BIORAJ PHARMACEUTICALS LIMITED	
BRAND NAME: BIOLIN EXPECTORANT	**GENERIC NAME:** Each 5ml contains: Diphenhydramine HCL BP…….14mg Sodium Citrate BP……. 59mg Ammonium chloride BP …… 140mg Menthol BP.……...1.1mg

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

Biolin Expectorant.

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each 5 ml contains:-

Diphenhydramine HCL BP…….14mg
Sodium Citrate BP……. 59mg
Ammonium chloride BP …… 140mg
Menthol BP.……...1.1mg

3. PHARMACEUTICAL FORM

Oral syrup.

A deep brown viscous syrup.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Biolin expectorant is indicated for the relief of irritating frequent cough, bronchial congestion, nasal allergies and throat irritations.

4.2 Posology and method of administration

For oral use.

Patients 2- 5 Years – 2.5ml every 8 hours

Patients 6-12 Years - 5ml every 8 hours

Adult above 12 Years – 10ml every 8 hours

Hepatic dysfunction:

Caution should be exercised if moderate to severe hepatic dysfunction is present (see Pharmacokinetics - Hepatic dysfunction).

Renal dysfunction:

It may be prudent to increase the dosage interval in subjects with moderate to severe renal failure (see Pharmacokinetics - Renal dysfunction).

Do not exceed the stated dose. Keep out of the reach of patients.

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4.3 Contraindications

BIOLIN EXPECTORANT is contraindicated in patients with known hypersensitivity to the product or any of its constituents.

BIOLIN EXPECTORANT is contraindicated in patients with chronic or persistent cough, such as occurs with asthma, or where cough is accompanied by excessive secretions, unless directed by the physician.

BIOLIN EXPECTORANT should not be administered to patients currently receiving monoamine oxidase inhibitors (MAOI) or those patients who have received treatment with MAOIs within the last two weeks.

4.4. Special Warnings and Precautions for Use

BIOLIN EXPECTORANT may cause drowsiness, lassitude, dizziness, hypotension and muscular weakness. There could be gastrointestinal disturbances such as nausea, vomiting, diarrhea or constipation. BIOLIN EXPECTORANT is not recommended for children below the age of two. Do not take Biolin on an empty stomach. If symptoms persist after three days, consult your doctor.

Patients with moderate to severe renal or hepatic dysfunction or urinary retention should exercise caution when using this product (see Pharmacokinetics - Renal/Hepatic Dysfunction).

This product contains diphenhydramine and therefore should not be taken by patients with narrow-angle glaucoma or symptomatic prostatic hypertrophy.

Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase insufficiency should not take this medicine.

4.5. Interactions with other medicinal products and other forms of interaction

This product contains diphenhydramine and therefore may potentiate the effects of alcohol, codeine, antihistamines and other CNS depressants.

As diphenhydramine possesses some anticholinergic activity, the effects of anticholinergics (eg, some psychotropic drugs and atropine) may be potentiated by this product. This may result in tachycardia, dry mouth, gastrointestinal disturbances (eg, colic), urinary retention and headache.

4.6. Pregnancy and Lactation

Although diphenhydramine has been in widespread use for many years without ill consequence, it is known to cross the placenta and has been detected in breast milk. BIOLIN EXPECTORANT should therefore only be used when the potential benefit of treatment to the mother exceeds any possible hazards to the developing foetus or suckling infant.

4.7. Effects on Ability to Drive and Use Machines

This product may cause drowsiness. If affected, the patient should not drive or operate machinery.

4.8. Undesirable Effects

Side effects associated with the use of BIOLIN EXPECTORANT are uncommon.

Diphenhydramine may cause: drowsiness; dizziness; gastrointestinal disturbance; dry mouth; nose and throat; difficulty in urination or blurred vision.

Less frequently it may cause palpitations, tremor, convulsions or parasthesia.

Hypersensitivity reactions have been reported, in particular, skin rashes erythema, urticaria and angiodema.

Adverse reactions to menthol at the low concentration present in BIOLIN EXPECTORANT are not anticipated.

