USE OF PLANT BASED MEDICAMENTS IN TREATMENT OF SKIN DISEASES

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Primitive mankind recognized their dependence on nature in both health and illness. Led by instinct, taste and experience, primitive men and women treated illness both for themselves and for their domestic animals by using plants, animal parts and minerals that was not part of their usual diet. Physical evidence of use of herbal remedies goes back some 60,000 years to a burial site of a Neanderthal man uncovered in 1960 (Solecki, 1975). In a cave in northern Iraq, scientists found ordinary human bones. An analysis of the soil around these bones revealed extraordinary quantities of plant pollen that could not have been introduced accidentally at the burial site. Someone in the small cave community had consciously gathered eight species of plants to surround the dead man. Seven of these are medicinal plants still used throughout the herbal world (Bensky and Gamble, 1993). All cultures have long folk medicine histories that include the use of plants. Even in ancient cultures, people methodically and scientifically collected information on herbs and developed well defined herbal medicaments for both human and veterinary uses. Indeed, well into the 20th century much of the pharmacopoeia of scientific medicine was derived from the herbal lore of native peoples. The Indian indigenous system of medicine is based on Ayurveda. The **first written records** detailing the use of herbs in the treatment of illness are the **Mesopotamian clay tablet writings** and **the Egyptian papyrus**. About 2000 B.C., King Assurbanipal of Sumeria ordered the compilation of the first known materia medica, an ancient form of today's United States Pharmacopoeia containing 250 herbal drugs (including garlic, still a favorite of herbal medicaments). The **Ebers Papyrus**, the most important of the preserved Egyptian manuscripts, was written around 1500 B.C. and includes much earlier information. It contains 876 prescriptions made up of more than 500 different substances, including many herbs (Ackerknecht, 1973).

Basic to the use of medicinal herbs as medicaments in many societies is the practice of using whole, unrefined plant material. The material may be leaves, buds, flowers, bark or roots, separately or in combination. In some cases herbal remedy is a complex mixture of many plants. There is an age old belief that whole plant medicaments have fewer dangerous side effects and provide a more balanced physiological action than plant derived pharmaceutical drugs whose single ingredient has been isolated, concentrated and packaged as a pill or liquid. The **World Health Organization** (WHO) estimates that 4 billion people (**80 percent of the world population**) use herbal medicine for some aspect of primary health care (Farnsworth et al., 1985). Herbal medicine is a major component in all indigenous peoples' traditional medicine and is a common element in Ayurvedic, homeopathic, naturopathic, traditional oriental and native American Indian (Red Indian) medicine. The sophistication of herbal remedies used around the world varies with the technological advancement of countries that produce and use them. These remedies range from medicinal tea and crude tablets used in traditional medicine to concentrated, standardized extracts produced in modern pharmaceutical facilities and used in modern medical systems under a physician's supervision.

The term **Ayurveda** means, **Ayu = life**, **Veda = Knowledge**. Ayurvedic medicine emerged during the rise of the philosophies of the Upanishads, Buddhism and other schools of thought in India. Herbs played an important role in Ayurvedic medicine. The principal Ayurvedic book on internal medicine, the Characka Samhita, describes 582 herbs (Majno, 1975). The main book on surgery, the Sushruta Samhita, lists some 600 herbal remedies. Most experts agree that these books are at least 2,000 years old. Our country recently increased research on traditional Ayurvedic herbal medicines after observations that they are effective for conditions to which they have traditionally been applied. For example, the ancient Sanskrit text on Ayurveda, the Sushruta Samhita, noted that Commiphora mukul was useful in treating obesity and conditions equivalent to hyperlipidemia or increased concentrations of cholesterol in the body. The plant has been used by Ayurveda practitioners for at least 200 years and may have been in use since the writing of the Sushruta Samhita more than 2,000 years ago.

Thus, it not only deals with the treatment of illness but also the wholesome health of the animals. The Ayurveda recognizes three different biological system viz., **vata, pitta** and **kapha**. Vata is the controller of all the movement in the body, pitta controls the various chemical reactions and biosynthesis of various compounds in the body and kapha deals with balanced growth, development and functioning of the body. But when there is an imbalance between and within them it leads to various kinds of illness. This unique theory of ancient Indian medicine system is more or less similar to those use in the Chinese and Greek medicine systems.

The main exponent of ayurveda (Susruta) has recognized 4 different kinds of diseases:-

1. Agantuja-due to external reason
2. Saririka-physical
3. Manasika-mental
4. Suabhavika-Behavioral

The term “**drug**” is derived from a French word “**Drogue**” (a dry herb), it can be defined as any substance or product used to modify or explore physiological systems or pathological state for the benefit of recipient.

