Indigenous knowledge of Tribal Medicinal Practices in Pachmarhi ; Madhya Pradhesh : an Anthropo-Pharmaceutical Approach

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ABSTRACT

The indigenous collective knowledge on community health and ethno-medicinal practices had evolved and refined through trial and error method spontaneously experienced for generations as also shared within a community. The uncertainty in curing diseases has traditionally integrated the essential elements of science with supernatural beliefs, interpretations and performances.

In this multidisciplinary model of approach, the traditional health practices and ethno-medicinal system accessible in a particular locality, rather within a distinct topo-cultural area is explored for understanding varied facts of common ethno-medicinal practices. The study includes the system of transmission of the indigenous knowledge in synchronic and diachronic dimensions, on potential resources and its process of mobilization.

Pachmarhi is topographically almost isolated, virgin forestland within Mahadeo hill ranges. The indigenous tribal communities inhabiting there include Korku, Gonds and Baiga etc. Some common natural resources of tribal medicines are selected species of plants, minerals and honey. Some essential forest resources and ingredients for ethno-medicines are selected for laboratory – based pharmacological analyses. The chemical compositions, material content of components and toxicological properties of selected materials are identified that are further compared with local traditional knowledge-base. The potentialities of such elements are discussed for medicinal implications and for further use in therapeutic benefits.

Several other ethical issues on - patents ensuring the benefit of tribal groups are also attempted as a collaborative approach in the ever-expanding field of Applied Anthropology. It is also recommended that the scholars from the field of physical or biological anthropology are competent to become engaged in clinical trials of such herbal medicines. For experimental application of medicine on human volunteers, study on behaviour and habits of individuals and corresponding psycho-somatic observations are essential. The anthropological background of field workers will definitely be more beneficial for identifying a suitable drug delivery system and other achievements to develop a more competent, ideal therapeutic measure without causing any toxicity and minimum side effect to the patients.

Keywords: Indigenous Knowledge, Anthropo-Pharmaceutical Approach, Herbal Medicine, Tribal Medicine

The indigenous collective knowledge on community health and ethno-medicinal practices had evolved and refined through trial and error method spontaneously experienced for generations as also shared within a community. The uncertainty in curing diseases has traditionally integrated the essential elements of science with supernatural beliefs, interpretations and performances. The application of anthropological knowledge is particularly relevant for treatment of all individual cases as each case history have separate and discrete social, psycho-somatic,

community-specific and overall genetic background. Application of any generic medicine may not be a source for proper healing. Western knowledge based Physicians in general, detect the diseases on the basis of available symptoms. But the traditional knowledge and orientation of tribal medicine is more case – specific, so that for such custom made therapeutic measures a suitable holistic view and psycho – somatic approach is more suitable. Such holistic approach could only be available from a competent anthropologist.

For study of Tribal health practices, different dimensions are to be recorded. The regular or occasional use of several preventive practices are common in their custom. The use of nutritious food, taboos, tattoos on certain parts of body for curing diseases, body movement and massage, and finally on remedial measures of diseases by use of medicines – all are indispensable parts of tribal health system. The analytical concept on causes for each type of health disorder may reveal a supernatural explanation. But a further scrutiny on such explanation may evident their justification of view such as- causing diseases by invisible forces of nature like microbes. The basic concept of Indian tradition of Ayurvedic medicine is based on three sources for all major ailments are : Bayu or wind; pitta or bile and cough. Similar concept is present in tribal medicinal practices. Unfortunately since the western form of health education had dominated in India, earlier ethno-medicinal practices was mostly viewed as religious superstitions and social evil. The orthodox elites had bluntly underestimated its practitioners by categorizing it as the offensive action by naive illiterates. In Indian traditional medicine, *Atharvaveda* is considered as the earliest record from oral tradition of treatment. Thus, through *shruti* or oral literature, the knowledge of ethno-medicinal practices had survived among lesser modified tribal communities.

For empirical study, Pachmarhi was selected principally as it is topographically almost isolated hill station within Mahadeo Hills of Central India. The uniqueness of hilly forest tract in Pachmarhi is its evergreen forest which is still virgin and was never allowed to clear the forest land as it is under direct control of defence Ministry. The other attraction for selection is that, Pachmarhi is famous for herbal medicines and its treatment when the same region is habited by several tribal communities. The Korku and Raj Gond are the major tribal population in the Mahadeo Hills. Both the tribal communities perform ethno-medicinal practices more competently as the plant and other resources essential for preparation of medicines are plenty in the hilly forest tract.

