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STUDIES ON ETHNOMEDICINE AND ROLE OF TRADITIONAL HEALTH PRACTITIONERS (THPs) IN PRIMARY HEALTH CARE SYSTEMS (PHCs) IN THE TRIBAL DOMINATED AREAS OF RAJASTHAN- INDIA

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ABSTRACT: The tribal people depend on plants and plant products for their livelihood, and most of the people still depend on traditional herbal medicine suggested by traditional medicine men or traditional health practitioners (THPs) for their primary health care. In this paper 36 herbal formulations of 59 plant species belonging to 40 families to cure 16 common diseases suggested by 32 traditional health practitioners have been reported from the study area. The main aim of the present work was to give information and documentation of medicinal plants used by the tribals of the study area. The interviews, group discussions collected the ethnomedicinal information and give and take methods with tribal medicine men and traditional health practitioners mainly belonging to Bhil, Garasia, Kathodia and Meena tribes of the study sites. The present study was carried out in the tribal-dominated areas of Rajasthan such as Udaipur, Dungarpur, Banswara, and part of Sirohi and Chittorgarh districts.

INTRODUCTION: Search for external health longevity and to seek a remedy to relieve pain and discomfort promoted man to develop diverse ways and means of health care. The early man explored his immediate natural surroundings and tried many things like plants, animals, minerals and developed a variety of therapeutic agents and tonics. Over millennia that followed the most effective agents among them were selected by the process of trial and error empirical reasoning and even after experimentation. This effort has given in history by the name of medicine.

The knowledge gathered by generations was passed on to the posterity, and this practice is generally termed as traditional medicine or ethnomedicine.

In many eastern cultures as such those of India, China, and Arab world this experience was systematically recorded and incorporated into the regular type left system of medicine that developed and became a part of the 'Materia indica' of the traditional system of medicine of these countries.

The ancient civilization of India, China, Greece, Arabs, and others developed their system of medicine in independent of each other, and all of them were predominantly plant-based. Infect unconscious selection of plants for use, as drugs probably began even before the dawn of settled civilizations. The traditional systems of medicine are very much alive even today over large plants of the globe.

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In India, the world health assembly took note of vital role that traditional medicine play in health service, particularly the remote areas and draw attention to manpower reserve constituted by the traditional practitioners (resolution, WHA 29.72). Since about 80 percent of the total world's population reside in developing countries, about 64 percent of the total population of the world utilize plants as drug, *i.e.* 3.2 billion people ¹.

Almost all villages in India we can find people of any cast or community who treat different diseases with local herbal plants or "jari buttis". These practitioners are known by different names at different places such as Ojha (Jharkhand), Vaidya (Bihar), Vaidhyaraj (Gujarat), Gunies (Rajasthan), Gaitas (Central India), Uche (Assam) and Danga Bhagat in Maharashtra. But by different literature in the world, they are called as tribal doctors, barefooted doctors, herbal doctors, tribal medicine man (TMM), folk healers, folk and layman practitioners. The international organizations such as WHO, IUCN, and WWF have recognized them as traditional health practitioners (THPs) ². These known degree holder doctors posses distinctive an astonishing competence in bone setting, curing skin diseases, asthma, snake bites, and various human-animal ailments. The green waves in the utilization of medicinal plant s all over the world resulted in higher consumption. But researchers are engaged to unfold the multiple uses of the plants especially to document the folk knowledge about the plants.

Although good attempts have been made by various scientists in the field of this emerging branch of the botany especially in Rajasthan ^{3, 4, 5, 6, 7, 8, 9, 10, 11}, but the picture is dismal when we turn our attention towards the ethnomedicinal plants and the role of traditional health practitioners (THPs) of remote areas of this state of Rajasthan, particularly in the study area. Keeping in mind Rio Earth Summit (1992) suggestions, that indigenous (Ethnic) people and other communities have a vital role in the environment because of their knowledge about plants and traditional practices in the developing countries. Given above, the present authors ventured to undertake this work to unlock the "mystery of wonder drugs" in the starving minds of the poor medicine man and sincere efforts of these barefooted or nondegree holders in the primary healthcare system.

