

AIMIL Amyron

Syrup
Tablets
Capsules

GENTLE Nutritional Supplement

Minerals, Vitamins & more

Contributes to the normal formation of

**HAEMOGLOBIN
& RED BLOOD CELLS**

PLUS NORMAL ENERGY RELEASE & VITALITY

with vitalizing herbs which contribute to the
reduction of tiredness & fatigue



Winner of
National Award for
Manufacturing
Quality Products



INDICATIONS

- ★ Nutritional Anaemia
- ★ Anemia of Pregnancy
- ★ Anemia Resulting from Menorrhagia
- ★ Anemia Manifested by Generalised Weakness
- ★ General Debility ★ Convalescence
- ★ Oxidative Stress ★ Anorexia
- or as directed by the Physician.



Amyron: A herbomineral intervention for the prevention and treatment of nutritional anemia – review

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ABSTRACT

Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet the physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status. According to the World Health Organization “*Iron deficiency is thought to be the most common cause of anemia globally*”, although other conditions, such as folate, vitamin B₁₂ and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can also cause anemia. In its severe form, it is associated with fatigue, weakness, dizziness and drowsiness. Pregnant women and children are particularly vulnerable. So there is a dire need of an intervention which not only aims on the improvement of hemoglobin level and erythropoiesis but also provides a complete nutrition by supplementing Vitamins, minerals, amino acids, essential fatty acids like omega 3& omega 6 and anti-oxidants.

INTRODUCTION

Prevalence of anemia in India is among the highest in the world. Prevalence of anemia is higher among pregnant women and preschool children. Even among higher income educated segments of population about 50 per cent of children, adolescent girls and pregnant women are anemic. Inadequate dietary iron, folate intake due to low vegetable consumption, perhaps low B₁₂ intake and poor bioavailability of dietary iron from the fibre, phytate rich Indian diets are the major factors responsible for high prevalence of anemia.

HERBO-MINERAL INTERVENTION

Iron is absorbed primarily in the duodenum and upper jejunum, where the acidic environment keeps iron in its soluble form. Beyond these sites, bicarbonate makes iron less soluble.

Herbo-mineral intervention can be an ideal alternative to the existing therapies for anemia. The existing therapies have some disadvantages like poor patient compliance and low absorption of iron with poor bioavailability. In addition these Iron supplements are recommended on an empty stomach which accompanies the undesirable gastrointestinal intolerance with associated adverse effects like nausea, constipation, diarrhoea, abdominal pain or cramping. In contrast, herbomineral formulation Amyron is free from all these limitations with added advantages of supplementation of herbs which not only supplement Iron but also increase its absorption by supplementing vitamin C through its various ingredients and enhance the absorption of iron by preventing the formation of insoluble and unabsorbable iron compounds. It also reduces ferric to ferrous ions, which is a requirement for the uptake of iron into the mucosal cells.

PRE-CLINICAL AND CLINICAL STUDIES OF DIFFERENT PRINCIPAL CONSTITUENTS OF AMYRON

A. Iron supplementation, assimilation and absorption:

Amyron supplements natural iron fortified with Ascorbic acid and folic acid rich herbs. The natural sources of iron include *Colocasia esculanta*, *Boerhavia diffusa* and Punarnavadi Mandoor (a Classical Ayurvedic preparation containing iron oxide) to meet the increased iron requirement during pregnancy. It also contains *Emblica officinalis* a rich source of Vit. C (Ascorbic acid) which enhances absorption of iron and prevents the formation of insoluble and unabsorbable iron compounds. Thus Amyron not only supplements Iron but also provides ingredient herbs for its assimilation and absorption in the body to saturate body's iron store.

