

STUDY ON ETHNO-MEDICINAL PLANTS FOR THE CURE OF ANAEMIA IN RANCHI  
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**ABSTRACT**

This paper enumerates traditional uses of various plant species for the cure of anaemia by local people of Ranchi district of Jharkhand. Medicinal plants contains so many chemical compounds that are major source of therapeutic agents that have been used to cure various human diseases. Anemia affects one fourth of the world's population. It is a condition in which the quantity of red blood cells or their oxygen conveying limit is deficient to meet physiologic requirements, which changes by age, gender, height, smoking etc. Iron deficiency is believed to be the most widely recognized reason for anaemia. Nutritional deficiency, inadequate amount of some of the vitamins and minerals that are needed for hemoglobin production, may cause iron deficiency. Various medicinal plants having anti-anemic potential includes Spinach (*Spinacia oleracea*), beetroot (*Beta vulgaris*), Broccoli(*Brassica oleracea*), Drumstick (*Moringa oleifera*), Bhingraj (*Eclipta alba*), Garlic (*Allium sativum*), Ginger (*Zingiber officinale*), soyabean (*Glycine max*) etc. The natural medications with anti-anemic activity are widely formulated because they show better compatibility with human body, easily available and less side effects.

**KEYWORDS:** Ethno-medicinal, anaemia, treatment, herbal, anti-anaemic.**INTRODUCTION**

Plants have been the major source of drugs in Indian system of medicine and other ancient systems in the world. Charaka Samhita and Sushruta Samhita give extensive description on various medicinal herbs.

According to WHO, at least 80% people in developing countries depend on herbal plants.<sup>[1]</sup>

The interest in medicinal plants has grown possibly due to their availability, accessibility and the general belief that they demonstrate minimum side effects.<sup>[2-4]</sup>

According to World Health Organization, iron deficiency anemia is the most common nutrition deficiency worldwide with an expected 2 million or 1/3 of the population suffering the deficiency.<sup>[5]</sup> The treatment and management cost of anemia in developing countries is expensive and majority of population cannot afford hence depends on medicinal plants.

**Causes**

Anemia can occur due to:

**Nutrition-** Lack of nutrition or poor supply of especially iron, vitamins B12, folic acid or poor absorption may reflect in production of cells to cause insufficiency.

**Iron-** Lack of iron deficient anemia. It is most commonly seen in the growing stage of poor children, pregnant, nursing, menstruating women.

**Folic acid and vitamin B12-** causes megaloblastic anaemia (red blood cells will be seen in bigger size without complete maturation).

**Blood loss-** may be due to acute chronic, reasons either due to physiological or pathological or accidental reasons.

**Acute-** Loss of enormous amount of blood from accidents, repeated blood donations etc.

**chronic-** Repeated and recurrent loss of blood either in small or large quantity for example- blood omitting, cirrhosis of liver, peptic ulcer, intestinal bleeding disorders etc.

**Physiological changes** – When physiological requirements is more, body could not cope with the changes due to growth, puberty, menstruation, pregnancy, breastfeeding and so anemia can occur.

**Pathological disease-** Increased destruction of RB, less nutrient absorption (cancer, tumor, AIDS, kidney disorder) includes anemia. Insufficient release of essential hormone erythropoietin from kidney in response to low

oxygen in blood (hypoxia) and infections like malaria etc. also causes anemia.

**Psychological changes** – Emotional upset, depression can cause low vitality and can interfere in the production of blood cells.

### Symptoms

Anemia usually presents a wide range of symptoms.<sup>[6]</sup> Each and every patient may suffer from different symptoms according to their disease and intensity.

The common symptoms are -

- Fainting
- Headache
- Weak rapid pulse
- Low blood pressure
- chest pain/ ague discomfort in chest
- cracks or sore in angle of mouth
- Poor growth
- Loss of appetite
- Shortness of breath.<sup>[3]</sup>

### General treatment

Treatment is planned after analyzing the cause of anemia with all sorts of investigation. Iron supplements can be used for iron deficiency .vitamin B supplements may be used for low vitamins levels. Blood transfusions can be used for blood loss.

### Medications

**Dietary supplements** – works alone or in conjunction with other treatment to promote health.

**Blood transfusion-** Blood components that are added to replace deficiencies within the blood stream.

**Vitamins** - Helps promote normal body function, growth and development.

**Homeopathy:** Homeopathy have a long history of chronic ailments, and hence the treatment takes time. Homeopathy is slow acting.