MATERIALS AND METHODS:

Study Area and Dominated Tribal Community: Rajasthan the "Land of Kings" is the largest state with 3, 42, and 239 square kilometers located in the northwest side of India. The major tribal-dominated areas of the state are- Dungarpur, Banswara, Pratapgarh, Udaipur, part of Sirohi and Bhilwara district. These areas are dominated by Bhil, Meena, Garasia, Gameti, Damor, and Saharia, and few communities of Kathodia.

The main income of these tribal's is agriculture, animal husbandry, labor, and work on forest products.

Climate and Vegetation: The state of Rajasthan located in the western part of India having different climatic condition with great fluctuations in the annual rainfall, humidity, and temperature. The climate of this area can be broadly classified into four distinct seasons, *i.e.* pre-monsoon, the monsoon, post-monsoon, and winter.

Average rainfall varies throughout the state. The western part consist of desert receives an average rainfall of 100mm. The south-eastern part receives an annual rainfall of 650mm. The state receives maximum rainfall from July to September in monsoon.

The temperature of the state also varies from 25-45 °C. The maximum 25-35 °C temperature was recorded from January to March whereas it was maximum from 35-45 °C, sometimes even 50 °C from May to June. The fertile soil of this area sustains mixed xerophytic and mesophytic vegetation. Cultivated crops such as wheat, barley, cotton, maize, mustard, and sugarcane are mainly grown in rabbi seasons.

Data Collection: Ethno-medico-botanical surveys were conducted in the tribal-dominated areas such as Dungarpur, Banswara, Pratapgarh, Udaipur, and part of Sirohi and Bhilwara district to collect intensive information about the medicinal plant's folklore uses **Fig. 1**. The information on folklore uses of plants was elicited with the "traditional health practitioners (THPs)." The data were collected by interviews, observations, and participation with the tribal's. On reaching a village or locality, the report was established with one or two persons.

After that contact was made with other tribal's of the locality. Two types of interviews were conducted, firstly of individual and secondly with a group of individuals **Fig. 2**. Persons were selected

at random on the way or entering in the hut to find of the knowledge of the persons or Gunis or Sadhu or headman or traditional health practitioners (THPs).



FIG. 1: FIELD SURVEY OF AUTHOR WITH TRIBALS



FIG. 2: GROUP DISCUSSION AND INTERVIEW WITH TRIBALS

The traditional health practitioners were taken in a group of 4-5 persons who were well known to the location of thick forest and pointed out the herbs they used to cure various ailments. The THPs are then interviewed orally on the spot to disclose their knowledge about "Jari Buttis" (medicinal plants). To gain faith and confidence as well as proper exposure of THPs, 10 days camps were also organized by the authors. We also imparted in group discussions with THPs held during these camps because these people discuss more freely in groups rather than individually.

During the survey, give and take method was also adopted, *i.e.* if you share your knowledge regarding the medicine then they will open their mouth to discuss on a particular herb.

The information's collected from THPs were cross-checked with that of the other THPs. Similarly, interval interviews and discussions were also repeated with the same THPs to confirm the data. For plant collection, a thorough knowledge of various localities in the areas is quite necessary. Besides this, certain precautions should be taken for the protection of the body from the scorching sun, poisonous plants, and thorns and pickles, etc. these safety measures should be taken during the survey and collection of plants.

RESULTS AND DISCUSSION: As a result of ethno-medico-botanical investigation attempt has been made to collect and compiled the information regarding the herbal formulations used by the THPs for the treatment of various diseases in the study area. In the ethnomedicinal survey 36 herbal formulations of 56 plants species belonging to 37 families to cure 16 diseases suggested by 32 traditional health practitioners were reported from the study area **Table 1 and 2**.

