Summary of Product Characteristics

ALVITE SYRUP

1. Name of the medicinal product

ALVITE

(Ferrous Sulphate, Thiamine Hydrochloride, Riboflavin, Pyridoxine Hydrochloride, Nicotinamide, Cyanocobalamin and Dexpanthenol Syrup)

2. Composition

Each 5 ml contains:

Dried Ferrous Sulphate BP	166.70 mg
(Equivalent to Elemental Iron 50 mg.)	
Thiamine Hydrochloride BP	0.67 mg
Riboflavin BP	0.67 mg
Pyridoxine Hydrochloride B.P.	0.50 mg
Nicotinamide BP	7.50 mg
Cyanocobalamin BP	0.5 mcg
Dexpanthenol USP	1.33 mg
Flavoured Syrup Base	q.s.

3. Pharmaceutical form:

Syrup

Brown coloured syrup with characteristic flavour

4. Clinical particulars:

4.1 Therapeutic indications

ALVITE syrup is an efficient iron with B-complex tonic and is indicated for use in the following :

- Iron deficiency anaemia
- Debility
- Convalescence
- During Pregnancy
- In case of undue fatigue
- As a general tonic

4.2 Posology and method of administration

Adult : One Teaspoon (5ml) three times daily.

Children : 2.5ml twice daily or as directed by the Physician

4.3 Contraindications

ALVITE Syrup is contraindicated in

- Patients with hypersensitivity to any of the ingredients
- Patients with iron intolerance, haemochromatosis
- Patients receiving repeated blood transfusions, anaemias not produced by iron deficiency
- Patients receiving parenteral iron, patients with iron -absorption disease, existing gastrointestinal diseases or haemoglobinopathies
- Oral and parenteral iron preparations should not be used concomitantly.

4.4 Special warnings and precautions for use

ALVITE syrup should be used with caution in patients with sideroblastic anaemia, other nutritional anemia not due to iron deficiency, history of peptic ulcer, acute inflammatory disease of the bowel, renal failure or hyperparathyroidism.

Patients post-gastrectomy have poor absorption of iron.

Administration of doses greater than 10 mg daily of Vitamin B may produce haematological response in patients with folate deficiency.

Niacinamide should be given cautiously to patients with gout or impaired liver function.

4.5 Interaction with other medicinal products and other forms of interaction

- Iron chelates with tetracyclines and absorption of both agents may be impaired.
- Absorption of iron may be impaired by penicillamine and antacids.
- Iron preparations and zinc preparations can reduce the absorption of each other
- The absorption of biphosphonates is reduced when taken concurrently with iron preparations. Administration should be separated by at least 2 hours.
- Absorption of iron is impaired by cholestyramine

- Concomitant administration of oral iron preparations and dimercaprol should be avoided. Ferrous sulfate reduces the absorption of levothyroxine and so should be taken at least 2 hours apart.
- Thiosemicarbazone and 5-fluorouracil can neutralise the effect of thiamine.
- Thiamine could give false positive results for urobilinogen determination by the Ehrlich's reaction.
- Pyridoxine hydrochloride may reduce the effect of levodopa

4.6 Fertility, pregnancy and lactation

Administration of iron during the first trimester requires definite evidence of iron deficiency. Prophylaxis of iron deficiency during the remainder of pregnancy is justified.

4.7 Effects on ability to drive and use machines

No studies on the effect on the ability to drive and use machines have been performed.
However, patients should be cautioned to see how they react before driving or operating machinery

4.8 Undesirable effects

Anorexia, nausea, vomiting, gastrointestinal discomfort, reversible dental staining, constipation, diarrhoea, dark stools and allergic reactions.

4.9 Overdose

Iron overdosage is an acute emergency requiring urgent medical attention. An acute intake of 75mg/kg of elemental iron is considered extremely dangerous in young children. Serum iron levels should be monitored. Symptoms and signs include abdominal pain, diarrhoea, nausea, vomiting (haematemesis is a possibility) and hyperglycaemia within 1-2 hours, followed by cardiovascular collapse and coma in some patients. Recovery follows this phase and in some patients this continues. In others deterioration occurs after about 15 hours characterised by pulmonary oedema, convulsions, renal failure, shock, metabolic acidosis, hypotension, tachycardia, coagulopathy and/or hypoglycaemia. There is a potential for gastrointestinal

obstruction to occur weeks after iron ingestion, as a delayed effect. Treatment consists of supportive and symptomatic measures. Vomiting should be induced if patient presents early and gastric lavage should be considered using a solution of desferrioxamine. Parenteral injection of 2 gm desferrioxamine should be given IV or IM and 5gm of desferrioxamine in 50-100 ml of fluid may also be left in the stomach. Recovery may be complicated by long term effects such as hepatic necrosis.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Ferrous Sulphate contains iron. Most of the iron in the body is present as haemoglobin. The remainder is present in the storage forms ferritin or haemosiderin, in the reticuloendothelial system or as myoglobin with smaller amounts occurring in haem-containing enzymes or in plasma bound to transferrin.

