

## Biochemistry in daily life and in Hajj and Umrah seasons

**Dr. Hanadi Ahmed Katouah**

**2<sup>nd</sup> term**

**1483-1439H**

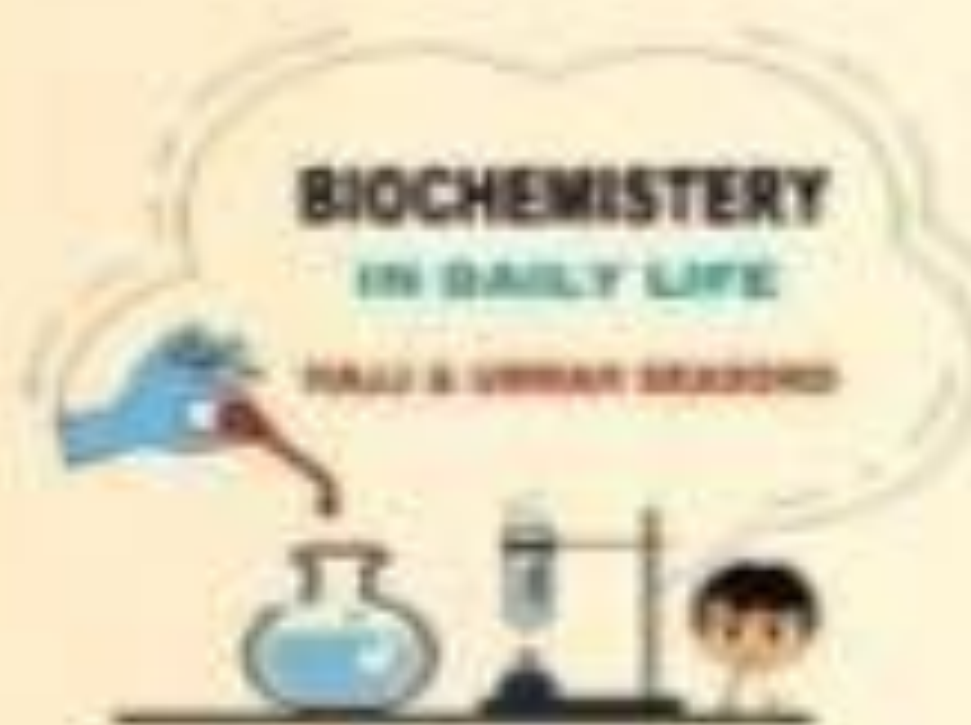
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# Students Scientific Posters Exhibition



**Wednesday**  
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**4- 4- 2018G**





# Aspirin



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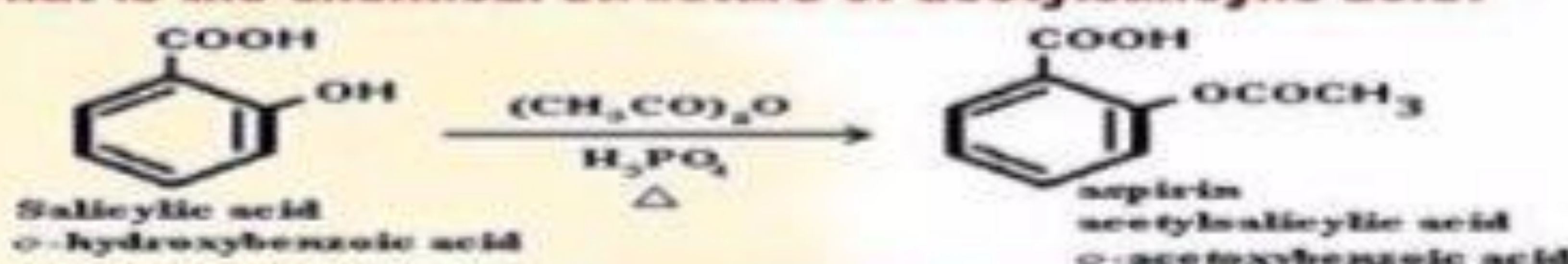
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## What is Aspirin ?

Aspirin is a salicylate (sa-LIS-il-ate). It works by reducing substances in the body that cause pain, fever, and inflammation. The active substance in aspirin is acetylsalicylic acid (ASA), it is classified in Analgesics, and anti-inflammatory agents and Salicylate pharmacological group.

### What is the chemical structure of acetylsalicylic acid?



### What the source of aspirin ?

Extracts from plant meadowsweet and salix alba



Meadowsweet



Salix alba

### What is the physical properties of aspirin?

Aspirin, an acetyl derivative of salicylic acid, is a white, crystalline, Odorless, weakly acidic substance, with a melting point of 136 °C (277 °F), and a boiling point of 140 °C (284 °F).

### What is the dosage for aspirin?

- > Aspirin should be taken with food. Doses range from 50 mg to 6000 mg daily depending on the use.
- > Usual doses for mild to moderate pain are 350 or 650 mg every 4 hours or 500 mg every 6 hours.
- > Doses for rheumatoid arthritis include 500 mg every 4-6 hours; 650 mg every 4 hours; 1000 mg every 4-6 hours; 1950 mg twice daily.
- > Heart attacks are prevented with 75, 81, 162 or 325 mg daily. 160 to 325 mg of non-enteric coated aspirin should be chewed immediately when experiencing symptoms of a heart attack.
- > The dose for preventing another stroke is 75 to 100 mg daily.

### What is Precautions of aspirin ?

Aspirin is not recommended for individuals who have :

- > A peptic ulcer .
- > Hemophilia or any other bleeding disorder .
- > A known allergy to aspirin .
- > An allergy to any NSAID, such as ibuprofen .
- > Risk of gastrointestinal bleeding .
- > Dental surgical treatment .

### What are the uses of aspirin ?

Pain, headache, fever, heart attacks and strokes, Itwed for relief and, after surgery.



### What is the common side effects of aspirin?

1. Upset stomach .
2. Heartburn .
3. Drowsiness .
4. Mild headache .

### What is the benefits of aspirin in Hajj & Umrah seasons?

For relief pain of pilgrims who feel tired, exhausted and unbearable headaches.



References: 1- ["Zorprin, Bayer Buffered Aspirin \(aspirin\) dosing, indications, interactions, adverse effects, and more?"](#)

2- [Chemistry: An Introduction for Medical and Health Sciences](#)

3- [Aspirin: the remarkable story of a wonder drug](#)



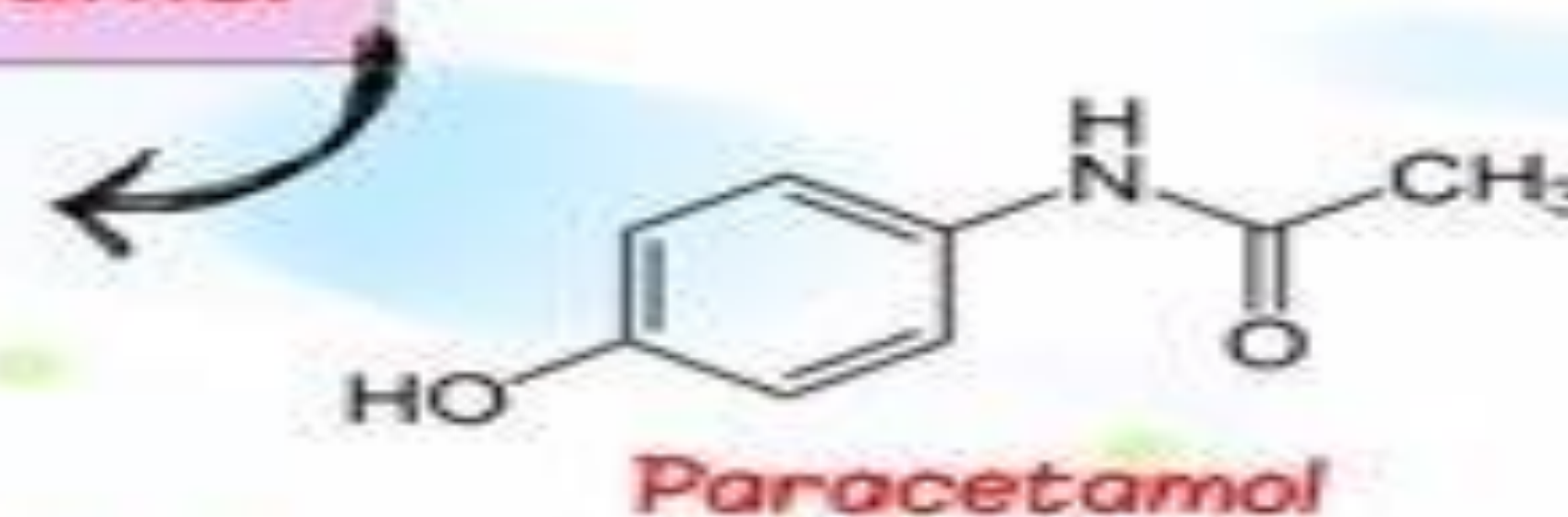
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### What is Tylenol?

It is an American brand of drugs containing **paracetamol**

Paracetamol or acetaminophen is pain reliever and a fever reducer. It consists of a benzene ring core substituted by one hydroxyl group the nitrogen atom of an amide group in the para (1,4) pattern



### WHAT IS PHYSICAL PROPERTIES?

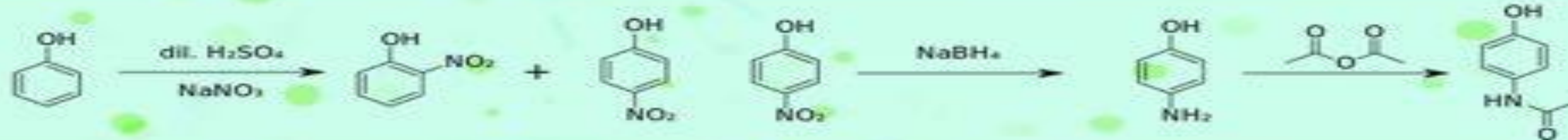
Pure paracetamol is a white crystalline solid which melts at  $169.171^{\circ}\text{C}$  and it's insoluble in cold water but it is soluble in hot water and in ethanol



Paracetamol is available as a generic medication with trade names including **Tylenol** and **Panadol** among others



### Preparation of paracetamol



### Therapeutic form

### Quantities of treatment

Solution  
Tablet Disintegrating  
Suppository  
Powder  
Syrup  
Table  
powder for solution  
Tablet effervescent

Adult  
650mg every  
hours 4-6  
children  
6yrs use  
pediatric forms  
6-11yrs 325  
evry 4-6 hours

### ADVANTAGES

- It is absorbed quickly in the intestine compared to other drugs, so its effect appears quickly
- Does not affect the metabolism of water and minerals in the body
- Do not irritate the mucous membrane of the digestive system

### DISADVANTAGES:

- Associated with overdose Liver damage, increase risk of reduced hemoglobin and death
- Not associated with overdose Kidney damage (especially with long-term use) gastrointestinal

### TYLENOL DURING HAJJ AND UMRAH SEASONS FOR RESIDENTS AND PILGRIMS

Paracetamol & Tylenol are known commercially on behalf of panadol. They are the most important pharmaceutical form used in treatment of light to medium pain, such as headaches, teeth pain abdominal pains and other pains Also they have effectiveness as antipyretic result to not having this drug as anti-inflammatory



## # REFERENCES

- "Paracetamol - a curriculum resource Frank Ellis
- "Rumack B. Matthew H (1975). "Acetaminophen poisoning and toxicity"
- "FDA. "Acetaminophen doses over 325 mg may lead to liver damage" CNN. January 16, 2014. Archived from the original on February 16, 2014. Retrieved 2014-02-18
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# IBUPROFEN



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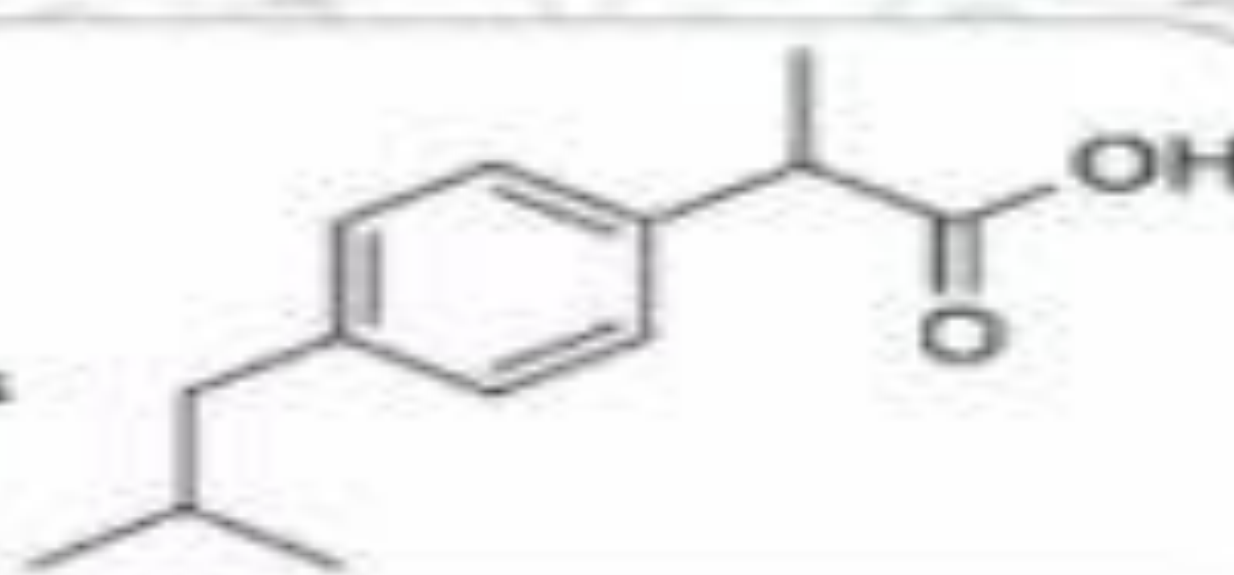
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## Definition:

is a medication in the nonsteroidal anti-inflammatory drug (NSAID) class that is used for treating pain, fever, and inflammation. This includes painful menstrual periods, migraines, and rheumatoid arthritis.



## IUPAC Name:

(S)-2-(4-(2-methylpropyl)phenyl) propanoic acid.

## Preparation:

The original synthesis of ibuprofen by the boots group started with the compound 2- methylpropylbenzene. The synthesis took six steps. A modern, greener technique for the synthesis involves only three steps.

## Symptom for uses:

- fever
- inflammation
- headache
- toothache
- back pain
- arthritis, including juvenile arthritis
- menstrual pain
- minor injuries

## Trade Names:

Advil, Motrin, Nurofen, others.