They are the persons who take care of most of the common ailments of the natives and the villagers of their home society. They are very particular about the stage at which the medicinal plants to be collected. They suggested that pre-flowers, flowering and post-flowering stages of plants bear great significance about their medicinal efficacy and drug value changes with time of growth and maturity. They are also particular about the locality of plants in the forest.

Their method of preparation of formulation and administration is also unique **Fig. 3, 4, 6, 7**. They use earthen pot **Fig. 5**, cow dung cake as fuel for cooking herbal mixtures. Washing of certain drugs with cow urine and mixing it with cow milk, all have some significance, *i.e.* not known to other schools of traditional medicine.



FIG. 3: SEPARATION OF PLANT PARTS FOR FORMULATION



FIG. 4: PREPARATION OF HERBAL MEDICINE



FIG. 5: EARTHEN POT USED TO PREPARE MEDICINE



FIG. 6: PREPARATION OF MIXTURE OF MEDICINE



FIG. 7: THP PREPARING HERBAL MEDICINE



FIG. 8: SUN DRYING PROCESS TO DRY PLANT PARTS

Another interesting feature of the mode of treatment of these THPs was that they correlate the shape and structure of plants, i.e. roots, stem, and leaves. They believe that nature has created different plants according to different body organs to treat them. It was also observed that before collecting the plants, the THPs utter prayer to the "Sun" and also to the plants requesting for its efficacy and quick relief to the patient. Secondly, they also believe in the treatment of freshly plucked plants **Fig. 8**.

It was also reported that these tribal people usually not disclose their knowledge about the uses of plant wealth except for the medicinal properties of the plant. In general, they maintain the secrecy about the use of certain medications *e.g.* medicine of refractive diseases of women, contraceptive and herbs for causing abortion, *etc.* because there is believe that the medicine will lose their healing power if too many heads known about it. It was important to note that for the treatment of various human ailments, the plant used singly or in the

combinations of various plants with the mixture of other substances such as water, salts, minerals and jiggery, etc **Fig. 6**. The formulations suggested by

the THPS for the treatment of various common human ailments with plants, plant parts, doses, and name of particular THPs are as follows:

TABLE 1: SHOWING THE HERBAL FORMULATIONS AND THEIR DOSES SUGGESTED BY THPS FOR THE TREATMENT OF VARIOUS COMMON DISEASES

Name of disease	S. no.	Name of plants	Plant parts used	Quantity taken	Formulation	Dose	Name of THP
Asthma	1	A. <i>Boerhaavia diffusa</i>	Root	100 gm	<i>Calotropis procera</i> leaves are spread in an earthen pot. Mineral salt and <i>Boerhaavia diffusa</i> roots are added in it. The process is repeated until the pot is filled." Bhasm" is prepared and filtered. <i>Encicostemma hyssopifolium</i> powder is added to it	½ TSF with lukewarm water every morning for 15 days	Duleh Singh
		B. <i>Calotropis procera</i>	Yellow leaves	7 gm			
		C. <i>Encicostemma hyssopifolium</i>	Whole plant	50 gm			
		D. mineral salts		10 gm			
	2	A. <i>Caesalpinia bonduc</i>	Leaves	1.0 kg	A decoction of A-E is prepared until two liter water is left. This decoction is filtered and 50 gm gur is added to it. The mixture is stored in glass bottles	2 TSF twice a day for 1 month	Prithvi Raj Suthar
		B. <i>Solanum xanthocarpum</i>	Roots	250 gm			
		C. <i>Achyranthes aspera</i>	Roots	250 gm			
	3	D. <i>Justicia adhatoda</i>	Leaves	250 gm	A decoction of A, B, C is prepared in earthen pot and covered with wet soil. It is filtered with cloth and stored in a glass bottle.	(I). 1 TSF once a day for 3 days (II). 2 TSF once a day for 4 month	Surajmal Raval
		E. Water		8 liter			
		F. Gur		500 gm			
A. <i>Tinospora cordifolia</i>		Stem	100 gm				
4	B. Mineral salts			100 gm	Plant parts of A-C are ground to fine powder and filter through a cloth	One TSF with honey in the morning followed by formulation 5 th in the morning	Ram Lal
	C. Water			2 liter			
	A. <i>Tinospora cordifolia</i>	Leaves	In equal amount				
B. <i>Justicia adhatoda</i>	Leaves						
C. <i>Achyrenthes aspera</i>	Leaves, Flowers						
5	A. <i>Smilex macrophylla</i>	Stem	100 gm	A and B are powdered then filtered by cloth. Halwa is prepared by mixing <i>Triticum aestivum</i> flour and ghee.	Halwa is eaten twice a day for 10 days	Smt. Pratap Bhai	
	B. <i>Acacia catechu</i>	Gum	100 gm				
	C. <i>Triticum aestivum</i>	Grains flour	200 gm				
	D. Ghee		100 gm				

