An Ethnobotanical survey on medicinal plants used to mitigate anemia by tribes of east and West Singhbhum districts of Jharkhand, India

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Abstract
Present paper reports on the uses of 30 plants from 17 families which are been used by tribes of East and West Singhbhum district of Jharkhand to cure Anemia. This paper highlights the rich plant resources and ethnomedicinal information available with the Tribes. The objective of this work is the documentation of medicinal plants used by tribal people of this area. The ethnomedicinal information was gathered by random selection of villages and interviewed with Baidhyas, kabirajs and knowledgeable person belonging to tribal community. Our results showed that tribes still prefer to use plants for the treatment of their ailments because of its easy availability and their negligible side effects.

Keywords: anemia, ethnomedicinal, tribe, ailments

Introduction
The word “Ethnobotany” literally means the study of botany of human race which deals with the studies among the tribal and rural people for recording their unique knowledge about plant wealth and also for search of new resources of herbal drugs, edible plants and other aspects of plant [1]. This term “Ethnobotany” was first applied by Jhon William Harshberger in 1895 as “The study of plants used by primitive and aboriginal a people…” [2]. Plants are used as medicine from time immemorial. The earliest reference to the use of medicinal plants as a cure for diseases is found in manuscript of ‘Eber Papyrus’ written in 1600BC with the advancement of our Knowledge [3]. From ancient time, medicinal plants have been used to treat various health problems. Plants are an important and independent source in traditional health care system to cure their ailments [4, 5, 6]. The indigenous traditional knowledge is a part of the identity of most of the tribal communities. It arises from the long term immemorial association of indigenous people with the local flora and fauna [7]. Traditional medicine is the sum total of all knowledge and practice that can be used in prevention, diagnosis and elimination of physical, mental and social impairment. It relies exclusively on practical experience of observation, which is being handed over from generation to generation. Over 75% of the world population is depending on local health practitioners and traditional medicines for their primary needs [8]. According to WHO’s latest estimation about 70%-95% population developing countries and 70% to 80% population of developed countries used complementary and alternative medicine for their primary health care [9].

Anemia
“Anemia is any condition characterized by an abnormal decrease in total red blood cell mass”. It is actually a deficiency disease caused due to qualitative or quantitative deficiency of haemoglobin or abnormal reduction in the number of RBC (erythrocytes). Haemoglobin carries oxygen from lungs to the tissues. Anemia leads to hypoxia in organs (lack of oxygen). On the basis of appearance, it is differentiated into chronic and acute Anemia. These days it is very common in both male and female but girls in adolescence are more affected. It is a public health problem that affects populations in both rich and poor countries [10]. In this district more than 80% women are anemic and its main cause is lack of nutrition specially the deficiency of iron, vitamin-B12, vitamin C, zinc and frequent use of beverages like handia, mahua, etc.

Study Area
After the British conquest of Kolhan in 1837, a new district was consequently constituted to be known as Singhbhum with Chaibasa as its Headquarter. The district spreads over 21°58' and
23° 36’ North latitude and 85°01’ and 86°54’ East longitude. The district is situated at a height of 244 meter above the sea level and has an area of 5351.41 sq. kilometer. The district is bounded on north by the district of Khunti, on the East by Saraikela-Kharsawan district, on the south by Keonjhar, Mayurbhanj and Sundargarh district of Odisha and on the west by the district of Simdega and Sundargarh (in Odisha). The district is full of hills alternating with valleys, steep mountains and deep forest on the mountain slopes. Asia’s one of the dense forests “SARANDA” covers some parts of this district. The Saranda forest may be called as “paradise for medicinal plants”. Singhbhum is a tribal dominated district. Ho, Santhal, Munda, Oraon are some tribes It is an integral and important region of Jharkhand because of its historical importance and mining activity of Iron, Copper, uranium etc.

Materials and Methods
The extensive field work (survey) was conducted through regular trips to different rural area to gather information and collect medicinal plants. The information regarding uses of medicinal plants for treatment of various ailments and diseases have been collected directly by contacting the herbal doctors, vaidays, kabiraj, village headmen and persons who have knowledge about medicinal plants All the collected plant species were preserved as herbarium specimen and identified with the help of many reference books like “Botany of Bihar and Orissa” [11], “A hand book of medicinal plants” [12], “Flora of Assam” [13], “Identification of common Indian Medicinal Plants” [14].

