Traditional Knowledge on Medicinal Plants Used for the Treatment of Skin Diseases in Ranchi District of Jharkhand, India

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ABSTRACT: The study thus underlines the potentials of the ethno-botanical research and the need for the documentation of traditional ecological knowledge pertaining. Skin diseases are most common, numerous and a frequently occurring form of infections occurring in people of all ages. This paper documents the knowledge of medicinal plants used for the treatment of skin diseases in Ranchi District of Jharkhand, India. The current investigation aims to identify, collect and document the existing folk knowledge related to the utilization of medicinal flora for healing of skin ailments among the local inhabitants. The study was done through structured questionnaires in consultation with the tribal ethno-medical practitioners and has resulted in the documentation of 75 medicinal plant species belonging to 42 families. Ethnic people and tribals of India are endowed with a deep knowledge concerning the utilization of medicinal plants to cure various diseases. However, research on the local knowledge related to plant species utilization for skin ailments still lacks adequate attention. In most of the skin treatments with medicinal plants, the herbal preparations are administered topically. Further scientific research is required to evaluate biochemical constituent as well as the pharmacologically useful alkaloids, tannins, resins and any other beneficial plant product available from the local flora for the enhanced posterity of mankind.

Keywords: Medicinal plants, skin diseases, ethnomedicinal, herbs, tribes, indigenous traditionally, nature.

I. Introduction

World Health Organization estimate over 80% of the people in developing countries depend on traditional medicines for their primary health needs[1]. There are estimated to be around 25,000 effective plant-based formulations, used in folk medicine and known to rural communities in India[2]. It is suggested that many conventional drugs prescribed worldwide are exclusively of plant based[3,4].

Jharkhand is a treasure of medicinal plants. People of Jharkhand literally (bushland) and symbolically are associated with forests. Various ethnic groups like Munda, Oraon, Ho, Santhal, Paharia etc. have symbiotic relations with forests. Jharkhand, the 28th state of the country. This area is a rich in medicinal plant diversity. The tribal people mostly depend on forests for their live hood like foods, fibers, woods etc., and up to 50.% of the ruler population still depends on traditional medicine as primary near there source. Ranchi is the capital of Jharkhand and located in Central Jharkhand. Ranchi lies at 23°22′N 85°20′E near to the Tropic of Cancer. The city covers an area of 175 km² (68 sq mi) and its average elevation is 651 m above sea level. Ranchi is located in the southern part of the Chota Nagpur plateau, which is the eastern section of the Deccan plateau.

Medicinal plants are the backbone of traditional medicine, which means more than 3.3 billion people in the less developed countries utilize medicinal plants on a regular basis[5]. Plants have been an obligatory source of innate products for their relief from illness for many years. The forest is referred to as God’s own pharmacy[6]: The World Health Organization[7]. Skin diseases are numerous and a frequently occurring health problem affecting all ages from the neonates to the elderly and cause harm in number of ways. Maintaining healthy skin is important for a healthy body. Many people may develop skin diseases that affect the skin, including herpes, cellulitis, leprosy, eczema, leucoderma, acne, scabies, etc. Some wild plants and their parts are frequently used to treat these diseases. The use of plants is as old as the mankind. Natural treatment is cheap and claimed to be safe. It is also suitable raw material for production of new synthetic agents. The therapeutic properties of medicinal plants are conditioned by the presence in their organs of active substances, such as alkaloids, flavonoides, glycosides, vitamins, tannins and coumarin compounds, which physiologically affect the bodies of humans and are biologically active in relation to the causative agents of various diseases.
II. Material and Method

Periodic field trips were undertaken to different villages of Ranchi District in 5 different blocks namely, Kanke, Ratu, Mander, Bero and Lapung. The data were collected considering two different types of observation viz., ethnobotanical, household survey and through direct interview related to quantification of plant gathered. The first way of data collection was by ‘interview’ involving question about local name, part use to treat diseases and method of administration. The second method includes collection of plants specimen and then interviewing the informants for names and uses. Both the types of observation were repeated with the knowledgeable people, elders, traditional healers, vaidhyas, etc. The plant specimens were dried using the standard herbarium techniques. The specimen were identified using Kirtikar and Basu, Chopra et al, Haines, Hooker, Kanjila, Jain, Maheshwari as the standard references. A total number of 27 plant species are recorded during the survey and these were enumerated and listed below in Table 1, arranged alphabetically by botanical name followed. The requisite ethnomedicinal properties of different plants were recorded through direct interview with the local people and practitioners on the basis of their traditional knowledge and the folklore formulation, which they were prescribed to their patients. After documentation, use of formulation was cross checked and confirmed. Our work confirms earlier findings. People of different area use different plants for skin diseases. Ammannia baccifera Linn of family Lythraceae has been used against skin diseases in Chotanagpur.