In such a system of medicine it is extremely crucial to know the choice of a drug and elemental composition of the drug before they could be administered. This can be inferred from the various characteristics of the drug viz., “Rasa”, “Guna”, “Virya” and “Vipaka”. Rasa is defined as the taste, Guna is property of the drug for its pharmacological action, Virya can be classified into two subclasses, Usnavirya (heating) and Sitavirya (cooling) depending on the influence of sun and the moon on the drug, Vipaka means the ultimate effect of the drug on the body when they are digested.

In the indigenous system of medicine drugs are generally called as **Ausadha** or **Bhesaja** which means that which cures pain or painful experiences. These drugs can be classified into 3 different types-

1. Audbhida-obtained from plants
2. Gangama-obtained from animals, e.g. Honey, wax etc
3. Parthiva-obtained from earth, eg. minerals or salts.

The Traditional Medicine Forms From Herbal Medicaments:

i) **Herbal teas** (Species): One differentiates between teas from single drugs and tea mixtures. Tea mixtures, Species, are mixtures of whole or appropriately cut herbal drugs. As these ones are applicable only to drugs with large therapeutic width, since the dosing exactness is comparatively small. Teas used for the production of Decocta, Infusa or Macerata. Cup finished teas or instant teas are not teas in the close sense. The quality of these products is different.

ii) **Tinctures** (Tincturae): are extracts from drugs, which are usually manufactured with ethanol of different concentration, so that 1 part drug with five or ten parts extracting agents is extracted. The pharmacopoeias permit also ethyl ethers as extracting agents and other conditions. Tinctures can be designated also as solutions of dry extracts in ethanol of different concentration. Many finished vegetable medicaments, which are offered as solutions or drops represent tinctures in the sense mentioned. Fluid extracts (Extracta fluida) are made in such a way with ethanol or with mixtures of ethanol and water that from 1 part drug at the most 2 parts fluid extracts are obtained. Thus, fluid extracts can be regarded as more highly concentrated tinctures.

iii) **Dry extracts** (Extracta sicca), are excerpts, which are restricted liquid extracts to whole to dry ones, that are more exact up to remaining moisture from approximately 2%, to be maintained. The dry extracts of the pharmacopoeia are stopped, if required, by additive of inert auxiliary materials such as lactose or dextrin to a prescribed active substance. Manufactured dry extracts of the plant medicinal drugs do not represent the finished medicament; they form comparably for the isolated or synthetic single substance herbal drug, which is manufactured to finished medicaments such as dragees, capsules or tablets

Skin

Skin is the largest organ of the body which protects animals from the external environment. Skin serves as a “mirror” reflecting the functional integrity of internal organ systems. It consists of the epidermis, dermis and the hypodermis. The epidermis consists of fine layers from outside to inside as stratum corneum, stratum lucidum, stratum granulosum, stratum spinosum and stratum basale. Dermis consists of fibrous connective tissue layer. Epidermis and the cutaneous appendages grow upon and within it. Hypodermis consists of loose connective tissue.

Change in local resistance leads to the proliferation of opportunistic pathogens on skin resulting in bacterial, parasitic, fungal and non-specific dermatitis. The dermatological concern develops when the dermatosis produced by organism living in or on the skin produced irritation and sensitization.

External skin diseases comprise of parasitic viz., tick, mite and lice. The term “scabies” has been used associated with Sarcoptes infection. The genus Demodex is a group of mites which live in the hair follicle and sebaceous gland causing demodicosis. The bacteria Staphylococcus intermedius is an important pathogen involved in pyoderma. Superficial pyoderma is bacterial infections and include-impetigo, superficial folliculitis, pruritic superficial folliculitis, dermatophilus infection etc. Fungal skin diseases are mainly of superficial mycosis (dermatophytosis-ring worm), subcutaneous mycosis (histoplasmosis, cryptococcosis, protomycoses etc.) and systemic mycoses (blastomycoses).

Apart from these infections there are various allergic conditions which attack the skin. These include eczema of various kinds, scabies etc, which not only compromise the health of the animal but also are of the zoonotic importance.

Though, a lot of drugs are being tried for skin disease, but some have indicated drug resistance. Inspite of a lot of drugs coming in the market, which are effective against skin diseases, yet the possibility of getting treatment of skin diseases with a cost-effective drug preparation, which an average Indian farmer can afford, is yet to be explored. Many of the allopathic drugs used are advocated to be costly, have problems of drug resistance, many are toxic at certain concentration, may be harmful to humans handling them and may contaminate the environment as well.

As against the scenario with allopathic drugs, we have the other side with herbal medicines, which are these days gaining significance due to their less cost, ease of use and are considered to be free from risk of harming humans handling them as well as they hardly contaminate the environment.

