Notable foreign medicinal uses for some plants of Indian tradition

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Several hundred plants of Indian ethnobotanical heritage also occur in distant foreign lands. The objective was to see if any of the selected 50 plants of traditional medicine in India are also used, and if so, how, among the indigenous societies of Africa, China, West Indies and Latin America. The analysis was done for seven diseases namely malaria, leprosy, jaundice, diabetes, fertility, cardiac and skin diseases. Over 75 medicinal uses relating to 43 species among the foreign native folk seem new or not widely recorded in Indian ethnomedicinal literature. They provide material for further work for use in India. Over 70 uses relating to 35 species are almost common to Indian and these foreign ethnic groups. This suggests greater credibility for medicinal efficacy of those species. It is discussed that excessive extraction of root and bark drugs can endanger natural populations. The analysis suggests aerial parts of some species as potential substitutes. For example, in India for skin diseases rizome of Gloriosa superba is used but in Africa leaves and fruits are used. In India, root of Lawsonia inermis is used for jaundice, in Africa, leaf and bark are used. An index to diseases dealt in the paper is provided; this will facilitate reaching the related plant species for further study.

Keywords: Ethnomedicine, China, Africa, West Indies, Latin America, Indian tradition.

Ethnobotanical or ethnomedicobotanical inventories are usually the first phase of studies on traditional uses of plants in any region or among a chosen ethnic group. Such studies are being done in India for about half a century. Much of this work has been catalogued in two bibliographies\textsuperscript{1,2} and a dictionary\textsuperscript{3}; the information in the dictionary is based on a scrutiny of over 300 papers on ethnobotany of India published till 1990. Another about 200 recent papers were consulted and data recorded in our database. The data generated during such studies is then analysed and interpreted in many ways, like comparative studies\textsuperscript{4}, qualitative\textsuperscript{5} or quantitative analysis,\textsuperscript{6} for credibility, and laboratory research\textsuperscript{7}. We extended our comparative studies to ethnomedicobotanical data from some foreign countries. Such foreign literature is very vast, widely scattered in many languages and often not easily accessible.

Scrutiny of even limited literature from, a few regions viz China\textsuperscript{8}, West Indies\textsuperscript{9}, parts of Africa \textsuperscript{10,11,12} and Latin
America brought out some interesting information. These regions were taken because China has a rich ethnomedicobotanical heritage, and many people both in African and Latin American countries use native herbal recipes. Also some literature on these regions was available in English.

The objective was to see if any plants in traditional medicine in India are also used among the natives of those distant regions, and whether these uses corroborate similar use in India, or provide information on any additional medicinal uses not yet widely known or reported in ethnomedicine in India.

Consultations were made with some researchers on herbal drugs about diseases more relevant for such studies, and seven diseases (and related ailments) were taken up for this study; these are malaria, diseases of liver like jaundice and hepatitis, fertility disorders and birth control (including contraception, abortion, sterility), diabetes (blood sugar), leprosy, cardiac ailments (including blood pressure, hypertension), and skin diseases like ecezma, itch, rash, ringworm and scabies.

Our studies are continuing, but it is considered useful to presently report observations made so far on fifty species.

The plants are arranged alphabetically by botanical name. Their family, some local names, and name in English when known are given.

These are followed by a brief description of habit and flowers/fruits.

The next part of information has an indication to such notable medicinal uses as are derived after comparative study of some foreign literature. The uses which seem new or not widely recorded in Indian ethnomedical literature are given in paragraph A. The uses which are similar to uses recorded and known in India are given in paragraph B. The plant part, when recorded in original literature is given here also. For rapid comparison, the plant parts used in India if known are also indicated. These uses are taken from the Dictionary. All medicinal uses of plants are not given, but only those which relate to seven diseases under analysis.

1. *Abrus precatorius* L. (Fabaceae)
Ratti, Chirmiti, Gunj, Ghumchi, Chontli, INDIAN LIQUORICE.
Twining shrubs; flowers pink or white; fruits pods, seeds polished, brilliant scarlet with a black spot.

A - Africa: leaf for heart ailment, hypertension, malaria; root for jaundice, hypertension.

China: seed for malaria.

B - Africa: plant for contraception, skin cancer.

India: root and seed for contraception; leaf and seed for skin diseases.

2. *Acorus calamus* L. (Araceae)
Panibach, Safed Bach, Sinja, Ghora bach, SWEET FLAG.
Semiaquatic herbs with creeping rootstocks and long (0.3-1m) leaves; flowers spathaceous, green with yellow anthers; fruits berries.