Study of Medicinal Plants:
Study of medicinal plants used by tribal people of Ranchi district of Jharkhand are as follows

<table>
<thead>
<tr>
<th>S.N</th>
<th>Botanical Name</th>
<th>Family</th>
<th>Local Name</th>
<th>Habit</th>
<th>Part used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Achyranthes aspera L.</td>
<td>Amaranthaceae</td>
<td>Apamarg</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>2.</td>
<td>Aegle marmelos (L.) Cor.</td>
<td>Rutaceae</td>
<td>Bel</td>
<td>Tree</td>
<td>Leaf</td>
</tr>
<tr>
<td>3.</td>
<td>Aloe barbadensis Mill.</td>
<td>Asphodelaceae</td>
<td>Ghritkumari</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>4.</td>
<td>Albizia lebbeck (L.) Benth.</td>
<td>Fabaceae</td>
<td>Siris</td>
<td>Tree</td>
<td>Bark</td>
</tr>
<tr>
<td>5.</td>
<td>Asparagus racemosus Willd.</td>
<td>Asparagaceae</td>
<td>Shataavari</td>
<td>Climber</td>
<td>Tubero-us root</td>
</tr>
<tr>
<td>6.</td>
<td>Boerhaavia diffusa L.</td>
<td>Nyctaginaceae</td>
<td>Khapra saag</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>7.</td>
<td>Capparis zeylanica L.</td>
<td>Cappariadaceae</td>
<td>Hainsa</td>
<td>Climer shrub</td>
<td>Leaf</td>
</tr>
<tr>
<td>8.</td>
<td>Cassia alata L.</td>
<td>Caesalpinaceae</td>
<td>Daadmaari</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>9.</td>
<td>Chenopodium album L.</td>
<td>Amaranthaceae</td>
<td>Bathuaa</td>
<td>Herb</td>
<td>leaf</td>
</tr>
<tr>
<td>11.</td>
<td>Clitoria ternatea L.</td>
<td>Fabaceae</td>
<td>Aprajita</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>12.</td>
<td>Costus speciosus (Koenig) Sm.</td>
<td>Zingiberaceae</td>
<td>Kebu</td>
<td>Herb</td>
<td>Rhizome</td>
</tr>
<tr>
<td>13.</td>
<td>Curcuma longa L.</td>
<td>Zingiberaceae</td>
<td>Haldi</td>
<td>Herb</td>
<td>Rhizome</td>
</tr>
<tr>
<td>14.</td>
<td>Heliotropium indicum L.</td>
<td>Boraginaceae</td>
<td>Haanthisuda</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>15.</td>
<td>Kigelia africana (Lam.) Benth.</td>
<td>Bignoniaceae</td>
<td>Balam khira</td>
<td>Tree</td>
<td>Fruit</td>
</tr>
<tr>
<td>16.</td>
<td>Lawsonia inermis L.</td>
<td>Lythraceae</td>
<td>Mehendi</td>
<td>Shrub</td>
<td>Leaf</td>
</tr>
<tr>
<td>17.</td>
<td>Leucas aspera Spreng.</td>
<td>Lamiaceae</td>
<td>Goma</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>18.</td>
<td>Mimosum pudica L.</td>
<td>Mimosaceae</td>
<td>Laajwanti</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>19.</td>
<td>Mangifera indica L.</td>
<td>Anacardiaceae</td>
<td>Aam</td>
<td>Tree</td>
<td>Fruit</td>
</tr>
<tr>
<td>20.</td>
<td>Pongamia pinnata (L.) Pierre.</td>
<td>Fabaceae</td>
<td>Karanj</td>
<td>Tree</td>
<td>Seed</td>
</tr>
<tr>
<td>21.</td>
<td>Phyllanthus emblica L.</td>
<td>Euphorbiaceae</td>
<td>Amla</td>
<td>Tree</td>
<td>Bark</td>
</tr>
<tr>
<td>22.</td>
<td>Phyllanthus niruri L.</td>
<td>Euphorbiaceae</td>
<td>Bhumiamla</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>23.</td>
<td>Ricinus communis L.</td>
<td>Euphorbiaceae</td>
<td>Erandi</td>
<td>Shrub</td>
<td>Seed</td>
</tr>
<tr>
<td>24.</td>
<td>Rumex maritimus L.</td>
<td>Polygonaceae</td>
<td>Jangali Palal</td>
<td>Herb</td>
<td>Leaf</td>
</tr>
<tr>
<td>25.</td>
<td>Schleichera oleosa (Lour.) Merr.</td>
<td>Sapindaceae</td>
<td>Kusum</td>
<td>Tree</td>
<td>Seed</td>
</tr>
<tr>
<td>26.</td>
<td>Sida rhombifolia L.</td>
<td>Malvaceae</td>
<td>Mahaabalaa</td>
<td>Herb</td>
<td>Whole plant</td>
</tr>
<tr>
<td>27.</td>
<td>Terminalia arjuna (Roxb.)W.&amp;A.</td>
<td>Combretaceae</td>
<td>Arjun</td>
<td>Tree</td>
<td>Bark</td>
</tr>
</tbody>
</table>
Use of the plants in various diseases

