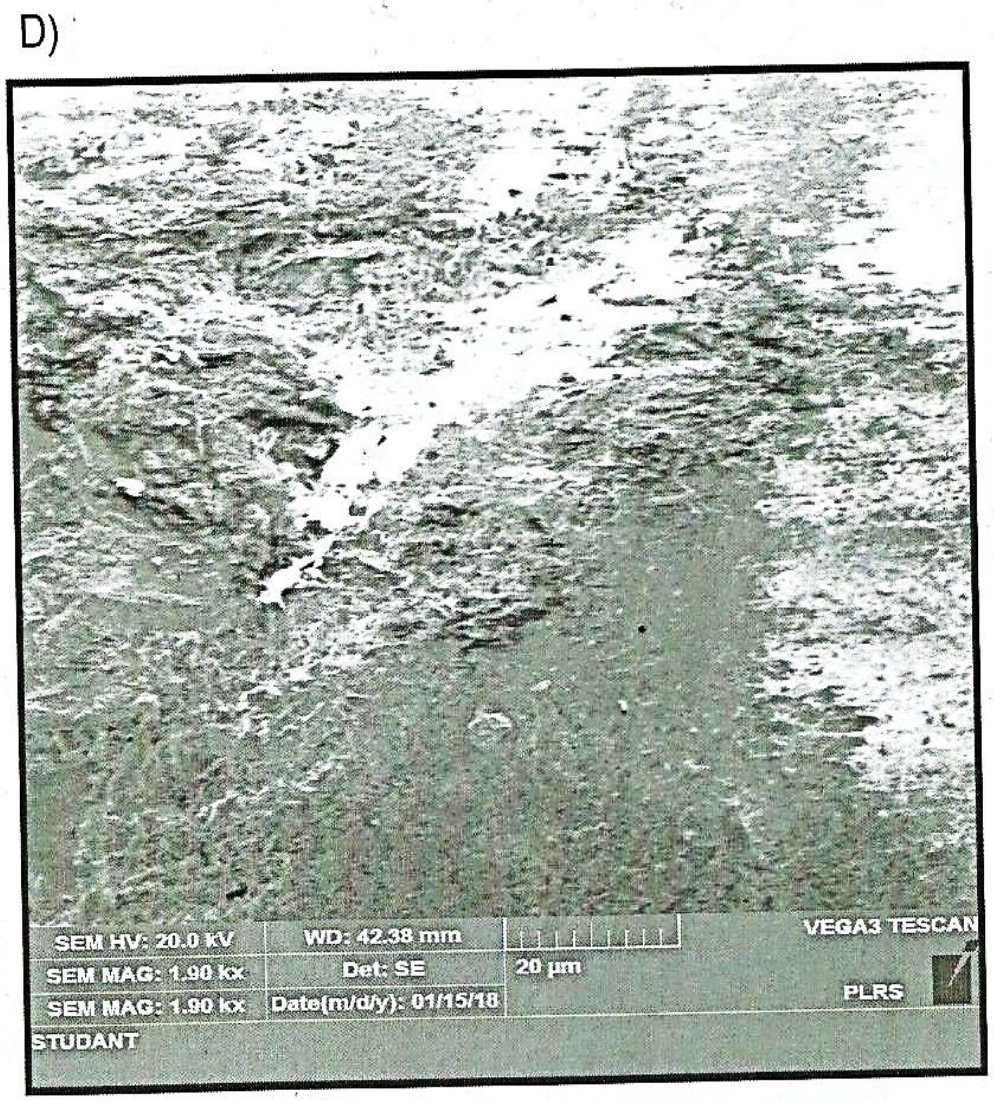

Figure (3.11) illustration by advice (SEM) showing the eternal shape for extra Panadol within limits 20 mm.