A - China: root as hypotensive.

3. *Ageratum conyoides* L. (Asteraceae)
Ganya, Phulenia, Makar-mari.
Hairy herbs; flowers bluish or pink in heads.
A - Africa: leaf for hypertension and malaria, and shoot for jaundice\textsuperscript{12}.
    West Indies: plant for diabetes, and as abortifacient\textsuperscript{9}.

   (Simaroubaceae)
Arua, Vilayti-neem, Papari, Mahanim, Rukhdo, Maharukh, TREE OF HEAVEN.
Deciduous trees with foetid smell; leaflets toothed; flowers greenish yellow, in large lax panicles; fruits 4-6 cm, red samaras.
A - Africa: leaf for malaria\textsuperscript{12}.

5. *Allium cepa* L. (Liliaceae)
Piyaz, Kanda, Guntha, ONION.
Annual herbs with bulbous stems and slender leaves; flowers white in umbels.
A - Africa: bulbs antidiabetic\textsuperscript{10} and for hypertension\textsuperscript{12}.
B - Africa: for sterility\textsuperscript{12}.
    India: bulb as abortifacient\textsuperscript{14}.

   (*A. vera*) (Liliaceae)
Ghiukumari, Valumuki, Thalai, Sarati-Musabar, Manchi kalabands, Ghikwar, Gwarpatha, Ghritkumari.
Perennial tall herbs, with large fleshy mucilaginous leaves having marginal spines; flowers vermilion, tinged with yellow.
A - West Indies: gun as abortifacient, and plant for blood sugar\textsuperscript{9}.
B - Latin America: leaf for jaundice\textsuperscript{9} and skin diseases\textsuperscript{13}.
    India: leaf for jaundice and skin diseases\textsuperscript{3}.

7. *Alternanthera sessilis* (L.) R. Br. ex DC. (Amaranthaceae)
Jig-jalpar, Senchi, Gaitiwar, Garandidshak.
Prostrate, much-branched herbs; nodes hairy; leaves opposite, flowers white or pink, minute in sessile, axillary clusters.
A - Africa: leaf for retention against threatened abortion\textsuperscript{12}.

8. *Andrographis paniculata* (Burm.f.) Wall. (Acanthaceae)
Kalmegh, Kiryat, Kulufnath, KING OF BITTERS.
Herbs; stems 4-angled; leaves opposite; flowers white-rosy in axillary and terminal panicles with purplish blotches in throat.
A - West Indies: for diabetes\textsuperscript{9}.
B - China: for skin diseases\textsuperscript{8}.
    West Indies: for malaria\textsuperscript{9}.
    India: whole plant for skin, root and leaf for malaria\textsuperscript{3}.

9. *Azadirachta indica* Juss. (Meliaceae)
Neem, Vembu, Khidaura, Dhainyaro, MARGOSA TREE.
Trees, leaves imparipinnate; flowers white in axillary panicles; fruit a drupe.
B - Africa: for blood sugar (bark), malaria (leaf, bark), jaundice leaf), antifertility (seed) and skin diseases (leaf)\textsuperscript{12}.
    India: leaf for diabetes, leaf and inflorescence for malaria, leaf and bark for liver, aerial parts for skin\textsuperscript{3,15} and cotyledons and seed for antifertility\textsuperscript{14,16}.

10. *Balanites roxburghii* Planch.
    (*B.aegyptiaca*) (Simaroubaceae)
Hingot, Sihoniya, Ingudi, Hingora, Ringidi.

Spinous trees or shrubs with 2-foliolate leaves, greenish yellow flowers, grey and fleshy drupes.

A - Africa: plant for malaria\textsuperscript{10,11} and angina (bark)\textsuperscript{12}.

B - Africa: for diseases of skin\textsuperscript{10}, fertility (bark, seed)\textsuperscript{11,12} and liver(bark)\textsuperscript{12}.

India: fruit for skin\textsuperscript{3}; fruit as antifertility agent\textsuperscript{14}; seed for liver\textsuperscript{14}.

11. \textit{Bauhinia variegata} L. (Fabaceae)

Girija, Gorav, Kachnar, MOUNTAIN EBONY, VARIEGATED BAUHINIA.

Trees; leaves with two obtuse lobes; flowers white-purple, upper most petal darker, variegated.

