Credibility of traditional knowledge—The criterion of multilocational and multiethnic use

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Traditional knowledge often includes practices based on observations over time, but not substantiated by any technical experiments or statistics. Ethnomedicine or folk medical claims are an important component of this knowledge. The multilocational or multiethnic use, i.e. application of same traditional herbal cures in several distant regions, and among distinct tribal ethnic groups is suggested as a good criterion for credibility of folk claims and practices. Over 400 publications on ethnomedicinal plants were checked and over 100 recipes related to six health conditions namely fertility or conception, diabetes, leprosy, jaundice, malaria and skin diseases were found to be employed in more than one locality or ethnic group. On the basis of frequency of such reports, the plants were given a credibility rank on a scale of 1-5. About half of these recipes, which mostly had high ranking between 3-5 are already employed in codified Ayurvedic system. It is suggested that: 1. high credibility ranking based on frequency of reports of use seems directly related to their utility in health care systems, 2. the remaining recipes with high credibility ranking be given priority for laboratory and clinical research, and 3. more such analyses of frequency of particular medicinal use be undertaken for more plants, more diseases, and in more regions and ethnic groups in India.

Keywords: Folkmedicine, Ethnobotany, Ayurveda, Antifertility, Diabetes, Leprosy, Jaundice, Malaria, Skin diseases.

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The indigenous societies of different regions of the world have discovered various uses of natural resources around them. This traditional knowledge is based on their necessities, instinct, observation, trial and error and long experience. The medicinal uses of plant and animal products are an important component of such indigenous knowledge. Some of this knowledge got widely tested and accepted over period of time, and became part of the recognised or codified indigenous systems of medicine (ISM) namely, the Ayurveda, Siddha and Yunani in India. For wider, more reliable and scientific application of this knowledge, researchers are continuously subjecting it to a variety of tests through field, laboratory or clinical research. Several qualitative and quantitative methods have also

*For explanation of IPC Int. Cl.7 please see p. 135.
been suggested for evaluating credibility of such traditional knowledge (or folk claims as they are often called) as has not yet gone into ISM.

The following analyses of claims and the discussion are based on the criterion of multilocational and/or multiethnic use of certain plants in human health care, that is, the frequency of reports from different locations about the use of a plant for a particular ailment. The objective is to highlight the prospect for further research of a few dozen plants from the several hundreds of species associated with folk claims for the health conditions selected for this analysis.

Material and methods

The material for the following analysis of multilocational and multiethnic uses is based primarily on about three hundred ethnobotanical publications extracted in a 1991 publication, namely *Dictionary of Indian Folkmedicine and Entebotany*, and scanning of another 150 papers published after 1990. This scrutiny is certainly not exhaustive and more reports on similar use in other states or ethnic groups will exist in literature and field notes.

In the context of multiethnic use, a brief account of some major or notable tribal ethnic groups in different states of India is relevant. Most of the smaller tribes are confined to a small region or one or two states, like Amchis in Jammu and Kashmir (J&K), Toda in Nilgiris and Onge in Little Andaman. The larger tribes, like Bhil in western India, Gond in central India, and Nagas in eastern India inhabit several states. By and large, the notable tribes in various states are: J&K: Amchi, Gujjar; Himachal: Gujjar; Rajasthan: Bhat, Garasia, Kathodia, Mina; Gujarat: Bhat, Dhodia, Dubla, Ravalia; Uttar Pradesh: Banraji, Bhotia, Bhoxa, Jaunsari, Kol, Tharu; Bihar: Bhumij, Ho, Kharia, Kharwar, Oraon, Santhal, Sauria; Orissa: Bagata, Bhuia, Gond, Kharia, Koya, Oraon, Parja, Saora; Bengal: Bedia, Lodha, Santal, Sherpa, Toto; Sikkim: Bhotia, Lepcha; Arunachal: Abor, Apatani, Dafla, Miri, Mishmi, Monpa; Assam: Bodo, Boro, Kachari, Karbi, Mikir; Meghalaya: Garo, Jaintia, Khasi; Nagaland: Mao, Naga, Zeliang; Manipur: Mao, Naga; Mizoram: Kuki, Mizo; Tripura: Chakma, Jamatia; Madhya Pradesh: Bhat, Bhotia, Gond, Halba, Kol, Korba, Mina, Muria, Oraon; Maharashtra: Andh, Bhat, Dhanka, Dhodia, Katkari; Andhra Pradesh: Andh, bagata, Gadaba, Koya, Lambadi, Saora, Yenadi; Karnataka: Koya, Nayak; Tamil Nadu: Irular, Kota, Toda; Kerala: Nayadis, Pulayan; Andaman and Nicobar Islands: Andamanese, Jarava, Nicobarese, Onge.

