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A Case Study on Indigenous Phytotherapy for Skin Diseases in Nuapada District, Odisha, India.

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The present paper provides complete information on the ethnomedicinal plants used to cure different types of skin diseases by the tribal people living in Nuapada district of Odisha. The predominant tribes living in the region are Gond (65.76 %), Sabars (11.36 %), Saora (4.92 %), Luhuras, Chinda Bhunjia, Binjhals, Kharia, Kondha and Paharias. A total of 49 angiosperms belonging to 29 families and 45 genera having ethnomedicinal uses in skin diseases were documented. Fabaceae is the dominant family with species 5 nos. followed by Acanthaceae, Apocynaceae and Caesalpiniaceae with 4 nos. of species each. The documented medicinal plants were tabulated alphabetically with their voucher specimen number, family name, local names, parts used, mode of administration and the ailments.

Keyword: Phytotherapy; Traditional Knowledge; Skin Disease ; Chinda Bhunjia; Nuapada.

1. Introduction

Nuapada located in the western part of Odisha lies between 20° 0' N to 21° 5' N latitudes and between 82° 20' E to 82° 53' E longitudes. Its boundaries extend in the north, west and south to Raipur district in Chhatishgarh and in the east to Bargarh, Balangir and Kalahandi districts. This district is spread over in an area of 3852 Sq.kms (2.47% of the state) and has a forest cover of 1849.69 Sq. kms (48 %) of the total area 3,852 Sq.kms[3]. The forest is of dry deciduous type and has rich phytodiversity and is abode to large number of medicinal plants. The population of the district is 5,30,690 as per the 2001 Census of India out of 184221(34.71%) are schedule tribes. The Prominent among them are Gond (65.76 %), Sabars (11.36 %), Saora (4.92 %), Luhuras, Chinda Bhunjia, Binjhals, Kharia, Konmdha and Paharias[2]. Nuapada is considered as the homeland of the Bhunjias. 75 % of the total population of this tribe lives here. **Chuktia Bhunjia** is the only primitive group (**PTG**) found in Nuapada district. The tribal dominated villages located in isolated pockets in forest ecosystem of the district and have limited livelihood options and are mainly depend on forests for their earning and medicinal requirements.

The past literature study of the district reveals a very little and organized attempts to gather knowledge on ethnomedicinal uses of indigenous plants by different tribes. Most of the works are sporadic and inadequate compared to its real potential and restricted to Kalahandi district[5,6,8,7] from which Nuapada was carved out in 1994. The ethnobotany work of[1] is the only notable efforts of the district. Because of this poor

record an attempt was taken to document plants that are used to cure skin related diseases.

1.1 Methodology

In Nuapada district skin diseases are the third common health problem next to Malaria and diarrhea. Keeping this in view a systematic and critical ethnobotanical exploration of the district was planned in 2011-12. The field trips was planed using topographical maps in such a way that every forest pockets of Sinapali, Khariar, Boden, Komna and Nuapada blocks having substantial tribal population could be covered. Due care was taken so that every tribal localities could be covered to collect information's on indigenous plants used particularly against various skin diseases. Well known tribal medicine practitioner were approached and interviewed for this purpose. They were taken to forests and enquired about the plants used as medicines to treat different skin diseases. Every care has been taken to avoid ambiguity as regards to plant parts, formulation, quantity, dosage, method of preparation, mode of administration, doses etc. The information such as local name, plant parts used, mode of preparation and its combinations, mode of administration and the ailment it cures (Table 1) was documented. Voucher specimens in flowering/fruiting stage were collected and identified with the help of flora books[4,9] and herbarium at CSIR-IMMT, Bhubaneswar. After identification, the herbarium specimens were kept in the herbarium of Dept. of Botany, Govt. College, Bhawanipatna. The specimens were arranged alphabetically. Each species was described with proper citation and necessary information.

Table 1: Plants of Nuapada used in treatment of skin diseases.