B - China: bark for leprosy and skin diseases\textsuperscript{8}.

India: bark for leprosy and skin diseases\textsuperscript{3}.

12. \textit{Boerhaavia diffusa} L.

(Nyctaginaceae)

Khapra-ara, Punarnava, Thikari, Santhi, Bish-khopra, HOGWEED.

Diffuse viscid herbs; stems purplish, nodes hairy and thickened; flowers purple, 1-12 together in glandular viscid panicles.

A - Africa: whole plant for blood sugar\textsuperscript{12}.

B - Africa: root for jaundice\textsuperscript{11,12} and sterility\textsuperscript{12}.

India: whole plant for jaundice, root for abortion\textsuperscript{3}.


(C.\textit{crista}) (Fabaceae)

Kata-karanj, Karunjua.

Climbers; stems with prickles; flowers yellow.

A - West Indies: seeds for diabetes and high blood pressure\textsuperscript{9}.


(Fabaceae)

Arhar, Tur, PIGEONPEA.

Shrubs, flowers yellow.

A - Africa: plant sap as abortifacient; leaf for cardiac problems and as hypotensive\textsuperscript{12}.

B - China: leaf for jaundice; fruit for hepatitis\textsuperscript{8}.

India: leaf for liver\textsuperscript{17}.

15. \textit{Calotropis procera} Br.

(Asclepiadaceae)

Desiak, Madar, Ak, Rui, Akra, Akola, AKUND.

Shrubs, leaves opposite, flowers white.

A - Africa: leaf for high blood pressure\textsuperscript{12}.

B - Africa: root and root bark for skin rash and leprosy\textsuperscript{12}.

India: latex and leaf for skin diseases, latex and root for leprosy\textsuperscript{3}.

16. \textit{Cannabis sativa} L. (Cannabinaceae)

Ganja, Ganji, Bhang, Charas, Vijaya, Siddhi, Hashish Kynja, HEMP.

Erect, tomentose herbs, sometimes quite tall; leaves palmately lobed; flowers unisexual; achenes enclosed in the persistent perianth.

A - Africa: plant for malaria; leaf for hypertension, diabetes and as antifertility agent\textsuperscript{12}.

17. \textit{Carica papaya} L. (Caricaceae)

Papita, Arand-Kharbuja, PAPAYA.

Small trees; leaves with long petioles, palmately lobed; fruits berries, yellow when ripe.
A - Africa: leaf, male flowers and unripe fruit for jaundice\textsuperscript{12}.
   West Indies: fruit for hypertension\textsuperscript{9}.
B - Africa: root as abortifacient\textsuperscript{12}.
   Latin America: unripe fruit for abortion\textsuperscript{18}.
   West Indies: fruit for ringworm\textsuperscript{9}.
   India: latex on ringworm, and latex, fruit, seed and pulp for abortion\textsuperscript{3}.

18. \textit{Cassia fistula} L. (Fabaceae)
Rela, Bandarlatia, Sonarkhi, Hari, Barachakunda, Sonari, Amaltas, Kitwali, Kirala, Punden, Sodal, Pungla, Bero, Badar, Funan, INDIAN LABURNUM.
Trees; flowers bright yellow in long racemes; fruits long cylindric pods.
B - West Indies: leaf and fruit pulp for liver diseases; bark and leaves for skin diseases\textsuperscript{9}.
   India: fruit and seed for liver diseases; root and leaf for skin diseases\textsuperscript{53}.

19. \textit{Cassia occidentalis} L. (Fabaceae)
Kasondi, Kesundo, Talka, Chakundra, Mari-pumbadio.
Undershrubs; leaflets glabrous, 3-5; flowers yellow.
A - Africa: leaf for leprosy, jaundice and malaria\textsuperscript{11}.
   West Indies: leaf and root for jaundice\textsuperscript{9}; seed for malaria and blood pressure; root as abortifacient\textsuperscript{9}.
B - Africa: seed for skin diseases\textsuperscript{11}.
   West Indies: seed and root for skin diseases\textsuperscript{9}.
   Latin America: leaves for skin diseases\textsuperscript{18}.
   India: Leaf and seed for skin diseases\textsuperscript{3}.