4.9. Overdose

Symptoms and signs

The symptoms and signs of BIOLIN EXPECTORANT overdose may include drowsiness, hyperpyrexia and anticholinergic effects.

With higher doses, and particularly in patients, symptoms of CNS excitation including hallucinations and convulsions may appear; with massive doses, coma or cardiovascular collapse may follow.

Treatment

Treatment of overdose should be symptomatic and supportive. Measures to promote rapid gastric emptying (with Syrup of Ipecac-induced emesis or gastric lavage) and, in cases of acute poisoning, the use of activated charcoal may be useful. Seizures may be controlled with Diazepam or Thiopental Sodium. The intravenous use of Physostigmine may be efficacious in antagonising severe antichlolinergic symptoms.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Diphenhydramine is an antihistamine that reduces the effect of natural chemicals called histamine in the body. Histamines can produce symptoms of sneezing, itching, watery eyes and runny nose. Diphenhydramine relieves congestion and post nasal drips.

Ammonium Chloride is an expectorant which thins mucus and makes expulsion of the mucus easier.

Sodium Citrate is a mucolytic; an agent that breaks down mucus so that coughing up phlegm is easier and there is easy clearance of the respiratory tract.

Menthol Crystal acts on the sensory nerves that modulate cool sensation thereby giving a calming and soothing effect.

5.2. Pharmacokinetic Properties

Absorption

Diphenhydramine and menthol are well absorbed from the gut following oral administration. Peak serum levels of diphenhydramine following a 50 mg oral dose are reached at between 2 and 2.5 hours.

Distribution

Diphenhydramine is widely distributed throughout the body, including the CNS. Following a 50 mg oral dose of diphenhydramine, the volume of distribution is in the range 3.3 - 6.8 l/kg, and it is some 78% bound to plasma proteins.

Metabolism and Elimination

Diphenhydramine undergoes extensive first pass metabolism. Two successive N-demethylations occur, with the resultant amine being oxidised to a carboxylic acid. Values for plasma clearance of a 50 mg oral dose of diphenhydramine lie in the range 600-1300 ml/min and the terminal elimination half-life lies in the range 3.4 - 9.3 hours. Little unchanged drug is excreted in the urine. Menthol is hydroxylated in the liver by microsomal enzymes to p-methane-3,8 diol. This is then conjugated with glucuronide and excreted both in urine and bile as the Glucuronide.

Renal Dysfunction

The results of a review on the use of Diphenhydramine in renal failure suggest that in moderate to severe renal failure, the dose interval should be extended by a period dependent on Glomerular filtration rate (GFR).

Hepatic Dysfunction

After intravenous administration of 0.8 mg/kg Diphenhydramine, a prolonged half-life was noted in patients with chronic liver disease which correlated with the severity of the disease. However, the mean plasma clearance and apparent volume of distribution were not significantly affected.

5.3. Preclinical Safety Data

Mutagenicity

The results of a range of tests suggest that neither diphenhydramine nor menthol have mutagenic potential.

Carcinogenicity

There is insufficient information to determine the carcinogenic potential of diphenhydramine or menthol, although such effects have not been associated with these drugs in animal studies.

Teratogenicity

The results of a number of studies suggest that the administration of either diphenhydramine or menthol does not produce any statistically significant teratogenic effects in rats, rabbits and mice.

Fertility

There is insufficient information to determine whether diphenhydramine has the potential to impair fertility, although a diminished fertility rate has been observed in mice in one study.

6. PHARMACEUTICAL PARTICULARS

6.1. List of Excipients

Propylene glycol

Sucrose

Ethanol 96%

Sodium citrate

Citric acid

Sodium benzoate

Carmosine red

Ethanol 96%

Purified water

Sodium CMC

6.2. Incompatibilities

None known.

6.3. Shelf life

24 months.

6.4. Special Precautions for Storage

Store below 30°C and away from light. Keep out of reach of children.

6.5 Nature and contents of container

100ml amber plastic bottle in a cardboard carton along with packing leaflet

6.6. Instructions for Use, Handling and Disposal

None applicable

7 MARKETING AUTHORISATION HOLDER

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