S. No.	Name of the Species with Voucher No. & Habit	Family	Local Name	Parts Used	Disease & Mode of Administration
1.	***Alangium salvifolium*** (L.f.) Wang. GJCB-0227. Tree	Alangiaceae	Ankula	Seed	Seed (50 gm.) made into paste and applied on boil to suppress its growth.
2.	***Alstonia scholaris*** (L.) R.Br. GJCB-0316. Tree	Apocynaceae	Chhatian	Bark	The bark paste mixed with turmeric is applied against skin disease & leprosy.
3.	***Ampelocissus tomentosa*** (Roth) Planch. GJCB-0138. Climber	Vitaceae	Kanjanai.	Tuber	The root tuber is made into paste & applied on head to kill lice
4.	***Andrographis paniculata*** (Burm.f.) Wall. ex Nees .GJCB-0143. Herb	Acanthaceae	Bhuin Neem	Root	Root paste is applied externally to cure fresh cut wounds

S. No.	Name of the Species with Voucher No. & Habit	Family	Local Name	Parts Used	Disease & Mode of Administration
5.	***Anogeissus latifolia*** (Roxb. ex Dc.) Wall. GJCB-0535. Tree	Combretaceae	Dhaora	Bark	The bark decoction of the plant is used to wash skin diseases for quick recovery.
6.	***Argemone mexicana*** L. GJCB-0003. Herb	Papaveraceae	Dengibiful	Seed & Stem	1.Seed paste is applied on scabies. 2.The yellow juice is massaged on the head to get rid of dandruff.
7.	***Azadirachta indica*** A. Juss. GJCB-0015. Tree	Meliaceae	Lim	Leaf	The crushed leaves applied before bath on the body, is believed to cure all types of skin diseases. Leaf paste is applied to heal wound
8.	***Barleria prionitis*** L. GJCB-0295. Shrub	Acanthaceae	Daskerinta	Leaf	Leaf juice mixed with mustard oil is applied on scabies.
9.	**Barleria strigosa** Willd. GJCB-0398. Shrub	Acanthaceae	Banmalli	Leaf	Leaf paste applied on face to cure pimples.
10.	***Bauhinia variegata*** L. GJCB-0725. Tree	Caesalpiniaceae	Kanchana	Root	The root paste of the plant is used to cure of skin disease
11.	***Buchanania lanzan*** Spreng. GJCB-0045. Tree	Anacardiaceae	Chara	Root	The roots powder of the plant is used to cure of skin diseases.
12.	***Calophyllum inophyllum*** L. GJCB-0752. Tree	Cluciaceae	Polanga.	Seed	Seed oil is used externally for scabies and eczema.
13.	***Calotropis gigantia*** R.Br. GJCB-0767. Shrub	Asclepiadaceae	Khudher	Latex	Latex is locally applied on eczema.
14.	***Cascabela thevetia*** (L.) Lippold GJCB-0067. Tree	Apocynaceae	Kaner	Latex	White latex of the plant is put on fresh cuts or scratches.