Tribal villages are located in distance from Pachmarhi township area and dispersed types of village settlements with its separate hamlets are located within tiger reserve areas and in wildlife sanctuary. Data on total five villages has been analysed for this present study that are as follows :

1. Nimbu Khud – the only multi-ethnic tribal habitation is located about half km. distance from the central bus stand in Pachmarhi township. In Nimbu Khud, Korku Mawaswi and Raj Gond households are distributed above a rocky escarpment.

2. Ghoranar, a remote village with the core area of the tiger reserve which is about 26 Km. north east from Pachmarhi on the connecting road between Pachmarhi and its nearest railway station – Piparia. The road distance between Piparia anjd pachmari is 51 Km. Ghoranar is an uniethnic village where total 36 Korku tribal households are located. This village is almost isolated within thick forest vegetation and wildlife sanctuary. The village is located about 6 Km. east from main road and there is no motorable road inside to reach the particular village. Only one Traditional Korku medicineman called *parihar* is available in the village who attend the villagers during emergency requirement for treatment.

3. Village Matkuli, a considerably large village located on both sides of metal road which connects Pachmarhi with its nearest railway station – Piparia. The village is mainly inhabited by Gond tribe.

4. Dhana- Pagara – This village is close to main road which is connected by bus and other vehicles and about 25 Km. towards North-east from Pachmarhi. Tribal households from Gond and Korku communities are living in two separate enclosures.

5. Pagara - Pagara is a separate village where total 57 Korku households are located on both sides of a metal road connecting Pachmarhi and Piparia railway station.

On the basis of data analysis the following common features are revealed in the entire region:

i. At least one tribal medicineman is available in every village, sometimes assisted by his junior trainee, both are essentially belong to the same family.

ii. Bhumka, Parihar and Ojha – are the three distinct group of medicinal experts. Bhumka and Ojha are from the Gond community whereas Parihar is a Korku medicineman. All such tribal medicineman are male and relatively experienced aged persons. It is also revealed that the client of one such medicineman is not only restricted within a particular community but primarily each person is considered as duty-bound to serve one's own neighbouring villagers as priority. We have been informed about one woman medicinal practitioner among Korku community who resides in a remote village about 40 Km. towards south of pachmarhi.

Pachmarhi is a hill station in Madhya Pradesh (220 28' NL and 280 26' EL) located within mountainous range of the Mahadeohills of Satpuras and situated in an average height of of 1000 m. from the sea level. pachmarhi is connected by road with Piparia, its nearest town and railway station, situated 47 km. north of this place. Bhopal, the capital of Madhya Pradesh is located 195 km. north-west of Pachmarhi. Administratively Pachmarhi is included within Hoshangabad district and since British period it was a cantoment township and now it is an education and training centre of Indian military. Being a popular hill resort in Central Indian Plateau, the scenic beauty and virgin forest tract of the Mahadeo hills area attract tourists round the year. The name Pachmarhi has derived from the word 'Panchmathi' or five huts. Near the township, a small hillock with artificial cave shelters is identified as 'Pandava caves'. As narrated in the local legend, five Pandava brothers (principal characters of great Indian epic-Mahabharata) lived in these caves when they were in exile. But the hillock with rock-cut caves were perhpas the shelters of Buddhist monks. Nothing much is known about the early historical details of Pachmarhi. In 1857 captain J. Forsyth, a lancer, first reported about the area. Afterwards in 1862 sir Richard Temple - the Chief Commissioner of Hoshangabad started various developmental activities in the region.

