Plants Used in the Treatment of Leucoderma by the Tribals of Yerramalai Forest of Kurnool District, Andhra Pradesh, India

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Abstract
Leucoderma also known as vitiligo is a skin disorder that affects nearly 2% of the world population. Conservation of natural resources is the only way of prosperity. An Ethnobotanical survey medicinal plants used for leucoderma by Sugali tribes of Yerramalais forest of Kurnool district was carried out during 2011-2012. Twenty one plant species belonging to 21 genera and 15 families were found to be used specifically in the treatment of leucoderma. Sugali tribal community of Eastern Ghats is rich in ethno-biological knowledge. The present study is emphasized that there is an urgent need to record the data available with the tribes otherwise the human beings has to lose vital traditional medicinal knowledge. Scientific investigations through the evaluation of plants for their biological activity need to be carried out.

Citation:

1. Introduction
Nature has provided a complete storehouse of remedies to cure ailments of mankind. Medicinal plants have been used for centuries as remedies for diseases because they contain component of therapeutic values. Herbal medicines are used as the major remedy in traditional medical system. Herbal medicines are being used by nearly about 80% of the world population, primarily in developing countries for primary health care (Charak 1996). Utilization of Medicinal plants for medicinal purposes in India has been documented long back in ancient literature (Ellis, 1987, Jain, and Goel 1995). Eastern Ghats is veritable niche of growing healing herbs, which are being used in Indian system of medicine like Ayurveda, Siddha and Unani. Traditional healing system play an important role in maintaining the physical and psychological well being of the vast majority of tribal people in India. The Eastern Ghats are a series of discontinuous low ranges running generally northeast-southwest parallel to the coast of the Bay of Bengal. The Nallamalais forms a series of parallel ranges in the Eastern Ghats of Andhra Pradesh. The region falls under tropical monsoon climate rainfall from both south-west monsoon and north–east retreating monsoon.

The present paper deals with the Sugalis one of the largest and advanced nomadic tribes of Andhra Pradesh, inhabiting the Yerraomalais range of Eastern Ghats of Kurnool...
district(Fig2.) of Andhra Pradesh. Amidst the Yerramalai forest near kalva bugga, Bugga Rameswara temple is present, where sugalis worship Chennakeswa Swami. The data were collected from 15 Sugali settlements namely, Alayabad Thanda, Lakshiaihkunta Thanda, Gummitham Thanda, Sugali Thanda, Chinnarajupelem Thanda, Undutla Lobai Thanda. Most of the sugali families carry agriculture collection of wood, preparation of country liquor, pastoralism are the mainstay of their economy. The main objective of this paper is to analyze how the Sugali tribal people use medicinal plants to cure Leucoderma. However, the Kurnool part of Yerramalais is relatively unexplored and little work has been done in context of ethnobotany (Kamboj, 2000), so the present study was undertaken on information of ethnobotanical plants used by Sugalis of Kurnool district, for the Leucoderma recorded by the authors during field trips has been documented in the study. Leucoderma, a Latin word, meaning ‘white skin’ is caused by the destruction of melanocytes; the cells responsible for skin color. The disorder is said to affect all races and genders equally and in 95% of cases, leucoderma manifests before age 40. As for a possible hereditary link, approximately one third of cases report a family history. The most commonly afflicted areas of the body are the sun-exposed tops of hands and faces, and hyper-pigmented areas of the body, such as the groin, nipples, genitalia and axilla. It is also true that all white spots are not of leucoderma. Leucoderma is characterized as a chronic skin disease that causes loss of pigment, resulting in patches of irregular pale skin. The disorders take place when the melanocytes, cells responsible for skin pigmentation, are destroyed or unable to function. The cells that make pigment in the skin, the tissues lining the inside of the mouth, nose, genital and rectal areas and the inner layer of the eye are mostly all areas that may be affected by this distressing disorder. It can also cause hair loss or premature graying of hair.

2. Materials and Methods

2.1 Study Area
Kurnool district is situated between eastern longitudes of 76° 58’-78° 56’ and northern latitudes of 14° 54’-16° 14’. Yerramalai forest (Fig. 1) show deciduous forest at Racherla, north Dhone, Gani, L. thanda, Betham cherla and Ramallakota forest etc.