Some major Plants used as Medicaments Against skin diseases:

1. ***Allium cepa*****:** Commonly known as **Onion** in English and **Piyaz** in Hindi. The part used are bulb and seeds. It has antidiabetic, antiatherogenic, antihypertensive & antibacterial activity. Onion (without peel) is remedy for circular alopecia as it contains **allyl Prdisulphide** as active constituent. Oil contained in the bulb is stimulant, diuretic and expectorant. Outer skin of the bulb contains a yellow colouring matter Quercetin. Bulb is emmenagogue; externally it is stimulant and rubifacient. Roasted it acts as demulcent both internally and externally. Locally it is used in irritation of insect bites, scorpion bites and also in skin diseases. Mixed with mustard oil it is highly effective in inflammatory swellings.
2. ***Allium sativum:*** Commonly known as **Garlic** in English and **Lasan** in Hindi. The part used are Bulb and oil. It has antibacterial, antifungal, antidiabetic, hypotensive, antiinflammatory, anticancer and pesticidal properties. An acrid volatile oil is the active principle besides other component like, starch, mucilage, albumen, sugar etc. Volatile essential oil (0.25%) obtained by distilling the bruised bulbs contains allyl, propyl disulphide and other organic sulphides or sulphur compounds. It is a clear limpid liquid of dark-brown or yellow colour, of very repulsive and intense garlic odour and of repugnant taste. Various active principles such as **Alliin, Allicin, Sativin I & II, Scordinines** has excellent antifungal & antibacterial activity against skin infection in animals. Mustard or coconut oil in which garlic has been fried is an excellent antiseptic application for scabies and maggots infesting ulcers, ulcerated surfaces and wounds. Its juice mixed with salt is applied to bruises and sprains and also to relieve neuralgia and ear ache. Garlic is applied externally for deafness and pain. Garlic juice mixed with 3 or 4 parts of ordinary or distilled water is used as a lotion for washing wounds and foul ulcers.
4. ***Beta vulgaris:*** It is commonly called as **Common beet** and **Chukander** in Hindi. It has an active principle ***betin***. Betin is an active emmenagogue. **Basic protein** & new **"blue" pastocyanin-like protein** from red beets have a tumour growth retarding effect. It also acts as resolvent on the vitiated secretions of stomach and bowels. Dose is from 2 to 4 grains given thrice a day.

White beet is laxative and diuretic while red beet is emmenagogue. Infusion or decoction of the root & Betin, the alkaloid when applied to the temples, it stops inflammation of eyes and in burns it is used in combination of oil and alum.

5. ***Azadirachata indica:*** It is commonly called as **Neem a**nd every part of the plant is used as herb. Neem oil contains **margosic acid**, glycerides of fatty acid, butyric acid and trace of valeric acid. Various active principles are **Nimbidin, Nimbidal, Azadirachtin, Meliantriol, Nimbin, Azadirine, gedunin, Salanin** which has diverse medicinal activities. Alcoholic extract of neem is useful in eczema, ringworm and scabies. Seeds of neem (powdered kernel) is useful in preventing hair loss and treatment of dandruff in canines and felines. Neem oil (Oil of magosa) from kernel boiled with nux vomica seeds are useful in eczema. Leaves are discutient and leaf juice is anti helminthic. Oil from kernels and leaves is a local stimulant, insecticide and antiseptic. Oil is used as a dressing for foul ulcers, eczema and skin diseases like ringworm, scabies and mange in dogs. As insecticide it is used for the destruction of lice. Dry seeds are used for killing pediculi and powdered kernel for washing of hair. Leaves heated over boiling water to form a paste and mixed with honey can be applied to pustules boils, ulcers and skin diseases. Toddy or auto-oozing sap is valuable in skin diseases. According to Chakradatta a preparation called Pancha tikta ghrita, made from boiling 80 tolas each of neem bark, leaves of Momordica dioica, Solanum jacquinii, Gulancha and bark of Adhatoda vasika, in 64 seers of water, till it is reduced to quarter and then adding four seers of butter and one seer of three myrobalans, is recommended as one tea spoonful with little hot milk internally twice daily in Chronic skin diseases.
6. ***Cedrus deodara:*** It is commonly called as **Pinus deodara** and **Deodar** in Hindi. The part used are wood, bark, leaves and turpentine. Wood is carminative; bark is powerful astringent and febrifuge. Its wood yields as oleo resin known as kelanka tel. This is applied to ulcers and skin diseases. They are valuable in mange in horses and sore feet of cattle.
7. ***Eucalyptus globulus:*** The parts used are dried leaves, gum exudation from the stem and oil distilled from the fresh leaves and fruits. Leaves contain a volatile oil (**Cineole, Caryophyllene**), **cerylic alcohol, polyphenolic acids, flavons** & **calyptoside**. Gum contains kino- tannic acid, catechin and pyrocatechin Oil contains cineole (eucalptol), alcohol gerniol, eudesmol, methyl alcohol, terpenol. From medicinal point of view cineole (eucalyptol) is the most important from the medicinal point of view. Externally fresh young leaves are applied as local stimulant in small wounds. Fluid extract suitably diluted is used as disinfectant lotion and antiseptic lotion in certain chronic skin diseases. Fluid extract has been used very effectively in erysipelas of the face, leg and scrotum.
8. ***Jatropha curcas:*** It is commonly called as **Jangli-erandi** in Hindi. The parts used are seeds, juice and oil. Seeds contain fixed oil a toxic albumin (tox-albumin anologues to ricin and curcin). Oil contains jatrophic acid. Externally it is highly effective for itches, ring worm, scabies, herpes and eczema, and it is cleansing agent for wounds, sores and ulcers. Fresh stems are used to strengthen gums to cure bleeding, spongy gums etc.