For analysis of credibility only such ethnobotanical plants are selected as are used in a particular disease in more than one region/state or by more than one tribal ethnic group. For practical reasons, the analysis was confined to six health conditions (and their closely related disorders) namely, antifertility (including contraception, but not abortion), diabetes (blood sugar), leprosy, liver disorders (including jaundice), malaria, and skin diseases.

Under each disease or medical condition, such of the plant species as are associated with ethnobotanical claim in more than one state/region or reported from more than one ethnic group are described with mention of the plant part. If part is not known it is
indicated as (?). The region, and the name of ethnic group, if known (in brackets) are then mentioned.

The plants are arranged alphabetically by botanical (Latin) names. Their few selected local and English names (if known) are given.

Each plant has been given some point (P) of credibility in the scale of 1-5 based on following criteria:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Points</th>
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<tbody>
<tr>
<td>More than one report, but from same locality</td>
<td>1</td>
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<tr>
<td>Two reports from different localities or</td>
<td></td>
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<td>from two different tribes within a state, or adjacent states</td>
<td>2</td>
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<tr>
<td>More than two reports from adjacent states but different ethnic groups</td>
<td>3</td>
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<tr>
<td>Two reports from distant states and ethnic groups</td>
<td>4</td>
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<tr>
<td>More than two reports from different states and ethnic groups</td>
<td>5</td>
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</tbody>
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Observations:

**Antifertility:** (including contraception, but excluding abortifacient plants)

*Achyranthes aspera* L. 'Apamarg', 'Chirchita', 'Lađīja' [P-5]

Root used in Uttar Pradesh (U.P.) (Tharu)²,³, Bihar⁴, and Assam and Arunachal⁵

*Alysicarpus vaginalis* (L.) DC. 'Davai', 'Sangue' [P-2]

Root used in Bihar (Sauria, Santal)⁶,⁷

*Calotropis gigantea* (L.) Br. 'Madar', 'Safed Ak' [P-4]

Seed used in Bihar⁸

Plant(?) used in Meghalaya (Khasi, Jaintia)⁹

*Cissampelo spareira* L. 'Kali-pahad', 'Akanbindi' [P-5]

Root used in Bihar¹⁰, West Bengal¹¹ and Assam¹²

*Indigofera linnaei* Ali 'Tejomala', 'Latahi' [P-1]

Root used in Bihar (Santal)⁷,¹³.

*Mangifera indica* L. 'Am' MANGO [P-1]

Bark of stem used in Rajasthan¹⁴,¹⁵

*Plumbago zeylanica* L. 'Chitrak' [P-5]

Root used in Bihar (Santal)⁷,¹³ and Assam¹²

*Ricinus communis* L. 'Arandi', CASTOR SEED [P-3]

Plant(?) used in Rajasthan¹⁵

Seed used in Rajasthan¹⁴

Plant(?) used in M.P.¹⁶

*For explanation of asterisk mark, please see Analysis and discussion—p. 147
Diabetes:

*Adiantum incisum* Forsk. 'Mayurshikha'
- Leaf used in Rajasthan
- Plant(?) used in Rajasthan

*Aegle marmelos* (L.) Corr. 'Bel', 'Sripal'
- Root, stem and leaf used in Rajasthan
- Leaf used in Maharashtra

*Cassia sophera* L. 'Chakonda', 'Kasaundi' Sophera Senna
- Bark & seed used in Rajasthan
- Plant (?) used in Bihar (Santals)

*Coccinia grandis* (L.) Voigt 'Kundri' Ivy Gourd
- Fruit used in Rajasthan
- Leaf used in Gujarat

*Gymnema sylvestre* (Retz.) Br. 'Gurbel' 'Gurmar'
- Leaf used in plains of Uttar Pradesh(Rajasthan, M.P. (Maria), Maharashtra)
- Andhra Pradesh (A.P.) and Tamilnadu(Irulars)

*Helicteres isora* L. 'Marorphali'
- Root used in M.P. (Maria)
- Plant(?) used in U.P.