## Therapeutic form:

Ibuprofen is available as gels, sprays, tablets or mousses, and it is used to relieve a variety of symptoms.

## Physical properties:

Density: 1.03 g/ml g/cm<sup>3</sup>  
Melting point: 75 to 78 C ( 167 to 172 F )  
Boiling point: 157 C ( 315 F )

## Doses:

Age 1-4 years  
100 mg of medicine 3 times daily (6 ml of drink)  
Age 4-7 years  
150 mg 3 times daily (7.5 ml of drink)  
The maximum limit for all of them is 30 mg / kg of baby weight divided 3-4 times daily after eating  
Age 12-18 years old  
300-400 mg 3 times daily (15 to 20 ml of drink)

## Disadvantages ibuprofen:

- Chance of heart attack
- Changes of Brain stroke
- Sometimes fluid retention in the body
- Drowsiness and dizziness
- Vomiting
- Indigestion
- Abdominal distension



## Fast facts on ibuprofen:

- Ibuprofen is a non-steroidal anti-inflammatory drug (NSAID).
- People with heart problems, stroke, or peptic ulcers should use it with care.
- It should not be used in the last 3 months of pregnancy.

**Taken orally only with water.**



## Benefits of Ibuprofen in Hajj & Umrah Seasons:

It is used to relief general body pain. Ibuprofen is commonly used by pilgrims and it is very affective because it helps who're injured or bruised as result of walking to make them feel better during hajj and umrah seasons.

## Reference:

1. Adams SS, Giff E, Loyal B, et al. Some biological properties of 2-(4-(2-methylpropyl)phenyl)propanoic acid. *J Pharm Sci*. 1967; 56:1385.
2. Adams SS, Beckoff P, Hixon CG. Pharmacological differences between the optical isomers of ibuprofen: evidence for enantiomeric inhibition of the (-)-isomer. *J Pharm Pharmacol*. 1976; 28: 256-7.
3. Gehlfinger G, Stock KP, Bach GL, et al. Pharmacological differences between R(-)-



# TRAMADOL

## What is tramadol ?

A semi-opioid drug used to treat mild to severe pains such as nerve and muscular pain, spinal column pain and arthritis. It can also be used in the treatment of pain caused by surgery. It is a pain reliever.

## What is inside Tramadol capsules ?

The active substance is tramadol hydrochloride. The other ingredients are pregelatinised starch, microcrystalline cellulose (E460), magnesium stearate. The capsule shell contains gelatin, iron oxide (E172), titanium dioxide (E171), indigo carmine (E132). Tramadol capsules are yellow and green, opaque, hard gelati

## What is the therapeutic form of tramadol ?

Tablets, Chewable tablets, Capsules, Lotion, Drops, Suppositories and Cysts.

## Who can take tramadol , And what is the amount allowed ?

Tramadol can be taken by adults and children aged 12 and over. Adults (17 years or older): 50 to 100 mg orally every 4 to 6 hours as needed for pain .

## What should avoid while taking tramadol ?

**You should not take tramadol if you have :**

- \*Severe breathing problems
- \*A Blockage in your stomach or intestines

**And you should avoid give tramadol to :**

- \* A Child younger than 12 years old.
- \* During pregnancy
- \* \*Do not crush, break, or open tablet or capsule.

## What is the Side effects of Tramadol ?

**Central:** dizziness , hallucinations . **Mouth:** sores , swollen tongue or lips .  
**Skin:** hives , rash . **Respiratory:** difficulty breathing .  
**intestinal:** diarrhea .**Eyes and legs:** swelling .  
**Throat:** sores , hoarseness . **Muscular:** seizures Hands, feet

## Benefits of Tramadol during Hajj and Umrah seasons for residents and pilgrims

Some patients come to perform Hajj and Umrah Under specialized medical supervision , Tramadol is one of the most important medicines available with doctors accompanying patients, and is often used with heart patients. to relieve symptom such as : pain , Headaches .

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Medscape Reference.  
WebMD.  
Retrieved 28 Nov 2013



# Solpadeine



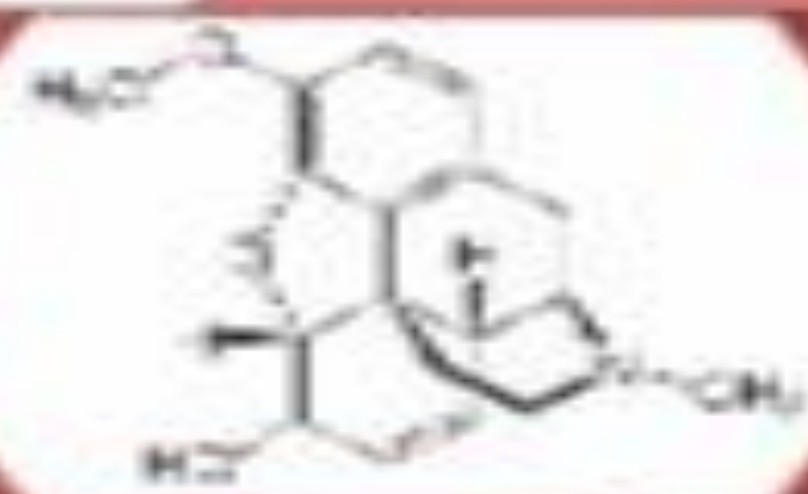
## Definition of Solpadeine

Solpadeine is the brand name of a range of analgesic medication containing various amounts of paracetamol, ibuprofen, caffeine and codeine.

## Indications of Solpadeine

Recommended for the short-term relief of migraine, headache, backache, rheumatic pain, period pains, dental pain, strains, sprains and sciatica.

## Chemical form



**Codeine**

$C_{18}H_{21}NO_3$



## Side effects of Solpadeine

- Constipation
- Nausea and vomiting
- Dry mouth
- Dizziness
- Sweating
- Itching
- Skin rash
- Difficulty passing urine

There have been concerns raised about the risk of addiction from taking codeine-based medicines.

## Types of Solpadeine

Solpadeine Migrain

Solpadeine Max

Solpadeine Headache

Solpadeine Plus

## Benefits of Solpadeine during Hajj and Umrah seasons for residents and pilgrims

A significant number of pilgrims suffered from many symptoms that can be called post-Hajj disease. It is not a specific disease, but a group of common symptoms:

- Fatigue and laziness.
- Contractions and pain of muscles and limbs.
- Disrupt sleep habits.

These symptoms arise from constant exposure to the sun, intense activity with low fitness status, as well as exposure to pollutants and viruses.

These symptoms quickly disappear over time as well through rest and analgesics. We think Solpadeine is the best choice for that.

## Therapeutic form of Solpadeine

Solpadeine capsules, tablets and soluble tablets

## Composition of Solpadeine

Paracetamol 500mg, codeine phosphate hemihydrate 8mg and caffeine 30mg.

## Daily dosage of Solpadeine

Maximum 8 tablets per day

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## References:

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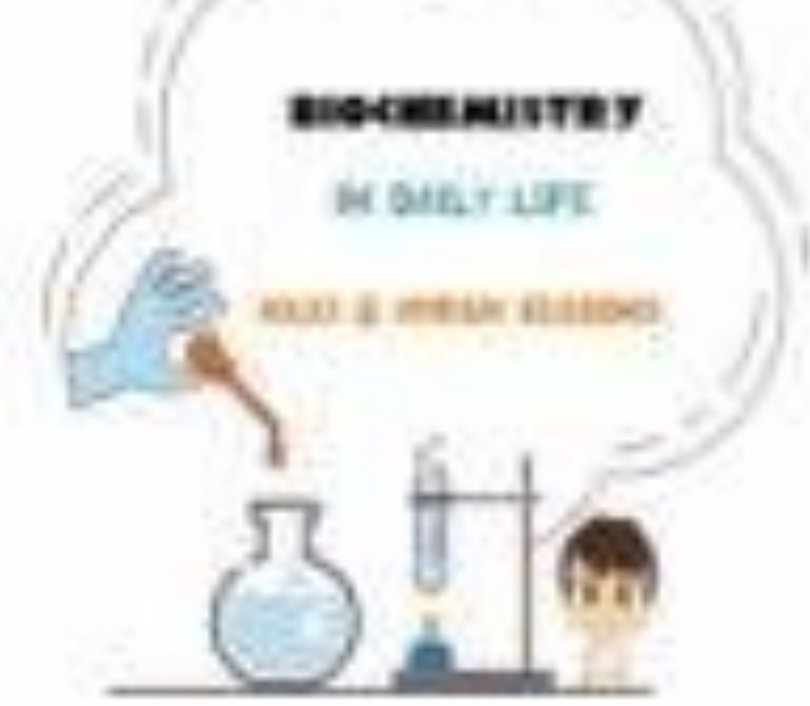
*Corporate Commis (2012-03-15). Us.gsk.com*  
Retrieved 2013-09-14.

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# MEBO oint

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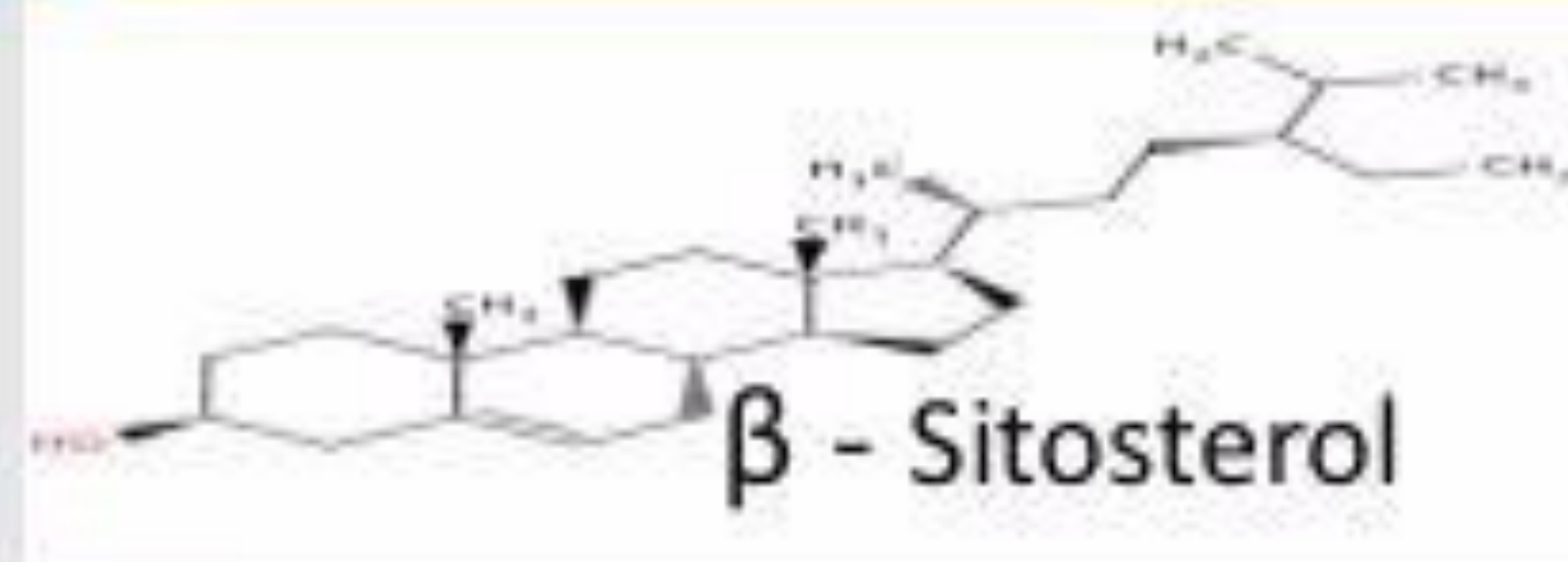
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## 1 Definition and composition:

MEBO is natural and herbal edible ingredients. It is composed of  $\beta$ -sitosterol 0.25% as the main active substance. The base of the ointment is composed of sesame oil and beeswax. in addition to that, it includes 18 amino acids in its formula, 4 major fatty acids, vitamin E and polysaccharides.

## 2 Chemical form:



## 3 Physical Properties:

Solubility : non-soluble in water.  
Shape: Cream or ointment.  
Color: Brownish yellow .

## 4 Treatment form:

Mebo is made in the form of cream or ointment for external use, yellow color, with the smell of sesame, filled in a tube.



## 5 Tip of Usage:

- Apply a 1 mm thick layer of Mebo ointment to the wound or burn and regenerate this layer every 4 hours.
- After the remove the ointment by wiping the wound or burning with care.
- Cut the gauze smooth and clean and repeat this until the wound is healing.

## 6 Indications:

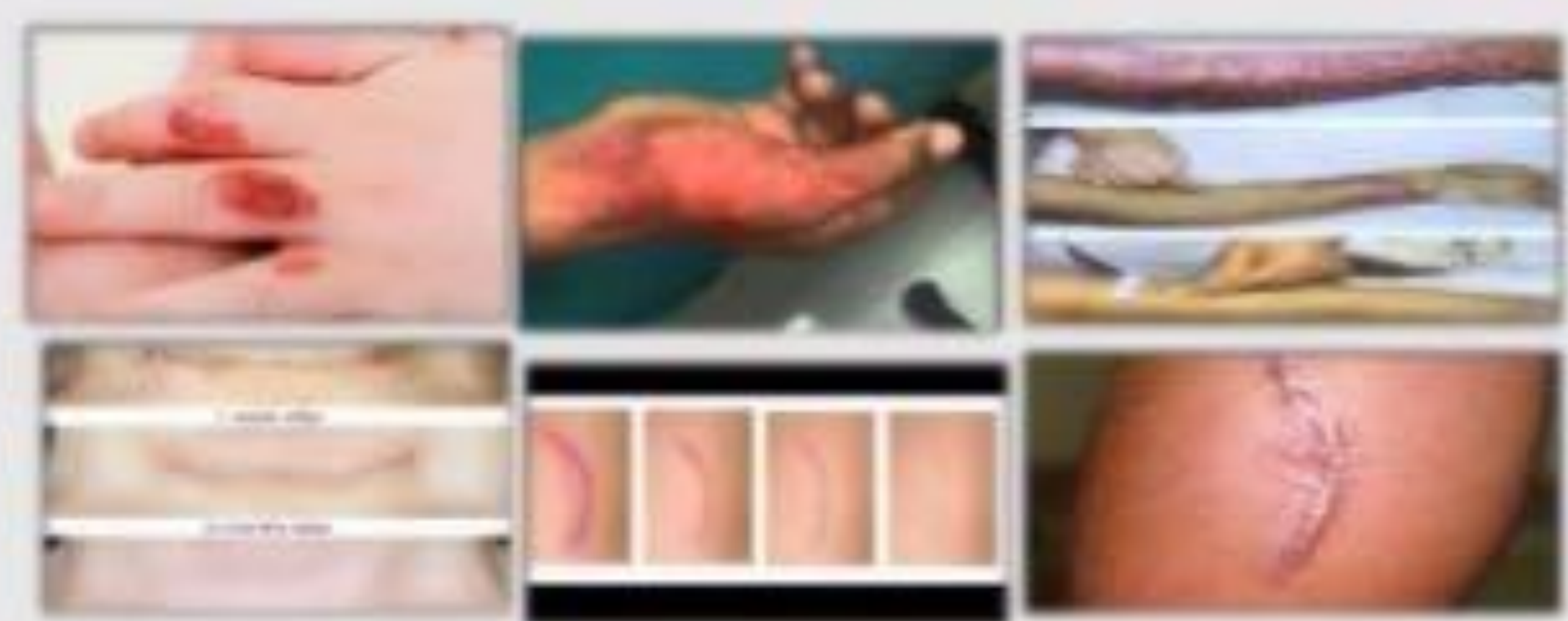
- First-degree burns.
- Second degree bums.
- Third degree bums.
- decrease pain, control Infection it is use and Promotes natural healing process .
- It is use as anti-inflammatory effect reducing thereby edema and erythema , such as Chronic wounds including bed ulcers, diabetic foot. and leg ulcers..
- Surgical wounds including obstetrical wounds improvements microcirculation in the wound stagnation area.
- Cracked heels and cracked nipples.