Vitamin B12 is present in the body mainly as methylcobalamin and as adenosylcobalamin and hydroxocobalamin. These act as co-enzymes in the trans methylation of homocysteine to meth ioni ne; in the isomerisation of methyl malonyl co-enzyme to succinyl co-enzyme and with folate in several metabolic pathways respectively. Deficiency of Vitamin B12 interferes with haemopoiesis and produces megaloblastic anaemia.

Thiamine (as the coenzyme, thiamine pyrophosphate) is associated with carbohydrate metabolism. Thiamine pyrophosphate also acts as a co-enzyme in the direct oxidative pathway of glucose metabolism. In thiamine deficiency, pyruvic and lactic acids accumulate in the tissues.

Riboflavine is phosphorylated to flavine mononucleotide and flavine adenine dinucleotide which act as co-enzymes in the respiratory chain and in oxidative phosphorylation. Riboflavine deficiency presents with ocular symptoms, as well as lesions on the lips and at angles of the mouth.

Pyridoxine, once absorbed, is rapidly converted to the co-enzymes pyridoxal phosphate and pyridoxamine phosphate which play an essential role in protein metabolism. Convulsions and hypochromic anaemia have occurred in infants deficient in pyridoxine.

The biochemical functions of **Nicotinamide** as NAD and NADP (nicotinamide adenine dinucleotide phosphate) include the degradation and synthesis of fatty acids, carbohydrates and amino acids as well as hydrogen transfer. Deficiency produces pellagra and mental neurological changes.

Panthenol is a alcoholic form of pantothenic acid. Pantothenic acid is incorporated into co-enzyme A and is involved in metabolic pathways involving acetylation which includes detoxification of drug molecules and biosynthesis of cholesterol, steroid hormones, mucopolysaccharides and acetylcholine. CoA has an essential function in lipid metabolism.

5.2 Pharmacokinetic properties

Iron is absorbed mainly in the small intestine, but can be absorbed along the entire length of the alimentary canal. It is absorbed most easily in the ferrous state, passing into and through the mucosal cells directly into the blood stream where it is immediately attached to transferrin.

Cyanocobalamin is absorbed from the gastro-intestinal tract and is extensively bound to specific plasma proteins. A study with labelled Vitamin B12 reported that it was quickly taken up by the intestinal mucosa and held there for 2 -3 hours. Peak concentrations in the blood and tissues did not occur until 8 - 12 hours after dosage with maximum concentrations in the liver within 24 hours. Cobalamins am stored in the liver, excreted in the bile and undergo enterohepatic recycling. Part of a dose is excreted in the urine, most of it in the first eight hours.

Thiamine is absorbed from the gastro-intestinal tract and is widely distributed to most body tissues. Amounts in excess of the body's requirements are not stored but excreted in the urine as unchanged thiamine or its metabolites.

Riboflavine is absorbed from the gastro-intestinal tract and in the circulation is bound to plasma proteins. It is widely distributed. Lithe is stored and excess amounts are excreted in the urine. In the body riboflavine is converted to flavine mononucleotide (FMN) and then to flavine adenine dinucleotide (FAD).

Pyridoxine is absorbed from the gastro-intestinal tract and converted to the active pyridoxal phosphate which is bound to plasma proteins. It is excreted in the urine as 4- pyridoxic acid. Niacinamide is absorbed from the gastro-intestinal tract, is widely distributed in the body tissues and has a short half-life.

Panthenol is an alcoholic form of pantothenic acid. Pantothenic acid is readily absorbed from the gastro-intestinal tract and is widely distributed in the body tissues. About 70% of pantothenic acid is excreted unchanged in the urine and about 30% in the faeces.

5.3 Preclinical safety data

None available.

6. Pharmaceutical particulars

6.1 List of excipients

Sucrose, Liquid Glucose, Methyl Paraben, Propyl Paraben, Sodium Benzoate, Sorbitol 70% solution, Disodium EDTA, Sodium Saccharine, Sodium Hydroxide, Citric Acid, Colour Caramel, Ess. Pineapple Sweet, Flavour Peppermint Troomint, Purified water.

6.2 Incompatibilities

None known

6.3 Shelf life

2 years (24 months)

6.4 Special precautions for storage

Store in dry place below 30ºC and protect from light.
Keep out of reach and sight of children. Shake well before use.

6.5 Nature and contents of container

ALVITE syrup is packed in a 200 ml Amber coloured glass bottle. Each bottle is packed in carton along with leaflet.

6.6 Special precautions for disposal and other handling

No special requirements.

7. MARKETING AUTHORISATION HOLDER

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