9. ***Mentha piperita:*** It is commonly known as **peppermint**. It contains chiefly a crystalline stearoptin known as menthol or mint camphor and liquid turpentine. Locally the oil is a powerful anaesthetic, antiseptic and germicide very useful in pruritus.
10. ***Momordica charantia****:* In English it is known as **bitter gourd** and in Hindi it is known as **karela**. It is bitter , anthelmintic, antidiabetic, cardiotonic, laxatives & digestive stimulant. The parts used are fruits, seeds and leaves. Leaf juice is rubbed to the soles for burning feet. The whole plant is mixed with cinnamon, long pepper, rice and chaulmugra oil forms a good ointment in psora, scabies and other skin diseases. Externally it is applied to scalp in the burns and boils.
11. ***Ocimum sanctum:*** It is commonly known as **Tulsi**. The parts used are leaves, flowers, seeds and whole plant. It is aromatic, carminative, antipyretic, diaphoretic and expectorant. Leaves contain a yellowish green essential oil and known as Basil- camphor. Essential oil contains a new **terpene**. The leaves made into paste are used to cure parasitical diseases of the skin, especially the ringworm. A 12% decoction of the plant acts as a parasiticide and antiseptic, so that the larvae which cause the disease become inactive.
12. ***Piper nigrum :*** In English it is commonly known as **Black pepper, Kalimirch** in Hindi and **Kurumulaku** in vernacular. The medicament is acrid, bitter, hot, light, alterative, carminative, anthelmintic and appetizer. Fruits and roots are used as medicine. It contains a volatile alkaloid **Piperine** and mesocarp contains **chavicin**. Externally it is applied to the boils in form of paste, alopecia and other skin diseases. Strong friction with pepper and onion makes hair growth on bald patches left by ring worm. With sesame oil this powdered black pepper mixed and heated can be applied upon the affected part of paralysis.
13. ***Pongamia pinnata:*** In English it is commonly known as **Indian beech, Karanj** in Hindi and **Poṅṅam or uṅṅu** locally. This plant which is a reputed remedy for skin ailments (*Kacchudárah*) is described in texts as foul smelling (*pútikah*) with clustered flowers (*gucchakah*) and oileferous seeds. The parts which are mainly used are bark, leaves, stem, seeds, fruits, root and oil of seeds. Fruits overcome urinary diseases, piles and skin diseases. Seed contain pongamia oil (Pongamol). It contains an active compound Karanjin (S_{18} H_{12} O_4). Oil is applied to the skin diseases in scabies, sores, herpes and eczema. The seeds of *Pongamia pinnata*, *Casia tora* and the root of *Aplotaxis auriculata* are rubbed into paste with cow urine and applied at various kind of skin diseases with high success.
14. ***Abrus precatorius*** **:** In English it is called **Jequirity** and called **Rati** in Hindi**.** The part used are roots, seeds and leaves. Seeds contain a poisonous protein, a fat splitting enzyme and an albuminous substance abrin. Paste of seed are used against skin diseases and externally has fungistatic activities against *Cryptococcus neoformes.* Roots contain about 15% glycyrrhizin. It is used for pain relief. Crushed roots are used to cure white eyes of cattle. Leaves are considered useful in biliousness and in leucoderma, itching and other skin ailments. Leaves warmed with mustard oil gives relief to the painful areas. Juice rubbed with plumbago roots (chitraka) to the leucodermatic spots remove them to a large extent within a month. It is also applied to the bare skin in alopecia, stiffness of shoulder joint and paralysis.