   (Apiaceae)
Manimuni, Ghortapre, Vallarai, Mandukparni, Brahmi, Brah-munduki, Brahatri, ASIATIC PENNYWORT.
Creeping herbs, with broadly sub-orbicular cordate leaves and pink or red flowers.
A - Africa: plant for malaria\textsuperscript{12}.
B - Africa: aerial parts for liver disorders; leaf for skin diseases and leprosy\textsuperscript{12}.
   India: leaf for liver, and whole plant for skin and leprosy\textsuperscript{3}.

21. \textit{Cissampelos pareira} L.
   (Menispermaceae)
Poa, Chutulutur Akaudi, Kali pahar, Akundi, Dukhnirvisy, Parhey, Hadjori, FALSE PAREIRA ROOT.
Twining deciduous tomentose shrubs with cordate leaves on long petioles; flowers greenish yellow; fruits hirsute, scarlet red when ripe.
A - West Indies: root for diabetes and as hypotensive\textsuperscript{9}.
B - Africa: root for malaria\textsuperscript{12}.
   West Indies: shoot for skin diseases\textsuperscript{9}.
   India: root for malaria, and root and leaf for skin diseases\textsuperscript{3}.

22. \textit{Cleome gynandra} L. (Cleomaceae)
Hurhur, Hul-hul, Manchi vaminta, Karelia.
Glandular herbs; leaves digitately 3-5 foliate; flowers white or creamy yellow, androgynophore conspicuous.
A - Africa: leaf for pain in liver and as abortifacient\textsuperscript{12}.

23. \textit{Curcuma longa} L.
   (\textit{C. domestica}) (Zingiberaceae)
Haldu, Haldi, Hardi, Besar, Halad, TURMERIC.
Rhizomatous herbs with large leaves; rhizomes yellow.
A - Africa: leaf for malaria\(^{12}\).

24. *Cyperus rotundus* L. (Cyperaceae)
Bhadra-motha, Bhatha-bijir, Motha, Piri-jimut, Bhahamutha, NUT GRASS.
Tufted, tuberous herbs; leaves flat, scabrous with brown sheaths; spikelets narrow.
A - China: tuber used in an important antifertility medicine\(^8\).

25. *Erythrina variegata* L.
   *(E. indica)* (Fabaceae)
Pharar-daru, Kanta-mandar, Panjira, Paldha, Farhad-pangara, Dadap.
Trees, armed with conical prickles; flowers usually red, rarely white in close clusters.
A - Africa: aerial parts for jaundice\(^{12}\).

26. *Euphorbia antiquorum* L.
   *(Euphorbiaceae)*
Cheuri, Bontha-jemudu, Sid-aru, Lanka-seji, Ekte, Sid, Thuhar, Tidhari - sendh.
Branched shrubs; stem 3-winged, spinous with milky latex; leafless.
B - Africa and China: plant for itch and other skin diseases\(^{8,12}\).
India: latex for eczema; whole plant for ringworm and other skin diseases\(^3\).

28. *Gloriosa superba* L. (Liliaceae)
Kariyari, Bing-ki-chung, Jagar, Samansom, Lalukhi, Kalihari, Chengarollagada, Nagaser, Puttichatta, Languri Agani-mukhi, GLORY LILY.
Climbers with tendrils on tip of upper leaves; flowers large, orange, colorful.
A - Africa: whole plant for malaria\(^{12}\).
B - Africa: leaf and fruit for scabies and other skin diseases; leaf and root for fertility related disorders\(^{12}\).
India: rhizome for skin, abortion\(^3\).

29. *Hygrophila auriculata* (Schum.) Heine.
   *(Asteracantha longifolia)*
   *(Acanthaceae)*
Kolsunda, Talmakhana, Kuliakanta.
Tall hispid herbs with generally 8 leaves and 6 spines at each node; stems pinkish; flowers blue in axillary whorls, surrounded by thorns; capsules oblong, 4-8 seeded.
A - Africa: leaf for eczema\(^{12}\).
B - Africa: leaf for malaria\(^{12}\).
India: whole plant for malaria\(^3\).

30. *Hyptis suaveolens* (L.) Poit.
   *(Lamiaceae)*
Sakong, Vilayati tulsi, Dangri-nacha, Dhunsri.
Herbs; flowers small, blue; fruits black nutlets.
A - Africa: shoot and leaves for malaria\(^1\)\(^2\).
West Indies: leaf for malaria\(^9\).