Results and Discussion
Even though, many plants are used by tribes to cure their ailments. They are used individually or in combination with other as medicine in the treatment of anemia. These plants are listed below in table 1 including its botanical name, family, local name, mode of administration.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Botanical Name with family</th>
<th>Local Name</th>
<th>Parts Used</th>
<th>Mode of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Achyranthes aspera</em> L. (Amarantaceae)</td>
<td>Chiripiti</td>
<td>Leaves, Roots</td>
<td>1. 5ml leaf juice with 5g sugar candy advised once in morning for 1 month. 2. 2g Powdered root with 2g satawari taken once a day for 15 days.</td>
</tr>
<tr>
<td>2.</td>
<td><em>Amaranthus spinosus</em> L. (Amarantaceae)</td>
<td>Janum leper aa</td>
<td>Leaves</td>
<td>1. 50g leaves are used as saag daily for three months.</td>
</tr>
<tr>
<td>3.</td>
<td><em>Amaranthus tricolor</em> L. (Amarantaceae)</td>
<td>Janum leper aa</td>
<td>Leaves</td>
<td>1. 50g leaves are used as saag for three month.</td>
</tr>
<tr>
<td>4.</td>
<td><em>Alternanthera sessilis</em> Br (Amarantaceae)</td>
<td>Garundi aa</td>
<td>Leaves</td>
<td>1. 50-60g leaves are used as saag in alternate day.</td>
</tr>
<tr>
<td>5.</td>
<td><em>Chenopodium album</em> L. (Amarantaceae)</td>
<td>Bathua aa</td>
<td>Leaves</td>
<td>1. 50-60g leaves are used as saag daily for two months.</td>
</tr>
<tr>
<td>6.</td>
<td><em>Spinacia oleracea</em> L. (Amarantaceae)</td>
<td>Palki aa</td>
<td>Leaves</td>
<td>1. 60-80g leaves are used as saag daily as available.</td>
</tr>
<tr>
<td>7.</td>
<td><em>Borassus flabellifer</em> L. (Areceae)</td>
<td>Tadi</td>
<td>Fruits</td>
<td>1. one ripened fruit is eaten daily after lunch for a month.</td>
</tr>
<tr>
<td>8.</td>
<td><em>Phoenix dactylifera</em> L. (Areceae)</td>
<td>Kujuri</td>
<td>Fruits</td>
<td>1. 4-5 ripened fruits are eaten daily morning after soaking it in water or milk. 2. 50-60 of its jaggery is taken daily for three months.</td>
</tr>
<tr>
<td>9.</td>
<td><em>Eclipta alba</em> Hassk. (Asteraceae)</td>
<td>Brahmi</td>
<td>Leaves</td>
<td>1. 50g Leaves are used as saag. 2. 5ml fresh leaf juice with 5g jaggery taken twice a day for three month.</td>
</tr>
<tr>
<td>10.</td>
<td><em>Asparagus racemosus</em> Willd. (Asparagaceae)</td>
<td>Sanga</td>
<td>Rhizome</td>
<td>1. 5g Powdered root in combination with 5g arjuna and 5g baheda taken daily.</td>
</tr>
<tr>
<td>11.</td>
<td><em>Colocasia antiquorum</em> Schott. (Araceae)</td>
<td>Kachhu</td>
<td>Leaves</td>
<td>1. 50-100g leaves are used as saag for one month. 2. Rhizome is used as vegetable.</td>
</tr>
<tr>
<td>13.</td>
<td><em>Carica papaya</em> L. (Caricaceae)</td>
<td>Bindi</td>
<td>Yellow leaves</td>
<td>1. 100g ripened fruit is eaten daily. 2. Unripen fruits are used as vegetable. 3. 5g Yellow leaves powders were taken twice a day for a month.</td>
</tr>
<tr>
<td>14.</td>
<td><em>Costus speciosus</em> Smith. (Costaceae)</td>
<td>Sanga</td>
<td>Rhizome</td>
<td>1. 10g rhizome (Powder) is used with luke worm water once in empty stomach.</td>
</tr>
<tr>
<td>15.</td>
<td><em>Terminalia arjuna</em> W.&amp;A. (Combretaceae)</td>
<td>Hatna</td>
<td>Bark</td>
<td>1. 5g powdered bark is used with luke worm water once in a morning.</td>
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<tr>
<td>16.</td>
<td><em>Shorea robusta</em> Gaertn. (Dipterocarpaceae)</td>
<td>Sarjom</td>
<td>Seeds</td>
<td>1. 2g Powdered seeds are used daily for 2 month.</td>
</tr>
<tr>
<td>17.</td>
<td><em>Acacia nilotica</em> Deill. (Fabaceae)</td>
<td>Babla daru</td>
<td>Flowers</td>
<td>1. 5g shade dried powder of flower is taken with 2g phoenix jaggery.</td>
</tr>
<tr>
<td>18.</td>
<td><em>Cajanus indicus</em> Spreng (Fabaceae)</td>
<td>Rahed</td>
<td>Leaves, seeds</td>
<td>1. 10ml fresh leaf juice taken twice a day for 20-30 days.</td>
</tr>
<tr>
<td>19.</td>
<td><em>Cicer arietinum</em> L. (Fabaceae)</td>
<td>Boot</td>
<td>Leaves, Fruits</td>
<td>1. 20-50g leaves are used as saag for a month. 2. 50g Seeds with jaggery are eaten row by soaking in water daily morning.</td>
</tr>
</tbody>
</table>
20. **Albizia lebbek** Benth. (Fabaceae) | Siris | Bark | 1. 1-2g powdered bark is used with water daily for 1-2 month.