15. ***Camphora officinarum:*** In English it is known as **Camphor** and in Hindi it is called **kapur**. The part used is the volatile oil known as camphor by distillation of the wood of the tree or plant and occurs in translucent white crystals. In addition to camphor it contains another substance known as safrole. It is diaphoretic, stimulant of the skin, cardiac stimulant, antiseptic, antispasmodic, sedative and externally anodyne. In pruritus and eczema camphor ointment (1-16 of boracic ointment) is very useful.. It is also good in typhus, confluent small pox and all fevers of typhoid class. Its strong odour prevents animals from the menace of insects.
16. ***Curcuma longa:*** In English it is commonly known as **Turmeric** and in Hindi **Haldi**. The part used are rhizomes. It contains **turmeric oil or turmerol, curcumin (diferuloyl methane)** and **1, 7-bis, 6-hepta-diene-3, 5-dione** from rhizome. It is aromatic, stimulant, tonic and carminative. Internally the extract is anti-helmenthic. Juice of the fresh rhizome is applied to recent wounds, bruises and leech bites. A paste of turmeric and leaves of *Justica adhatoda* with cow urine is rubbed on the skin affected with prurigo and eczema. When mixed with ginger oil and applied to the skin it prevents skin eruptions. A paste of turmeric in combination to the paste of neem leaves is used in ringworm infection, itching, eczema and other parasitic diseases of the skin. In chronic eczema and itches ointment made of turmeric, hemp leaves, onion and warm mustard oil gives immediate and immense relief. In chronic skin ailment turmeric 64 tolas, clarified butter 48 tolas, milk 16 seers, sugar 12 tolas are boiled and black pepper, ginger, cinnamon are mixed to it. The dose includes one tola every morning in prurigo, boils, urticaria and chronic skin eruptions.
17. ***Sinapsis Juncea***: Commonly called as **mustard** in English and **Sarson** in Hindi. Chiefly seed and its oil is used. Seed contains sinigrin and an enzyme myorisin. Mustard bath is recommended in case of acne. They have a cleansing effect on the skin and make it soft, removes the grease and useful in general pustular condition. Mustard oil is used as a base for several other herbal preparations and in combination with several other medicinal plants is used in several skin ailments of various degrees. In Cholera, colic and spasms of bowels it is applied on abdomen, In breathing problem it is applied on the chest.
18. ***Nicotiana tabacum*****:** Commonly called a **tobacco** in English and **Tambaku** in Hindi. The parts used are dried leaves, stalks and whole plant. The active principle is alkaloids called as Nicotine, nicotimine, nicotelline and nicotianin. Juices of the leaves are a powerful insecticide and antispasmodic. Nicotine salycylate is the remedy for certain skin ailments. A decoction of tobacco has been used as a locally to relieve pain, irritation in swellings, syphilitic nodes and skin diseases and aid in reduction of orchitis. In orchitis the upper surface of the leaf painted with silarasa is applied to the painful swollen part. A paste made with snuff, lime and bark of *Calophyllum inophyllum* is applied in orchitis..
19. ***Calotropis gigantea:*** Commonly called as **Ak** or **Madar** in Hindi. The part used are root, root bark, leaves, inspissated juice and flowers. The active ingredient is **yellow bitter resins, Akundaarin, β-sitosterol, triterpenoids, Amyrin, stigmasterol** and **Calotropin**. These are in higher quantity in older plant. The physiologically active substance is found in the milky juice of the plant. It is used in boils, scabies, ringworm, carbuncle, bit of jackel, dogs, rabies,

H.S. Flowers are digestive, tonic and have powerful action on the skin. An oily preparation (*Arka taila*) made by boiling together 8 parts Sesamum oil, 16 parts Calotropis juice and one part turmeric is useful in eczema and skin diseases. In scorpion and insect bites it relieves pain and burning. It is also useful in ringworm infection. Equal part of branches, leaves, milky juice and flower in form of pill, given every morning treats various kinds of skin diseases. A powder of dried leaves boiled with sweet oil and turmeric added can be applied to eczema and other skin ailments with high efficacy.