## 7 Toxicity and Side Effects:

No side effects t have been reported so far, except for rare allergic reactions to sesame oil.

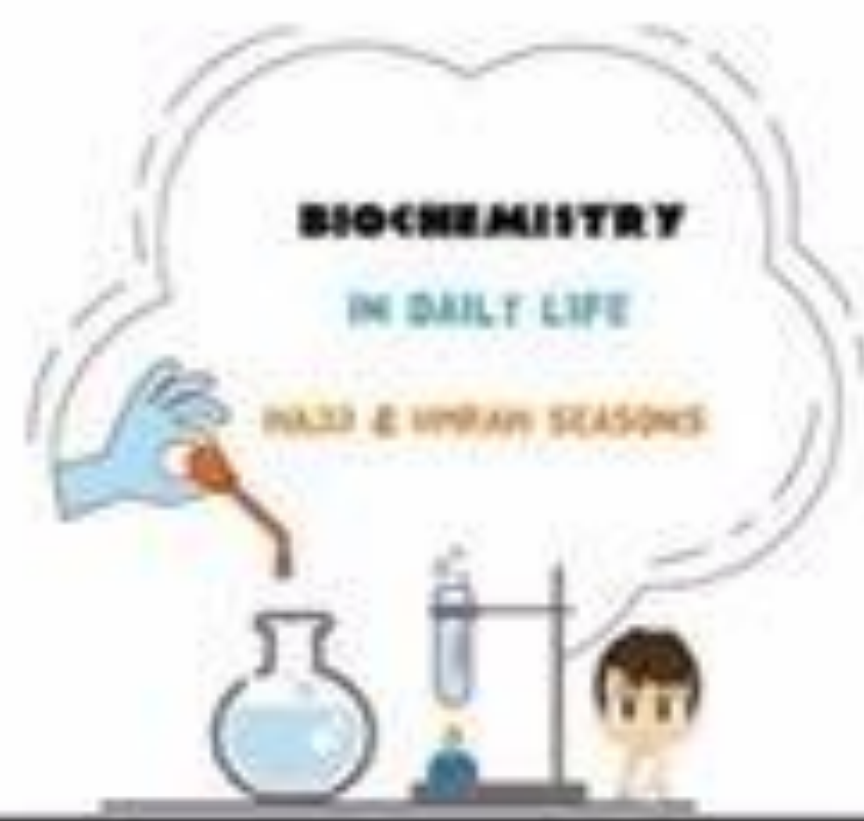
## 8 Benefits of Mebo During Hajj and Umrah Seasons for Residents and Pilgrims:

In the Hajj and Umrah seasons pilgrims are exposed to burns and cracks in the heel and foot fungi inflammation of the skin folds, sunburn. Therefore, the Mebo cream is very useful and effective for treatment those symptoms.



## 9 References:

1. Council of Arab Health Ministers Union of Arab Pharmacists
2. Abdel-Basset Mohamed El-Sayed and A. Abd El-Tawab Abdullah Hussein (2010), The Mother Encyclopedia of Herbal and Herbal Medicine (4th Edition), Cairo: Alpha Publishing and Distribution, p
3. The benefits of natural honey Copy 06 July 2017 on the site of Wi-Pak Mashin.



# The Penopen

(Penicillin)



## What is Penopen?

The active substance in penopen is phenoxymethylpenicillin (as potassium). Phenoxymethylpenicillin is an antibiotic that belongs to the group of penicillins. Penicillins are used for the treatment of bacterial infections. They kill microbes or they hamper their growth. Therefore they help our organism to dispose of the microbes that cause infections.

## What is the quantities of treatment for each age?

- **Adults and children 12 years and over:** 500 mg every twelve hours.
- **Children 6-12 years:** 250 mg every twelve hours.
- **Children below 5 years:** 25 mg every twelve hours.

## What is the special precautions of Penopen?

### Pregnancy:

It is not known if phenoxymethylpenicillin causes damage to the fetus.

### Lactation:

Phenoxymethylpenicillin can pass into breast milk.

### Effects on ability to drive or operate machinery:

Penopen is unlikely to result in any impairment of the ability of patients to drive or operate machinery.

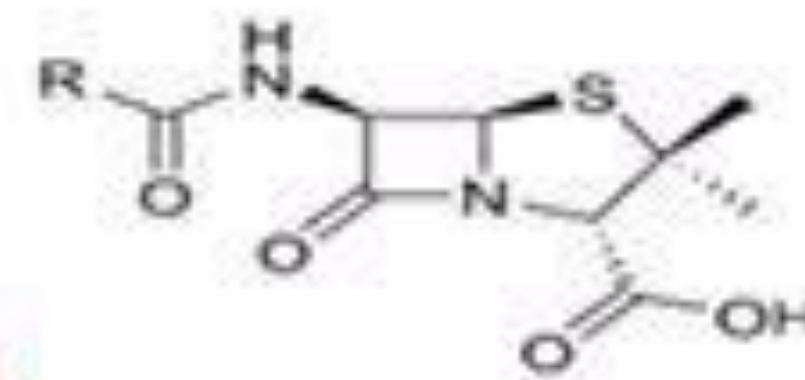
## How benefits of Penopen during Hajj & Umrah seasons for residents and pilgrims?

During the period of Hajj & Umrah when the crowds intensify, so that many diseases, including tonsillitis, bronchitis, pharynx, lungs and fever, have been discovered.

Therefore, antibiotics have been discovered to treat many bacterial infections and are also effective in the treatment of gingivitis and treatment of infections caused by bacterial germs such as scarlet and redness.

## What is the composition of Penopen?

### The Chemical structure of phenoxymethylpenicillin is:



### Excipients.

Penopen 125 powder and 250 tablets for reconstitution with water. It also contains Sodium Benzoate, Disodium Edetate, Sodium Saccharin, Acesulfame Potassium, Colloidal Silicon Dioxide, Sucrose, Apricot Flavour and Povidone.

## What is the most common indications of are penopen?

- Pneumococcal infections: mild to moderately severe respiratory tract infections including otitis media.
- Staphylococcal infections: Mild skin and soft tissue infections.
- Rheumatic fever or chorea.
- Pneumococcal infections in patients following splenectomy or patients with sickle cell disease.

## What is the side effect of Penopen?

- Gastrointestinal disorders (Diarrhea), vomiting



- Sensitivity reactions involving skin eruptions of dermatitis.



### Supervised by:

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### Reference:

Nicolaou, K.C.; E.J. Corey (1996). *Classics in Total Synthesis: Targets, Strategies, Methods* (5. repr. ed.). Weinheim: VCH. ISBN 3-527-29284-5.

## What is the physical properties of penopen ?

- White crystalline powder.
- Fixed in dry state.
- Soluble in water.

## What is the Special precautions for storage?

- It should be kept below 25°.
- After reconstituted the powder, the solution formed should be kept in the refrigerator for 14 days and then discarded.

## What is the antibiotics mode of action and mechanism of resistance?

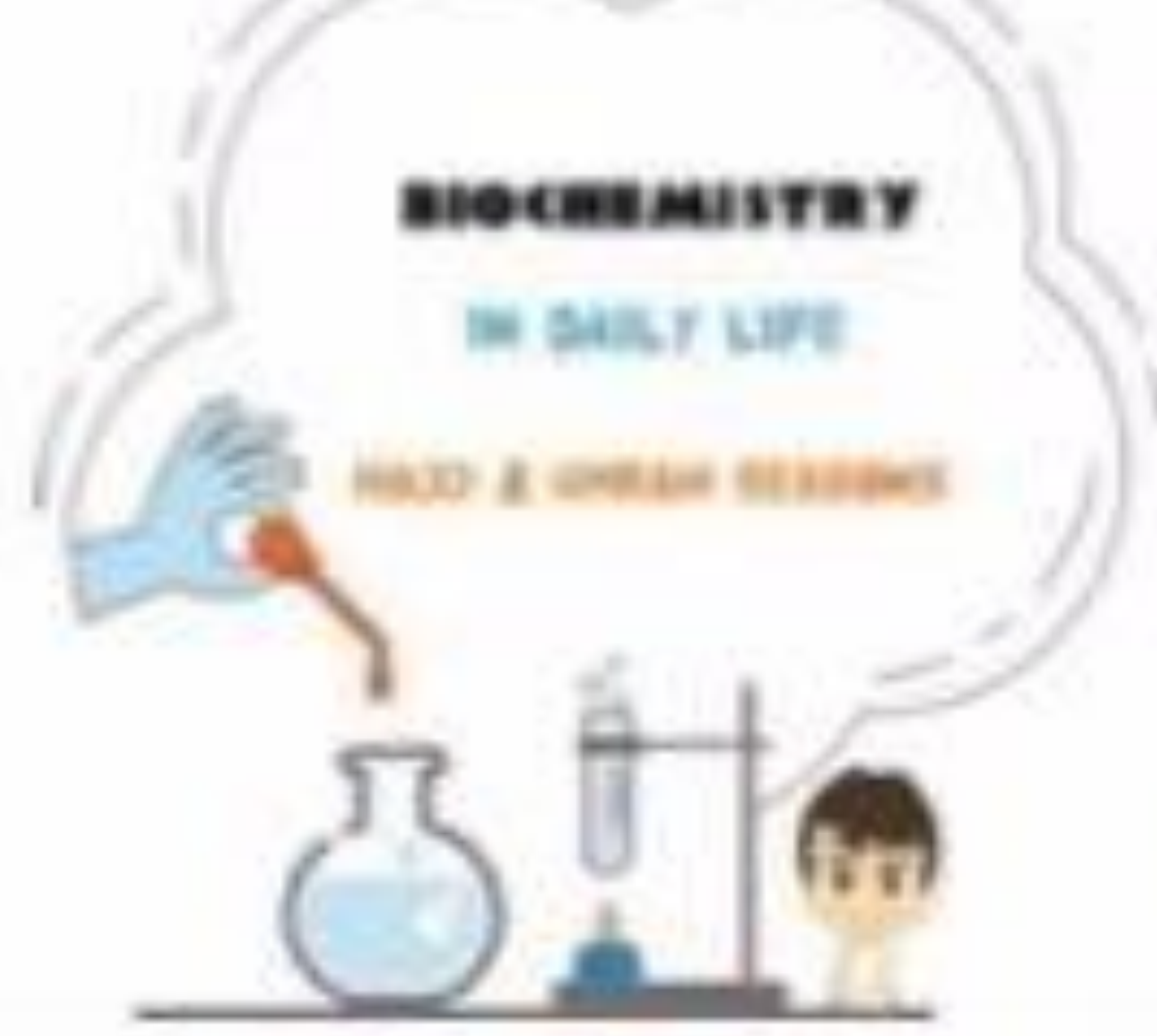


- Fever and joint pain.



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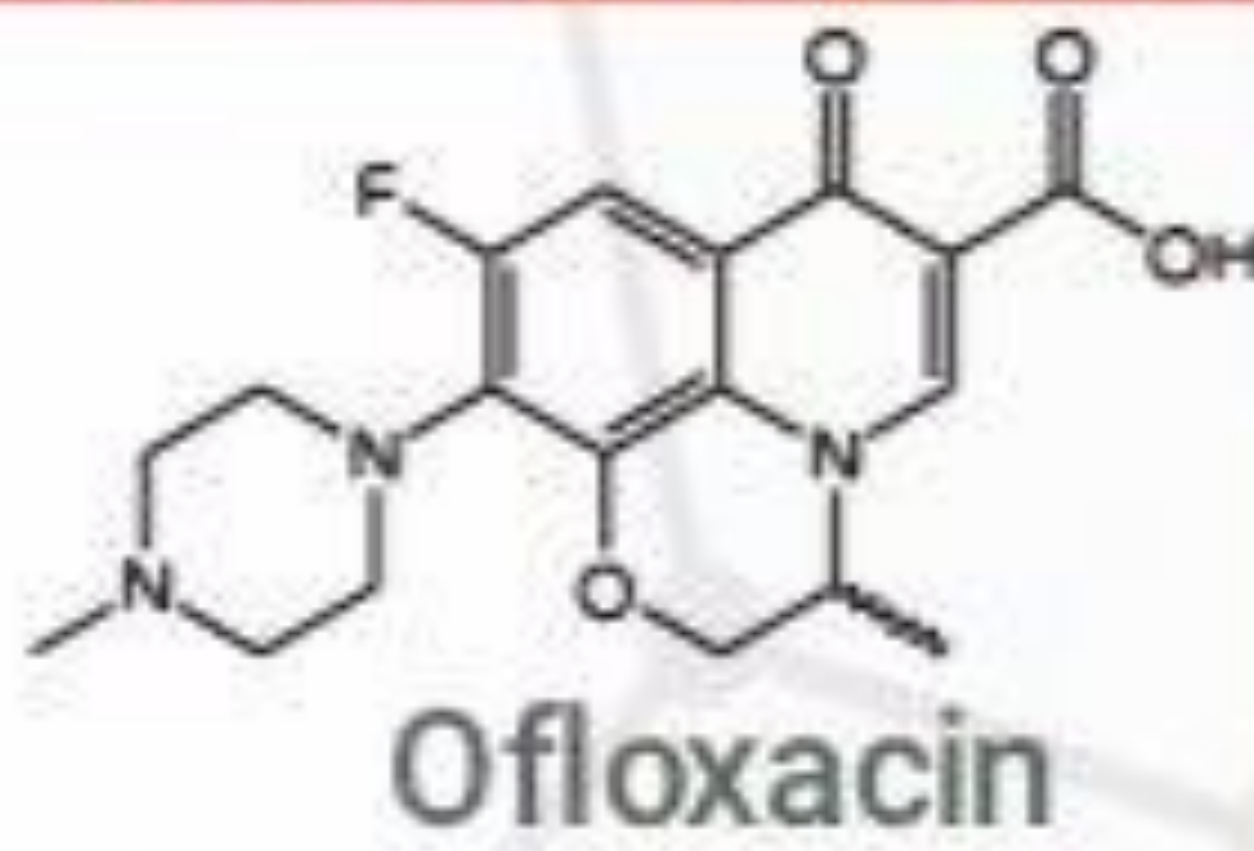
# Tarivid



## Definition:

Tarivid is 200 mg film coated tablets, contains: Ofloxacin the active substance, lactose, monohydrate, corn starch, carmellose sodium, hydroxypropyl cellulose, magnesium stearate (ph. Eur) (of vegetable origin), hypromellose, macrogol 8000, tale and titanium dioxide (E 171).