21. **Saraca indica** L. (Fabaceae) | Asok | Flowers, Bark | 1. 2-3g powdered flower in combination with sugar candy taken daily for 4-5 month.

22. **Tamarindus indica** L. (Fabaceae) | Jojo | Fruits, Leaves | 1. 10ml fresh leaf juice with 5ml giloy juice taken daily morning for one month.

23. **Moringa oleifera** Lamk. (Moringaceae) | Mulga | Leaves, Fruits | 1. 50-60g leaves are used as saag.
2. 5-10g fruit powder with water is taken daily for three month.

24. **Nelumbo nucifera** Gaertn. (Nymphaeaceae) | Komol | Stamen | 1. 2-3g dry powdered stamen is taken with 2-3ml honey twice a day for 30-40 days.


26. **Phyllanthus niruri** L. (Phyllanthaceae) | Bumi aamla | Whole Plant | 1. 10g fresh juice is taken daily in empty stomach for 7-10 days.

27. **Cynodon dactylon** Pers. (Poaceae) | Dubi tasad | Leaves | 1. 5-10 fresh juice of leaves are taken daily for 10-15 days.

28. **Saccharum officinarum** L. (Poaceae) | Gurdanda | Stem | 1. 100ml fresh juice is taken in every alternate day.

29. **Paederia maxima** L. (Rubiaceae) | Gendal pata | Leaves | 1. 10-20ml fresh leaf juice with sugar candy taken once a day for three month.

30. **Tribulus terrestris** L. (Zygophyllaceae) | Gokhru | Fruits, Leaves | 1. 5-10g Powdered fruit is taken with water daily for six month.

The dosage of medicine is fixed according to the severity of disease and the age of the Patient. During the treatment patients are advised to avoid beverages like rice bear (Handiya), mahua, alcohols and also spicy foods.

**Conclusion**
Our study revealed that there are many plants in nature which are very much beneficial for mankind for the treatment of anemia and tribes are using it from time immemorial but these plants are still untouched. The aim behind this work is to motivate farmers to come forward for the cultivation of these medicinal plants which are being depleted from nature. Phytochemical and pharmacological screening of plants should be done to confirm the claims recorded in the present work as well as by the previous work.

**Suggestion**
On the basis of our observation we have to suggest that these plants may be safely used to cure Anemia. Phytochemical analysis of some plants which are very commonly used may lead to the invention of new herbal drugs.

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