20. ***Acacia arabica:*** Commonly called as **Babul** tree. The parts used are bark, gum, leaves, seeds and pods. Gum contains arabic acid combined with calcium, magnesium and potassium. Bark contains a large amount of tannin. Powdered gum mixed with egg white is applied with burns and scalds. Tender leaves made into pulp are administered in diarrhoea and dysentry.
21. ***Citrus bergamia:*** Commonly known as **Lime or Bergamote orange** in English and **Nimbu** in Hindi. Part used are fruit, its juice, oil from leaves and flowers. It contains citric acid, phosphoric and malic acid. Lemon peel contains hesperidin. Steroid fraction from fruit has cortisone like anti-inflammatory activities in rats and guinea pig and its essence is minor constituent of anti-baldness scalp lotions in human. Such potential needs to be explored for animal use. Juice taken internally enters the blood as alkaline citrates, potassium salts and phosphoric acid. Citrates are oxidized into carbonic acid and water. Citric acid acts as a germicide. Local application of the lime juice externally for relieving irritation of insect bites. A local application made of lime juice, potassium carbonate and copper sulphate is useful for warts and other skin eruptions. Lemon oil mixed with glycerine is applied to pruritus of vulva and scrotum. Lemon oil with camphor is used in various skin diseases.
22. ***Ollinall:*** It is the product of IVRI and an outcome of several years of research and trial on thousands of animals. In a study conducted in whole of Uttar Pradesh and Uttaranchal on the skin diseases in cattle, buffalo, pig, dog, sheep, goats and wild animals. Olinall is a new indigenous herbal medicament containing *A.Cepa, C. Media, C. Longa, C.afficinarum, A sativum, D indica*, Sesame oil, Bee was, Borax in specific proportion. In has been found to be effective against various skin ailment such as mange (demodectic, sarcoptic and psoroptic), Ring worm, Eczema Pyoderma, Dermatitis, Acariasis. In addition it is also potent antiseptic for dressing of burns, cuts and all type of wounds (simple, maggoted, surgical etc.). It is totally safe, non-toxic and eco-friendly medicament for above mentioned conditions. Its efficacy is comparable and even better to allopathic drug available for use is skin disease.
23. **Picorrhiza kurroa.** *P. kurroa* rhizomes are main ingredients of a bitter tonic used in fever and dyspepsia (indigestion). This drug occupies a prestigious position in Ayurveda. It often substitutes for Gentiana kurroo, the Indian gentian. Study shows that *P. kurroa* works to boost the immune system as a supplement to other treatments in patients with vitilago, a skin disease that causes discolored spots (Bedi et al., 1989).
24. **Neem (Azadiractica indica) and turmeric (Curcuma longa) mixture.** In the Ayurveda and Sidha systems of medicine, neem and turmeric are used to heal chronic ulcers and scabies. Charles and Charles (1991) used neem and turmeric as a paste to treat scabies in 814

people. Ninety-seven percent of cases were cured within 3 to 15 days. The researchers found this to be a cheap, easily available, effective, acceptable mode of treatment for villagers in developing countries, with no adverse reactions.

25. **Mango**: **Mangniferin** isolated from leaf extract of *Mangifera indica* (Mango) has marked anti-influenza virus activity. It has anti-virus activity against skin diseases and the mucous membrane. Oral or topical applications are useful for the treatment of diseases caused by herpes virus. The positive therapeutic effect of magniferin co-tannin ointment was demonstrated for treating skin eruptions in children.
26. **Nariyal**: The alcoholic extract of ripe dried coconut shell of ***Cocus nucifera*** (Nariyal) showed antifungal activity at a dose of 100 µg/ml of Sabouraud's medium against all dermatophytes tested except *E. flocossum* for which the effective concentration is 200 µg/ml. (Venkataraman *et al*. 1980).

COMMON HERBS USED AGAINST SKIN DISEASES IN VETERINARY PRACTICES

SN	Name of Plant (Scientific)	Local Name	Part Used	Ailment
1.	*Abrus precatoricus*	Rati	Seed	Water extract applied in alopecia
2.	*Acacia catectu*	Katha	Bark	Skin diseases (decoction)
3.	*Adansonia digitata*	Gorakh amli	Seed	Skin diseases
4.	*Alluim cepa*	Piyaz	With mustard oil	Skin diseases.
5.	*Altingia excelsa*	Silaras	Resin	Skin diseases
6.	*Ananas sativus*	Ananas	Fruit	Vermicide (fruit)
7.	*Androsopon citratus*	Haree chana	Oil	Ringworm
8.	*Annona reticulata*	Lona	Leaves	To kill lice
9	*Annona squamosa*	Sarifah	Leaves seeds	Vermicide insecticides
10	*Artemsia afinthium*		Leaves	Skin diseases
11	*Artocarpus integrifolia*	Katahara	Tender leaves	Skin diseases
12.	*Azadirachata indica*	Neem	Whole plant	Ring worm and scabies
13.	*Barringtania racemosa*	Norvishee	Fruits	Skin diseases
14.	*Bauhinia macrostachya*	Gundawall	Leaves	Skin diseases
15.	*Bauhinia variegata*	Kachnar	Bark	Bark used in skin diseases
16.	*Brassica campestris*	Shulgam	Oil	Used in skin diseases
17.	*Buchanania latiofolia*	Piyar-chironji	Fruits, seed, gum	Used in skin diseases
18.	*Butea frondosa*	Palas	Gum, seeds, flower, bark and leaves	Grain used in ringworm and erysipelatous inflammation

