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Ethno-Medicinal Heritage Of Chandi Devi Hill's Of Haridwar, Uttarakhand

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Abstract:

Ayurvedic system of medicine constituting the use of plants, spirituality and the natural environment, has been the source of healing for the people since millennia. The precious indigenous knowledge, when supplemented and validated by the late scientific insights, can offer new holistic models of sustainable development that are economically, environmentally and socially acceptable. The ethno-medicinal information provides a base to new compound with active principles for phyto-chemical, pharmacognostical, pharmacological and clinical research. The study was planned to find out the ethno-medicinal importance of medicinal plants used by Gujjar tribes in the Shivalik Hills of Haridwar, Uttarakhand. Comparative analysis of Ethno-medicinal uses with Ayurvedic literature reveals that 69.16% of the tribal indications are supported by classical evidences.

Key words: Ethno-medicine, Indigenous knowledge, Shivalik Hills (Chandi Devi Hills), Gujjar tribes.

1.Introduction

Rigveda which is the oldest repository in library of man also supplies curious information on the subject that the knowledge of medicinal plants must have been accumulated in the course of many centuries. Maharishi Charak⁽¹⁾, Sushruta⁽²⁾ and Dhanwantri Nighantu⁽³⁾ stated that the cowherds, shepherds, hermits, ethnic communities and who are residing in close proximity of forest are best conversant person to recognize about the uses of plant. The science of ethno botany deals about the straight association between man and plants. There are immense scopes to make use of such valuable facts of medicinal plants gathered in field appraisal among the tribal or forest dwellers for introduction in any system of medicine. The importance of traditional medicine that provides health service to about 80% of world population has been realized by W.H.O⁽⁴⁾.

India has an ancient heritage of traditional medicine, it is greatly to the acknowledgment of the people of India that they were acquainted with a far larger number of medicinal plants than the native of any other country on the face of the earth. Ethno-medicine refers to the study of traditional medical practice which is concerned with the cultural interpretation of health, disease and illness & also addresses the healthcare seeking process and healing practices⁽⁵⁾.

2.Aims And Objectives

The Gujjar tribes⁽⁶⁾ are the enormous pool of cumulated experience and information of autochthonous flora and fauna occurring in the one of the best natural, mixed, deciduous forest of India, the Shivalik Hill's, situated in the foot hills of the Himalayas

To accomplish the above goals the approach of present work includes-

- Folklore review.
- Collection and identification of Ethno-medicinal plants.
- Documentation of the findings.
- 4. Comparative study of utilization patterns of medicinal plants in the traditional tribal system and Ayurvedic system of medicine, especially in Bhava Prakash Nighantu and Nighantu Adarsh^(7, 8).

3. Material And Methods

An Ethno-botanical survey of medicinal plants used by Gujjar tribes in the Shivalik hill's of Chandi section (compart 04 & compart 08) of Shyampur range, Hardwar, Uttarakhand⁽⁹⁾ was conducted with the help of forest administration during period January 2010 to January 2012 with a view to study the ethno medicinal importance of plant species of the area and to record the folk wisdom of the natives. The study area comprises of 502.4 hectare. The traditional healer's were identified and interviewed extensively during the study period.

Two basic approaches were carried out to study the traditional knowledge. The first approach, which is called inventory include collection of plant specimen and then interweaving names and uses and the second approach which is called interview, involves asking questionnaire about medicinal use of plant for different purposes. Both the approaches were repeated with knowledgeable person, elders and traditional healers etc.

The specimen's were collected with the help of personal of forest department and Gujjar tribal's. The tribal's were requested to accompany the scholar for on spot identification of plants in the forest and collection of specimen's for herbarium. A total of 100 species were collected from the forest but the native have Ethno-medicinal uses for 55 plants. Collected plant species were preliminarily identified with the help of regional flora^(10,11,12,13) and with the help of faculty of dravyaguna, Rishikul Government P.G. Ayurvedic college, Hardwar. For final authentication of plants the herbarium was matched and confirmed from the Herbaria (Acronym RKT) of Regional Research Institute of Himalayan Flora, CCRAS Ranikhet, Distt.-Almora, Uttarakhand⁽¹⁴⁾. The well preserved voucher specimen's were deposited in the Department of Dravya-Guna, National Institute of Ayurveda, Jaipur for the benefit of new post-graduate scholar of Dravyaguna.