## Chemical structure:



## Treatment form:



## Indications:

- 1- Acute, chronic and recurrent infections of the respiratory tract (bronchitis).
  - 2- Inflammation of the lungs.
  - 3- Chronic and recurrent infections of the ear, nose and throat.
  - 4- Skin and soft tissue infections.
  - 5- Bone infections.
  - 6- Infections of the kidneys, urinary tract. (renal pelvis, ureter, bladder, urethra) and sex organs; gonorrhoea.
- \*Tarivid can also be taken to prevent infections in patients with clearly weakened immune systems.

## Quantities of treatment:

Indications	Single and daily doses
2x1/2 tarivid 200 mg film-coated tablet daily.	Uncomplicated lower urinary tract infections.
2 tarivid 200 mg film-coated tablets as a single dose.	Uncomplicated gonorrhoea.
2x1 tarivid 200 mg film-coated tablet daily.	Infections of the kidneys, urinary tract and sex organs.
2x1 tarivid 200 mg film-coated tablet daily.	Airways and ear, nose and throat infections.
2x1 tarivid 200 mg film-coated tablet daily.	Skin and soft tissue infections.
2x1 tarivid 200 mg film-coated tablet daily.	Bone infections
2x1 tarivid 200 mg film-coated tablet daily.	Infections of the abdominal cavity (including bacteria - induced diarrhea)

## Warnings:

The effectiveness of tarivid may be reduced when the drug is given along with medications used to lower stomach acidity (mineral antacids) or to protect the stomach lining (e.g. sucralfate).

You must take tarivid about 2 hours before taking other medications. Epileptic fits are more likely to occur if other drugs that lower the seizure threshold are given at the same time as Quinolones.



## The side effects:

Seizure	Hallucinations	Anxiety	Insomnia	dizziness
Sudden	Pain	bruising	Bleeding	Fever

## Benefits of tarivid during Hajj and Umrah seasons for residents and pilgrims:

Hajj season is one of the most critical seasons that face the kingdom of Saudi Arabia, due to the presence of a huge number of pilgrims. During this season, the easy spread of disease among them is a major concern. The most suitable medicine usually used to tackle this problem is tarivid. It is very effective for many common diseases usually seen in Hajj, such as inflammation of the lung, skin, soft tissue inflammation, bone infection, and acute, chronic, and recurrent infection of the respiratory tract. Also, it can be used to prevent infections in patients with weakened immune systems.

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References:  
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# Tetracyclin



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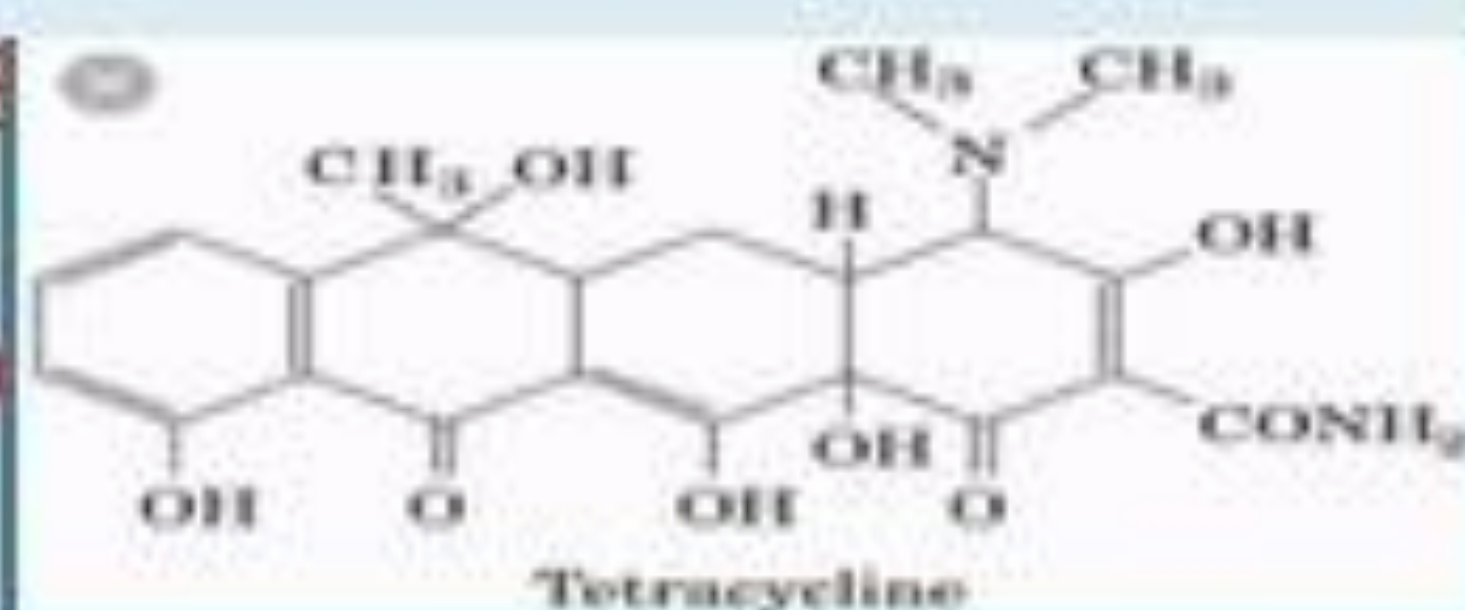
## Definition:

Tetracycline is a group of broad-spectrum antibiotics, that is the best treatment for certain indications. It is used to treat infections caused by bacteria. The reason for the designation of this name, because it contains four rings hydrocarbon.

## Chemical Structures:

Chemical formula :  $C_{22}H_{24}N_2O_8$

Molecular formula:  $444.435g/mol$



## Warning:

1. All forms: Should not forget any dose, until the patient gets the best benefit.
2. By mouth: This medicine is taken on an empty stomach before eating an hour or two hours. if this medicine is liquid, the tower of this liquid should be done well before use.
3. By Skin: Do not take this medicine by mouth because it is used for skin only, taking care to be away from the mouth.

Recommendation for using by skin

\*Wash your hands before and after

\*Clean the affected area.



## Dosage:

The Drug Was given:

- \*500mg orally twice a day for two weeks in the case of acne.
- \*500mg oral dose every 6hours for 7-19 days in bronchitis.
- \*500mg orally four times a day for Three week with streptomycin (1g dose as a muscle injection twice daily during the second week)in maltese fever (brucellosis).

## Side effects:

- \*Vaginal discharge and vaginal infection.
- \*Vomiting and itching,
- \*Skin irritation

## indication:

- 1-Prevention and treatment of acne.
- 2- Treat various kinds of microbial bacterial infection.
- 3- Prevention or treatment of gastrointestinal ulcers, such as gonorrhea bronchitis and arterial.

## Mechanism of Action:

The drug works by interfering with the ability of bacteria to produce proteins that are necessary for the cells. The tetracycline is stop the spread of infection, and the remaining bacteria are killed by the immune system or eventually die.

## Benefits of Tetracycline during Hajj and Umrah seasons for residents and pilgrims:

Tetracycline is used for the prevention or treatment of various types of bacterial infections spread during the hajj and umrah seasons, which are accompany some pilgrims. Also it is prevent gastrointestinal ulcers tetracycline. Also, can be used in treatment of respiratory tract infections, which are affected pilgrims after returning from hajj and Umrah, such as flu and cough. Finally this medicine is used to prevent many infections in humans.

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- 1-Bhattacharya SK, National Institute of Cholera and Enteric Diseases (2003). "An evaluation of current cholera treatment". Expert Opin Pharmacother. 4 (2): 141-6.
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# Cefaclor



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## Definition

Sefaclor is an antibiotic of the second generation cephalosporin group which has an antimicrobial effect.

**Trade Name :** CECLOR

## Treatment form

Capsules and suspension granules.

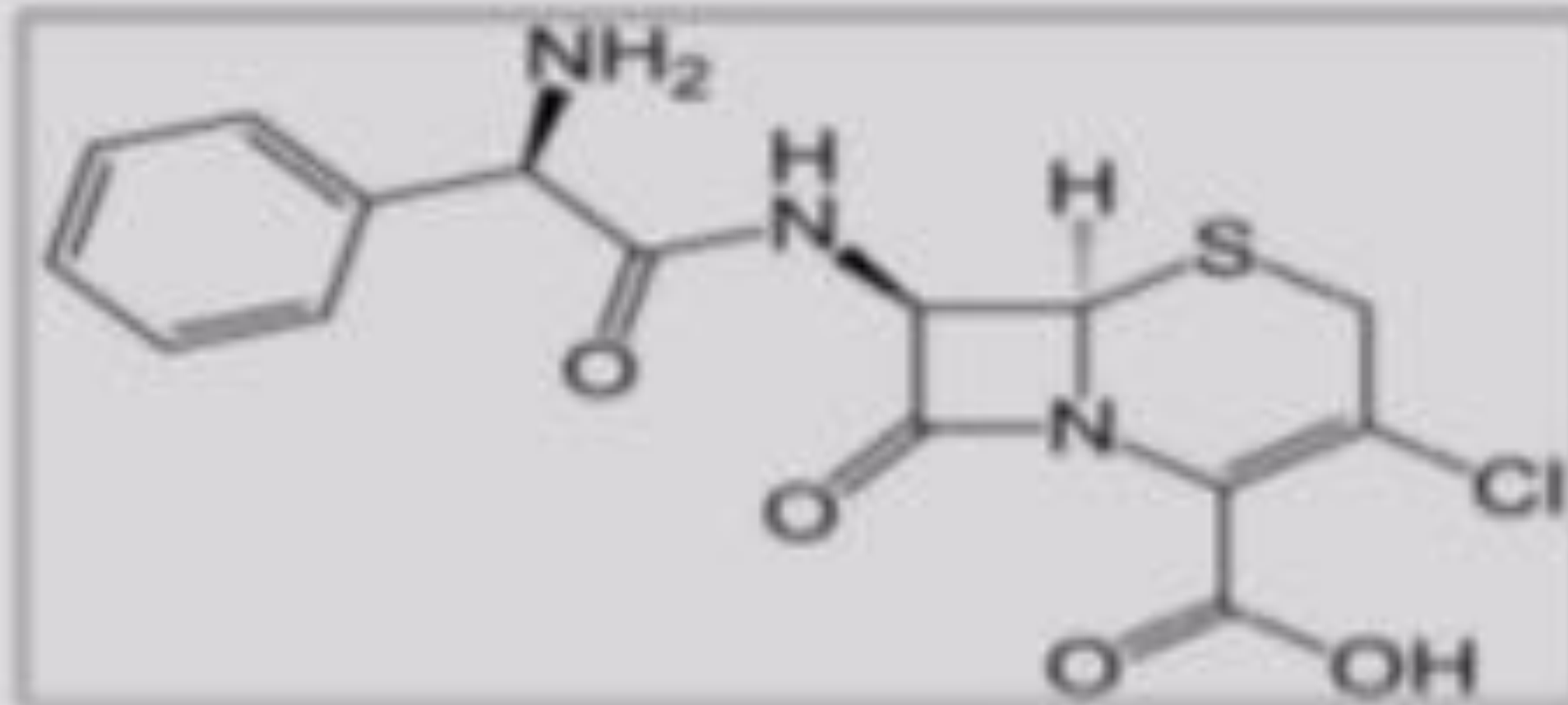


## Warnings

➤ Cefaclor does not affect the patient's driving capabilities or his ability to use machinery.

Keep out of the reach of children. ➤

## Chemical form



cefaclor

## Quantities of treatment

➤ Children dose: 20 mg every 8 hours.

➤ Adult dose: 250 mg every 6 hours.

## Side effects

➤ Symptoms of allergy.

➤ Gastrointestinal symptoms.

➤ Symptoms of the reproductive system.



## Preparation

➤ Capsules: each 500 mg capsule contains active principle cefaclor monohydrate.

➤ Excipients: erythrosin E127 aluminium, methylcellulose, sodium, laurylsulfate dimethicone 350, polysaccharide gum, modified starch, strawberry flavouring saccharose.

## Indications

➤ Treatment infections caused by sensitive germs infection of the respiratory system such as pneumonia, bronchitis chronic bronchitis relapse, pharyngitis and tonsillitis.

➤ Otitis of the middle ear.

➤ Infection of the skin and soft tissues.

➤ Infections of the urinary tract.

## Benefits of cefaclor during Hajj and Umrah seasons for residents and pilgrims

During Hajj some pilgrims get injured of respiratory system or urinary tracts infections, and cefaclor is effective for these diseases.