Baldness	6	A. <i>Calotropis procera</i> B. <i>Achyranthes aspera</i> C. <i>Curcuma longa</i> D. <i>Zingiber officinalis</i>	Root Root Rhizome Rhizome	1kg. 250 gm 250 gm 250 gm	A, B, C, and D plant parts are slowly burnt in an earthen pot. Then this bhasm is crushed and filtered to make a fine powder	1/4 TSF is taken with honey twice a day for 15 days	Udai Singh		
	1	(I). A. <i>Euphorbia caudicifolia</i> B. <i>Calotropis procera</i> C. <i>Citrus limon</i> D. <i>Trachyspermum ammi</i>	Latex Latex Juice Seeds	100 gm 100 gm 100 gm 200 gm	A thick paste is prepared to A, B, C and D. Gur is boiled to get Gur water. Then chapatti is prepared from the flour of A and B by baking only from one side. Leaves are boiled in water in water to prepare neem water	The thick paste is applied on the head for 2-3 hours. Then wash with Gur water followed by neem water. One side backed chapatti is placed on the head for three days. After removing it, <i>Cocos nucifera</i> oil is applied. This treatment is continued for 6 months	Nathoo Lal		
		(II) Gur	Flour	1/4 kg.					
		(III) A. <i>Triticum aestivum</i>	Flour	1/4 kg.					
		B. <i>Phaseolus radiata</i> (iv) <i>Azadirichta indica</i>	Leaves	1/4 KG					
	Dysentry	1	A. <i>Aegle marmelos</i> B. <i>Helicteres isora</i>	Fruit Pulp(dried) Fruit(dried)	250 gm 250 gm	Both plant parts are ground to obtain a powder	2 TSF powder is taken in the morning and evening for 3 days.	Lakhma Ram	
		2	A. <i>Moringa oleifera</i> B. <i>Bauhinia racemosa</i> C. <i>Butea monosperma</i>	Gum Stem bark Stem bark	In equal quantity	All parts are ground to make a fine powder	One TSF powder is taken twice a day for two days		
		3.	A. <i>Ampelocissus arnotiana</i>	Root	1 gm	Root is ground finally to make powder then	The curd is eaten a day for 10 days		
		1.	B. Curd A. <i>Woodfordia fruticosa</i> B. <i>Solanum xanthocarpum</i> C. <i>Justicia adhatoda</i> D. <i>Acacia nilotica</i> E. <i>Zingiber officinale</i> F. <i>Piper longum</i> G. Water	Flowers Whole plan Leaves Stem bark Rhizome Fruit -	50 gm 1 k1kg 1 kg 1kg 1kg 10 gm 10gms 16 liter	mixed in the curd Plant parts of A, B, C, and D are boiled till 1/4 water is left to obtain decoction The decoction is boiled further till its viscous form. E and F are powdered and mixed in viscous and then tablets are prepared from this mixture	2 tablets are taken twice a day with lukewarm water		Jagdish Meena
			2	A. <i>Calotropis procera</i> B. <i>Curcuma longa</i> C. <i>Calotropis procera</i>	Gynostegium Rhizome Leaves	One Small piece One A pinch	A, B, and D is put on <i>C. procera</i> leaf and burnt on fire and finely ground to make		One TSF powder is taken in the morning and evening with water for