B. Improves hemopoiesis, Hb level and oxygen carrying capacity of RBC's:

Various ingredients of Amyron are responsible for improvement in hemopoiesis, hemoglobin (Hb) level and oxygen carrying capacity of the blood cells. Different ingredients in Amyron have their own mechanism for these improvements. Some of them are as follows:-

1. ***Withania somnifera* accelerates the oxygen carrying capacity of RBCs:** In a study conducted in haloperidol induced iron deficiency anemia subjects, it was found that supplementation of *Withania somnifera* extract accelerated the oxygen carrying capacity of red blood cells (RBCs) and showed an increased number of RBCs with normocytic shape. From the study results it was concluded that *Withania* exhibited potent hematopoietic activity against haloperidol induced iron deficiency anemia.¹

In an another study with *Withania somnifera* it was found that, *Withania somnifera* administered experimental subjects showed increase in RBCs count, Hb content and packed cell volume (PCV).

2. ***Boerhavia diffusa* boosts synthesis of hemoglobin and RBC's:** A study in experimental subjects fed

orally with aqueous extracts of *Boerhavia diffusa* showed an increasing trend in their RBC count and Hb%. The study also showed an increase in hematological parameters of test animals indicating the boosting effects of *Boerhavia diffusa* on the synthesis of hemoglobin and formation of red blood corpuscles due to the richness of iron and vitamin C, hence *Boerhavia diffusa* has promising role in the treatment or prevention of anemia.²

3. Fenugreek seeds have restorative and nutritive properties:

Fenugreek seeds have good beneficial effects to raise blood hemoglobin by easy means. This might further help to prevent and cure anemia and maintain good healthy life for longer duration in females of child bearing age. The clinical trial showed a significant rise of 2.24 gm% hemoglobin in group of subjects which was supplemented with the medicinal dosage of powdered fenugreek seeds for 3months, while that in group of subjects which were not supplemented with fenugreek seeds, there was an insignificant rise of 0.40 gm % haemoglobin³ (table 1).

C. **Improved blood picture and platelet counts:** Apart from its boosting effect on the formation of RBC's Amyron also plays a vital role in improving the overall blood picture and platelet count which make this product an adjuvant therapy in case of dengue fever. *Dengue virus, the main cause of dengue fever, induces bone marrow suppression. Since bone marrow is the manufacturing centre of blood cells, its suppression causes deficiency of blood cells leading to low platelet count. Anemia and spontaneous severe bleeding are the other consequences of bone marrow suppression.* Ingredient herbs of Amyron like *Tinospora cordifolia* and *Carica papaya* play an important role in increasing the platelet count in these conditions. *Carica papaya* leaves contain various phytoconstituents like saponins, tannins, cardiac glycosides and alkaloids. The alkaloids present include carpapine, pseudocarpaine and dehydrocarpapine II. *These constituents act on the bone*

Table 1 Effect of fenugreek seed on % Hb increase in different groups

Groups	Hb in gm% ±Mean S.D 1st august 2009	Hb in gm% ±Mean S.D 1st September 2009	Hb in gm% ±Mean S.D 1st October 2009	Hb in gm% ±Mean S.D 1st November 2009	Mean difference Hb in gm%
Group A	11.35±0.94	11.46±0.39	11.72±0.5	11.75± 0.51	0.40
Group B	11.21±0.87	12.34±1.06	12.69±1.04	13.45±1.02	2.24

SD - standard deviation

Table 2 Effect of *C. papaya* leaves on the formation of blood platelet, white blood cells (WBC's) and RBC's

Parameters	Day 1		Day 7		Day 14		Day 21	
	Control group	Test group	Control group	Test group	Control group	Test group	Control group	Test group
Platelet count (X 10 ⁵ /μL)	3.67±0.16	3.36±0.16	4.52±0.15	9.00±0.35	5.21±0.13	10.86±0.38	5.53±0.12	11.33±0.35
RBC(X 10 ⁶ /μL)	6.23±0.17	5.87±0.19	5.95±0.18	6.63±0.32	6.61±0.28	7.95±0.59	6.00±0.31	7.97±0.61
WBC (X 10 ³ /μL)	7.45±0.23	7.61±0.13	7.16±0.21	7.62±0.32	7.34±0.15	7.71±0.61	7.52±0.11	8.01±0.42