## References:

Hebert A, Sigman E, Levy M (1991). "Serum sickness-like reactions I from cefaclor in children". J Am Acad Dermatol

Parra F, Igea J, Martin J, Alonso M, Lezaun A, Sainz T (1992). "Serum II sickness-like syndrome associated with cefaclor therapy



# Histop

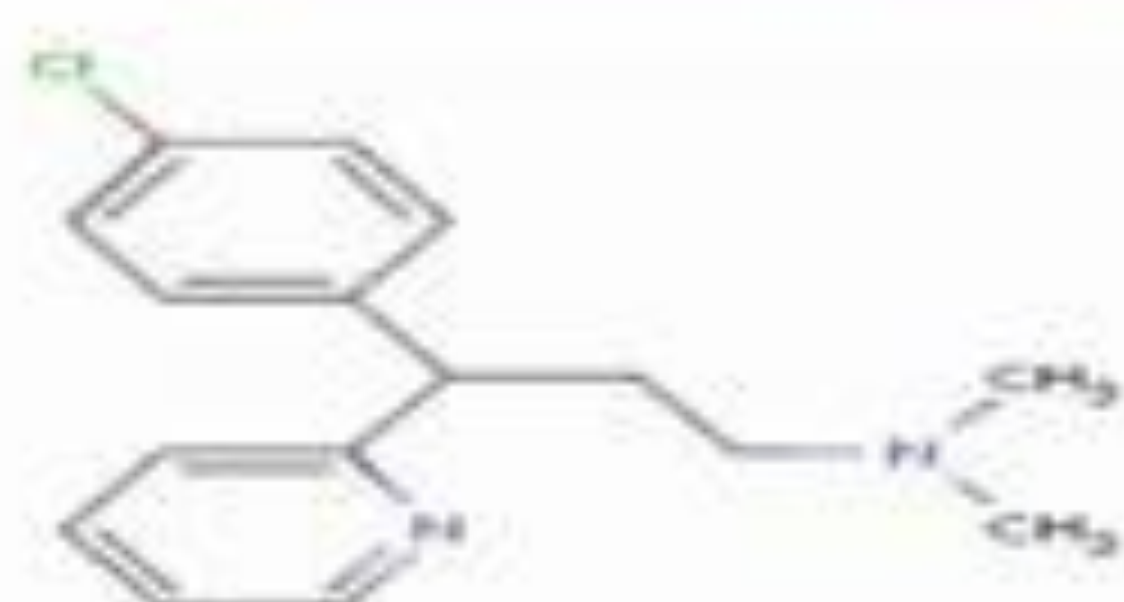


Poster done by :  
 Razan Hassan - Lojaine Mansour - Lamis Marghani  
 Moradi Nahas - Nebras Khoja - Amjad Toukhi  
 Supervised by :  
 Dr. Hanadi Ahmed Katouah

## Definition of medicine

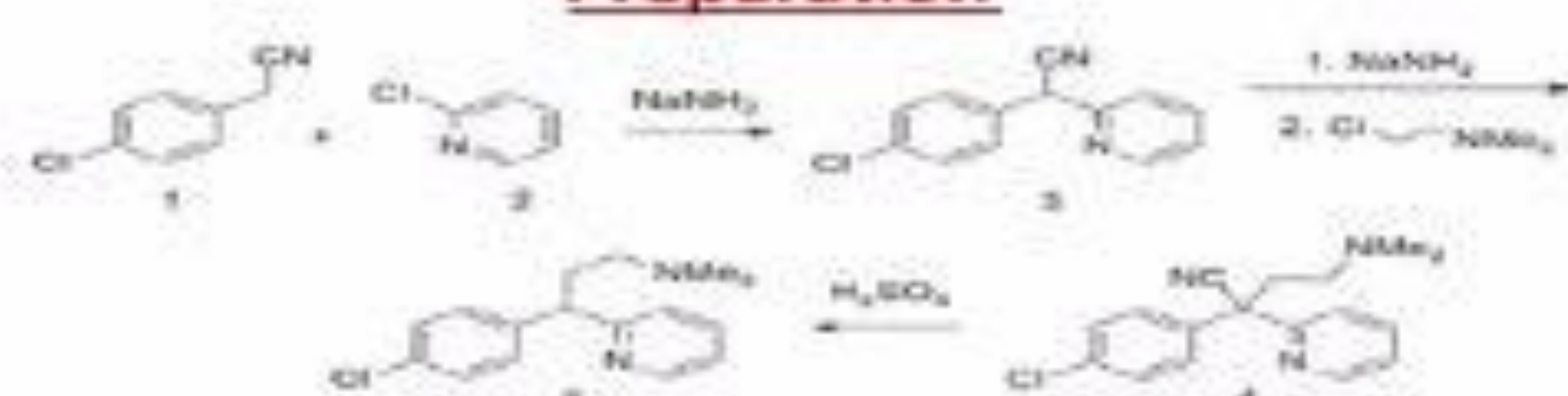
Histop is one of the famous antihistamine drugs. The scientific name of Histop is Chlorpheniramine, a first-generation antihistamine drug that prevents the body's reaction from allergens and thus neutralizes allergic reactions and relieves allergic symptoms.

## Chemical Formula

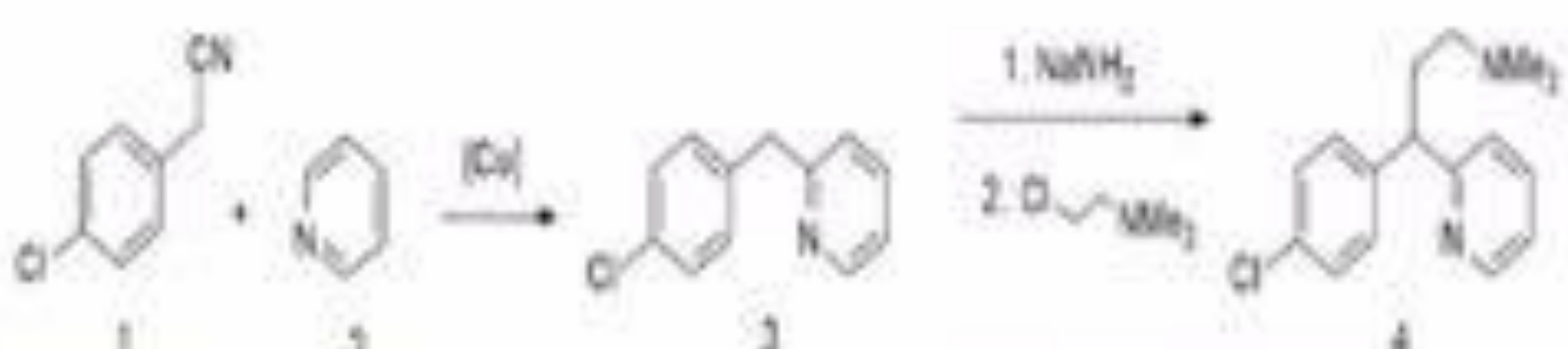


1-(4-Chlorophenyl)-N,N-dimethyl-3-pyridin-2-yl-propan-1-amine.

## Preparation



Chlorpheniramine synthesis 1: D. Papa, E. Schwenk, N. Sperber, U.S. Patent 2,567,245 (1951).



Chlorpheniramine synthesis 2: D. Papa, E. Schwenk, N. Sperber, U.S. Patent 2,676,964 (1954).

## Physical properties

**Formula:**  
 $C_{16}H_{19}ClN_2$   
**Molar mass:**  
 $274.79 \text{ g}\cdot\text{mol}^{-1}$   
**Solubility in water:**  
 $0.55 \text{ g}/100 \text{ mL}$ , liquid  $\text{mg}/\text{mL}$  ( $20^\circ\text{C}$ )

## Treatment form

The medicine is available in the form of solution and tablets.



## Quantities of treatment

For children 2-6 years : 1 mg every 4-6 hours.  
 For children 6-12 years : 2 mg every 4-6 hours.  
 For adults : 4 mg every 4-6 hours.  
 For seniors : 4 mg once or twice a day.

## Indications

Common cold. Fever. Allergy. Watery eyes.



Itchy throat/skin . Anaphylactic shock .



## The side effects

Dizziness. Dry mouth. Interference in the vision.



Shiver. Muscle weakness. Shortness of breath.



## Warnings Usage

-Consult your doctor if you have any liver disease.  
 -Avoid driving because medication causes blurred vision and causes dizziness.  
 -Inform the appropriate doctor if the woman is pregnant or planning a pregnancy.



## Benefits of Histop during hajj and umrah season for resident and pilgrims

During Hajj, some pilgrims are exposed to infection, They may develop flu or allergies due to exposure to dust or itchy skin, so Histop can be effective.

## References

1. Dailymed label: CHLORPHENIRAMINE MALEATE-chlorpheniramine maleate tablet.
2. ^ Gruetter CA, Lemke SM, Anestis DK, Szarek JL, Valentovic MA (Jul 1992).



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Faculty of Applied Sciences



قسم الكيمياء  
Department of Chemistry







# Meningitis Vaccine



## Definition:

**Meningitis vaccine:** This term usually refers to a vaccine used to prevent meningococcal meningitis, an inflammation of the membranes that cover the brain and spinal cord due to bacterial infection by *Neisseria meningitidis*. Vaccination is the result of giving the patient or child a defective part of the pathogen causing the disease to identify the immune system, and then control, and prevent the development of the disease in the future and available. This vaccine is available for species A, C, Y, W-135 only and there is no vaccination of strain B.

1



## Dosage:

Vaccination is given by injection in the form of 0.5 ml dose

Table of vaccinations	
Dose number	Age
1	2 months
2	4 months
3	6 months
4	1 years
5	18 years

3

4



## Indications:

- 1- Unusual nervousness and severe headaches.
- 2- Mental confusion .
- 3- Vomiting repeatedly .
- 4- Sharp rise in temperature .
- 5- Convulsions may lead to loss of consciousness.
- 6- Fatigue, stress and general weakness.
- 7- Stiffen and pain in the back of the neck.
- 8- Sensitivity to light.

6



## Warning:

- During pregnancy: Vaccination with this vaccine is not intended for adults, and it is not recommended to vaccinate pregnant women with this vaccine.
- Breast feeding: This vaccine is not intended for adults, and it is not recommended to vaccinate breastfeeding women with this vaccine.
- Children and Infants: It is recommended to vaccinate this vaccine from the second month after birth until the age of five.
- Elderly: This vaccine is not intended for adults.

7

8

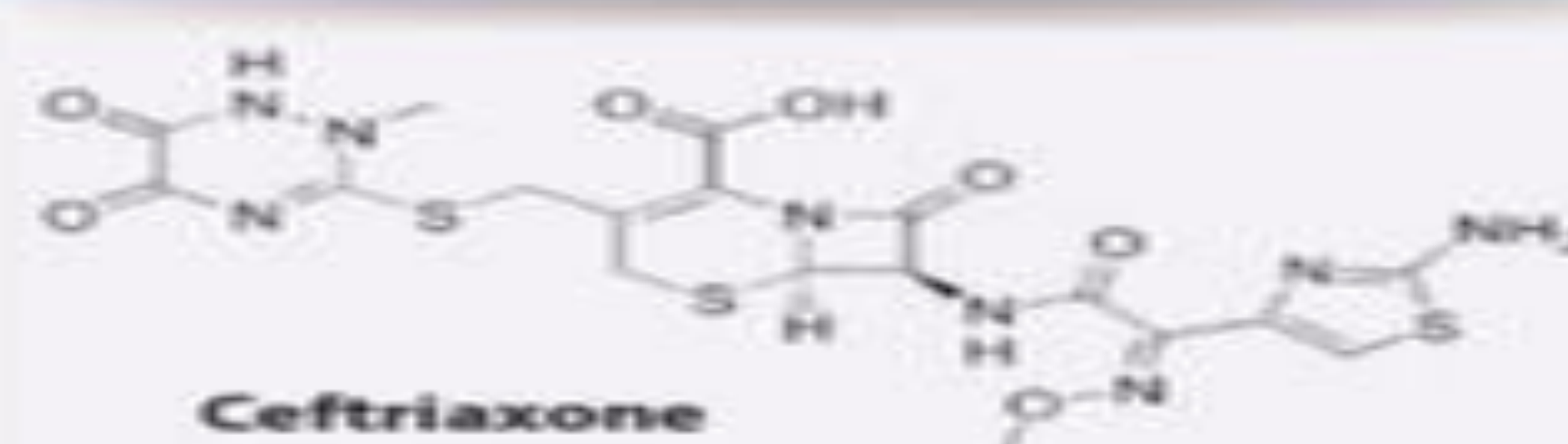
9

## Treatment form:



injection

## Chemical form:



## Recommend positions of given vaccine:

- It is recommended to give vaccination to children under the year in the outer part of the thigh muscle.
- It is recommended to give children of the age of the year and above vaccination in the form of a syringe in the dorsal muscle in the arm.
- It is recommended to give children with blood clotting problems vaccination in the form of injection under the skin to avoid bleeding.

## Side effects:

- Slight and transient side effects of redness, pain and swelling at the injection site.
- Sometimes there may be a rise in body temperature, loss of appetite, vomiting, diarrhea and discomfort.

## Benefits during Hajj and Umrah seasons for residents and pilgrims:

- The vaccine against meningitis is the most important vaccine required by the Saudi government before traveling to Hajj, because the meningitis is a serious infectious disease.
- If not treated, they often lead to death and in the case of delayed treatment may lead to neurological disabilities.

### References:

- Meningitis - cdc.org
- Meningitis - kidshealth.org

Supervised by: Dr. Hanadi Ahmed Katouah

Poster done by:

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- 2- Rahaf barakat alJemeli
- 3- Amal Mohammed Al Harbi
- 4- Atheer sultan Al Harbi
- 5- Mayar Sami Al Harbi
- 6- Samaher Mamdouh



**FIGHT**  
FLU



# Influenza Vaccination

Poster done by :Shouq Ibrahim Alshaikh,Ranim Abdulsalam Seraj,Samaher Sami  
Ali,Nourah Al Shareef,Abrar Salim Alharbi,Najd Al-Otaibi.  
Supervised by: Dr.Hanadi Ahmed Katouah



## Definition Influenza vaccine

Influenza vaccines, also known as flu shots or flu jabs, are vaccines that protect against infection by Influenza viruses. A new version of the vaccine is developed twice a year, as the Influenza virus rapidly changes. While their effectiveness varies from year to year, most provide modest to high protection against influenza.

## Chemical Composition



Thiomersal is an organic mercury containing compound added to some vaccines as a preservative. It is the most widely-used preservative for vaccines. There is no evidence to suggest that the amount of thiomersal used in vaccines poses a health risk.

### Definition Influenza viruses:

Influenza viruses are enveloped RNA viruses, which are divided into three types "A, B and C". The first two are involved in significant human diseases.

## symptoms



## recommended dose

age	Dose	Number of doses
6-35 months	0.25 ml	1 or 2
3-8 years	0.50 ml	1 or 2
29 and above	0.50 ml	1

### Recommended Vaccines for Hajj and Umrah:

The Saudi Ministry of Health recommends seasonal influenza vaccine for Hajj attendees before arrival, especially Those who intend to go to Hajj and Umrah are advised to get vaccinations from certain diseases before going to Hajj for at least 10 days so that their immune system can form the antibodies necessary to defend the body.

## Flu Prevention Tips



## Side effects



### References:

1- "Influenza Virus Vaccine Inactivated". The American Society of Health-System Pharmacists. Archived from the original on December 25, 2014. Retrieved January 8, 2015.

2- "Vaccine, Influenza". International Drug Price Indicator Guide. Retrieved December 6, 2015.