4. Observation And Results

Total 55 plants were reported by Gujjars to be of ethno-medicinal uses during the survey. These plants are displayed in tabular form along with their Sanskrit name, Botanical name, family, Local names used by Gujjars and the habit of the plant.

4.1. Enumeration Of Herbal Drugs Used By The Gujjar Tribes

S.No	Binomial name ⁽¹⁵⁾	Sanskrit Name	Gujjar name ⁽¹⁶⁾	Habit	Natural order
1.	Acacia arabica, Willd.	Babbool	Kikar	Tree	Mimosaceae
2.	Achyranthes aspera Linn.	Apamarg	Perkanda	Herb	Amaranthaceae
3.	Adhatoda vasica Nees.	Vasa	Vashuti	Shrub	Acanthaceae
4.	Aegle marmelos, Corr.	Bilva	Billana	Tree	Rutaceae
5.	Ageratum conizoides, Linn.	-	Jangli pudina	Herb	Asteraceae
6.	Anogeissus latifolia, Wall.	Dhava	Dhauri	Tree	Combretaceae
7.	Argemone mexicana, Linn.	Swarnakshiri	Dudhli	Herb	Papaveraceae
8.	Azadirachta indica, A. juss.	Nimba	Neem	Tree	Meliaceae
9.	Boerhavia diffusa, Linn.	Punarnava	Pilia	Herb	Nyctaginaceae
10.	Bombax malabarica, Dc.	Shalmali	Simal	Tree	Bombacaceae
11.	Buchanania lanzan, Spreng.	Priyal	Piyal	Tree	Anacardiaceae
12.	Butea monosperma, O. kuntze.	Palash	Paadha	Tree	Fabaceae
13.	Calotropis procera, R. Bl.	Arka	Aak	Shrub	Asclepiadaceae
14.	Cassia fistula, Linn.	Aragvadh	Karangal	Tree	Caesalpinaceae
15.	Cassia tora, Linn.	Chakramarda	Hedava	Herb	Caesalpinaceae
16.	Cissampelos pareira, Linn.	Patha	Katori bel	Climber	Menispermaceae
17.	Crataeva nurvala, Ham.	Varuna	Bana	Tree	Capparidaceae
18.	Cuscuta reflexa, Roxb.	Akashvalli	Aand bel	climber	Convolvulaceae
19.	Datura fastuosa, Linn.	Dhattur	Dhatura	Shrub	Solanaceae
20.	Desmodium gangeticum, DC.	Shalparni	Chudri	Shrub	Fabaceae
21.	Eclipta alba, Hassk.	Bhrangraj	Bhangra	Herb	Asteraceae
22.	Emblica officinalis, Gaertn.	Amalaki	Ambali	Tree	Euphobiaceae
23.	Erythrina suberosa, Roxb.	Paribhadra	Thobe	Tree	Fabaceae
24.	Eugenia jambolana, Lam	Jambu	jamni	Tree	Myrtaceae
25.	Ficus bengalensis, Linn.	Vata	Badoi	Tree	Moraceae