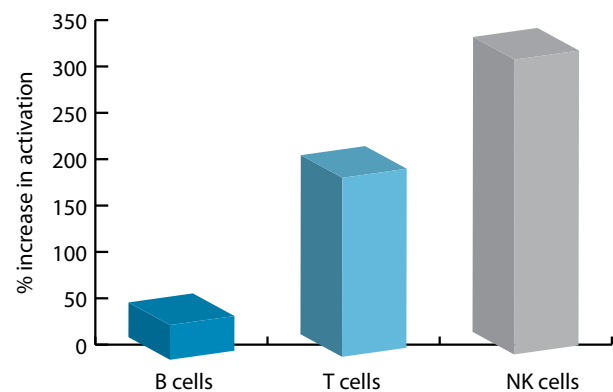
marrow, prevent its destruction and enhance its ability to produce platelets. Moreover, it can also prevent platelet destruction in the blood and thereby, increase the life of the platelets in circulation.⁴

In an Experimental study with *Carica papaya* leaves on platelet formation, in test and control groups were studied before and after the treatment. During the study it was found that there was no significant difference in the platelet counts during the first 3 days in either group. However, platelet counts within the test group started to rise steadily after Day 3 and reached a peak level at Day 13 (10.94x10⁵/μL). Subsequently, the platelet count remained relatively constant at a range of 10 x10⁵ to 11x10⁵/μL. The platelet count of the test group was (11.33 ± 0.35) x 10⁵ /μL at the end of the experiment compared to that of the control group (5.53±0.12)x10⁵/μL. The study results clearly indicate that there was a significant increase (P < 0.05) in the average platelet counts in the test group, as against a slight increase in the control group (Table 2). RBC count was also significantly (P<0.05) increased in the test group compared to controls. The findings of the study strongly suggest that there are active compounds in *C.papaya* leaves that enhance hemopoiesis and thrombopoiesis.⁵

D. Provides a synergistic anti-oxidant protection to the body through multiple mechanisms against different oxidative stress.

Amyron is a complete blend of different herbs which are rich sources of antioxidants. Some of these herbs include *Aloe vera*, *Emblica officinalis* a rich source of vitamin C, Wheat germ oil and Almond (rich source of vitamin E) etc. Different antioxidant constituents from these herbs provide a synergistic anti-oxidant protection to the body by multiple mechanisms against different oxidative stress.

An experimental study with wheat-germ oil as a source of easily assimilable vitamin E, showed a rapid increase in the content of vitamin E in the brain, liver, heart, lungs, kidneys, and spleen. A significant reduction in the intensity of lipid peroxidation processes has been observed.

Figure 1 Increase in immune cell activation with *T. Cordifolia*

It shows that an oral administration of wheat germ oil efficiently saturates the body with vitamin E.

In an another study with long term ingestion of *Aloe vera*, in specific pathogen free experimental subjects, it was found to be beneficial in the prevention of age related pathology considered to have arisen from its antioxidant action. *Aloe vera* exhibited significant anti-oxidant activity in 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging method and in linoleic acid per oxidation system and results were shown to be superior to those obtained with butylated hydroxy toluene (BHT) and alpha-tocopherol.⁶

E. Immunity booster action: Amyron powerfully activates immune system with its different immuno-modulatory herbs some of which are *Tinospora cordifolia*, *Aloe vera* and *Emblica officinalis*.

In a study, a novel extract of *Tinospora cordifolia* (Giloe) was found to powerfully activate different types of lymphocytes, which are important immune factors. The scientists found that it increased NK-cell (natural killer

cell) activity by a remarkable 331%, T-cell activity by 102%, and B-cell activity by 39%, all of which demonstrate an increased immune activity (figure 1).⁷

CONCLUSION

Thus Amyron with its herbomineral ingredients, provides a complete nutrition by its hemopoetic, immunity booster, antioxidant, rejuvenating and nutritive properties. Various studies of different ingredient herbs reviewed in this article clearly demonstrate that Amyron addresses all the requirements of complete nutrition with added advantage of an ideal therapy for nutritional anemia. Therefore, it can be concluded that Amyron boosts the process of erythropoiesis and also provides complete nutrition fortified with minerals, vitamins, essential fatty acids like omega 3 and omega 6, antioxidants like vitamin C and vitamin E etc., which not only treat anemia but also help in boosting immunity and overall health.

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