# (Measles) vaccine



Poster done by:

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### Defintion of measles vaccine:

It is used to protect against severe infection from viral affecting children,which is measles,the inflammation of the respiratory tract caused by highly contagious virus.

### Dosage :

Amount of dosage for adult : 0.5ml  
Amount of dose for children : 0.5 ml

### Side effects of measles:

- 1-Feel the pain .
- 2-Simple swelling of skin of the injection site for a few days.
- 3-High temperature may last for . day
- 4-Feeling tired and sleepy.
- 5-Appearance of rash from 5 to10 day.

### Table of vaccinations:

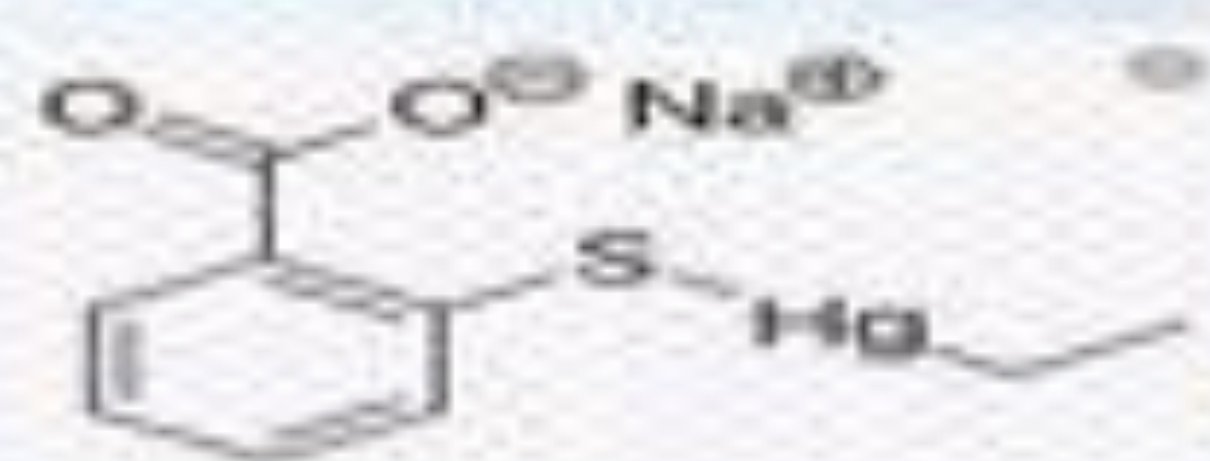
اللقاح Vaccine	الزمن Visit
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 12 At Birth
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 2 2 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 4 4 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 6 6 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 9 9 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 12 12 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 15 15 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 18 18 Months
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 3 3 Years
M, D, P Measles B DTP MM Pertussis (Diphtheria) Tetanus (DTaP)	من الشهر 4 4 Years



### Chemical compound of measles vaccine:

Thiomersal which is the active a compound containing ethyl mercury used to prevent bacterial and fungal growth .

### Chemical formula:



Thiomersal

### Therapeutic form:

multi-dose vials.  
Give (measles vaccine by injection under the skin.

### Symptoms of measles:

- 1- Dry cough .
- 2- Mucous secretions of the nose Conjunctivitis.
- 3- Appearance of small white dots.
- 4-Appearance of rash.



### Precautions of measles vaccine It is not recommended to:

- 1- Pregnant women.
- 2- The elderly.

### Benefits of measles during Hajj and Umrah seasons for residents and pilgrims:

Vaccination against (measles) considered an important vaccination, for all pilgrims coming to the House of God. One of the things to consider is that the dose should be taken before the Hajj with enough time. So that the period is not less than ten days before travel, and the vaccination lasts for a period not exceeding three years.

### Reference:

- 1-Judith Sondheimer , 2008 , current essential pediatrics , USA , McGraw Hill lange .
- 2-Richard E. and others ,2004 , Nelson textbook of pediatrics ,USA , Saunders



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Faculty of Applied Sciences



قسم الكيمياء  
Department of Chemistry





# Get More Vitamin D



Poster done by: Hanin Alotaibi, Roua Alruhili, Raghad Alharbi, Hajer Alzahrani and Wala Aqel.  
Supervised by: Dr. Hanadi Ahmed Katouah.

## Trade name



## Therapeutic form

- \* Oral drops .
- \* Tablets .
- \* Injections .

## Composition

The active substance in vitamin D is cholecalciferol. Vitamin D is a fat soluble vitamin which is synthesized in the body under the skin. Also it contains: polysorbate 20, vitamin E, glycerin, disodium edetate, cyclodextrin and purified water. 1- Each drop of oral solution contains 100 IU of vitamin D. 2- Each tablet contains 5000 IU of vitamin D

## Chemical form



## Indications

- 1- Prevent rickets and osteomalacia.
- 2- Prevent hypocalcemic tetany.
- 3- Prevent osteoporosis in elderly.
- 4- Prevent chronic and postoperative hypoparathyroidism.

Reference: Written by the Healthline Editorial Team (Vitamin D) healthline.  
November 13, 2017 \* February 10, 2018

## Daily dosage



Preterm infants:  
400 IU (= 4 drops)

Full term infants:  
400 - 800 IU (= 8 drops)



Teenagers:  
(=2000 IU)

Old:  
(=2000-5000 IU)



## Overdosage

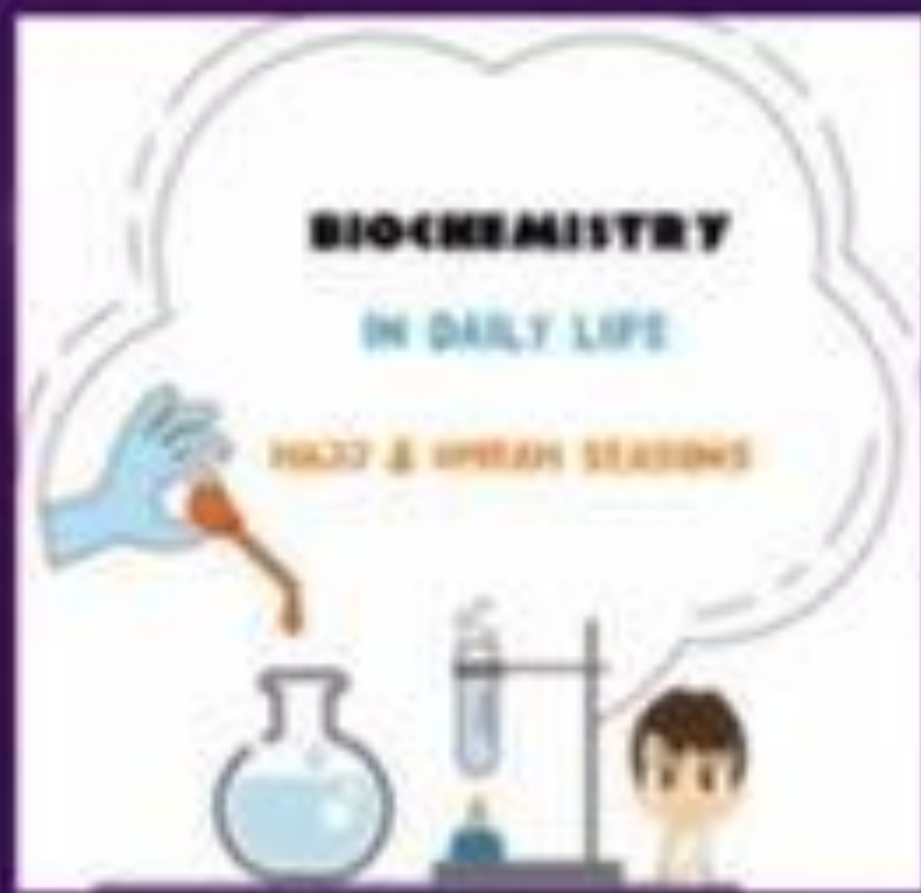
Leads to exceeding the capacity of the kidneys, which causes deposition of calcium in the kidneys and vascular walls. Also leads to appearance of symptoms like thirst, loss of appetite, vomiting, constipation and hypertension.

## Precautions

Caution is required in patients with disturbed calcium metabolism, renal failure, renal stones, arteriosclerosis or coronary heart disease. All forms of vitamin D may be hazardous if taken at high doses, causing a significant increase in calcium absorption. You should drink water with medicine.

## Benefits of cholecalciferol during Hajj and Umrah seasons for residents and pilgrims

They need it to feel active and strong to overcome fatigue and dizziness. Because it works on controlling the level of calcium and phosphorus.



# Strepsils



## Definition:

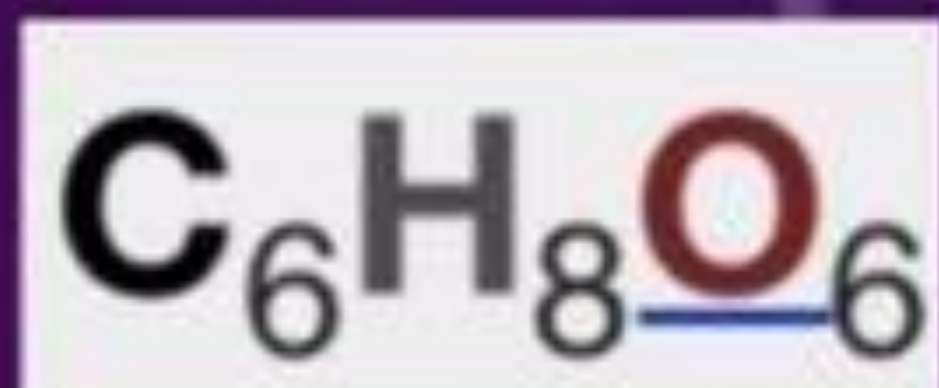
The active substance in the strepsils is Ascorbic Acid. It is used for relief prolonged sore throat, because sore throat is painful and irritable and needs rapid relief.

## Reasons for use:

- Nasal congestion.
- Inflammation of the throat.
- Oral and throat infection.
- Larvnx pain.

## Chemical formula:

(Ascorbic Acid)



## Method of use for adults and children:

Place one tablet of Streusels in the mouth and let it dissolve slowly every two or three hours or as directed by the doctor.

## Therapeutic form:

- Suction pills.
- Effervescent tablets.
- Syrup.

## Precautions:

- keep away from the reach of the children
- Keep at a temperature below 25 ° C.

## Composition:

Each tablet contains almost 2 alcohol.1.2 mg, methyl Carroll B.P. 0.6 mg and vitamin C 100 mg (such as sodium ascorbate, or ascorbic acid BP).

## Reasons for use in Hajj and Umrah:

Pilgrims are more susceptible to diseases, including sore throat and nasal congestion, making them feel difficult to perform the tasks of Hajj and Umrah . In such cases, Strepsils is effective in treating congestion and making them more healthy.

## References:

BBC. 7 October 2005 Reckitt Benckiser buys Boots unit.

Poster done by:

Mimouna-Marwa-Bayader-Shahad-Amani.

Supervised by :

Dr. Hanadi batouah



# Depovit B12



## Depovit B12

The active compound in vitamin B12.

Cyanokopalamine that acts as an enzyme mutation for many vital functions.

It is essential for growth, cell proliferation, blood formation, protein synthesis, lipid metabolism and carbohydrates.

Cyanocobalamin it is absorbed rapidly after muscular or subcutaneous injection.

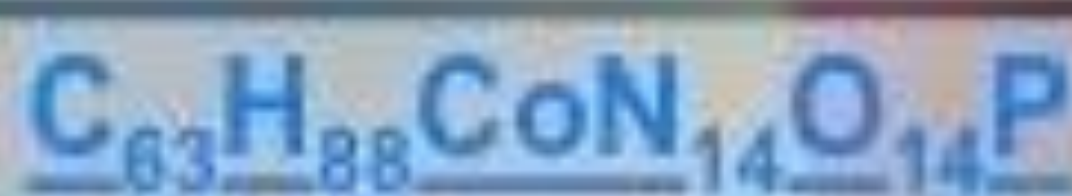
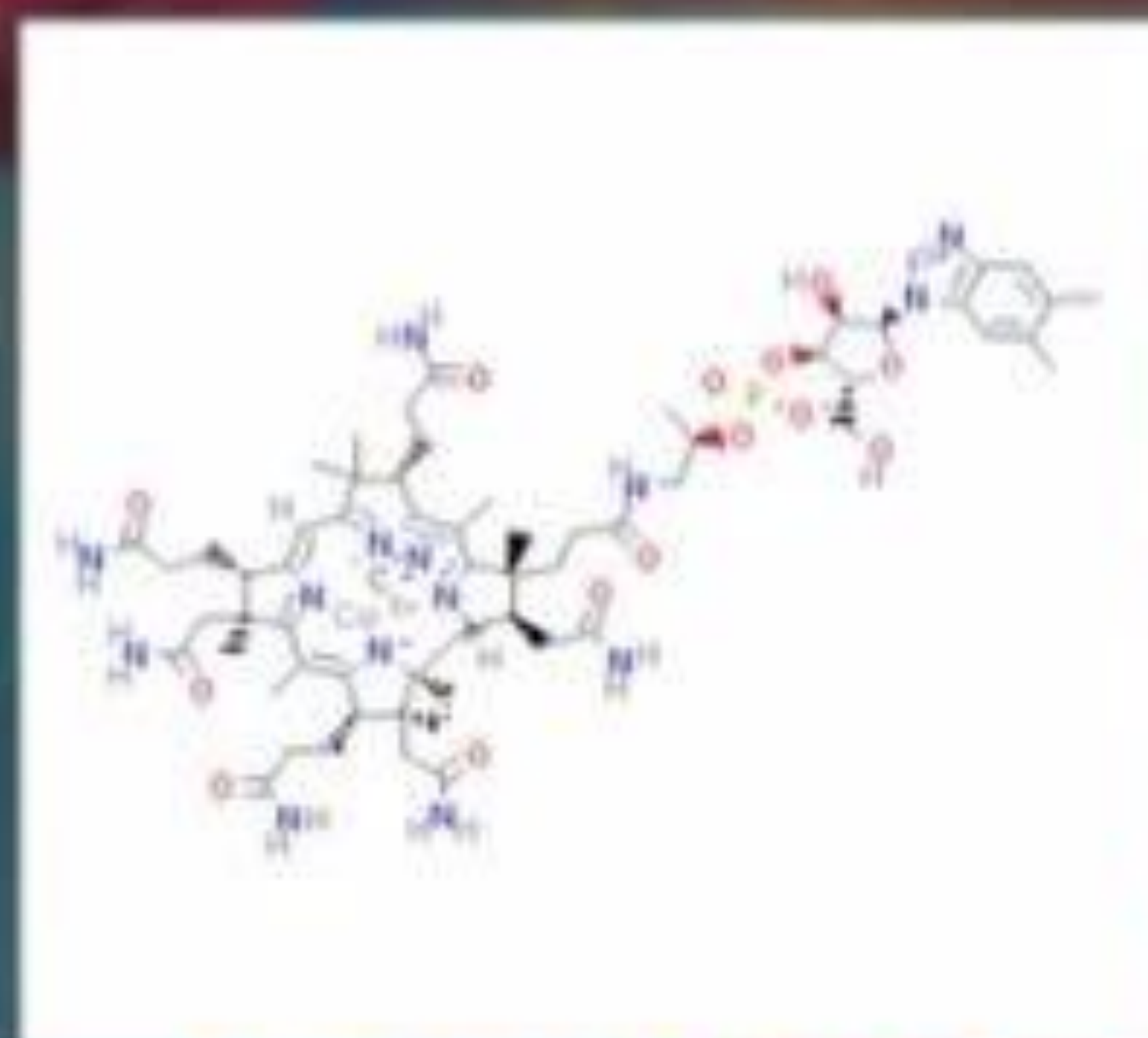
The plasma level of the compound reaches its peak within an hour after intramuscular injection. Liver is the main storage device for vitamin B12.