2.2 Data collection
An Ethnobotanical survey of medicinal plants used for leucoderama by sugali tribes hamlets was carried out during 2011-2012 visiting twice in a year following the method of Jain and Goe (Khaleel Basha et al.,2011). The information of plants used as traditional medicine against Leucoderma was gathered and ethnobotanical survey was carried based on interviews with local doctors called local Vaidyas or traditional healers, villagers and house wives, and people involved in traditional herbal medicine. About 15 Sugalis of different Thandas(Fig.2) were interviewed. First hand information on their traditional medicine was recorded; repeated enquiries were made to understand their knowledge, and methods of diagnosis and treatment. Data were collected on the specific part of the plants used collection, method of usage of the drug. The medicinal plants are indentified with the help of the local floras (Maheshwari, and Harish Singh, 1990).

2.3 Identification of Plants
Plants species were collected from the forest with the help of local elder tribal head and are identified with local flora Flora of Kurnool (Pullaiah and Raju, 1995). The vouchers specimens were deposited in the Herbarium of Botany department, Osmania Degree and PG College, Kurnool.

3. Results and Discussion
The study reveals that in the absence of modern health facility sugali tribal people in this area depend on plants for medicinal purposes. Yerramalais forest has a variety of medicinal plants which are used by the Sugali tribes for their primary healthcare. During the interview 10 informants whose age ranged form 50-80 years old, displayed specimens of plants. In all, the people use 22 different plants for curing leucoderma, out of which 08 were herbs, 09 shrubs and 08 trees. In most of the cases leaves were used many times followed by stem bark, seed and root. Stem and flowers were the least used plant parts. The investigation revealed that 21 medicinal plant species belonging to 21 genera and 15 families commonly used leucoderma by sugali tribes in the survey of Yerramalais forest .The information on scientific name, family, vernacular name of the plant, plant part used and mode of use has been provided in (Table.1). The plants are arranged in alphabetic order.

Yerramalais forest has a variety of medicinal plants which are used by the Sugali tribes for their primary healthcare. The present study
identified that Sugali traditional healers or Vaidyas used plants for leucoderma. Based on the present information, it has been found that the Sugali tribal community of Eastern Ghats are rich in ethno-biological knowledge. These methods used for curing leucoderma have been found to be different from one tribe to another tribe. The present study emphasized that there is a profound and growing knowledge gap between old and younger generations. Aged people know more about wild plants products when compared to younger (Pandey and Bisaria, 1997; Singh, and Ali, 1998). The tribals have acquired unique knowledge about the properties and uses of wild plants, most of which are not known to the outside world. The observation of present study showed that traditional medicine plays a significant role.