31. *Lawsonia inermis* L. (Lythraceae)
Mehndi, HENNA.
Shrubs; stems 4-angled; leaves opposite; flowers white, fragrant.
A - Africa: leaf for leprosy\(^10\)\(^12\).
B - Africa: leaf for skin diseases; leaf and bark for jaundice; leaf and root as antifertility agent\(^1\)\(^2\).
India: leaf for scabies\(^15\); root for jaundice; seed as antifertility agent\(^3\).

32. *Leonotis nepetaefolia* (L.) Br.
(Lamiaceae)
Sidho, Ajia, Bara-guma, Matisul, Tonka-agia, Hejur-chei.
Tall herbs; stems 4-angled; leaves serrate; flowers yellowish red in round clusters on dense spikes.
A - Africa: leaf for hepatitis\(^1\)\(^2\).
West Indies: leaf as abortifacient\(^9\).
B - West Indies: inflorescence and seed for malaria; plant on eczema\(^9\).
India: seed for malaria; leaf on eczema, ringworm\(^3\).

33. *Mangifera indica* L. (Anacardiaceae)
Am, Uli-daru, Amati, Taxamann, Kairi, MANGO.
Trees; flowers greenish, in large panicles; fruits well known mangoes.
A - Africa: root, leaf and stem bark for blood sugar; leaf for blood pressure\(^1\)\(^2\).
B - Africa: leaf for jaundice; root for malaria\(^1\)\(^2\).
China: leaf for skin diseases\(^8\).
Latin America (Brazil): leaves for contraception and abortion\(^1\)\(^8\).
India: latex on scabies; bark abortifacient\(^3\); root for jaundice\(^3\); root and bark for malaria\(^1\)\(^4\).

34. *Melia azedarach* L. (Meliaceae)
Thurakavepa, Bakain, Nim-daru, Mahaneem, Dekana, Neem, PERSIAN LILAC.
Trees; flowers lilac in large axillary panicles; drupes fleshy, 1.2-2 cm in diam.
A - Africa: root bark for malaria; leaf for pain in liver\(^1\)\(^2\).
B - Africa: leaf and fruit for eczema and other skin diseases\(^1\)\(^2\).
India: leaf, bark and fruit for skin diseases\(^3\).

35. *Momordica charantia* L.
(Cucurbitaceae)
Kakara, Karela, BITTER GOURD.
Climbers; flowers yellow, in panicles; fruit with tubercles.
A - Africa: root as abortifacient\(^1\)\(^1\)\(^1\).
West Indies: leaf for hypertension; plant as abortifacient and contraceptive\(^9\).
B - Africa: leaf for diabetes; whole plant for skin disease\(^1\)\(^2\); aerial parts for malaria\(^2\).
West Indies: leaf for skin disease; fruit for blood sugar\(^9\)\(^1\)\(^3\).
Latin America (Brazil): leaves for skin diseases and diabetes\(^1\)\(^7\).
India: fruit for diabetes, eczema; leaf for malaria\(^3\).

(*M. pterygosperma*) (Moringaceae)
Sohjan, Munga-ara, Doro, Hargua, Segu, Sainjna, Shevga, DRUMSTICK TREE.
Trees, flowers white in axillary panicles.
B - Africa: whole plant for jaundice and hepatitis\textsuperscript{12}.
A - India: root for liver diseases\textsuperscript{3}.

   (*Melothria maderaspatana*)
   (Cucurbitaceae)
Agumki, Bilari, Narapatla teega, Ankhphutni-ki-bel, GWALA KAKRI.
Climbers with tendrils; ripe fruits scarlet berries.
A - Africa: leaf for skin diseases and female sterility\textsuperscript{12}.

38. *Nigella sativa* L. (Ranunculaceae)
Kalajira, Magrela, Kalonji, BLACK CUMIN.
Erect pubescent viscid herbs with greenish flowers.
A - Africa: seed for malaria\textsuperscript{12}.

39. *Ocimum americanum* L. (Lamiaceae)
Kapur, Adavi-tulasi, Bhoo-tulsi, Ramtulsi, Bharbari, Kalitulsi, HOARY BASIL.
Erect undershrubs; flowers cream-white in verticels.
A - Africa: twig for jaundice; leaf, stem and seed for malaria\textsuperscript{12}.

40. *Oxalis corniculata* L. (Oxalidaceae)
Amboti, Khatti-but, Changeri, Amrul, Tiptiya, Khatti-patti, INDIAN SORREL.
Diffuse creeping herbs, rooting at nodes; leaves 3-foliate; flowers yellow in axillary umbels.
A - Africa: leaf for sterility and as abortifacient\textsuperscript{12}.