19.	*Callitris inopnyllus*	Champa	Oil seeds	Used in skin diseases
20.	*Calotropis giganteam*	Madar	Root bark	Used in skin diseases
21.	*Cassia absus*	Chrakur	Seeds	Used in ring worm infection
22.	*Cassia fistula*	Amul Dhas	Leaves	In ring worm
23.	*Cassia sophera*	Bas ki kasunda	Seeds	Ring worm
24	*Cassia tora*	Chakundar	Bulb	Pruritus,ringworm
25	*Cedras deodara*	Deodar	Oil	Mange and sore feet
26	*Cephalandra indica*	Kanduriki-bel	Leaves	Ring worm and itch
27	*Cincona officinale*	Cinchona	Bark	Antiseptic
28	*Cocculus suberosus*	Indian berry	Fruit	Ring worm, or lice and obstinate parasitic skin diseases
29	*Cocoa nucifera*	Nariyal	Oil	Ring worm
30	*Cordia latifolia*	Bara-lasova	Fruit, bark	Ring worm
31	*Crotalaria sericea*	thunjhernia	Leaves	Scabies
32	*Crota. verrucosa*	Do	Leaves	Do
33	*Cuminum cyminum*	Safed jeeras	Oil	Antiseptic
34	*Curcuma longa*	Haldi	Root	Eczema, itch
35	*Eclipta prostrata*	Bharangraj	Root, leaves	Scabies
36	*Emblia ribes*	Wawrung	Fruits	Ring worm and other skin diseases
37	*Eucalyptus globulus*		Oil	Antiseptic
38	*Euphorbia thymifolia*	Nigachuni	Whole plant	Ring worm and other skin diseases
39	*Feaula assafoetida*	Hingras	Gum	Antiseptic
40	*Ficus religiosa*	Pipal	Root bark	Eczema
41	*Garcinia purpurea*	Kokam	Oil	Skin disease for healing
42	*Grangea maderaspatana*	Mustaru	Leaves	Antiseptic
43	*Gymnosporia montana*	Vingar	Bark	To destroy pediculi
44	*Hydrocarpus wightiana*	Chaulmoogra	Seeds, oil	Scabies, obstinate skin diseases
45	*Hydrocotyle asiatica*	Khulakudi	Whole plant	Skin disease
46	*Indigofera tinctoria*	Nil	Seed	Antiseptic
47	*Iris foetidessima*	Dadmari	Oil	Ring worm
48	*Jasminum angustifolium*	Ban-mallika	Root	Ring worm
49	*Jasminum rottlerianum*		Leaves	Ring worm

50	*Jatropha curcas*	Jangli-erandi	Seeds, oil	Itch, eczema, scabies and ring worm
51	*J. glandulifera*	Lal-bhranda	Oil	Ring worm
52	*Leea mycrophylla*	Samboodraka	Root	Ring worm
53	*Leonotis nepetaefolia*		Flower	Ring worm
54	*Leucas aspera*	Chota-kalkusha	Leaves	Scabies, insecticides
55	*Leucas zylanica*	Do	Leaves	Scabies
56	*Mallotus phillippinensis*	Kamala	Fruit	Ring worm
57	*Mangifera sylvatica*	Amb	Oil	Insecticide, parasiticide
58	*Melaleuca leucadendron*	Kayaputi	Oil	Externally parasitical
59	*Melanorrhoea usitata*		Resin	Ectoparasiticidal
60	*Melia azedarach*	Bakayan	Flower	Lice
61	*Mentha piperita*	Peperminta	Lotion	Insecticide, germicide
62	*Meriandra bengalensis*	Kafur-ka-pat	Leaves	Antiseptic
63	*Mesua ferrea*	Naga-kesara	Flower	Scabies
64	*Mollugo spergula*	Jima	Resin	Antiseptic, used in skin disease
65	*Momordica charantia*	Karela	Fruit, leaves	Scabies
66	*Nelumbium speciosum*	kamal	Whole plant	Erysepelus
67	*Nerium odorum*	Kaner	Root	Ring worm
68	*Neuracanthus sphaerostachyus*		Whole plant	Ring worm
69	*Nicotiana tobacum*	Tamaku	Dried leaves	Powerful insecticide
70	*Ocimum album*	Tulsi	Leaves/seeds	Parasitic skin disease, Ring worm
71	*Picrasma quassioides*	Bharangi	Wood	Insecticide
72	*Piper nigrum*	Black-piper	Fruit	Alopecia
73	*Pistia stratiotes*	Pistia	Leave/root	Ring worm
74	*Plumbago zlylanica*	Chitra	Root	Scabies
75	*Pongamia glabra*	Karanj	Oil	Scabies, eczema
76	*Portulaca quadrifida*	Nunisak	Leaves	Skin disease
77	*Quercus infectoria*	Majuphul	Bark	Eczema
78	*Remustia vivipara*		Root	Rood remedy for itch
79	*Rhinacanthus communis*	Palak-julu	Root	Ring worm and eczema
80	*Ruta graveolens*	Satap	Leaves	Paracitidal
81	*Santalum album*	Sayed chandan	Wood/oil	Pruritus and inflammation