Table 1: List of Medicinal plants used for leucoderma

<table>
<thead>
<tr>
<th>S. No</th>
<th>Scientific Name/Family</th>
<th>Ver. name</th>
<th>Habit</th>
<th>Part Used</th>
<th>Mode of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Abrus precatorius (L.)</td>
<td>gurivindha</td>
<td>S</td>
<td>L</td>
<td>Apply leaf extract on the spots</td>
</tr>
<tr>
<td>2.</td>
<td>Acacia chundra (Roxb)</td>
<td>sundra</td>
<td>T</td>
<td>SB</td>
<td>Bark and leaf paste is applied on the spots</td>
</tr>
<tr>
<td>3.</td>
<td>Albizia lebbeck (L.),</td>
<td>dirisena</td>
<td>T</td>
<td>SB</td>
<td>Bark and leaves paste is applied on spots</td>
</tr>
<tr>
<td>4.</td>
<td>Andrographis paniculata (butm.f.)</td>
<td>nelavemu</td>
<td>H</td>
<td>WP</td>
<td>Whole plant paste is applied</td>
</tr>
<tr>
<td>5.</td>
<td>Aristolochia indica Malvaceae</td>
<td>gadadapa</td>
<td>S</td>
<td>L</td>
<td>Leaf juice is applied over spots</td>
</tr>
<tr>
<td>6.</td>
<td>Clitoria ternatea L. Fabaceae</td>
<td>sankupulu</td>
<td>S</td>
<td>R</td>
<td>Root paste is applied on the patches</td>
</tr>
<tr>
<td>7.</td>
<td>Cassia auriculata L Caeslpinaceae</td>
<td>thangedu</td>
<td>S</td>
<td>F</td>
<td>Flower paste is applied on patches</td>
</tr>
<tr>
<td>8.</td>
<td>Cassia tora L Caeslpinaceae</td>
<td>pedda kasindha</td>
<td>T</td>
<td>S</td>
<td>Equal parts of Seeds of Cassia tora, seeds of Psoralea corylifolia and wood of Melia azadirachta made into paste with rose water is applied.</td>
</tr>
<tr>
<td>9.</td>
<td>Curcuma longa L Zingiberaceae</td>
<td>pasupu</td>
<td>S</td>
<td>RH</td>
<td>Grind and soak about 500 gm of turmeric in 8 lit water overnight. Heat it in the morning till only 1 lit of the solution is left. Strain and mix with 500gm of mustard oil and heat the mixture till only oil is left apply this every morning on the affected area. Take a tsp. of turmeric powder twice daily in the morning and evening with hot milk for six months. It is beneficial in leucoderma.</td>
</tr>
<tr>
<td>10.</td>
<td>Holoptelea integrifolia (rox) Ulmaceae</td>
<td>Nemali nara</td>
<td>T</td>
<td>SB&amp;L</td>
<td>Bark and leaf paste of plant are applied externally on the spots.</td>
</tr>
<tr>
<td>11.</td>
<td>Indigofera tinctoria L Fabaceae</td>
<td>seed and bark paste is applied on spots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Ocimum sanctum L Lamiaceae</td>
<td>tulasi</td>
<td>H</td>
<td></td>
<td>Drinking an infusion made from the stem of the basil plant prevents leucoderma. Take a basil plant with its roots, wash it and clean it well, pound it and cook it slowelyn ½ liter oil. When the water evaporates and only the oil is left mash and strain it to get the basil oil. Apply it on white spots. Mix leaf juice with camphor and apply on</td>
</tr>
<tr>
<td>13.</td>
<td>Pandanus fascicularis L Pandanaceae</td>
<td>Mugali chettu</td>
<td>T</td>
<td>L</td>
<td>Leaf paste is applied on spots.</td>
</tr>
<tr>
<td>14.</td>
<td>Pongamia pinnata L Fabaceae</td>
<td>Ganuga</td>
<td>T</td>
<td>L</td>
<td>Leaf juice is applied on the spots.</td>
</tr>
</tbody>
</table>
| 15.   | Psoralea corylifolia (L.) Fabaceae | Bavanchalu | H     | S         | Vakuchi Most sources suggest taking vakuchi internally as well as topically. The seeds, as a powder are recommended for internal use recommended for internal use. The parts of the plant used for topical application are the the essential oil extracted from the seeds. As a diluted essentila oils. when topically applied to white depigmented patches, it is reported
to act" on both the rouget's cells and the melanoblastic cells of the skin gradually stumultion by the oil leads to form and exude pigment which diffuses into the decolorized areas".

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>Genus</th>
<th>Family</th>
<th>Authors</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td><em>Punica granatum</em> L</td>
<td>Punicaceae</td>
<td></td>
<td>Dannima</td>
<td>Put pomegranate leaves to dry in the shade, grind them into a fine powder, sieve it and take 8 gms of it each in the morning and evening with fresh water.</td>
</tr>
<tr>
<td>17</td>
<td><em>Raphanus sativus</em></td>
<td>Brassicaceae</td>
<td></td>
<td>muliangi</td>
<td>Radish seeds are also highly beneficial for treating this condition. Powder around 25 gm of radish seeds and add them to red vinegar. Apply it regularly on the white patches to treat this disorder</td>
</tr>
<tr>
<td>18</td>
<td><em>Trichodesma zeylanicum</em> (Burman f.)</td>
<td>Boraginaceae</td>
<td></td>
<td>Adavi nugu teega</td>
<td>leaves applied as pasted.</td>
</tr>
<tr>
<td>19</td>
<td><em>Vitex negundo</em></td>
<td>Vitaceae</td>
<td></td>
<td>Nalia Vavila</td>
<td>Stem and leaf juice is used</td>
</tr>
<tr>
<td>20</td>
<td><em>Vigna radiate</em> (L.)</td>
<td>Fabaceae</td>
<td></td>
<td>Pesalu</td>
<td>Black gram seed paste applied regularly for several months proves to be useful.</td>
</tr>
<tr>
<td>21</td>
<td><em>Vernonia anthelmintica</em> (L.)</td>
<td>Asteraceae</td>
<td></td>
<td>sahadevi</td>
<td>1. The powdered seeds of this herb taken with a decoction of Emblic myrobalans and catechu. (2) The powdered seeds taken alone (1 tsp.) (3) The powdered black seeds taken with black daily in the morning with pepper or sesame seeds in equal parts, with warm water, just after perspiring. It is indicated that if one of the above methods is followed for one year, resolution of vitiligo will occur.</td>
</tr>
<tr>
<td>22</td>
<td><em>Withania somnifera</em> (L.)</td>
<td>Solanceae</td>
<td></td>
<td>Aswagandha</td>
<td>The mixture of Withania somnifera root bark, bark of Embelia ribes (vaibidang), leaves of Plumbago zeylanica (chitrak), seeds of Croton tiglium (jamalgota), and fruit pulp of Cassia fistula (amaltas) with cow's urine are applied on white patche for 2-3 months.</td>
</tr>
</tbody>
</table>