Topography : The topographic feature of Pachmarhi is of marked difference from other parts of central Indian plateau. The major peaks of Mahadeo hills are respectively Dhupgarh (1350 m), Mahadeva hill (1328 m) and Chauregarh (1311 m). The peaks are the highest summit of Satpura range in the south of river Narmada. The Pachmarhi plateau within the Mahadeo hills is saucer like in shape and surrounded by peaks. Denwa is the principal river system that flows near the extreme southern boundary of the township. There are numerous rivulets, hill streams, and water falls and due to water action steep gorges, ravines, escarpments, caves and rockshelters are abundant in this area. In Pachmarhi, of Hoshangabad district, the total area under reserved forest and sanctuary is 461.85 km²

Flora and Fauna :

The forest of Pachmarhi is mixed type of vegetation containing a great variety of species, including rare medicinal plants. The common species are saj (**Terminalia tomeatosa**), tinsa (**Ollgeinia dalgbergioides**), tendu (**Diospyros melanoxylon**), teak (**Tectona grandis**), salai (**Bosnillia serrala**), anjan (**Hardwickia binats**), sal (**Shorea robusta**), mango (**Mangifera indica**), achar (**Buchanania latifolia**), mohua (**Bassia latifolia**), bel (**Aegla marmelos**), and several others.

The major fauna available in the Pachmarhi forest are elephant (**Elephas maximus**), buffalo (**bos bubalis**), bison (**Bos gaurus**), wild pig (**Sus cristatus**), black-buck (**Antelope cervicapra**), swamp deer (**Cervus duvancdi**), sambhar (**Cervus unicolor**), chital (**Cervus axis**), Among carnivores, wolf (**Eanis pallipes**), tiger (**Felix tigris**) and leopard (**Felis pardus**) are most frequent. Other mammals include Indian sloth bear (**Melursus ursinus**), Indian squirrel (**Sciurus indicus**) etc. Varieties of birds are available in the forest of which the pea-fowl (**Povo cristatus**) is the most popular game bird. It is apprehended that in future indentification of animals and plants may be made possible with precision (Corbett et. al, 1908).

Medicinal plants in Madhya Pradesh - Medicinal trees and plants of various kind are found in abundance in the forests of Madhya Pradesh.

Important ones are: *Aegle marmelos*, *Azadirachta indica*, *Bixa orellana*, *Butea monosperma*, *Asparagus racemosus*, *Argemone mexicana*,*Buchanania lanzan*, *Aloe barbadensis*,*Acorus calamus*, *Cassia tora*, *Curculigo orchiodes*, *Curcuma longa*, *Embelia ribes*, *Clitoria ternatea*,*Mangifera indica*, *Cassia fistula*, *Evolvulus alsinoides*, *Commiphora mukul*, *Helicteres isora*,*Holorrhaena antidysenterica*, *Glycyrrhiza glabra*, *Woodfordia fruticosa*,. *Dioscorea spp*, *Plumbago zeylaniea*, *Terminalia bellirica*, *Tamarindus indica*, *Mucuna pruriens*, *Pongamia pinnata*, *Terminalia bellirica*, *Psoralea corylifolia*, *Phyllanthus embilica*, *Ocimum americanum*, *Rauvolfia serpentina*,*Tinospora Cardifolio*, *Withania somnifera*, *Swertia chirayita*, *Tribulus terrestres*, *Chlorophytum tuberosum*, *Cyprus Rotundus*.

Korku tribe : The korkus are considered as indigenous tribal inhabitants of Pachmarhi. Unitl the beginning of the British occupation in the highland of former Central Province, (present Madhya Pradesh) Korku Jagirdar or chieftains were the rulers of this area. At present the Korkus and Gonds are numerically dominant tribal population in the villages of this locality. Caste hindus are not uncommon in those villages but live in separate hemlets, keeping distance from the tribal households.

Some of the common medicinal plants and other natural sources used by tribals for treatment of different diseases are furnished below. The part of the plant used, its chemical compositions and other pharmaceutical particulars are also included :

SHATAVARI (Asparagus racemosus)

Constituents :Shatavari roots contain four steroidal saponins namely Shatavarin I-IV (0.2%)

Shatavarin I: Major glycoside with three glucose and one rhamnose moieties attached to sarsapogenin.

Shatavarin II: Two glucose and one rhamnose moieties are attached.

Use : Antioxytocic, Galactogogue, Diuretic.

AKASHBAEL(Cuscuta reflexa)

Constituents :

Phytochemical analysis have revealed the presence of steroids, saponins, triterpenes and flavonoids in Cuscuta reflexa.