26.	Ficus racemosa,Linn.	Udumber	Rumbada	Tree	Moraceae
27.	Glycomis arborea,DC.	-	Pillu	Shrub	Rutaceae
28.	Helicteres isora,Linn.	Avartani	Chaun	Shrub	Sterculaceae
29.	Holarrhena antidysentrica,Wall.	Kutaj	Kogad	Tree	Apocynaceae
30.	Holoptelia integrifolia,Planch.	Chibilva	Paapdi	Tree	Ulmaceae
31.	Lantana camara,Linn.	-	Mori	Shrub	Verbenaceae
32.	Leucas aspera,Spreng.	Dronapushpi	Manpiddu	Herb	Asteraceae
33.	Litsea chinensis,Lam.	Medashak	Raheen	Tree	Lauraceae
34.	Mallotus philippinensis,Muell.	Kampillak	Kamila	Tree	Euphobiaceae
35.	Melia azedarach,Linn.	Mahanimb	Bakain	Tree	Meliaceae
36.	Moringa oleifera.Lam.	Shigru	Suhanjana	Tree	Moringaceae
37.	Nyctanthes arbor-tristis,Linn.	Parijaat	Landoori	Tree	Oleaceae
38.	Odina woodier,Roxb.	Jhingani	Jhinghan	Tree	Anacardiaceae
39.	Oroxylum indicum,Vent.	Shyonak	Talwar falli	Tree	Bignoniaceae
40.	Ougeinia dalbergioides,Benth.	Shyandan	Sandan	Tree	Fabaceae
41.	Randia dumetorum,Lam.	Madanphal	Thanela	Shrub	Rubiaceae
42.	Ricinus communis,Linn.	Erand	Rend	Shrub	Euphorbiaceae
43.	Semecarpus anacardium,Linn.	Bhallatak	Bhulawa	Tree	Anacardiaceae
44.	Shorea robusta,Gaertn.f.fruct.	Shal	Shal	Tree	Dipterocarpaceae
45.	Solanum nigrum,Linn.	Kakmachi	Kayakothi	Herb	Solanaceae
46.	Spilanthes acmella Murr.	-	Jariphul	Herb	Asteraceae
47.	Terminalia belarica,Roxb.	Vibhitak	Behra	Tree	Combretaceae
48.	Terminalia chibula,Retz.	Haritaki	Haira	Tree	Combretaceae
49.	Tinospora cordifolia(lam)miers	Guduchi	Gurch	Climber	Menispermaceae
50.	Vanda tesellata(roxb.)Hook.	-	Haddijode	Epiphyte	Orchidaceae
51.	Vetiveria zizanoides,Linn.	Ushir	Kaskas	Shrub	Poaceae
52.	Vitex nigando,Linn.	Nirgundi	Mahla	Shrub	Verbenaceae
53.	Woodfordia fruticosa,Kurz.	Dhatki	Dhaay	Shrub	Lythraceae
54.	Wrightia tomentosa, Roem & Schult	-	Dudhal	Tree	Apocynaceae
55.	Zizyphus oenoplia,Mill.	Badar	Khatti beri	Shrub	Rhamnaceae

Table : 1

4.2. Ethno Medicinal Plants And Their Botanical Distribution

During the present ethno medicinal study 55 plant species under 52 genera and 35 families were reported by the tribal informer, used by them for their primary health care. Analysis of the data based on their habitat shows that 29 species were trees, 13 species were shrubs, 09 species were herbs, 03 species were climber and 01 was epiphyte.

4.3. Plant Parts Used, Preparation, Routes Of Administration And Doses

Out of the various parts used as native medicine, leaves were the most widely used plant parts observed during the study. It revealed that leaves of 17 species, followed by bark of 13 species, fruits of 09 species, whole plant of 07 plants, seeds and gum each of 06 species, root, fruit-pulp and latex each of 04 species, twigs and flowers each of 02 plants and unripe-flower bud, pod, phal-raj, stem-pieces and root-stem hairs each of 01 species were being used by Gujjar tribes.

Out of total 120 therapeutic indication 50% were administered internally and 50% externally. The study shows that the choice of administration of medicine was oral followed by, application to the skin for the treatment of various ailments. The rest of the therapeutic preparations were used as eye-drop, anjan, nasya etc. Mustered-oil and ghee were added to medicine to apply on the skin.

4.4. Number Of Plants Indicated In Different Disorders (Table 2)

S.No	Disease Condition	No. of formulations	Plants used
1.	Joint-pain	07	Shalmali
			Aragvadh
			Chakramarda
			Dhatura
			Kutaja
			Shigru
			Eranda
2.	Eczema	05	Arka
			Chirbilba
			Shyonaka
			Syandan
			Ushira
3.	Blunt-injury	04	Shala
			Eranda
			Akashvalli
			Vasa
4.	Furuncle	04	Arka, Patha, Vibhitaka Kampillaka
5.	Constipation	04	Aragvadha
			Pillu (local name)
			Kampillaka
			Haritaki
6.	Fever	04	Kutaja
			Varuna
			Dronapushpi
			Parijata
7.	Swelling	04	Nirgundi
			Kakamachi
			Dhatura
			Akashavalli
8.	Wound-healing	04	Udumbar
			Stri kutaja
			Shala
			Jingini
9.			