S. No.	Name of the Species with Voucher No. & Habit	Family	Local Name	Parts Used	Disease & Mode of Administration
15.	***Cassia occidentalis*** L. GJCB-0152. Herb	Caesalpiniaceae	Kala chakunda	Leaf	Leaf paste is applied locally on scabies.
16.	***Cassia tora*** L. GJCB-0161. Herb	Caesalpiniaceae	Chakunda	Seed	Seed paste is used to treat ringworm, scabies and other skin diseases.
17.	***Cleistanthus collinus*** (Roxb.) Benth ex Hook.f. GJCB-0318. Tree	Euphorbiaceae	Karada	Stem bark	Stem bark decoction is used for washing septic wounds.
18.	***Cleome viscosa*** L. GJCB-0087. Herb	Capparaceae	Anasorisho	Leaf	Crushed leaves are applied locally on wounds.
19.	***Crotalaria juncea*** L. GJCB-0258. Shrub	Fabaceae	Chhanapata	Flower	Flowers paste is used to cure eczema.
20.	***Crotalaria spectabilis*** Roth GJCB-0268. Herb	Fabaceae	Jhunka	Whole plant	The plant juice is applied externally to cure scabies.
21.	***Dalbergia sissoo*** Roxb. GJCB-0221. Tree	Fabaceae	Sisu	Bark	The bark powder of the plant is used in the treatment of leucoderma, scabies and ulcers.
22.	***Datura metel*** L. GJCB-0176. Shrub	Solanaceae	Kaladudura	Seed	Seed paste with *Pongamia* oil (2:1) is externally used for leucoderma .
23.	***Erythrina variegata*** L. GJCB-046. Tree	Fabaceae	Chauldhua	Leaf	A glass of leaf juice in empty stomach is very effective against skin diseases.
24.	***Ficus microcarpa*** L.f. GJCB-0478. Tree	Moraceae	Jida	Root	Roots powder applied on wounds, ulcers and bruises.
25.	***Gardenia gummifera*** L.f. GJCB-0312. Shrub	Rubiaceae	Gurudu	Resin	The resin powder of the plant is used locally to cure foul ulcer.
26.	***Haldinia cordifolia*** (Roxb.) Ridsd. GJCB-0591. Tree	Rubiaceae	Kuruma	Bark	Bark paste is locally applied on scabies.

S. No.	Name of the Species with Voucher No. & Habit	Family	Local Name	Parts Used	Disease & Mode of Administration
27.	***Helicters isora*** L. GJCB-0101. Shrub	Sterculiaceae	Modimodika	Root	The roots powder is used to cure scabies.
28.	***Homonoia riparia*** Lour. GJCB-0449. Shrub	Euphorbiaceae	Panibegunia	Leaf	Leaf juice is taken orally to overcome skin diseases.
29.	***Ipomoea pes-tigridis*** L. GJCB-0289. Herb	Convolvulaceae	Bileipanja	Whole plant	Whole plant paste is used to treat boils.
30.	***Jatropha gossypifolia*** L. GJCB-0437 . Shrub	Euphorbiaceae	Jahaji	Latex	Latex is applied to cure eczema, scabies and ringworms.
31.	***Justicia gendarussa*** Burm. GJCB-0776. Shrub	Acanthaceae	Kukurdanti	Leaf	The leaf paste is externally applied to cure eczema.
32.	***Lannea coromandelica*** (Houtt.) Merr. GJCB-0231. Tree	Anacardiaceae	Moi.	Gum	The gum obtained from the bark is used to cure of cuts, wounds, bruises and ulcers.
33.	***Leonotis nepetifolia*** (L.) R.Br. GJCB-0308. Herb	Lamiaceae	Kantasido	Leaf	Leaf paste is applied locally to cure skin diseases.
34.	***Melastoma malabathricum*** L. GJCB-0558. Shrub	Melastomataceae	Gangei	Bark	Bark powder applied on scabies.
35.	***Mollugo pentaphylla*** L. GJCB-0155. Herb	Molluginaceae	Pitasaga	Whole plant	Dried plant paste is applied on wound , scabies and other skin diseases.
36.	***Nerium oleander*** L. GJCB-0260. Shrub	Apocynaceae	Lalkaner	Leaf	Fresh leaf is rubbed on ring worm infected areas.
37.	***Plumeria rubra*** L. GJCB-0699. Tree	Apocynaceae	Kath-champa	Root	Warm root paste (5 gm) is applied on the boil to hasten suppuration.
38.	***Polycarpaea corymbosa*** (L.) Lam. GJCB-0078. Herb	Caryophyllaceae	Sanjatjatia	Whole plant	Whole plant paste is applied on boils.