*Phyllanthus emblica* L. 'Aonla' Emblic Myrobalan, Indian Gooseberry
- Fruit used in Assam and Arunachal
- Leaf used in U.P.

*Syzygium cuminii* (L.) Skeels 'Jamun' Black Plum
- Seed used in Gujarat
- Plant(?) used in Assam

Leprosy:

*Abutilon indicum* (L.) Sw. 'Jhapipak', 'Kanghi'
- Root used in Rajasthan and Garhwal U.P.

*Ageratum conyzoides* L. 'Aigandha', 'Makadmari', Goatweed
- Leaf used in Garhwal hills, U.P.
- Plant(?) used in Maharashtra

*Anagallis arvensis* L. 'Jainghani', 'Jonkmari'
- Leaf used in Garhwal hills, U.P.
- Whole plant used in Dehradun and Siwalik hills, U.P.

*Calotropis gigantea* (L.) Br. 'Madar', 'Safed Ak'
- Latex used in Kumaon region U.P.
- Root used in Bihar, Orissa and M.P.
*Centella asiatica* (L.) Urban 'Brahmi', ASIATIC PENNYWORT
Leaf used in Himachal Pradesh (H.P.) and Garhwal hills, U.P.
Whole plant used in Siwalik area and hills of U.P., and in Bihar (Sauria, Asur)

*Datura innoxia* Mill. 'Dhatura Sada'
Seed used in Rajasthan and West Bengal
Root also used in West Bengal

*Gloriosa superba* L. 'Kariari', 'Kalihari'
Rhizome used in Rajasthan and hills of U.P.

*Psoralea corylifolia* L. 'Babchi', 'Bakuchi'
Seed used in southern U.P.

Liver diseases (including jaundice, hepatitis)
*Aegle marmelos* (L.) Corr. 'Bel'
Leaf used in Bihar (Santal)

*Allemanda cathartica* L. 'Pila-jara'
Flowers used in Bihar (Santal)

*Aloe barbadensis* Mill. 'Ghee-Kunwar' BARBADOS ALOE
Leaf used in M.P.

*Andrographis paniculata* (Burm. f.) Wall. 'Kalmegh', KING OF BITTERS
Root, and whole plant used in M.P.
Plant powder used in Bihar (Sauria)

*Argemone mexicana* L. 'Satyanashi', 'Brahmdandi'
Latex used in Sagar district, M.P.
Leaf used in Sagar district, M.P.

*Averrhoa carambola* L. 'Kamrakh' CARAMBOLA
Fruit used in Karbi and Kamrup, Assam
Bark also used in Kamrup (Bodo) Assam

*Baliospermum montanum* (Willd.) Muell.-Arg. 'Dantimul'
Root used in M.P. and Assam

*Boerhaavia diffusa* L. 'Bishkhopra', 'Punarnava' HOGWEED
Root and whole plant used in Siwalik and Garhwal hills of U.P.
Root used in Rajasthan and Bengal (Toto)
Leaf used in M.P. and Orissa
Whole plant used also in Assam (Karbi) and Gujarat

*Cassia fistula* L. 'Amaltas' INDIAN LABURNUM
Fruit and seed used in U.P. (Tharus)
Bark of stem used in Rajasthan

*Cicer arietinum* L. 'Chana', GRAM, CHICK-PEA
Seed used in Rajasthan
Stem used in Haryana
**Cissampelos pareira** L. 'Kali-pahad'
Leaf used in Rajasthan\textsuperscript{15} and Assam\textsuperscript{56}
Root used in Sarguja in Chhattisgarh\textsuperscript{57}

*Cuscuta reflexa* Roxb. 'Amarbel', 'Akashvel'
Stem and root used in Rajasthan (Bhil and others)\textsuperscript{15,58,59}.
Stem used also in Siwalik area, U.P.\textsuperscript{27}
Whole plant used in Assam (Bodo)\textsuperscript{50}