9.	Diarrhea	04	Bilba
			Avartani
			Jingini
			Stri Kutaja
10.	Asthma	03	Bhallataka
			Shalparni
			Vasa
11.	Skin-disease	03	Nimba
			Mahanimba
			Priyala
12.	Leucorrhoea	03	Kutaja
			Udumbar
			Shala
13.	Cough	02	Vasa
			Shalaparni
14.	Scorpion-bite	02	Punarnava
			Aragvadha
15.	Hot & cold sensation of teeth	02	Babbool
			Palash
16.	To strengthen gums	02	Babbool
			Palash
17.	To clean teeth	02	Nimba
			Pillu
18.	Jaundice	02	Punarnava
			Bhringraja
19.	Stomatitis	02	Palash
			Amalaki
20.	Ear-discharge	02	Paribhadra
			Madanphala
21.	Fracture of bone	02	Vanda
			Medasaka
22.	Worm infestation	02	Kampillaka
			Mahanimba
23.	Abscess	02	Kampillaka
			Vibhitaka
24.	To strengthen the body	02	Shigru
			Jingini
25.	Conjunctivitis	02	Ushira
			Nirgundi
26.	Piles	02	Stri kutaja
			Badar

27.	Abdominal colic	01	Avartani
28.	Abdominal-flatulence	01	Kutaja
29.	Addiction of alcohol	01	Apamarga
30.	Addiction of opium	01	Kutaja
31.	Bleeding	01	Ageratum conizoides
32.	Bloody-diarrhea	01	Udumbar
33.	Burn	01	Dhataki
34.	Burning sensation of extremities	01	Palash
35.	Cataract	01	Nirgundi
36.	Cholera	01	Apamarga
37.	Chronic-ulcer	01	Swarnakshiri
38.	Deafness	01	Paribhadra
39.	Diabetes	01	Jambu
40.	Dysuria	01	Palash
41.	Epistaxis	01	Madanphala
42.	Excess-anger	01	M adanphala
43.	Excessive menstrual discharge	01	Shala
44.	Excess-talkativeness	01	Madanphala
45.	Gas-expulsion	01	Shigru
46.	General debility	01	Guduchi
47.	Graying of hair	01	Bhringraja
48.	Hair fall	01	Bhringraja
49.	Heart-problem	01	Amalaki
50.	Hepatomegaly	01	Dhava
51.	Impotency	01	Aragvadha
52.	Itching	01	Priyaala
53.	Local-pain	01	Bilba
54.	Malaria	01	Dronapushpi
55.	Nausea	01	Lantana camara
56.	Opacity of cornea	01	Kakamachi
57.	Premature-ejaculation	01	Vata
58.	Pterigium	01	Nirgundi
59.	Retention of urine	01	Aragvadha
60.	Sneezing	01	Ushira
61.	Sprain	01	Dhattur
62.	Sun-stroke	01	Bilba
63.	Suppressed-breast milk	01	Eranda
64.	To improve digestion	01	Haritaki
65.	To improve eye-sight	01	Madanphala
66.	To wash eye	01	Vibhitaka
67.	Toothache	01	Akarkarabh

68.	Vomiting	01	Lantana camara
69.	Voracious appetite	01	Apamarga

Table : 2

4.5. Tribal Therapeutic Indication And Their Classical Evidences

Observation of folklore reveals that therapeutic uses of the drugs by the Gujjar tribes have a strong rationale. The tribal medicine men not only use simple herbal preparations like swaras, kalka, shrit and sheet, etc., but also use some compound preparation like churna, ksheer-pak, ghan-satva, vatak, sharker bhasma and fermented preparation as vinegar etc.

4.6. List Of Indication Of Medicinal Plant's Used By Gujjar-Tribes

S.N.	Binomial name	Indication
1.	Acacia arabica, Willd.	Hot & cold sensation of teeth, to strengthen gums.
2.	Achyranthus aspera, Linn.	Deaddiction of alcohol, voracious-appetite, cholera.
3.	Adhatoda vasica, Nees	Joint-pain, cough, asthma.
4.	Aegle marmelos, Corr.	Locally in pain, diarrhea, to alleviate heat.
5.	Ageratum conizoides, Linn.	Locally in bleeding.
6.	Anogeissus latifolia, Wall.	Hepatomegaly.
7.	Argemone Mexicana, Linn	Chronic ulcer.
8.	Azadirachta indica, A. juss	Skin disease, to clean teeth.
9.	Boerhavia diffusa, Linn.	Jaundice, locally in scorpion bite.
10.	Bombax malabarica, DC.	Joint pain
11.	Buchanania lanzan, Spreng.	Purities
12.	Butea monosperma, O. kuntze.	Stomatitis, dysuria, looseness of teeth, cold & hot sensation of teeth, burning sensation of extremities.
13.	Calotropis procera, R. bl.	Eczema, furuncle
14.	Cassia fistula, Linn.	Impotency, constipation, joint-pain, retention of urine, scorpion-bite.
15.	Cassia tora, Linn.	Joint-pain
16.	Cissampelos pareira, Linn.	Furunculosis
17.	Crateva nurvala, Ham	Fever
18.	Cuscuta reflexa, Roxb.	Blunt-injury, swelling.
19.	Datura fastuosa, Linn.	Sprain swelling & joint-pain.
20.	Desmodium gangeticum, Dc.	Cough & asthma.
21.	Eclipta alba, Hassk.	Jaundice, premature graying & falling of hair.
22.	Emblica officinalis, Gaertn.	Stomatitis & heart problem
23.	Erythrina suberosa, Roxb.	Deafness, ear-discharge.
24.	Eugenia jambolana, Lam.	Diabetes
25.	Ficus bengalensis, Linn.	Premature-ejaculation.
26.	Ficus racemosa, Linn.	Leucorrhoea, wound-healing, diarrhoea.
27.	Glycomis arborea, Dc.	Constipation, to clean teeth.
28.	Helicteres isora, Linn.	Diarrhea, colic.
29.	Holarrhena antidysentrica, Wall.	De-addiction of opium, joint-pain, flatulence, fever, leucorrhoea.