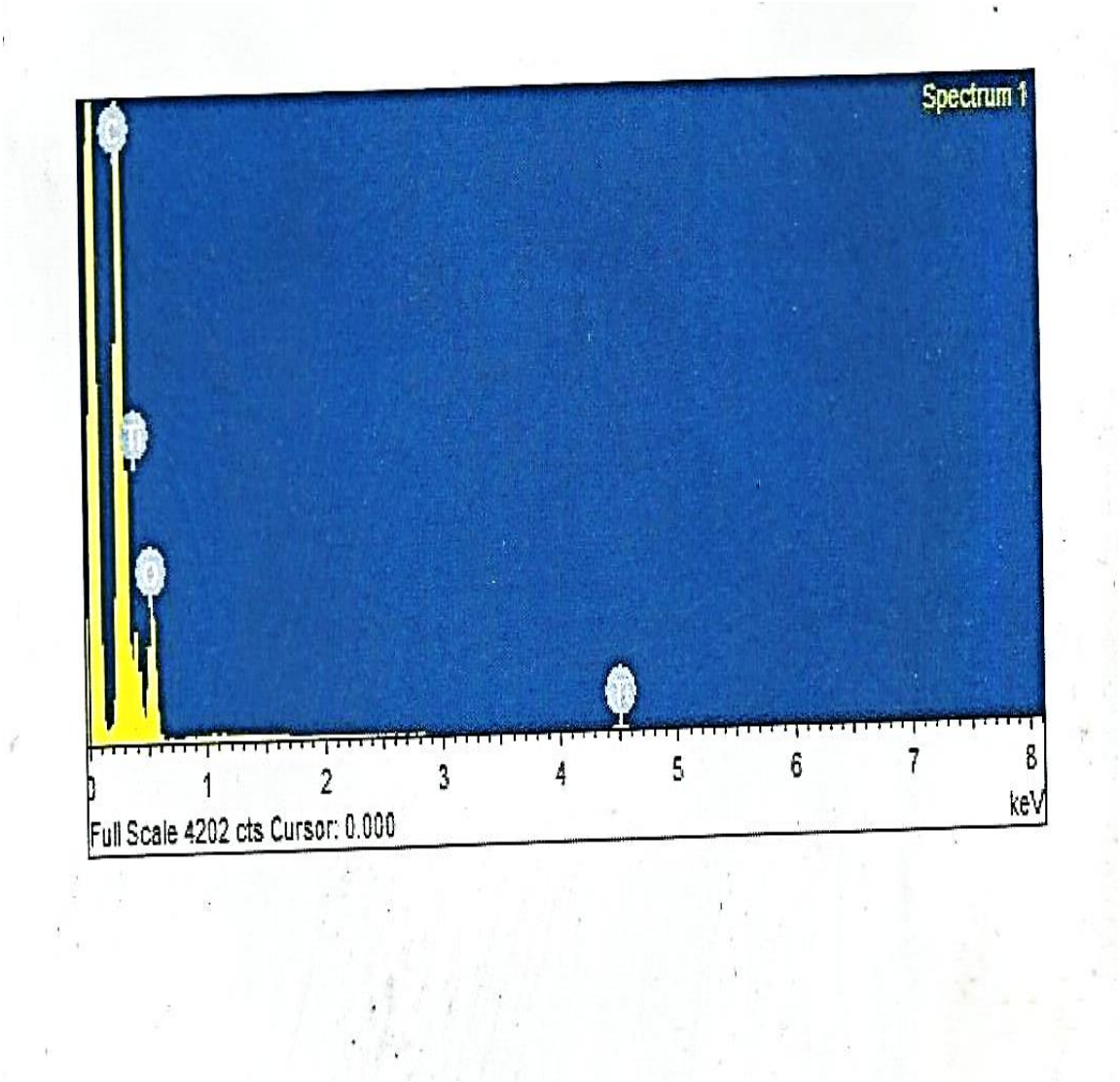

Figure (3.12) A graphic relationship showing the appearance of the components of an extra Panadol where the weight of the element begins to appear in the sample

Table (3.2) the components for Extra Panadol which appear according to the percentage of weight and atomic weight.