*Eclipta prostrata* (L.) L. 'Bhangra', 'Bhringraj'
Root and other parts used in Siwaliks\textsuperscript{27} and other parts of U.P.\textsuperscript{31}
Leaf and oil of whole plant used in Rajasthan\textsuperscript{15}
Leaf used in Gujarat\textsuperscript{54} and Tamilnadu (Irulars)\textsuperscript{25}

**Euphorbia ligularia** Roxb. 'Thuhar', 'Sehund'
Latex used in north India\textsuperscript{60}
Stem used in Assam\textsuperscript{56}

*Flacourtia indica* (Burm.f.) Merr. 'Bilangra'
Fruit used in Banda (Kol) in southern U.P.\textsuperscript{61}
and in Siwalik hills in northern U.P.\textsuperscript{27}

*Hygrophila auriculata* (Schum.) Heine 'Talmakhana'
Root used in Rajasthan\textsuperscript{19} Leaf used in Orissa\textsuperscript{36}

**Indigofera tinctoria** L. 'Neel' INDIGO
Leaf used in Garhwal in northern U.P.\textsuperscript{31}
Plant(?) used in M.P.\textsuperscript{37}

**Lagenaria siceraria** (Mol.) St. 'Ghiya', 'Lauki' BOTTLE GOurd
Leaf used in Pithoragarh hills of northern U.P.\textsuperscript{40}
Root used in central India\textsuperscript{47}

*Luffa acutangula* (L.) Roth 'Tori', 'Jhinga' RIBBED Gourd
Fruit used as snuff in M.P.\textsuperscript{62}
Leaf used in Maharashtra\textsuperscript{63}

*Luffa echinata* Roxb. 'Vindal'
Fruit used as snuff in Garhwal hills in northern U.P.\textsuperscript{31}
Fruit used in Rajasthan\textsuperscript{15}

**Mangifera indica** L. 'Am' MANGO
Bark used in U.P.\textsuperscript{21} and Assam\textsuperscript{49}
Seed also used in Assam\textsuperscript{59}

*Polycarpaea corymbosa* (L.) Lamk. 'Dholiphuli'
Whole plant used in Maharashtra\textsuperscript{63}
Root used in Gujarat\textsuperscript{54}
*Rubia cordifolia* L. 'Majethi' INDIAN MADDER  
Root used in Siwalik area of northern U.P.\(^{27}\) and hilly regions of West Bengal\(^{67}\)

*Solanum nigrum* L. 'Makoi', 'Kakmachi' BLACK NIGHTSHADE  
Whole plant used in Rajasthan\(^{15}\) and in hilly regions of U.P.\(^{31}\)

*Sonchus oleraceus* L. 'Dudhi' MILK THISTLE  
Leaf used in Garhwal hills of U.P.\(^{32}\)  
Latex used in Siwalik area, U.P.\(^{27}\)  
Whole plant used in Rajasthan\(^{15}\)

*Tephrosia purpurea* (L.)Pers. 'Sarphonka' WILD INDIGO  
Root used in Rajasthan\(^{15}\)  
Plant(?) used in M.P.\(^{37}\)

*Trianthema portulacastrum* L. 'Bishkhapra' HORSE PURSLANE  
Root used in Rajasthan\(^{68}\)  
Leaf used in A.P.\(^{24}\)

**Malaria:**

*Acorus calamus* L. 'Bach' SWEET FLAG  
Rhizome used in Assam (Bodo)\(^{50}\) and Meghalaya (Khasi and Jaintia)\(^{69}\)

*Aerva lanata* (L.)Schult. 'Gorakhbunti'  
Whole plant used in Bihar (Santal)\(^{13,45}\)

*Alstonia scholaris* (L.)R.Br. 'Chhatin', 'Saptaparni' DEVIL'S TREE  
Stem bark used in hills of U.P.\(^{27}\), and Bihar (Santal)\(^{7,13}\)

