

## KOFAREST PLUS SYRUP

### COMPOSITION

Each 5 ml contains:

Levocetirizine Dihydrochloride	0.8 mg
Ambroxol Hydrochloride BP	15 mg
Phenylephrine Hydrochloride IP	5 mg
Guaiphenesin IP	50 mg
Menthol flavoured Syrupy base	q.s

### PHARMACOLOGY

**Kofarest Plus Syrup** is formulated for the relief of irritating and troublesome cough. It has mucolytic, antihistaminic and nasal decongestant actions. Kofarest Plus Syrup not just relieves coughs it also soothes the throat because of its excellent demulcent action.

**Levocetirizine** in Kofarest Plus Syrup, is a third generation antihistamine that provides relief in allergic conditions. Levocetirizine is the active enantiomer of cetirizine. It reduces allergic vasodilatation and nasal mucosal congestion commonly seen in upper respiratory infections and allergies.

**Phenylephrine** is a sympathomimetic vasoconstrictor that has been used as a nasal decongestant for many years. Phenylephrine constricts the blood vessels in the nasal mucous membranes and allows the air passages to open up. It is a relatively selective alpha-adrenoceptor agonist. The majority of the sympathomimetic action is due to direct stimulation of the adrenoceptors. At therapeutic doses, it does not cause significant stimulation of the central nervous system.

**Ambroxol** is the metabolite of Bromhexine and a mucolytic agent. Ambroxol acts to reduce the viscosity of tenacious mucous secretions by fragmenting long mucopolysaccharide chains. This results in liquefaction of viscid, mucoid respiratory secretions, which aids expectoration.

Ambroxol stimulates the synthesis of phospholipids by alveolar cells and formation of surfactant lipids. It facilitates mucociliary clearance by intensifying the motion of the cilia present on the ciliated respiratory epithelium. Thus the airways are cleared and the patency of bronchioles and alveoli are re-established.

Studies indicate that Ambroxol also acts as an antioxidant. It inhibits the production of superoxide anion, hydrogen peroxide, hypochlorous acid (HOCl) and decreases the release of elastase and myeloperoxidase by activated neutrophils. Thus ambroxol protects lung tissue components against oxidative damage.

Ambroxol has a mild anti-inflammatory and cough suppressant action. It also enhances the concentration of chemotherapeutic agents in pulmonary tissues.

**Guaiphenesin** in Kofarest Plus Syrup is an expectorant that increases respiratory tract fluid secretions and helps loosen phlegm and bronchial secretions. By reducing the viscosity of secretions, guaiphenesin increases the efficiency of the mucociliary mechanism in removing accumulated secretions from the upper and lower airway.

**Menthol** has a cooling and soothing effect on the throat, which is followed by an analgesic effect. It has been suggested that the benefits of menthol may be due to an effect on calcium channels of sensory nerves.

**Kofarest Plus Syrup** relieves multiple symptoms of congestion, blocked, runny nose, itching and sneezing and at the same time loosens viscid mucus.

**Kofarest Plus Syrup** is twice as viscous as other cough and cold syrups, providing a good demulcent action.

### **INDICATIONS**

Cough associated with nasal congestion as in Respiratory Tract Infections/Allergies.

### **DOSAGE**

Adults & children >12 years: 10ml 3-4 times a day

Children 6-12 years: 2.5 to 5ml 3-4 times a day

### **CONTRAINDICATIONS**

**Kofarest Plus Syrup** is not recommended for:

- Children <6 years of age
- Patients with end-stage renal failure [creatinine clearance <10 ml/min]
- Hypersensitivity to Levocetirizine, Phenylephrine, Ambroxol or any ingredient in this preparation

### **PRECAUTIONS**

In moderate to severe renal insufficiency- dose adjustment may be needed.

Hepatic insufficiency: The clearance of Levocetirizine may be reduced in cirrhotic patients, and hence lower doses are recommended.

Elderly patients- dosage should be adjusted based on renal function.

Concurrent administration of CNS depressants may have additive effect leading to sedation/somnolence.

Patients with existing urinary retention, bladder-neck obstruction, or prostatic hypertrophy have the potential for exacerbation of their symptoms.

Angle-closure glaucoma- potential for increased intraocular pressure/precipitation of acute attack.

Patients intending to drive or engage in potentially hazardous activities or operate machinery are advised not to exceed the recommended dose and to avoid concurrent alcohol.

### **ADVERSE EFFECTS**

**Kofarest Plus Syrup** is well tolerated. Side effects are mild and often transient. The following side effects have been reported for each individual ingredient:

#### Levocetirizine:

CNS: Headache and fatigue have been reported occasionally.

Skin: rash has been reported rarely

Sedation: The newer antihistamines are associated with a lower frequency of somnolence compared to the first generation antihistamines.

#### Phenylephrine:

As a class, sympathomimetic amines may also cause headaches, vomiting, diarrhea, insomnia, restlessness and palpitations. However, there have been few reports of these with normal doses of Phenylephrine.

#### Ambroxol:

Abdominal discomfort, hypersensitivity reactions

Guaiphenesin:

Gastrointestinal discomfort, nausea, vomiting.

### **SAFETY**

**Levocetirizine:** Levocetirizine shows no evidence of mutagenicity and presents no carcinogenic potential for humans. Studies have shown that Levocetirizine is not associated with cardiac problems, especially prolongation of the QTc interval.

**Phenylephrine:** It has an excellent and predictable safety profile when used at therapeutic doses.

### **PREGNANCY & LACTATION**

As yet, no specific data on Levocetirizine is available and hence caution should be exercised when prescribing Kofarest Plus Syrup to pregnant women. Nevertheless animal studies do not reveal any harmful effects and the data on cetirizine has shown no adverse effects on pregnancy or on the health of the fetus or the newborn child.

As Levocetirizine is excreted in breast milk, it is not recommended during breastfeeding.

The safety of Phenylephrine hydrochloride in pregnancy has not been fully established. Available published data on Phenylephrine do not contraindicate breastfeeding.

### **PRESENTATION**

Kofarest Plus Syrup is available in pet bottles of 100ml