**Herbal medicines:** According to WHO, at least 80% people in developing countries depend on herbal plants.<sup>[1]</sup> There are various synthetic medicines for controlling and preventing anemia, iron contents hemoglobin concentration, anti-anemia medicines and iron supplements are partial examples of these medications.<sup>[7]</sup>

The natural medications with anti-anemic activity are widely formulated because they are better compatibility with human body, easily available and less side effects. The interest in medicinal plants has grown possibly due to their availability, accessibility and the general belief that they demonstrate minimum side effects.<sup>[2-4]</sup>

Jharkhand is 28<sup>th</sup> state of Indian Republic, is the home of any tribal communities along with a dynamic floristic diversity. Due to lose association with forest, the tribes possess a unique knowledge about the medicinal uses of plant wealth of their surroundings from any generations.<sup>[8]</sup>

Tribal system of medicine cover many health related problems. Ethno-Medicinal survey and pharmacological studies shows that large numbers of plants have been found here and which are utilized by local people. Ethno medicinal survey provides the rational for selection and scientific investigation of medicinal plants since some remedies have been used successfully by number of people over long period of time.<sup>[9]</sup> Medicinal plants contains so many chemical compounds that are major source of therapeutic agents that have been used to cure various human diseases. It is always believed that plant is safe, have less side effects and easily available at affordable price.<sup>[10]</sup>

Valuable plant resources have been declining rapidly because of deforestation, globalization, industrialization and many other processes. The Jharkhand is endowed with plant diversities due to its rich climatic conditions. People of different ethnicities have been dwelling in forests and living a primitive lifestyle. They are the main source of information and knowledge of these herbal, traditional, medicinally important plants on which their own health care system is based. They pass this valuable knowledge from generation to generation orally and this unwritten therapeutic knowledge need to be preserved with time so that maximum utilization of these plants in the cure of various human diseases and in the preparation of drugs could take place and maximum benefits may be extracted for future course of advance studies. 80% of world population depends upon herbal remedies to cure their health problem.<sup>[11]</sup>

### MATERIALS AND METHODS

This study is based on extensive ethno-medicinal survey conducted in villages of Ranchi District of Jharkhand. The ethno-medicinal properties of different plants were recorded by consultation and interview from indigenous people of these areas including local people, healers, knowledgeable persons, vaidyas and local practitioners etc.

After documentation, plants were identified and kept in the Herbaria of University Department of Botany, Ranchi University, Ranchi, Jharkhand, India.

### RESULTS

This documentation is based on the information obtained from local people, practitioners, patients cured, healers, vaidyas etc. They believe in natural treatment of anaemia by some special herbal plant species.

Haemoglobin, an iron-rich protein, is an essential component for living a healthy life. When the body lacks

enough healthy red blood cells or haemoglobin, it leads to a health condition known as anaemia. Anaemia is associated with shortness of breath, fatigue, headaches, poor appetite, rapid heartbeat and dizziness. In order to deal with such a health condition, it is imperative to improve the level of hemoglobin in the body.

Some of the important plants used for cure of anaemia are as follows:

### 1. Spinach (*Spinacia oleracea*)

Family- Amaranthaceae

Local Name- Paalak

English Name- Spinach

Spinach is a leafy green vegetable that originated in Persia. It belongs to the amaranthaceae family. It is considered very healthy, as it is loaded with nutrients and antioxidants. Eating spinach may benefit eye health, reduce oxidative stress, help prevent cancer, and reduce blood pressure levels.

### 2. Beetroot (*Beta vulgaris*)

Family- Amaranthaceae

Local Name- Beet

English Name- Beetroot

Beetroot juice is loaded with the goodness of iron, minerals and vitamins. This is highly useful for people suffering from anaemia. The juice of beetroot is an excellent source of iron and vitamin C, which is considered good for anaemia. Whereas, beetroot leaves are useful for spleen and liver diseases. Beetroot helps in repairing and reactivating the red blood cells in the body, which further increases the supply of oxygen to all parts of the body. One of the best ways to consume beetroot for anaemia is to have it in the form of juice. Beetroot juice is a healthy potion that can do wonders for overall health.

### 3. Broccoli (*Brassica oleracea*)

Family- Brassicaceae

Local Name- Broccoli

English Name- Broccoli

Broccoli is a member of the Brassicaceae family, which also includes cauliflower, Brussels sprouts and cabbage. Broccoli is incredibly nutritious. It helps in better absorption of iron to the body. It is also high in folate and provides fiber as well as some vitamin K.

### 4. Drumstick (*Moringa olifera*)

Family- Moringaceae

Local Name- Senjan, Sehjan

English Name- Drumstick

Moringa is perhaps the best plant-based, iron-rich food. Moringa supplies a host of vitamins and minerals that aid in iron retention.