*Andrographis paniculata* (Burm.f.) Wall. 'Kalmegh' 'Kiryat' KING OF BITTERS  
Root used in M.P.\(^{37}\)  
Plant used in Bihar(Santal)\(^{7}\)  
Root and leaf used in Assam (Karbi and Bodo)\(^{48,50}\)  
Whole plant used in Tamilnadu\(^{70}\)

*Azadirachta indica* Juss. 'Neem' MARGOSSA TREE  
Leaf and inflorescence used in Rajasthan\(^{15,68}\)

*Brucea mollis* Kurz. 'Koine'  
Fruit and seed used in Assam (Karbi)\(^{71,72}\)

*Canscora diffusa* (Vahl) Br. 'Shankhpushpi'  
Whole plant used in Bihar (Santal)\(^{7,13}\)

*Catunaregam nutans* (QC.) Tiruv, 'Mawnakanta'  
Root used in southern M.P.\(^{73}\) and Bihar\(^{13}\)

*Cissampelos pareira* L. 'Kalipahad'  
Root used in Bihar (Santal)\(^{7,13}\) and in M.P. (Gond)\(^{59,74}\)

*Eclipta prostrata* (L.) L. 'Bhangra'  
Leaf used in southern U.P. (Kol)\(^{61}\), and Bihar (Santal)\(^{7,13}\)
Enicostemma hyssopifolium (Willd.) Verd. 'Kirayata' INDIAN GENTIAN
Whole plant used in M.P.\textsuperscript{75}
Leaf used in Rajasthan\textsuperscript{59}

*Holarrhena antidysenterica* Wall. 'Indrajav', 'Kurchi' IVORY TREE
Bark used in plains of U.P.\textsuperscript{21,76}, Bihar (Santal, Asur)\textsuperscript{13,41} and in Rajasthan\textsuperscript{59}

*Justicia adhatoda* L. 'Adusa', 'Vasaka'
Leaf used in M.P.\textsuperscript{37} and Nagaland (Angami Nagas)\textsuperscript{77}

*Holarrhena antidysenterica* Wall. 'Indrajav', 'Kurchi' IVORY TREE
Bark used in plains of U.P.\textsuperscript{21,76}, Bihar (Santal, Asur)\textsuperscript{13,41} and in Rajasthan\textsuperscript{59}

*Justicia adhatoda* L. 'Adusa', 'Vasaka'
Leaf used in M.P.\textsuperscript{37} and Nagaland (Angami Nagas)\textsuperscript{77}

*Nyctanthes arbor-tristis* L 'Harsingar' 'Parijatak' NIGHT JASMINE
Leaf used in plains of U.P. (Kol)\textsuperscript{21,51}.

*Ocimum sanctum* L. 'Tulsi' SACRED BASIL
Leaf used in M.P.\textsuperscript{37} and Tamilnadu\textsuperscript{70}

*Pongamia pinnata* (L.) Pierre 'Karanj' INDIAN BEECH
Leaf used in Rajasthan\textsuperscript{15}
Bark used in Little Andamans (Onge)\textsuperscript{78}

*Soymida febrifuga* (Roxb.) Juss. 'Rohan' INDIAN REDWOOD
Stem bark used in Rajasthan\textsuperscript{15}
Bark and leaf used in Gujarat\textsuperscript{29,79}

*Sphaeranthus indicus* L. 'Gorakhmundi'
Leaf used in Bihar (Santal)\textsuperscript{7,15}

*Vetiveria zizanioides* (L.) Nash 'Khas-Khas' VETIVER
Root used in northern and southern U.P.\textsuperscript{27,21}

**Skin Diseases:**
This group of diseases includes many conditions like eczema, leucoderma, ringworm and scabies, and many not distinctly specified conditions. Prescriptions do some times indicate one or other specific condition.

In the following paragraphs, plants indicated for specific conditions are first described. A general category as skin diseases is given at the end.