Principal constituents isolated are cuscutin, amarbelin, beta-sterol, stigmasterol, kaempferol, dulcitol, myricetin, qurecetin, coumarin and oleanolic acid.

Use : Carminative, laxative.

SANDALWOOD (Santalum album)

Constituents :

Oil of sandal wood contains about 95% of two isomeric sesquiterpene alcohols, a-santalol (b.p 300 C)and b-santalol (b.p 170 C). Additionally contains an aldehyde santalal,santene,santenone,teresantol,santalone and santalene.

Use : In headache, skin infections etc

GINGER (Zingiber officinale)

Constituents :

Ginger consists of volatile oil (1-4%), starch (40-60 %), fat (10%),fiber (5%) and inorganic matter (6%).

Ginger oil is constituted of monoterpene hydrocarbons, sesquiterpene hydrocarbons, oxygenated mono and sesquiterpenes and phenyl propanoids.

Use : In fever, common cold, carminative etc.

BIJA SAL (Pterocarpus marsupium)

Constituents :

It contains 70-80 % kinotannic acid,kino-red, k-pyrocatechin (catechol), resin and gallic acid.

Kinotannic acid is glucosidal tannin, while kino-red is anhydride of kinoin. Kinoin is an insoluble phlobaphene and is produced by the action of enzyme oxidase.

Use : In Liver disoders, astringent.

MYROBALAN (Terminalia chebula)

Constituents :

Myrobalan consists of :-

a. Moisture – 10%

b. Tannin-25-32%

c. Water insoluble matter-40-50 %

The tannins of myrobalan are of pyrogallol type (hydrolysable tannins) , which on hydrolysis yields chebulic acid and d-galloyl glucose.
Chebulagic acid,Chebulinic,Ellagic acid, and Gallic acid are other constituents of myrobalan.
Use : Carminative, in liver disoders etc.

NEEM (Azadirachta indica)

Constituents :

It contains glycosides of saturated and unsaturated fatty acids. The main acids are Oleic acid (50%) and Stearic acid (20 %).

Oil contains 2% of bitters , which are sulphur containing compounds, nimbidin, nimbinin, and nimbidol.The unsaponifiable portion contains nimbosterol (0.03%).

Use : Bitter, Stomachic, anthelmintic, counter–irritant,

BACH (Acorus calamus)

Constituents :

The part used are the dried rhizomes. The drug contains (1.5-3.5 %) of volatile oil, starch, resin (2.5%) and tannin (1.5%).

Volatile oil contains Asaraldehyde. The other contents of the oil are asarone and eugenol. Calamus also contains a bitter principle known as acorine.

Use : In liver disoders, jaundice, hepatitis.

KALMEGH (Andrographis paniculata)

Constituents :

Kalmegh contains bitter principles andrographolide , a bicyclic diterpenoid lactone and kalmeghin (0.85-2.5%).

Use:

Hepato-protective, bitter tonic, stomachic and also anthelmintic.

BAHERA (Terminalia belerica) Family : Combretaceae

Part Used : Dried ripe fruits of the plant.

Chemical Constituents :

The fruits contain about 20-30 % of tannins and 40-45% water-soluble extractives. It also contains colouring matter. It contains gallic acid, ellagic acid, phyllemblin, ethyl gallate and galloyl glucose.

Use : Astringent, appetizer, general revitalizing.

ARJUNA (Terminalia arjuna) Family : Combretaceae

Part Used : Dried steam bark

Chemical Constituents :

Arjuna contains about 15 % of tannins (hydrolysable). It also contains triterpenoid saponin, arjunolic acid, arjunogenin.

In addition, it contains beta-sitosterol, ellagic acid and arjunic acid. The crystallisable compounds reported are Arjunine , Arjunetine, Arjunetin. Arjunolone and Arjunone are flavonoids reported in arjuna bark.

Use : In heart disorders.

AMLA (Emblica officinalis) Family : Euphorbiaceae

Part used : Dried or fleshy fruits

Chemical Constituents:

Amla fruit is a rich natural source of Vitamin C and contains 600 to 750 mg per hundred gram of the fresh pulp. Apart from that, fruits also contain about 0.5 % fat, phyllembin, and 5% tannin.