30.	Holoptelia integrifolia, Planch.sa	Eczema.
31.	Lantana camara,Linn.	Vomiting.
32.	Leucas aspera,Spreng.	Malarial-fever & other fever.
33.	Litsea chinensis,Lam.	Fracture of bone.
34.	Mallotus philippensis,Muell.	Constipation, worm-infestation, furunculosis, abscess.
35.	Melia azedarach, Linn.	Worm-infestation, skin-disease.
36.	Moringa oliefera,Lam.	Joint-pain, to strengthen-boby, & for expulsion of gas.
37.	Nyctanthus arbor-tristis,Linn.	Fever.
38.	Odina woodier,Roxb.	To promote vigor, wound-healing, diarrhoea.
39.	Oroxylum indicum, Vent.	Eczema.
40.	Ougeinia dalbergioides, Benth.	Eczema.
41.	Randia dumetorum,Lamk.	Epistaxis, otorrhea, to improve vision, excessive anger/talkativeness.
42.	Ricinus communis,Linn.	Joint-pain, blunt-injury, suppressed-milk.
43.	Semecarpus anacardium, Linn.	Asthma.
44.	Shorea robesta,Gaertn.f.fruct.	Blunt-injury, wound, leucorrhoea, metrorrhagia.
45.	Solanum nigrum,Linn.	Edema of body, opacity of cornea.
46.	Spilanthus acmella,Murr.	Toothache.
47.	Terminalia belarica,Roxb.	To wash eye, abscess and furunculosis.
48.	Terminalia chebula,Retz.	constipation, to improve digestion.
49.	Tinospora cordifolia,Miers.	General-debility.
50.	Vanda tesellata, (Roxb.) Hook.	Fracture of bone.
51.	Vetiveria zizanioides,Linn.	Eczema, redness of eye, sneezing.
52.	Vitex negundo,Linn.	Conjunctivitis, cataract & pterigium, swelling.
53.	Woodfordia fruticosa,Kurz.	Burn injury.
54.	Wrightia tomentosa,Roem & schult.	Piles, leucorrhoea, wound-healing.
55.	Zizyphus oenoplia,Mill.	Bleeding-piles.

Table : 3

Comparative analysis of Ethno medicinal uses with Ayurvedic classics reveals that 6.66% indication of 06 plant species are new to ayurvedic system of medicine, as these plants have not been described in this. 14 species although described in ayurvedic classics but their 24.16% indication seems to be new. So a total of 30.83% (37) indications are new to Ayurvedic system of medicine. 69.16% (83) indications of tribal uses are supported by classical evidences directly or indirectly. Some of the therapeutic indication appear to be strange e.g., use of gum-resin of *Anogeissus latifolia*, Wall. for hepatomegaly.

Discussion:

The scholars of ayurveda have accepted the importance of communication of forest dwelling communities with the flora and fauna. Chandi Devi Hill is situated at foot hills of Shivalik or sub Himalayan ranges under the district Haridwar. District Haridwar is situated at height of 249.7 m. from the sea level between Shivalik hills in the north / northeast and river Ganga in the south. For each species a correct binomial, original citation, synonyms and basonyms was provided and every ethno-medicinal plant was described in a uniform pattern. A total of 25 tribal personal were interviewed to get traditional information.