### 5. Bhringraj (*Eclipta alba*)

Family- Asteraceae

Local Name- Bhringraj

English Name-Bhringraj

*Eclipta alba* (L.) has been used in various parts of tropical and sub-tropical regions like south America, Asia, Africa. The plant has a reputation as an antiageing agent, as a general tonic for debility, externally it is used for inflammation, minor cuts and burns and the fresh leaf-juice is considered very effective in stopping bleeding.

### 6. Ginger (*Zingiber officinale*)

Family- Zingiberaceae

Local Name- Adrak, Aadi

English Name- Ginger

Ginger is a flowering plant that originated from China. It belongs to the *Zingiberaceae* family, and is closely related to turmeric, cardamom and galangal. The rhizome (underground part of the stem) is the part commonly used as a spice. It is often called ginger root, or simply ginger. Ginger has a very long history of use in various forms of traditional/alternative medicine. Ginger can be used fresh, dried, powdered, or as an oil or juice. Ginger plant *Zingiber officinale*, is recognized as a natural solution for digestive upsets like nausea, diarrhea, and cramping. Bioactive components in ginger have strong anti-oxidative, anti-inflammatory, anti-cancer, and anti-diabetes activities.

### 7. Garlic (*Allium sativum*)

Family- Amaryllidaceae

Local Name- Lahsun

English Name- Garlic

Garlic is reported to be a wonderful medicinal plant owing to its preventive characteristics in cardiovascular diseases, regulating blood pressure, lowering blood sugar and cholesterol levels, effective against bacterial, viral, fungal and parasitic infections, enhancing the immune system and having antitumoral and antioxidant features.

### 8. Soyabean (*Glycine max*)

Family- Leguminaceae

Local Name- Soyabean

English Name-Soyabean

The soybean or soya bean (*Glycine max*) is a species of legume native to East Asia, widely grown for its edible bean which has numerous uses.

Some important plants with antianaemic and related properties is given in Table 1.:

S.No.	Botanical Name	Family	Local Name	English Name
1.	<i>Spinacia oleracea</i>	Amaranthaceae	Paalak	Spinach
2.	<i>Beta vulgaris</i>	Amaranthaceae	Beet	Beetroot
3.	<i>Brassica oleraceae</i>	Brassicaceae	Broccoli	Broccoli
4.	<i>Moringa olifera</i>	Moringaceae	Sehjan, Senjan	Drumstick
5.	<i>Eclipta alba</i>	Asteraceae	Bhringraj	Bhringraj
6.	<i>Zingiber officinale</i>	Zingiberaceae	Aadi, Adrak	Ginger
7.	<i>Allium sativum</i>	Amaryllidaceae	Lahsun, Lahsan	Garlic
8.	<i>Glycine max</i>	Leguminaceae	Soyabean, Soybean	Soyabean

## DISCUSSION

A number of research works have been performed on ethno medicinal plants for their phytochemical analysis and their uses in treatment of anemia. People have been using medicinal plants from time immemorial for the treatment of various types of diseases.<sup>[14-29]</sup> Charak Samhita and Sushruta Samhita<sup>[30]</sup> are regarded two most important documents of this system of medicine. So any works have been done previously on ethno medicinal plants to cure different chronic diseases.<sup>[31]</sup> It is estimated that more than 35000 plant species are being used around the world.<sup>[32]</sup> Of which 8000 plants species are referred to in Indian folklore<sup>[33]</sup> but only 1700 plant species have actually been documented in old literature. Hence there is an immense potentiality in ethno medicinal plant research work. The paper will add contribution to the existing knowledge regarding anti-anemic properties of ethno medicinal plants. The paper will also help medical science to design new drugs and will enrich the traditional knowledge of herbal medicines favored with scientific approach.

According to WHO latest estimation 70-95% population of developing countries and 70-80% population of developed countries used alternative medicine for their primary healthcare.<sup>[34]</sup>

It will also help in documentation of traditional knowledge along with scientific touch.<sup>[35]</sup>

## CONCLUSION

The medicinal plants are of great value as they are the source of medicines for different types of diseases. The result helps in authenticity of the traditional system of medicine and alternatively negation of plant drug will also be helpful to rule out the plants used for anti-anemic purpose.

Iron deficiency has been considered as the most important contributing factor to the global burden of disease. (WHO, 2002).<sup>[12]</sup> There is a need to search something new genetic resources of plants so that treatment can be achieved without side effects.<sup>[13]</sup>

This will support the traditional methods and plant resources used as herbal medicine to cure anemia. The drugs used in the treatment of anemia should be cheaper and easily available to the wider section of the people suffering from anemia. So preservation of these ethno

medicinal plants is essential and study of local flora to cure anemia is relevant to the society, world and nation.

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