H-Herb, S-shrub. T- Tree

Figure 1:
Justification of Research

The crude traditional method of treatment was tried by Sugali tribes in its original form and found to be most effective against leucoderma. The present paper emphasizes that there is a need for scientific validation of these practices and their efficiency, credibility, and applicability need to be established by Pharmaceutical companies and Government Research institutes through photochemical pharmacological screening.

Research Highlights

- Our research paper reveals that 21 medicinal plant species belonging to 21 genera and 15 families are commonly used for leucoderma by Sugali tribes who live in deep forest.
- This paper gives payment to pharmaceutical industries in preparation for new drug to cure leucoderma.
- This study on medicinal plants is right and timely documentation to the modern world about traditional medicine importance.
- The plant-based traditional medical systems continue to provide the primary health care to more than three-quarters of the world’s population hence one has to take-up this type of research.
- According to the World Health Organization, it has estimated that over 80% of the global populations rely chiefly on traditional medicine in spite of modern medicine.
- The importance of medicinal plants in traditional healthcare practices, providing clues to new areas of research and in biodiversity conservation is now well recognized.

Limitations

This paper may serve as a gateway to many disciplines but it lacks research support. It is one of the key to conserve biology and environment education. This knowledge is confined to poor counties only. There are less research funding agencies present to do research work related to this field.

Recommendations

Medicinal plants play an important role in providing knowledge to the researchers in the field of ethnomedical plants present used by the tribal people.

Conclusion

The present study was initiated, with an aim to identify knowledgeable resource persons and document their knowledge of the utilization of medicinal plants in Yerramalaias forest. The incoming of roads and coming up of the area as an important tourist destination has allured the younger generation towards market economy, this certainly will have larger implications. Thus, the present documentation of traditional knowledge from an area where novel information has been generated will not only provide recognition to this knowledge but will also help in its conservation vis-à-vis providing pharmaceutical leads for the betterment of human society.

The practice of using herbal medicines is widely spread in this region with higher percentage of tribal as well as non tribal population relying on it. It is because of lack of awareness, shyness and lack of modern medical facilities available in their region and the high cost of modern medical system for treatment are unaffordable by tribal.

Author’s Contribution and Competing Interests

Sugali tribal community of Eastern Ghats is rich in ethno-biological knowledge. Leucoderma is not infectious disease; no specific treatments are available in allopathic medical system only herbal medicine may treat it. The present study is emphasized that there is an urgent need to record the data available with the tribes otherwise the human beings has to lose vital traditional medicinal knowledge. Moreover, lack of documentation of traditional healing methods has resulted in confusion amongst users. Thus, the present study has strongly recommended the necessity of proper documentation of the actual healing methods, along with the main characteristic features of the medicinal plants. Most remedies were given as external application. To improve the acceptability of certain oral remedies, additives are frequently used. No side effects were reported by the informants as a result of the use of different remedies. Indigenous practices and knowledge regarding the sustainable harvest and utilization of plant resources as medicine should be documented and preserved before they disappear. Scientific investigations through the evaluation of plants for their
biological activity need to be carried out in various pharmaceutical industries and National laboratories which will lead to develop new natural drug molecules so as to reach the benefit of research for the welfare of human beings.

**Funding and Policy**

To encourage research work in this field the Government has to set up Traditional Knowledge Library as repository for various medicinal formulations. Establishment of intellectual Property Rights Policy which can put all traditional knowledge into the realm of Knowledge commons distinguishing this from public domain.

**Acknowledgement**

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**References**