Malaria	1	D. Common salt A. <i>Enicostemma hyssopifolium</i> B. <i>Tinospora cordifolia</i> C. Gur	- Whole plant Stem -	50 gm 50 gm 100 gm	powder A and B is ground properly to get powder and mixed Gur to it. Then one gm tablets are prepared from this mixture	two days. One tablet is taken thrice a day for 3 days	Rodi Lal
	2	A. <i>Calotropis procera</i> B. <i>Tinospora cordifolia</i> C. <i>Calotropis procera</i> D. <i>Zingiber officinale</i> E. <i>Curcuma longa</i> F. <i>Azadiricta indica</i> G. Gur	Root Stem Gynostegium Rhizome Rhizome Leaves -	In equal amount	All plant parts are ground to prepare powder. Then ware is added to moisture the powder. Tablets 2 gm each are prepared for this mixture	2 tablets are taken on the incidence of fever and 2 tablets twice a day are taken for 3 days	
Kidney stone	1	A. <i>Citrus medica</i> B. Shell (Codi)	Juice -	250 ml. One	One shell is put into the juice of <i>C. medica</i> and allowed to remain in as Such position for 10 days	2 TSF mixture is taken twice a day	Tej Das Meena
	2	A. <i>Butea monasperma</i> B. <i>Euphorbia microphylla</i> C. Sugar (Mishri)	Flowers Whole plant -	In equal amount	Both plants materials are ground. Then sugar is added to it as desired	One TSF is taken with water twice a day for a week	Mangi Lal
Eczema	1	A. <i>Cassia tora</i> B. <i>Capparis deciduas</i> C. <i>Azadirachta indica</i> D. <i>Citrus limon</i>	Seeds Young leaves Young leaves Fruit juice	50 gm 20 gm 10 gm 50 gm	A B and C are ground to make powder. This powder is mixed with <i>C. limon</i> juice to prepare a paste.	The paste is applied on affected parts once a day for 15 days	Johr Singh
	2	A. <i>Clerodendrum phlomidis</i> B. <i>Azadiricta indica</i>	Shoot Leaves	250 gm 250 gm	(I)Neem water is obtained by boiling leaves in water. (II) Plant parts of A and B are ground and fried in ghee	After washing the affected parts by Neem water, the fried mixture paste is applied once a day for 7 days	
	3	A. <i>Plambago zeylanica</i> B. <i>Cocos nucifera</i> C. Battery cell black powder	Root Oil -	10gm 5 ml. 10 gm	A and C are ground to make powder then oil is mixed to moisture	The paste is applied on the affected part once a day till cured	Tej Das
External tumor	1	A. <i>Cassia tora</i> B. <i>Achyranthes aspera</i> C. <i>Argemone maxicana</i> D. Water	Seeds Seeds Seeds -	10 gm 5 gm 10 gm 50 gm	All plant parts are ground to prepare a paste	The paste is applied to affected parts once a day	Saiba Ram
	2	A. <i>Balanites aegyptiaca</i>	Fruit Stem bark	150 gm 100 gm	All plant parts	The paste is applied to an	Devi Lal