## Therapeutic form

A carton box containing 3 ampoules (amber glass, type each of 1 ml + pamphlet it's given by injection



## Chemical form



Cyanokopalamine.

## Indications:

- Pernicious and megaloblastic anemia.
- Hepatic and renal diseases.
- Infection with intestinal parasites or bacteria.
- Correction of nervous Manifestations and neurological disorders such as trigeminal neuralgia
- herpes zoster peripheral neuropathy and multiple sclerosis.

## Side Effects:

Hypersensitivity reactions including

- Itching.
- Diarrhea.
- Urticaria.
- Vascular thrombosis .

## Physical Properties:

- Odorless
- Tasteless
- Boiling Point 300 deg C
- Soluble in water

## Warnings

- Use Depovit B12 as directed by your doctor Because it is dangerous for you.
- Check the label on the medicine for exact dosing instructions.
- The Medicament is a product which affects your health and its consumption contrary to instructions is dangerous for you.
- Do not administer injections I to premature infant Neonates and children below 13 years .

## How Depovit B12

is used in the Hajj & Umrah seasons:

In the course of performing the rituals, some pilgrims are exposed to certain diseases during the period of Hajj and Umrah Depovit b12 it is support of ...

Reduce the Risk of Patient Harm Resulting from Falls.

Improve peripheral neuropathy The result of diabetes which usually appears on the body numbness or lack of sense.

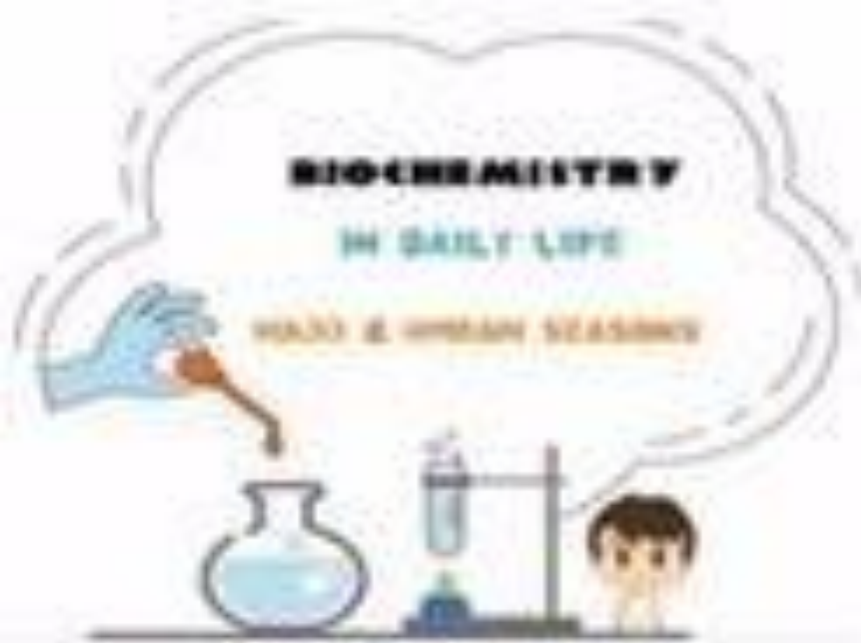
Improve and strengthen the immune system (strengthen immunity.

## Poster done by :

Rehab Brnawi – Ruba moathen– Raneem yousif – Elham lahza – Entisar qinaiyw - Zahra othman – Emtnan Abdullah – shahad slah

Supervised by

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# Vitamin K (Phytomenadione)



Poster done by:  
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Supervised by:  
Dr. Hanadi Ahmed Katouah

## Definition of phytomenadione:

Phytonadione tablets & injection possess the same type and degree of activity as does naturally-occurring Vitamin K, which is necessary for hepatic biosynthesis of active prothrombin (factor II), proconvertin (factor VII), plasma thromboplastin component. Phytonadione is a specific antagonist for coumarin and indanedione and similar anticoagulants. It is indicated in the prophylaxis and treatment of hemorrhagic diseases. Phytonadione is readily absorbed orally and after injection. After absorption, it accumulates mainly in the liver, very little accumulates in tissues, it is metabolized to more polar metabolites and is excreted in bile and urine as glucuronide and sulphate conjugates.

## Dosage:

- 1- Irritable bleeding or hemorrhage 0.5 -1 ampoules mean 5-10 mg.
- 2- Severe bleeding that would destroy the patient's life during treatment with anticoagulants is given 10-20 mg, ie 1-2 ampoules, 10 mg intravenously slowly in at least 30 seconds.

## Uses/Benefits:

- 1- Healthy Bones.
- 2- Blood Clot Formation.
- 3- Improves brain function.

## Warning:

Contraindications phytonadione is not used during:  
1- Biliary tract disease, hepatic disease and jaundice.  
2- Pregnancy.

## Side effects:

- 1- Decreased movement or activity.
- 2- Enlarged liver.
- 3- Taken vitamin K with drinks:  
A) As those taken soft drinks of all kinds limit the activity of medicines.  
B) Taking the vitamin K with tea reduces the effect and causes other diseases because the tea contains caffeine.

## Therapeutic form:

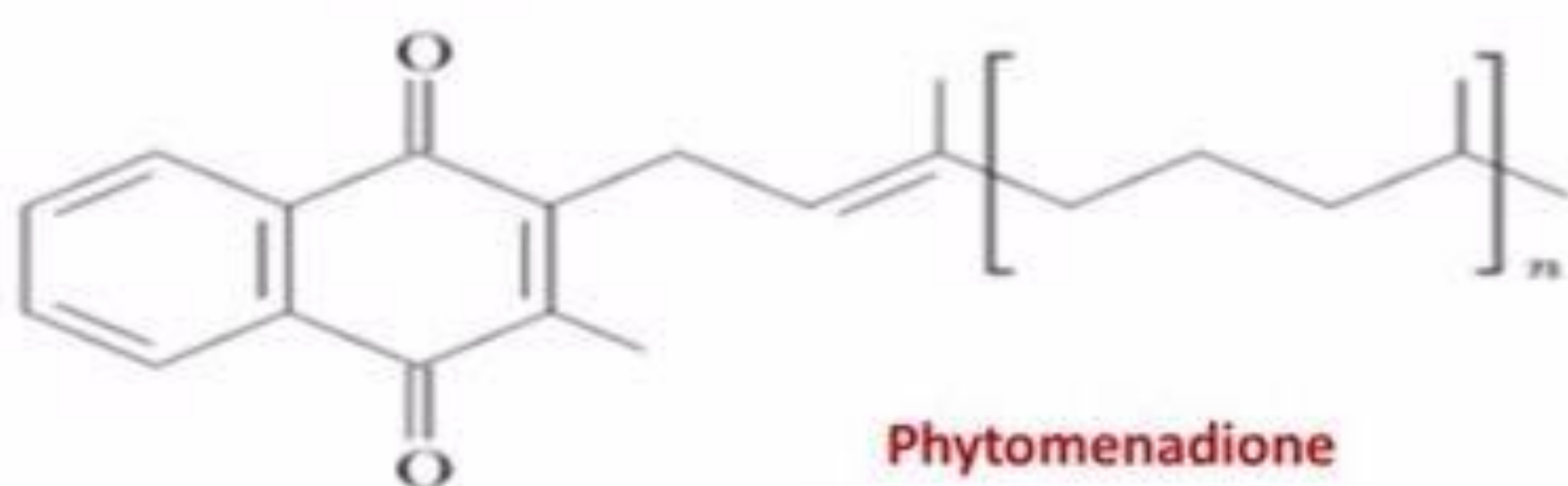
-Disks for chewing



-Injection



## Chemical structure:



## Physical properties:

Vitamin K is a fat-soluble vitamin.

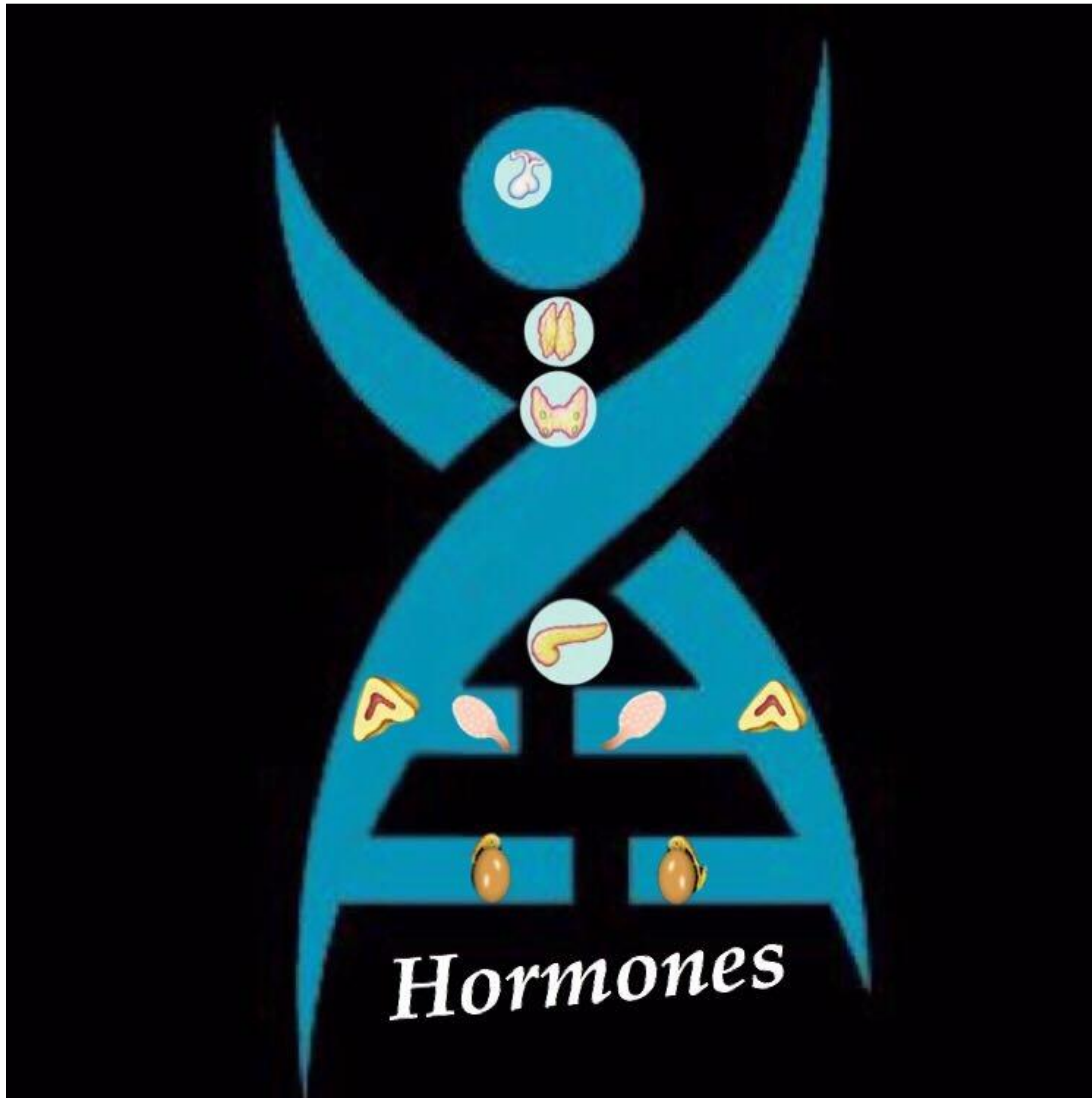
## Benefit of \*phytomenadione\* during Hajj and Umrah seasons for residents and pilgrims:

Vitamin K is essential for pilgrims, that help them perform their rituals comfortably and securely. Because it will help in formation of healthy bones and plays an important role in bone formation. Also it is involved in treatment of hemorrhagic diseases.

## References:

- 1- Suttie JW. Warfarin and vitamin K. Clin Cardiol 1990;13:16-8.
- 2- Furie B, Bouchard BA, Furie BC. Vitamin K-dependent biosynthesis of gamma-carboxyglutamic acid. Blood 1999;93:1798-808.
- 3- Sokoll LJ, Sadowski JA. Comparison of biochemical indexes for assessing vitamin K nutritional status in a healthy adult population. Am J Clin Nutr 1996;63:566-73.