**Eczema:**

* Cassia tora* L. 'Chakunda' 'Dadmari' SICKLE SENNA
Seed used in U.P.\textsuperscript{44,80}, M.P. (Maria)\textsuperscript{22}, (Bhil)\textsuperscript{61} and Maharashtra\textsuperscript{33}

* Cocculus hirsutus* (L.) Diels 'Chhireta' 'Patal-garudi'
Leaf used in Rajasthan\textsuperscript{15}, Gujarat\textsuperscript{29} and Andhra Pradesh\textsuperscript{24}

**Leucoderma:**

*Abrasus precatorius* L. 'Gunchi', 'Chontli' INDIAN LIQUORICE
Leaf used in hills of U.P.\textsuperscript{43,82} and in Rajasthan\textsuperscript{19}
Root used in West Bengal (Lodhas)\textsuperscript{83}

*Achranthes aspera* L. 'Latjiara', 'Chirchita' PRICKLY CHAFF FLOWER
Leaf and whole plant used in hills of U.P.\textsuperscript{82,84}
*Eclipta prostrata* (L.) L. 'Bhangra'
Leaf used in Garhwal hills, U.P. 82
Whole plant used in Gujarat 29 and Maharashtra 33

*Holarrhena antidysenterica* Wall. 'Indra-jav' IVORY TREE
Stem bark used in Andhra Pradesh 55
Leaf used in Assam (Boro) 56

*Plumbago zeylanica* L. 'Chitrak'
Root used in Rajasthan 15 and Gujarat 79

*Psoralea corylifolia* L. 'Babchi', 'Bakuchi'
Fruit used in Rajasthan 15, 19
Seed used in Gujarat 29

Ringworm:
*Calotropis gigantea* (L.) Br. 'Madar'
Leaf used in Meghalaya and Assam 87
Latex used in Maharashtra 33
Plant(?) used in Bihar (Santal) 88

*Cassia fistula* L. 'Amaltas' INDIAN LABURNUM
Leaf used in M.P. 37 and Maharashtra 63, 89

*Euphorbia hirta* L. 'Dudhi'
Leaf used in Gujarat 29
Leaf and whole plant used in Rajasthan (Bhil) 15, 58

*Holoptelea integrifolia* (Roxb.) Pl. 'Papri', 'Kunj'
Stem bark used in hills and plains of U.P. (Bhoxa) 90 and in Orissa 91
Sap of twigs used in West Bengal (Lodha) 83

*Polygonum hydropiper* L. 'Jiyanti'
Leaves and flowers used in Bihar (Santal) 13, 45

*Tectona grandis* L.f. 'Sagaun' TEAK
Wood oil used in southern M.P. 22 and Rajasthan 15

Scabies:
*Martynia annua* L. 'Bichhua', 'Baghnakha' TIGERCLAW
Seed used in Rajasthan 59
Plant(?) used in Bihar (Santal) 88
Fruit used in Maharashtra 63

*Thespesia populnea* (L.) Correa 'Paras-Peepal' INDIAN TULIP TREE
Leaf, fruit and root used in Rajasthan 15
Leaf used in Kerala (Nayadis) 92

Skin diseases (unspecified skin diseases) Plants with low frequency of reports are not included; but to avoid omission of prospective plants, such species as have five or more
references, or at least three references not given for that plant under eczema, leucoderma, ringworm and scabies, are included.

**Cassia fistula** L. 'Amaltas'

Leaf used in M.P. (Abujh-maria)\(^{26}\), Maharashtra\(^{74}\)
Root and leaf used in Assam (Boro)\(^{51,86}\)

**Cassia occidentalis** L. 'Kasondi' NEGRO COFFEE

Leaf and seed used in U.P. (Kol)\(^{27,61}\)
Leaf used in Maharashtra\(^{93,94}\)
Leaf and root used in Rajasthan\(^{15}\)
Leaf, root and seed used in Bihar (Santal)\(^{7,13}\)
Seed used in Gujarat\(^{20}\)

* Cassia tora * L. 'Chakunda'

Seed used in U.P. (Bhoxa)\(^{90}\), M.P.\(^{37}\) and Rajasthan\(^{15}\)
Leaf and seed used in Gujarat\(^{29}\)
Root and seed used in Maharashtra\(^{63,94}\)
Leaf used in Meghalaya (Garo)\(^{95}\)
Plant(?) used in Bihar (Santal)\(^{88}\)

**Centella asiatica** (L.) Urban 'Brahmi'

Leaf used in H.P.\(^{38}\)
Fruit and leaf used in Rajasthan\(^{19,96}\)
Whole plant used in M.P.\(^{46}\) and Assam\(^{51}\)