41. *Plumbago zeylanica* L.
   (Plumbaginaceae)
Chitrak, Chitawar, Chitrak.
Undershubs; flowers white in terminal glandular spikes.
A - Africa: root for jaundice\textsuperscript{12}.
B - Africa: root for skin diseases; bark and root for leprosy\textsuperscript{11}; leaf and root for fertility related disorders\textsuperscript{11,12}.
   India: root for skin, leprosy, and abortion\textsuperscript{3}.

42. *Pongamia pinnata* (L.) Pierre.
   (Fabaceae)
Karanjo, Karanja-daru, Karanj, PONGAM.
Trees; flowers pale pink, in axillary racemes; pods 1-seeded.
B - China: root bark and seed for skin diseases\textsuperscript{8}.
   India: leaf, bark and seed for skin diseases\textsuperscript{3}.

43. *Psidium guajava* L. (Myrtaceae)
Peara, Tamras, Amrud, Peru, Jamphal, GUAVA.
Small trees; leaves opposite; flowers white; fruits globose berry, greenish, white when ripe, crowned with calyx (largely cultivated).
A - Africa: fruit for jaundice; leaf and root for fertility related disorders\textsuperscript{12}.
B - Africa: leaf for jaundice\textsuperscript{12}.
   India: fruit for jaundice\textsuperscript{3}.

44. *Ricinus communis* L.
   (Euphorbiaceae)
Andi, Amudamu, Digherandi, Arandi, CASTOR-BEAN.
Shrubs; flowers pale yellow, in terminal paniculate racemes; capsule 3-lobed.
A - Africa: root and seed for jaundice and leprosy\textsuperscript{10,11}. 


45. **Rubia cordifolia** L. (Rubiaceae)
Manji-lar, Manjith, Manjistha, INDIAN MADDER.
Climbing shrubs; flowers white, in cymes; drupes globose, fleshy.
A - Africa: leaf and root for leprosy\(^{12}\).
B - Africa: root for hepatitis\(^{12}\).
India: leaf for jaundice\(^{3}\).

46. **Solanum nigrum** L. (Solanaceae)
Makoi, Gur-kamai, Kakamachi, BLACK NIGHTSHADE.
Undershubs; flowers white; berries globose, yellow to red when ripe.
A - Africa: leaf for malaria and as abortifacient\(^{12}\).
B - Africa: leaf for hypertension\(^{12}\).
China: leaf for leucoderma; whole plant for dermatitis\(^{8}\).
Latin America (Brazil): whole plant for skin diseases\(^{18}\).
India: fruit for cardiac ailment; leaf on skin diseases\(^{3}\).

47. **Tribulus terrestris** L.
(Zygophyllaceae)
Nerunji, Gokhru, LAND CALTROPS.
Procumbent, spiny, hairy herbs with pinnate leaves and yellow flowers; fruits covered with large and small spines.
A - China: stem for scabies and other skin diseases; flowers for leprosy; seed as abortifacient\(^{8}\).
B - China: fruit for hepatitis\(^{8}\).
India: fruit for liver diseases\(^{3}\).

48. **Tridax procumbens** L. (Asteraceae)
Gaddichamanthi, Baramasi, Kulaepuduga, Baisalya-karani.
Hispid, procumbent herbs; leaves toothed, lobed; flowers yellow in terminal heads; achenes black, silky.
A - Africa: leaf for malaria; whole plant for blood pressure\(^{12}\).
B - Africa: whole plant for jaundice\(^{12}\).
India: whole plant for jaundice\(^{15}\).

49. **Withania somnifera** (L.) Dunal.
(Solanaceae)
Ashwagandha, Care-su, Asgandh, Punir.
Branched tomentose undershrubs; leaves up to 10 cm long; flowers up to 5, together, in axillary fascicles; berry about 6 mm, red, enclosed in inflated and enlarged calyx.
B - Africa: leaf, fruit for skin diseases; leaf and root bark as abortifacient\(^{12}\).
India: leaf for skin diseases\(^{3}\), root as abortifacient\(^{14}\).