Out of the various parts used as native medicine, leaves were the most widely used plant parts observed during the study. This may be due to easy availability and freshness of leaves throughout the year. It revealed that leaves of 17 species, followed by bark of 13 species, fruits of 09 species, whole plant of 07 plants, seeds and gum each of 06 species, root, fruit-pulp and latex each of 04 species, twigs and flowers each of 02 plants and unripe-flower bud, pod, phal-raj, stem-pieces and root-stem hairs each of 01 species were being used by the gujjars to treat their health problems.

Totally 69 disease condition were treated by 120 preparation of these plants of the study area. Maximum of 07 preparations were used in the treatment of joint-pains. (Table 2) Joint pains being the most common cause of morbidity in the area due to difficult terrain may have caused discovery of multiple treatment options.

Out of total 120 preparation, kalka was prepared in 35 preparation, followed by kwath in 31, swaras in 19, churna in 16, vatak and bhasma each in 04, dataun, sharkar and sheet each in 02, mashi, ksheerpak, ghan-satva, cooked-food & fermented preparation-vinegar each in 01 preparation (Table 3). Various Anupans were also reported to be used along with the medications for eg. Latex of Vata (*Ficus benghalensis*) is taken along with batasha i.e a sweet preparation of sugar. This provides the evidence of intelligence of the tribe and its proximity to Ayurveda. A total of 120 therapeutic preparations from 55 plant species have been recorded from the Gujjars.

Table no 6 provides the information about number of plant species being used by the tribes in their therapeutics that have not been described in Ayurvedic classics. Total 46 plants including *Boswellia serrata* and *Stereospermum suaveolance* that are described in texts were found abundantly in the survey but surprisingly no ethnomedicinal use was reported by the tribes.

Thus Comparative analysis of Ethno medicinal uses with Ayurvedic classics reveals that 6.66% indication of 06 plant species are new to ayurvedic system of medicine, as these plants have not been described in this. 14 species although described in ayurvedic classics but their 24.16% indication seems to be new. So a total of 30.83% (37) indications are new to Ayurvedic system of medicine. 69.16% (83) indications of tribal uses are supported by classical evidences directly or indirectly.

5. Conclusion

On the basis of the study following conclusions are reached,

- During field visit 100 plant species were collected with the help of forest personal of shyampur-range, Hardwar and Gujjar tribals.
- A total of 55 species were reported by the tribes to be used as Ethno medicine, out of them *Terminalia chebula*, Retz. Was not found in the study area during the field visit.
- Out of 55 plant species reported, 06 plant species (10.90%) viz. *Ageratum conizoides*, Linn., *Glycomis arborea*, DC., *Lantana camara*, Linn., *Spilanthus acmella*, Murr., *Vanda tesellata*, (Roxb.) Hook., and *Zizyphus oenoplia*, Mill. are not described in Ayurvedic classics and are new plant species.
- A total of 69 disease conditions were reported to be treated with the help of 120 therapeutic indications.
- Leaves are the most widely used plant parts in therapeutics followed by bark, fruits, whole plant, seeds, gum-resin, root, fruit-pulp, latex etc. A total of 16 different plant parts are reported to be used in therapeutics.
- Mustered oil and ghee were reported as base for application of medicine on the skin.
- Fresh herbs are most popularly used in the form of swaras and kalka. A total of 14 therapeutic preparations are reported to be used in the tribal medicine.
- Out of 120 therapeutic indication 50% were recorded to be used internally-orally and rest 50% externally, as eye-drop, anjan, nasya, hot-fomentation, poultice and lepa etc.
- Poly-herbal preparations are also reported to be used for the treatment of different ailments, internally and externally.
- Lemon, honey sugar-balls, ghee, whey and butter were also reported to be used as Anupan along with water for better bio-availability of consumed drugs.
- Comparative analysis of Ethno-medicinal uses with Ayurvedic literature reveals that 69.16% of the tribal indications are supported by classical evidences.
- 30.83% (37) therapeutic indication of 20 plant species is not supported by classical evidences.
- Out of 55 plant species reported, 06 plant species (10.90%) viz. *Ageratum conizoides*, Linn., *Glycomis arborea*, DC., *Lantana camara*, Linn., *Spilanthus acmella*, Murr., *Vanda tesellata*, (Roxb.) Hook., and *Zizyphus oenoplia*, Mill. are not described in Ayurvedic classics and are new plant species.

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