Chapter 11
Nutraceutical and Functional Foods in Treatment of Anemia

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ABSTRACT

WHO database mentions that the global anemia-affected population is 24.8%. To name a few conditions in which compromisation of the red blood corpuscles and hemoglobin occurs are iron deficiency anemia, gestational anemia, anemia due to malaria and parasitism, hemolytic anemia, sickle cell anemia. The line of treatment in case of anemia involves administration of iron supplements, plasmapheresis, steroids, blood transfusion at regular intervals, and lifestyle changes. The systematic approach applied for the pharmaceutical molecules should be equally inculcated in the case of nutraceuticals. The traditional system when woven carefully with the novel drug delivery system will give effective nutrient delivery. Functional foods have inherent nutritional value. Nutraceuticals and functional food cannot cure the anemic condition, but help the patient lead life almost like a normal individual.

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INTRODUCTION

Overview of Anemia

Anemia is a well-known public health problem majorly in gestational women and young children. The factors can be either being decreased red blood cell production or increased red blood cell destruction. The Figure 1 gives frame-diagram of anemia for understanding causes of anemia. A daily requirement of 20 to 30 mg of iron is required by the body for erythropoiesis and other biological processes. A lack of this supply of this iron or its absorption due to varied causes leads to anemia (Greenburg, 1996). WHO 2011 gives us a look at the worldwide prevalence of anemia; same is given in Table 1. Figure 2 gives us an insight about the prevalence of the anemia on the global level in infants and children.

Causes of Anemia

Out of abundant elemental iron available, only a small part of dietary iron is available to the human body, out which 20% is stocked in the storage compartment and 1 and 2mg of iron is lost each day. The total body iron in adult male is 3000 to 4000mg as opposed to 2000mg to 3000mg in adult female. This itself reflects the reason for smaller reserves of iron in female, hence the lower hemoglobin. *Figure 3* explains the physiological turnover of iron in male and female body.

Figure 1. Frame-diagram of anemia for understanding causes of anemia