Element	Weight %	Atomic
C	66.57	72.70
O	33.22	27.24
Ti	0.22	0.06
Totals	100.00	

Table (3.2) showing the components for Extra Panadol which appear according to the percentage of weight and atomic weight, where the first three components were found, namely carbon and Oxygen and lithium.

Chapter Four

Discussion and Conclusion

4.1 Introduction

Know discuss in this section the difference between extra Panadol and Amidol (normal Panadol) by knowing the components of each sample and atomic weight by scanning electronic microscope and summary of the research and recommendation needed to work and references have benefited from.

4.2 Discussion

It is known that headache ,fevers ,fever and other common diseases among people and affects all age groups resulted from this the emergence of many types of chemical drugs and one of the most common medicines for the treatment of this type of Panadol disease of various type such as extra Amidol and others.

Amidol (Panadol grocery as some call it),which is used by people for treatment is taken out without consulting a doctor and is available even in the grocery store when analyzed by scanning electronic microscope (SEM) this type of drug is not a chemical compound and does not contain any chemical elements and that the weight written on the packaging is the weight of the buds(starch) and that the weight of powder is 250mg and not 500mg .this powder contains caffeine ,the drug that relieves pain, so it is the most widely used in many people, knowing that they do not know that they become addicted to this substance found in the Amidol, this starch is part of it deposited in pebbles caused by a person with increased doses of renal failure and sometimes death.

It was found when analyzed Panadol extra with the same device, benadol extra consist of chemical elements indispensable in life, namely lithium, carbon, oxygen .where carbon represents (66)%an atomic number(72.48)% of the composition of the bean , and where oxygen represents(33.58)% an atomic number(27.52)% of the composition of the bean, and where lithium represents (0.22)% an atomic

number (0.06)% of the composition of the bean ,as it contains a high percentage of carbon and this large amount of carbon if not burned full combustion , it caused the formation of carbon monoxide toxic and this affects human health, therefore adults and not to eat with stimulants and gas drinks and not to eat without consulting the doctor and know the dose required. So Panadol extra is better than Amidol

4.3 Conclusion

I found through this research that the most common and used drugs are available and even in the grocery store and without consulting your doctor as if they do not cause any harm, such as Amidol is one of the most harmful drugs and fatal liver when analyzed by a device (SEM) where it was found to be a powder containing a percentage of caffeine substance that remove the pain of the moment until the pain returns more days later so it should not give to children where we have children returning to this substance narcotic leads them with this repetition of kidney failure and then death or used to their bodies drugs, and this is seen today where many of the young people who use drugs in universities use Amidol with Pepsi , cola or coffee, and that is enough to make them flat, where the high proportion of caffeine to extent of the mind .the found that Panadol extra was better, but if you took the specific dose only consult your doctor because the overdose of (10)grams in the day may lead to cirrhosis of the liver and appears after 12 hours and be clear between4-6 days because the overdose leads to an increase in the transaminase triples to three times its natural in the liver and this will cause failure of the liver and also the high carbon ratio lead to the formation of carbon monoxide in the absence of full combustion in the body leading to poisoning .

4.4 Recommendation

Recommendation that the ministry of health and all officials in this area and all interested parties to increase control of medicines, especially those medications that are administered without consulting the doctor and are available even in the grocery such as Amidol .it was also recommended that each patient should not take Panadol without consulting a doctor or take more than the dose required and not to take any of the stimulants or soft drinks during the treatment because it raises the proportion of caffeine is becoming addicted and does not know or get this poisoning and sometimes death.

Recommendation mothers not to use Amidol and not to over dose extra Panadol children since the age of their hands.

Finally, I recommend that all drug makers use nanotechnology technology to make the medicine so that we have a grain of the size of the nontechnology and thus we have a smaller, safer and more secure pill so we not suffer from kidney and kidney failure because we the reduce the size of the grain to the required limit only, more effective and less harmful and in the size of nanostructures…

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