* Datura metel * L. 'Dhatura'

Root used in Garhwal hills, in U.P.\(^{31}\)
Root, seed and leaf used in Maharashtra\(^{94}\)
Seed used in M.P.\(^{37}\)
Fruit used in A.P.\(^{24}\)

**Eclipta prostrata** (L.) L. 'Bhangra'

Flowers and whole plant used in U.P.\(^{27,82}\)
Stem and leaf used in Rajasthan\(^{15}\)
Whole plant used in M.P.\(^{37}\) and Maharashtra\(^{33}\)

* Hemidesmus indicus * (L.) Br. 'Anantmul' INDIAN SARSAPARILLA

Root paste used in Bihar (Santal)\(^{7,13}\), Maharashtra\(^{94}\), A.P.\(^{24}\) and Assam\(^{51}\)

* Mallotus philippensis * Muell-Arg. 'Kamela', 'Sendur'

Fruit, seed and root used in U.P. (Tharu)\(^{2,27}\)
Root used in Maharashtra\(^{93}\)

**Melia azedarach** L. 'Bakain', 'Mahanim' PERSIAN LILAC

Fruit used in Jammu and Kashmir\(^{97}\)
Bark used in Maharashtra\(^{33}\)
Leaf used in Assam\(^{30}\)

* Plumbago zeylanica * L. 'Chitrak'

Root used in U.P.\(^{27,31}\), Rajasthan\(^{96}\), Gujarat\(^{20}\) and Maharashtra\(^{18,33,94}\)
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**Pongamia pinnata** (L.) Pierre. 'Karanj'
Seed used in Rajasthan15, M.P.(Oraon, Korba)98 and Bihar33

*Pterocarpus marsupium* Roxb. 'Bija-sal' KINO TREE
Leaf used in Bihar7,13, M.P.(Abujh-maria)26, Maharashtra93,94, and A.P.24

*Schenlechera oleosa* (Lour.) Oken 'Kusum' LAC TREE
Seed used in Gujarat29, M.P.(Maria)22 and Bihar99

*Semecarpus anacardium* L.f. 'Bhilavan' MARKING NUT TREE
Seed used in Gujarat29, Maharashtra18, West Bengal100
Fruit used in M.P.37 and U.P.21
Latex used in U.P.21

Siegesbeckia orientalis Cav. 'Samara-pong'
Whole plant used in hills of U.P.82, in A.P.24
and Nilgiri Hills (Kota, Irulars and Toda)101

Smilax ovalifolia Roxb. 'Chob-chini', 'Jangli oshbah'
Leaf used in Meghalaya102
Root used in West Bengal103
Plant(?) used in Bihar (Santal)88.

**Analysis and discussion**

Reports of use or acceptance of a herbal cure in many states, in distant locations or by different ethnic groups should lend credibility to its efficacy. This hypothesis is largely true, and is supported by comparison with recipes which are part of ISM today. This point is elaborated in later paragraphs.

An effort was made to see as to which multilocalional and multiethnic uses if any, are not yet employed in ISM in India. For evaluating novelty of the uses reported by the folk, a comparison with some literature on Ayurveda or medicinal herbs was considered necessary. Literature on Ayurveda as also medicinal plants is very voluminous. It is useful to describe here briefly an anomaly which exits in many books on medicinal plants published in India or other countries. A common reader does not distinguish between the title Ayurvedic plants and medicinal plants of India. The former connotes plants established as useful and curative in Ayurvedic system, while the title medicinal plants can mean plants of all indigenous systems as well as plants reported in folk claims. For this reason and for practical limitation only two books by Kapoor104 and Uniyal105 were consulted in the study. These two books have given only such uses as are based on Ayurvedic texts. They do not include folk claims. Species described above, and mentioned in one or both these books are marked with asterisk(*). This is to indicate species that are already employed in ISM. Some species not marked may also be present in other ISM books, but that will not dilute the point made in this paper. For the number of medicinal plants, the 2-volume work of Jain & De Filippi106 was consulted.