82	*Saussurea cappa*	Kut	Root	Insecticidal
83	*Semecarpur anacasdium*	Bhela	Oil	Antiseptic
84	*Sesamum indicum*	Til	Oil/seeds	Skin disease
85	*Sinapis juncea*	Black mustard	Oil/seeds	Pustules
86	*Solanum nigrum*	Makoi	Fruits	Remedy in skin disease
87	*Taraktogenos kurzi*	Chaulmoogra	Seed	Skin disease
88	*Terminalia catappa*	Jangli-badam	Seed	Scabies
89	*Thevetia neriifolia*	Pila-kaner	Oil	Skin disease
90	*Thymus serpyllum*	Ipar	Leaves	Antiseptic, itch
91	*Ventilago madraspatana*	Pitti	Root	Itch and skin eruptions
92	*Vernonia anthelmintica*	Bakali	Seeds	To destroy pediculi
93	*Wagatea spicata*	Wagoti	Bark	Skin disease
94	*Zingiber officinale*	Sonth	Rhizome	Local stimulant
95	*Z. zebuasbet*	Mahabari-bach	Rhizome	Skin disease

Research Needs and Opportunities in Herbal medicine:

Most of the modern-day medicines are directly or indirectly derived from plant sources. Worldwide, the botanical pharmacopoeia contains tens of thousands of plants used for medicinal purposes. Thousands of definitive texts and monographs on herbal remedies exist. But most of the informations are outside current databases and remains unavailable to physicians, researchers and consumers.

Globally, herbal remedies have been researched under rigorous controls and have been approved by the governments of technologically advanced nations. In this direction various agencies such as **ICAR, NATP, DST, CSIR**, etc. are taking lead role in funding projects for such research and scientific validation of these treasures form traditional healers and rural folks. The scientific validation is good and the history of clinical use is even better. Many phytomedicines have been used by thousands of physicians in their practices and are consumed under medical/veterinary supervision by tens of millions of people and livestock.

A great deal of literature exists on the use of phytomedicines within native medical systems in our country, China, Japan, and North America. The **Division of Medicine** at Indian Veterinary Research Institute (IVRI), Izatnagar has been working for the last 15 years on herbal medicine and scientific validation of these herbal plants for the application in veterinary profession. The work has been carried out on use of various herbal medicaments such as Tinospora, Tulsi, Haldi, Karanj oil, Onion, Garlic, Castor, Tamarind, Neem, Eucalyptus, Bael etc. for treatment, control and immunomodulation in mastitis, skin ailments, heavy metal toxicity, calf diarrhoea and mineral deficiency with excellent results. The database, NAPRALERT (Natural Products Alert), holds references for more than 100,000 scientific articles and books on natural products (plant, microbial, and animal extracts). While much of this information is in the form of folklore, there is a growing body

of data from scientifically valid literature on herbal medicine research in China as well as India and Japan. Much unwritten knowledge is in the hands of healers in many societies of our country, where oral transmission of information is the rule. Unfortunately, in many regions this information is endangered because there are no young apprentices to whom elderly healers can pass on their unwritten wisdom. The knowledge that has been refined over thousands of years of experimentation with herbal medicine is being lost. In this direction, work on collection of database for these herbal medicaments and its use in various condition in veterinary use by rural folks and traditional healers in various parts of our country are being carried out by **Directorate of Extension Education** at IVRI, Izatnagar, Bareilly. Much of the literature on traditional Chinese and other Asian countries' herbal medicine is only now beginning to be translated into English.

Research Priorities in Herbal Medicine:

Basic research into characterizing these plant products and compounds in terms of standardized content and potential toxicity is needed to allow safe and replicable research to document clinical efficacy. Basic science research should be conducted to evaluate research on the biochemical effects of traditional herbal prescriptions from Western, Ayurvedic, oriental and other traditions.

Key Research Issues in Herbal Medicine:

Before a comprehensive research agenda is developed, several key issues must be addressed, including the following: the impending loss of knowledge about traditional healing in many societies; the impending loss of large numbers of plant species of potential medicinal value; impediments to the use of herbal remedies outside the cultures in which they originated; and determination of the conditions under which herbal medicines are most appropriate, safe, and effective. Additionally, several regulatory issues hamper research into herbal medicines.

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