50. **Zingiber officinale** Rosc.
(Zingiberaceae)
Aadi, Adrak, Allamu, Shukku, Aal, Sonth, GINGER.
Herbs; rootstock horizontal, aromatic; leaves linear; flowers pale green, in spikes; lip dark purple.
A - Africa: rhizome for cardiac ailment (angina)\(^{12}\).
West Indies: rhizome for malaria\(^{9}\).
B - Africa: rhizome for skin and fertility disorders\(^{12}\).
India: rhizome for abortion, plant for skin diseases\(^{3}\).
Discussion

The above treatment deals with 50 species and broadly seven disease groups namely blood pressure (hypertension) and cardiac ailments, diabetes (blood sugar), liver ailments (jaundice, hepatitis), fertility related disorders (sterility, abortion, contraception), leprosy, malaria and skin diseases (eczema, itch, leucoderma, rash, ringworm, scabies, etc.).

The uses under para A seem new or not widely recorded in ethnomedicinal literature of India. They are based on reports from native uses in certain regions of Africa, China (including some parts of SE Asia), West Indies, Brazil and other Latin American countries. Even if some of these uses are known in indigenous system of medicine in India, their local use in far off regions adds to their credibility. Para B gives uses similar in India and these foreign lands.

These results have to be compared with more literature on medicinal plants and ayurveda 19,20,21,22.

Similar uses of these plants in certain diseases have been independently discovered by the indigenous societies of distant regions, and this indicates their possible inherent values and adds to their significance in medicine.

There is another useful aspect of these comparative studies. Collection of herbal drugs may be necessary, but excessive extraction, particularly of root or bark drugs can be destructive. Comparative studies help in finding prospective substitutes. For example, leaves of Cassia occidentalis are used for skin disease in Latin America, while seed and roots are used in India; leaves of mango are used in Africa for jaundice, and in Brazil for contraception, but in India bark is used for both diseases. In India, rhizome of Gloriosa superba is used in skin diseases; in Africa, leaves and fruits are used. In India, root of Lawsonia inermis and Moringa oleifera is used for liver diseases, in Africa aerial parts are used. Critical comparative studies can provide data on many such substitutes for root and bark drugs.

For the benefit of researchers, interested in any particular disease group, an alphabetical index to diseases discussed in the paper is provided in Appendix 1.

References have been cited for all uses. The details like method of use or other ingredients in the recipe are sometimes mentioned in original references. If original references are not accessible to any interested researchers, such information and photocopy of data of only few species or few uses may be obtained on payment of costs.

It can be hoped that in course of time some of these new uses or substitutes will be fully studied through experimental and clinical research and utilised in health care system in India.

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5. Khan A A, Need for an Index to compute the relative reliability of ethnobotanical claims, *Ethnobotany*, 13(1) 84.


APPENDIX 1

Index to diseases.

(Numbers refer to serial number of plants).

Abortifacient: see Fertility related disorders.

Angina: see Cardiac diseases.

Blood pressure: see Cardiac diseases.

Blood Sugar: see Diabetes.

Cardiac diseases: 1, 2, 3, 5, 10, 13, 14, 15, 16, 17, 19, 21, 27, 30, 36, 46, 48, 50.

Contraception: see Fertility related disorders.

Dermatitis: see Skin diseases.

Diabetes: 3, 5, 6, 8, 9, 12, 13, 16, 21, 27, 33, 35.
Eczema: see Skin diseases.
Fertility related disorders (including sterility, contraception, abortion): 1, 3, 5, 6, 7, 9, 10, 12, 14, 16, 17, 19, 22, 14, 28, 31, 32, 33, 35, 37, 40, 41, 43, 46, 47, 49, 50.
Hepatitis: see Jaundice.
Hypertensive: see Cardiac diseases.
Hypotensive: see Cardiac diseases.
Itch: see Skin diseases.
Jaundice: 1, 3, 6, 9, 10, 12, 14, 17, 18, 19, 20, 22, 27, 31, 32, 33, 34, 36, 39, 41, 43, 44, 45, 47, 48.
Leprosy: 11, 25, 19, 20, 31, 41, 44, 45, 47.
Leucoderma: see Skin diseases.
Liver diseases: see Jaundice.
Malaria: 1, 3, 4, 8, 9, 10, 16, 19, 20, 21, 23, 25, 28, 29, 30, 32, 33, 34, 35, 38, 39, 43, 46, 48, 50.
Rash: see Skin diseases.
Ringworm: see Skin diseases.
Scabies: see Skin diseases.
Skin Cancer: see Skin diseases.
Skin diseases: 1, 5, 6, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 31, 32, 33, 34, 35, 37, 41, 42, 44, 46, 48, 49, 50.
Sterility: see Fertility related disorders.