Amla fruits are also rich in mineral matters like phosphorus, iron,calcium. It also contains appreciable amounts of pectin. Fresh fruits contain about 75 % moisture.

Use : In digestive problems, As a rich source of vitamin C, carminative, febrifuge, In diarrhoea.

TURMERIC (Curcuma longa) Family : Zingiberaceae

Part Used : Dried or fresh rhizomes of the plant.

Chemical Constituents:

Turmeric contains about 5 % of volatile oil, resin, abundant zingiberaceous starch grains and yellow colouring substances known as Curcuminoids. The chief component of curcuminoids is known as Curcumin (50-60 %)

Chemically, Curcuma species contain volatile oil, starch and curcumin. Curcumin and other related curcuminoids are reported to be responsible for the yellow colour in some species. Volatile oil content ranges from 1 to 6.5 % and composed of mono and sesquiterpenes such as alpha and beta

pinene, alpha- phellandrene, camphor, camphene, zingiberene and alpha, beta curcumenes.
General Use : Antioxidant, In dyspepsia, diarrhoea, rheumatoid arthritis etc.
Tribal use in Pachmarhi region : against wound, for ulcers, diarrhoea, protection from skin diseases and turmeric paste is added in drinking water as purifier and protect from malaria and other water-borne diseases.

CAMPHOR OIL (From Cinnamomum camphora) Family :Lauraceae
Part Used : Camphor Oil is obtained from the wood.
Chemical Constituents :

Camphor oil mainly contains safrole, acetaldehyde, dipentene, camphor, eugenol, d-pinene, eucalyptol, phellandrene and cineole.

CAMPHOR:
Camphor is obtained by chilling of camphor oil or by synthesizing from oinene.
Physical Properties :
Camphor is colourless, crystalline, solid, granular mass known as flower of camphor. It ha penetrating characteristic odour and aromatic pungent smell.

Gurmar – an unique plant to control Diabetes:

Gymnema sylvestre is a woody climbing plant that grows in the tropical forests of central and southern India. The leaves are used in herbal medicine preparations. G. sylvestre is known as "periploca of the woods" in English and mesbasringi (meaning "ram's horn") in Sanskrit.

The leaves, when chewed, interfere with the ability to taste sweetness, which explains the Hindi name gurmar-"destroyer of sugar." The herb is often promoted as an appetite suppressant and weight-loss-agent.
Healing power and curative properties : Gurmar is an herb that slows the absorption of sugar into the blood stream and slows the conversion of sugar into fat. Gurmar fits well into a weight management program because it complements exercise and dietary reform by curbing sugar appetite.

Gurmar stimulates insulin secretion and has blood sugar reducing properties. It blocks sweet taste receptors when applied to tongue in diabetes to remove-glycosuria.

This is a blood sugar balancing herb that slows the absorption of sugars into the blood stream and slows the conversion of sugar to fat.

Gurmar is a blood sugar balancing herb that slows the absorption of sugars into the blood stream and slows the conversion of sugar to fat. Avoiding sugar is almost impossible, but we can offset its power by understanding what it does and then eating less of it. Sugar, either on food or hidden in food and drink, is metabolized into fat. By regular exercise, we can further interrupt the sugar-to- fat route and burn some of it off.

In the case of the far more prevalent type 2 diabetes--also known as noninsulin-dependent diabetes--research findings indicate that the use of gymnema may improve blood sugar control and result in the need for smaller doses of oral diabetes drugs to control the disease.

Gurmar fits well into a weight-management program because it complements exercise and dietary reform by promoting healthy blood glucose-balance.

The development of obesity usually precedes the onset of diabetes in many cases. It is also clear that high dietary fat consumption is a primary factor in the development of obesity-associated type 2 diabetes. It is therefore imperative that individuals at risk, such as those with a family history of diabetes, make very serious efforts to reduce the fat contents of their diets. pepper and ghee in the treatment of these conditions. ***Gymnema sylvestre*** is a herb native to the tropical forests of central India where it has been used as a natural treatment for diabetes for nearly two millennia.

CONCLUSION

Indigenous medicine development can use the rational approach using folkloric leads in combination with laboratory investigations to find putative role in future phytotherapy. The time has come to transit to the domain of Evidence Based Medicine from the long followed process of standalone Experiential Medicine.

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