1. Achyranthes aspera L. - Leaf juice is applied in fungal infections.
2. Aegle marmelos (L.) Corr. Paste of leaves and crushed seeds are applied on the affected part to cure scabies. Bel sharbat is used in curing skin rashes, vitiligo (white patches on the skin), redness, itching and other skin problems.
3. Aloe barbadensis Mill. - Leaf pulp is applied on burns, wounds and cuts. Eczema.
4. Albizia lebbeck (L.) Benth. - Bark is soaked in water overnight, mashed bark in water is filtered and taken next morning for cure of skin problems.
5. Asparagus racemosus Willd. - Tuberous root paste is useful in bacterial and fungal infection.
6. Boerhaavia diffusa L. - Leaf is boiled in coconut oil and applied locally twice a day until cure to treat scabies and ringworm infection. Root paste with milk is applied topically in case of blisters and ulcer.
7. Capparis zeylanica L. - The leaves paste is applied in boils.
8. Cassia alata L. - Leaf paste is applied externally in eczema and ringworm.
9. Chenopodium album L. - Juice of the leaves are applied on the white patches on the skin (Vitiligo). Leaf paste is also applied over burns.
10. Clerodendrum infortunatum L. - Leaf paste is used in itching, scabies and other skin infections.
11. Costus speciosus (Koenig) Sm. - The paste of the leaves and rhizome is made into paste and applied locally over the skin affected with discoloration, black spots and itching due to ringworm infection.
12. Curcuma longa L. - Rhizome paste is applied externally in wounds.
13. Heliotropium indicum L. - Leaf paste is used on wounds, scabies, eczema and other skin problems.
14. Kigelia Africana (Lam.) Benth. - Paste prepared from dried fruit is useful in wounds, acne, abscess and ulcers.
15. Lawsonia inermis L. - Paste prepared from leaf is applied on cuts, wounds and burning sensation on the feet.
16. Leucas aspera Spreng. The juice of the leaf is used externally for the treatment of psoriasis and chronic skin eruptions.
17. Mimosa pudica L. - Paste of whole plant is applied on eczema, cuts and wounds.
18. Mangifera indica L. - Raw fruit is roasted or boiled and the pulp is applied in sunstroke or sunburn.
19. Pongamia pinnata (L.) Pierre. - Application of seed oil is useful in scabies, leprosy, minor cuts and other skin infection.
20. Phyllanthus emblica L. - Dried bark powder is boiled with coconut oil and applied externally on scabies.
21. Phyllanthus niruri L. - Paste of the leaf is applied over the skin to treat skin infection.
22. Ricinus communis L. - Seed oil is applied in eczema and other skin ailments.
23. Rumex maritimus L. - Leaf paste is applied on burns, itching and wounds.
24. Schleichera oleosa (Lour.) Merr. - Seed paste is slightly warmed and applied over the cuts to prevent pain and to cure white patches on the skin. Seed oil is applied externally on scabies.
25. Sida rhombifolia L. - The poultice of the whole plant is applied externally on ulcers, boils, cuts and any inflammatory virus disease of the skin.
26. Terminalia arjuna (Roxb.) W.&A. - Bark paste is applied on burns, acne and wounds.
Albizia lebbeck (L.)
Asparagus racemosus Willd.
Boerhaavia diffusa L.

Capparis zeylanica L.
Cassia alata L.
Chenopodium album L.

Clerodendrum infortunatum
Clitoria ternatea L.
Costus speciosus (Koenig) Sm.

Curcuma longa L.
Heliotropium indicum L.
Kigelia Africana (Lam.) Benth

Lawsonia inermis L.
Leucas aspera Spreng.
Mimosa pudica L.
III. Result

The study of 27 species belonging to 21 families were identified. In table the plant species were verified and authenticated as 12 herbs, 7 trees, 4 shrubs and 4 climbers. It was observed that leaves were the most widely used plant part accounting for 14 plant species in a total of 27 recorded plants. This was followed by barks (3 species), fruits (2 species), seeds (2 species), fruits (2 species), rhizome (2 species), tuberous root (1 species), and whole plant (1 species). For each of the plant species mentioned above, the botanical name, family, vernacular name in hindi, habit, plant part used and mode of administration were recorded. The result of the present study provide evidence that medicinal plants still play a vital role in primary health care of the folk community.

IV. Discussion

Skin health is fundamental to total health. The skin, along with the hair, glands and nails is the part of the integumentary system, the largest and most versatile organ system in the body. Generally fresh part of the plant used to preparation of medicine. When fresh plant part are not available dried parts also used. This study revealed that traditional wisdom about medicinal plants still play a vital role in primary health care of people. During the survey it was that there must need to protect this knowledge forever. Similar plant use is recorded earlier in different parts of India.

V. Conclusion

The biochemical analysis and pharmacological studies of those plant species may bring some new scientific information of immense ethno pharmacological interest. That’s why these medicines should be cultivated and traditional healer should get economic support from government. Hence the benefit of this knowledge may be useful to coming generation. The results suggest that the people of Ranchi district possessed quite extensive knowledge of
the medicinal properties of plants that they used for treatment of skin ailments. The emergences of increasingly pathogenic and resistant microbes have stimulated a search for safer and more natural alternatives to the current conventional treatment methods. Thus the wealth of medicinal plants points to a great potential for research and the discovery of new drugs to fight skin diseases.

VI. Acknowledge

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