**Ranking of credibility:** This is discussed under different health conditions, and plants getting three or more points in ranking are highlighted for further research.
Antifertility: About 35 plants are reported to be associated in India with contraception. Eight folk medicines were analysed here for credibility, of these two, namely *Cissampelos pareira* and *Plumbago zeylanica* are employed in ISM. Both these had ranking of 5; of the remaining six, two, namely *Achyranthes aspera* and *Calotropis gigantea* score 5 and 4 respectively, and deserve further work for providing antifertility drugs.

Diabetes: More than 35 plants are associated in India with excessive blood sugar. Eight ethnomedicinal plants were analysed for credibility: of these, five plants, all with score of 3 or more are already employed in ISM. Of the remaining three, two namely *Cassia sophera* and *Phyllanthus emblica* score 4 credibility points, and need to be further researched for useful drugs for diabetes.

Leprosy: About 80 plants are associated with treatment of leprosy. Eight plants were analysed; of these, three are already employed in ISM. Two of these had score of 5. Four plants, namely, *Abutilon indicum*, *Ageratum conyzoides*, *Datura innoxia* and *Gloriosa superba* score 4 or 5 credibility points and need to be studied for use on leprosy.

Liver diseases and jaundice: Over 100 plants are reported to be used in India for liver disorders. Of the 28 plants analysed in this study, 17 are already employed in ISM. Twelve of the latter, 17 plants have credibility score of 3 or more. Out of 11 plants not yet employed in ISM, eight, namely species of *Averrhoa*, *Cissampelos*, *Euphorbia*, *Indigofera*, *Lagenaria*, *Mangifera*, *Podophyllum* and *Sonchus* score 3-5 points, and could provide leads for useful drugs for liver disorders.

Malaria: About 50 plants are reported to be employed for malarial fever in India. Of the 19 plants analysed here, seven are employed in ISM; six of these have 4 or 5 points of credibility. Out of 12 plants not yet used in ISM, four namely *Catunaregam nutans*, *Eclipta prostrata*, *Justicia adhatoda* and *Pongamia pinnata* score 3-5 credibility points and can have more prospect of providing useful drugs.

Skin diseases: (specific) Eczema: Out of two species described in the analysis, one with score of 5 is already in ISM. The other, namely *Cocculus hirsutus* with credibility score of 5 can be a prospective plant.

Leucoderma: Out of six plants analysed for credibility, four are already in ISM, of the remaining two, one namely *Holarrhena antidysenterica* has score of 4 and could prove useful in this disease.

Ringworm: Out of six plants analysed for credibility, three with score of 3 or more are already in ISM. Of the remaining three, two namely *Calotropis gigantea* and *Tectona grandis* have score of 5&4 respectively and could have prospect of providing beneficial drugs.

Scabies: Both plants namely, *Martynia annua* and *Thespesia populnea* analysed in this study have score of over 3 and are not yet in ISM; they need to be researched for useful constituents.

Skin diseases (unspecified): Out of 16 plants analysed in this study, eight, all with score of 5 are in ISM. All the reaining plants, namely *Cassia fistula*, *C occidentalis*,
Centella asiatica, Eclipta prostrata, Melia azedarach, Pongamia pinnata, Siegesbeckia orientalis and Smilax ovalifolia have score of 5 and could provide good cures for skin diseases.

The analysis of 103 recipes and discussion show that 50 recipes with multilocalational and multiethnic use are already employed in codified system of medicine. There are ample evidences to show that all recipes in codified ISM have come from folk claims and not vice versa. To the best of author’s knowledge there are only two very recent attempts to teach the tribal boys and girls about some such medicinal uses of herbs in their forests, which they have not discovered. These training schemes are at Giridih in Bihar (by Mr. P.P. Hembrum) and at the Academy of Development Sciences at Kashale, Maharashtra (by Mr. Darshan Shanker of FRLHT). It supports the proposition that the remaining 53 recipes have good chance of providing useful herbal drugs and multilocalational and multiethnic use of plants for a particular disease is a good criterion for credibility of claims.

Very recently Lewis also showed through laboratory experiments that plants reported by the folk as antimalarials proved far more effective than other ethnomedicinal plants without such antimalarial reports.

Further, it is suggested that such studies on more plants, more diseases and among diverse ethnic groups could provide leads for candidate species for laboratory and clinical research.

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