S. No.	Name of the Species with Voucher No. & Habit	Family	Local Name	Parts Used	Disease & Mode of Administration
39.	***Pongamia pinnata*** (L.) Pierre. GJCB-0392. Tree	Fabaceae	Karnji	Leaf	Leaf paste is taken to cure skin disease. Oil of the plant is used to cure scabies and leprosy.
40.	***Protium serratum*** (Wall. ex Colebr.) Engl .GJCB- 0201. Tree	Burseraceae	Rajmoi	Bark	Bark paste is applied on boils and scabies.
41.	***Santalum album*** L. GJCB-0390. Tree	Santalaceae	Chandana	Bark	The bark paste is applied on face to cure pimples.
42.	***Semecarpus anacardium*** L. GJCB-0745. Tree	Anacardiaceae	Bhullia	Seed	The seed oil is applied on wounds, leprosy and leucoderma related problems.
43.	***Sida cordata*** (Burm.f.) Borssum. GJCB-0031. Herb	Malvaceae	Bisiripi	Leaf	Leaves are crushed and the juice is applied on boils.
44.	***Tamarindus indica*** L. GJCB-0202. Tree	Caesalpiniaceae	Tetel	Leaf	The leaf paste is applied on boils for painless bursting.
45.	***Terminalia arjuna*** (Roxb.ex DC.) Wight. & Arn. GJCB-0383. Tree	Combretaceae	Kha gach	Dry bark	Dry bark powder mixed with coconut oil is applied on wounds.
46.	***Terminalia chebula*** Retz. GJCB-0388. Tree	Combretaceae	Harida	Fruit	Fruit paste is applied to cure eczema and cuts.
47.	***Symplocos racemosa*** Roxb. GJCB-0575. Tree	Symplocaceae	Lodha	Bark	The bark ash of the plant is applied on skin ulcers.
48.	***Trichodesma indicum*** (L.) R.Br. GJCB-0359. Herb	Boraginaceae	Hetamundia	Whole plant	Young branches are rubbed locally on ring worm infected areas.
49.	***Ziziphus oenoplia*** (L.) Mill. GJCB-0239. Shrub	Rhamnaceae	Kantikuel.	Root bark	The root bark powder is applied on wounds.

2. Results and Discussion

The study finds 49 angiosperms belonging to 29 families and 45 genera pertaining to ethnomedicinal uses particular in skin related diseases have been documented. Fabaceae is the dominant family with maximum number of plants species (5 nos.) with medicinal properties followed by

Acanthaceae, Apocynaceae and Caesalpiniaceae with 4 nos. of species each, Anacardiaceae, Combretaceae and Euphorbiaceae (3 nos.species each) and Rubiaceae (2 nos.of species). Out of these 49 specimens, trees are (46.9%), herbs (26.5%), shrubs (26.5%) and climber (.02%). The type of skin diseases which were treated traditionally are eczema, ulcers, leprosy, wounds and scabies, boil, ringworm infections, cuts and bruises, pimples etc. The most demanded species that are used to cure more than one disease are *Argemone mexicana* L. ('Dengibiful'*),* *Azadirachta indica* (*'*Neem'*),* *Dalbergia sissoo* (*'*Sisso'*),* *Ficus microcarpa* ('Jida'*),* *Jatropha gossypifolia* (*'*Jahaji'*),* *Lannea coromandelica* (*'*Moi'*),* *Mollugo pentaphylla* (*'*Pitasag'*),* *Pongamia pinnata* (*'*Karnji'*),* *Andrographic paniculata* ('Bhuin Neem'). Plant parts that most frequently used are leaf (26%), followed by bark (20%), root(14%), seed (12%), whole plant (10%), latex and gum (10%), fruit (0.4%), stem and tuber (0.2%). The various formulations that are prepared from the ethnomedicinal plants are paste, decoction, powder, raw parts, juice and oil.

3. Conclusion

Nuapada district is one of the most backward regions of our country. Since time immemorial people are using plants for their livelihood. This study reveals that the use of plants as medicine is the most preferred mode of curing skin diseases that the indigenous people of the district followed. The indigenous people of this district use these plants as medicine with strong spiritual belief. This could be the main reason for their recovery. Most of these plants are collected from forests baring few plants which are grown by the local practitioner near their house. So it needs immediate attention to awareness the local practitioner to go for cultivation of medicinal plants because it will reduce their labour to travel in forest to collect the plant and they can also protect and conserve these precious plants for future use.

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