# AMARYI (Glimepiride)



## Pharmacological Form:

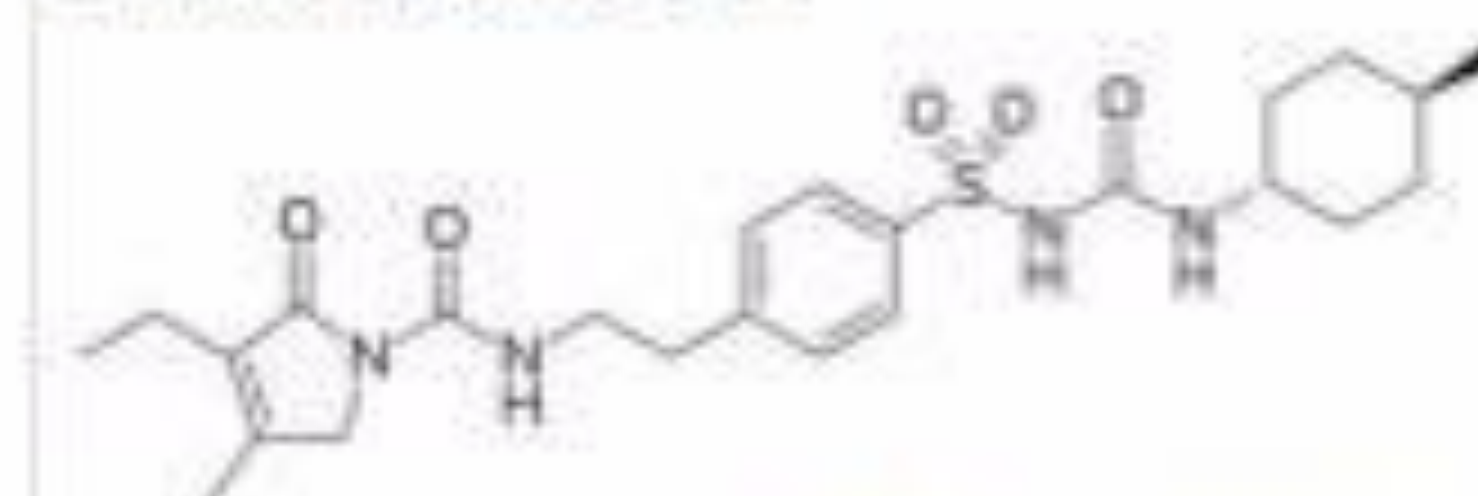
Tablets:  
1mg-2mg-4mg

## Definition:

Amaryl (glimepiride) is an oral diabetes medicine that helps control blood sugar levels. Amaryl is used together with diet and exercise to treat type 2 diabetes. Insulin or other diabetes medicines are sometimes used in combination with Amaryl if needed.

## Molecular Formula:

C<sub>24</sub>H<sub>34</sub>N<sub>4</sub>O<sub>5</sub>S



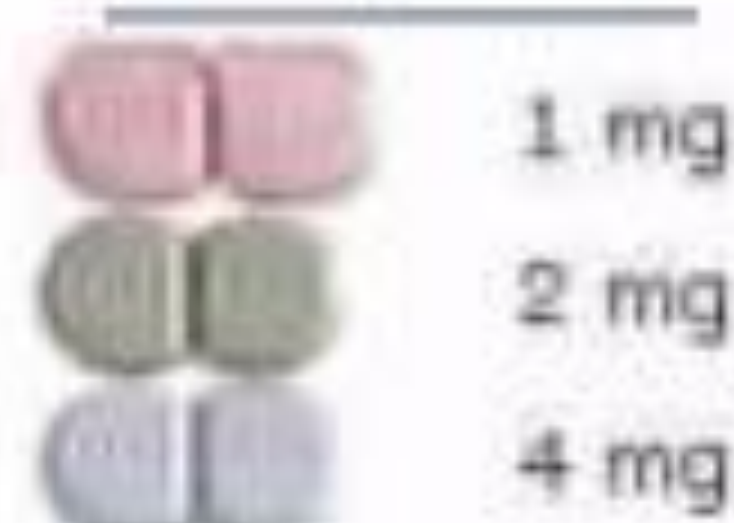
Glimepiride

## Indications:

Glimepiride is indicated to treat type 2 diabetes mellitus; its mode of action is to increase insulin production by the pancreas. It is not used for type 1 diabetes because in type 1 diabetes the pancreas is not able to produce insulin.



## Amaryl



## Warning:

Before taking this medicine:

To make sure Amaryl is safe for you, tell your doctor if you have:

- Heart disease.
- Liver or kidney disease.
- An allergy to sulfa drugs.
- Adrenal or pituitary gland problems.
- If you are undernourished.



## Physical Properties:

- Physical Description (Solid).
- Melting Point(207 °C).
- Water Solubility (Insoluble).

## Dosage:

after -Adult(Initial: 1-2 mg breakfast or with first meal; may increase dose by 1-2 mg every 1-2 weeks; not to exceed 8 mg/day).  
-Geriatric:(1 mg PO qDay; titrate dose at weekly intervals to avoid hypoglycemia).  
-Pediatric:(Safety and efficacy not established).

## Side effects:

If you experience any of these symptoms, call your doctor immediately:

- \*Yellowing of the skin or eyes.
- \*Light-colored stools.
- \*Dark urine.
- \*Pain in the upper right part of the stomach.
- \*Unusual bruising or bleeding.
- \*Diarrhea.
- \*Fever.
- \*Sore throat.



**Benefits of during Hajj and Umrah seasons for residents and pilgrims:**  
d (Amaryl)medici Many of the pilgrims are diabetics and therefore need  
They can show symptoms of diabetes and how they need as a medicine

Poster done by:  
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Njood Almalki  
Sarah Alosaimi-Razan  
Mousa- Hanaa Fatani  
Nada Alfahmi-Omnia  
Waleed-Wedain Alzahrani-  
Feton Alharthy  
Supervised by:  
Dr.Hanadi Ahmad  
Katouah

## References:

- 1- (Santulli G, Pagano G, Sardu C, Xie W, Reiken S, D'Ascia SL, Cannone M, Marziliano N, Trimarco B, Guise TA, Lacampagne A, Marks AR (May 2015)
- 2- Drug Information Portal NLM – Insulin human USAN
- 3- Kjeldsen T (September 2000). "Yeast secretory expression of insulin precursors". *Applied Microbiology and Biotechnology*. 54 (3): 277–86



Supervised by: Dr. Hanadi Ahmad Katouah.  
Student's work: Abeer salem , Abrar Abulola,  
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alsubaaai,Mariam al- mugatti and Laila al-jomaie

## Oxytocin: The love hormone

### Definition of oxytocin

Oxytocin is a powerful hormone that acts as a neurotransmitter in the brain, which is playing a role in behaviors from maternal, infant bonding and milk release to empathy.

### Preparation

- 1-When we hug loved one , Oxytocin levels increase it often "called " **The love hormone**"
- 2-The standard solution for infusion of Pitocin is prepared by adding 1 mL (containing 10 units of oxytocin) to 1000 mL of .0.9% Aqueous sodium chloride or Ring E's lactate

### Medical quantities

- 1-Is used to induce labor and to support labor In case of slow childbirth if the Oxytocin Challenge Test (OCT) fail
- 2-Also used in veterinary medicine to facilitate Birth and to stimulate milk release
- 3-This drug is registered in many countries to Suppress premature labor between 24 and 33 Weeks of gestation
- 4-Sometimes prescribed for mothers to stimulate Breast milk production to help with feeding Their baby

### Benefits of oxytocin during hajj and umrah seasons for residents and pilgrims

In the Hajj and Umrah emotions and hopes are renewed. Also self-righteousness and love are spread among people. All that will lead to an increasing in the level of this hormone which is secreted from the body.

### Chemical structure

C43H66N12O12S2

The scientific name: Oxytocin

Trade name : Pitocin, syntocinon



### Medication form

Injectable oxytocin prevents in the following cases:

- 1-If there is an imminent risk to the fetus at birth.
- 2- In the event that natural birth can't be performed
- 3-The presence of a wound in the womb or cervix

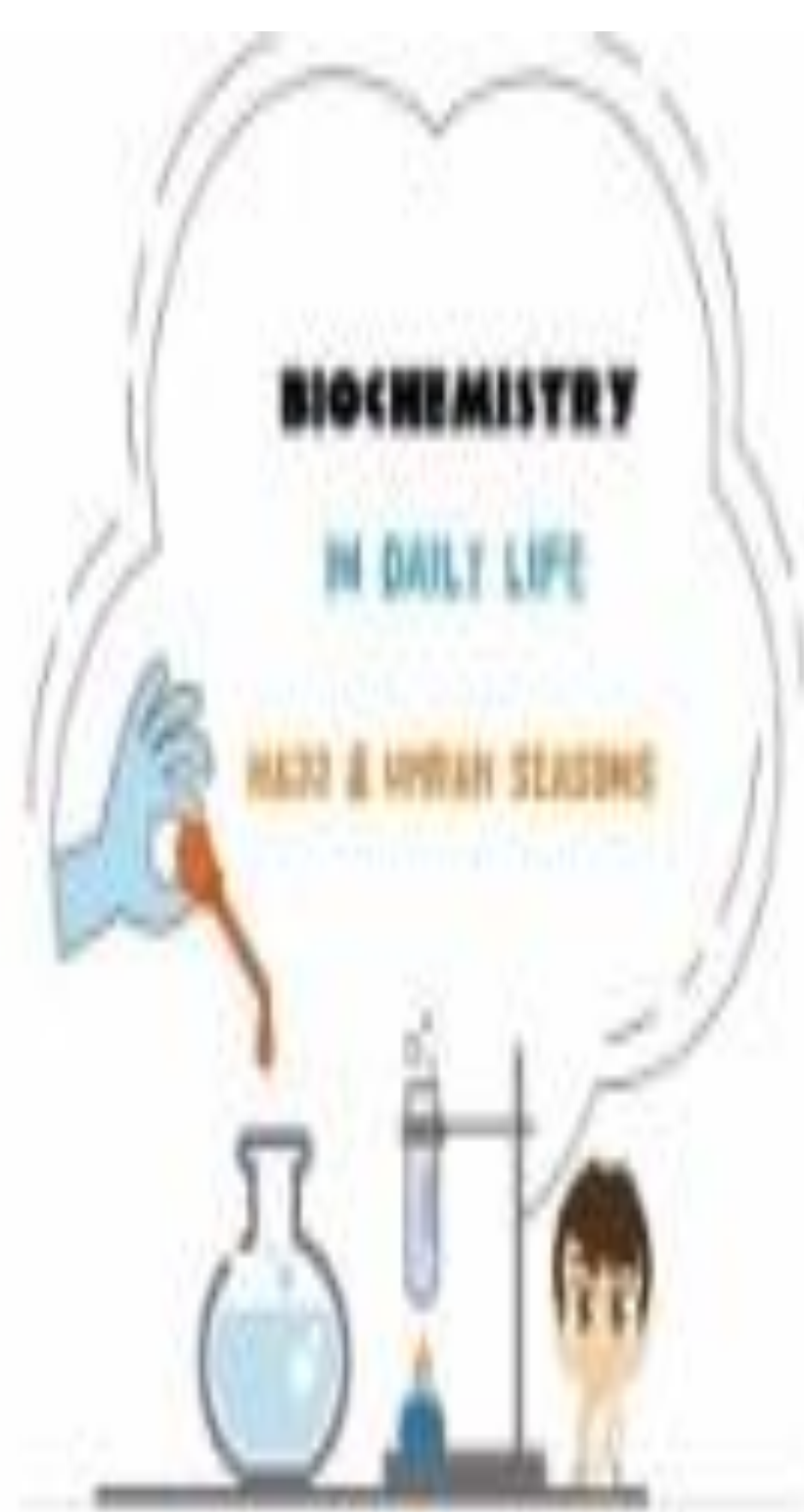
### Warnings

Oxytocin is relatively safe if given the appropriate Dose, and side effects:

- 1-Hypertension
- 2-Hypersensitivity
- 3-Nausea and vomiting

### References

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# Predsol Forte

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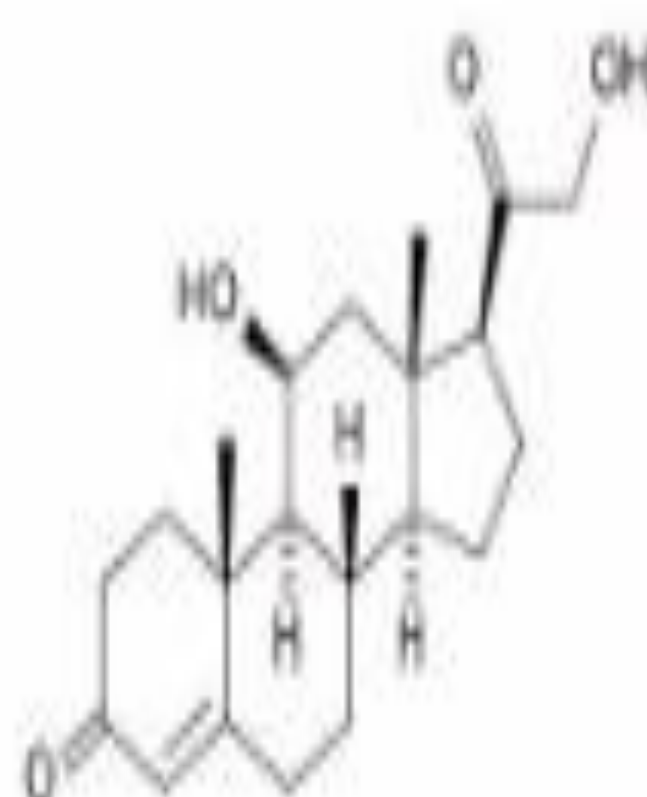
Hanadi Ahmed Katouah

## Definition of medicine

Forte ( prednazolion ) is a corticosteroid Predosol (i.e. derivative of cortisone). It works by modifying the immune body's response to various conditions and reducing inflammation (i.e., the Predosol forte drink reduces and modifies the physical immunity of the body, which contributes to improving some of the cases that are produced by the immune system.

## Chemical form :

The effective substance in this medication is cortisone.  
C<sub>21</sub>H<sub>28</sub>O<sub>5</sub>



Cortisone

## Treatment from

The medicine is available in the form of syrup.



## Quantities of the treatment

The initial dose is different according to the severity of the condition and the patient's personal response, and the dose is determined as follows:

- **Adults** : 5 mg to 60 mg/ day, taken as one dose or fragmented to three or four times a day.
- **Children** : 2 mg to 14 mg per kilogram of child's weight divided into three or four times a day.
- You must use the specified dose during meals. If the treatment continues for more than two weeks, the withdrawal of the medication must be gradual and not halted once, and this medication is only being cashed under the supervision of a competent physician.

## Reasons for use:

- 1-Arthritis.
- 2-treating some of the diseases of the blood and collagen example (lupus).
- 3-treating certain eye diseases such as (cornea), in some cases of cancer (such as leukemia).
- 4-treating some intestinal problems such as (cervical colitis).
- 5-treating some skin diseases (such as psoriasis).

## Use warnings:

It is used cautiously in cases of pregnancy and is not used in cases of lactation with the need to consult the therapist in the case of diabetics used under the supervision of the treating physician if you are allergic to any element in the Predsol syrup , If you have a systemic fungal infection.

## The Side effects:

It may occur very rarely during the treatment of the sodium retention and loss of the potassium and the increase in corticoidosis occurs only after long treatment and in high doses, but simple phenomena of inequilibrium of an involuntary nervous system and possible side effects.



- 1-Acne
- 2-Dizziness
- 3-Increased sweating
- 4-Nausea
- 6-Sleep disorders
- 7-Muscle pain



Benefits of predsol forte during hajj and Umrah seasons for residents and pilgrims:  
Treat some problems such as bronchial asthma, chest sensitivity that does not respond to other treatments, eczema, dermatitis and itching.

## Reference

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