Migraine	1	B. <i>Maerua arenaria</i>	Root	100 gm	are ground to prepare a paste	affected part twice a day for 4-5 days	Tej Das
		C. <i>Corallocarpus epigaeus</i>	-	100 gm			
Piles	1	D. Water			Both parts of plants are dried under the shade and ground to obtain a fine powder This powder is filtered through thick cloth	This powder is inhaled through the nose at the time of headache	Tej Das
		A. <i>Plumbago zeylanica</i>	Roots	In equal amount			
Piles	1	B. <i>Calotropis procera</i>	Leaf		(I)Fresh fruits are crushed with water and juice is filtered. (II)Roots are rubbed on stone with water to prepare a paste	(I)Juice is taken before meals for 10 days. (II)The paste is applied on piles for 10 days	Dula Ram
		A. <i>Azadirachta indica</i>	Fruits	10 gm			
Piles	2	B. <i>Argemone maxicana</i>	Root	11 10 gm	A, B and are ground to make fine powder	One TSF powder is taken in the morning and evening with water twice a day for 10 days	Gokul Ram
		A. <i>Justicia adhatoda</i>	Leaves dried	50 gm			
Piles	3	B. <i>Holarrhena antidysenterica</i>	Leaves dried	50 gm	(I)Gum is moistened at night. (II)Roots are rubbed on stone with water to obtain a paste	(I)The moistened gum is taken with mishri in the morning (II)The paste is applied on piles for 4-5 days	Smt. Lambdi Bai
		C. Sugar crystals (Mishri)	-	100gm			
Paralysis	1	A. <i>Stercularia urens</i>	Gum	5 gm	(I)Oil is prepared by grinding and mixing <i>S.acmella</i> roots in <i>M.indica</i> seed oil	(I)The affected Part is washed with B and massaged with <i>M.indica</i> oil.	Mangi Lal
		B. <i>Trichosanthes bracteata</i>	Roots	5 gm			
Paralysis	1	C. Sugar (Mishri)	-	5 gm	(II)A decoction is prepared from B and mineral salts in water	One TSF is taken twice a day for 15 days	Udai Singh
		A. (I) <i>Madhuca indica</i>	Seed oil	50 gm			
Rheumatism	1	(II) <i>Spilanthus acmella</i>	Roots	10gm	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
		B. (I) <i>Tinospora cordifolia</i>	Stem	50 gm			
Rheumatism	1	(II) Mineral salt	-	3 gm	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
		A. <i>Anogeissus latifolia</i>	Leaves	100 gm			
Rheumatism	1	B. <i>Celastrus paniculatus</i>	Seeds	2 gm	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
		C. <i>Azadirachta indica</i>	Leaves	100 gm			
Rheumatism	1	D. <i>Justicia adhatoda</i>	Leaves	50 gm	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
		E. <i>Calotropis procera</i>	5 leaves	50 gm			
Rheumatism	1	F. <i>Zizyphus nummularia</i>	Leaves	1 kg	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
			Stem bark	1 kg			
Rheumatism	1		Flowers	1/2 gm	A-H is placed in an earthen pot, adds 10 liter water and placed under the soil for 4-5 days. Take out ark from it and fill in the glass bottle	One TSF is taken twice a day for 15 days	Udai Singh
			-	10 liter			

		G. <i>Madhuca indica</i>	-					
		H. Gur						
		F. Water						
	2	A. (I) <i>Moringa oleifera</i>	Stem bark	100 gm	A powder is prepared by grinding dried parts of (I), (II), (III)	(I)One glass decoction is taken in the morning and evening for 10 days	Smt. Pratapi Bai	
			Root	100 gm				
		(II) <i>Vitex nigundo</i>	Root	100 gm				
		(III) <i>Widhaqnia somnifera</i>	Seeds	100 gm	B. (I), (II), (III) is fried in (IV), then oil of (V) and powder of (VI) is mixed	(II)Massage with B in the morning and evening for 10 days		
		B. (I) <i>Ricinis communis</i>	Fruits	100 gm				
		(II) <i>Calotropis procera</i>	Fruits	100 gm	A decoction of A is prepared of one TSF powder in two glass of water till half remains			
		(III) <i>Datura stramonium</i>	Seed oil	500 ml				
		(IV) <i>Brassica campestris</i>	Seed oil	25 ml				
		(V) <i>Celastrus paniculatus</i>	Rhizome	5 gm				
		(VI) <i>Curcuma longa</i>						
Ringworm	1	A. <i>Amorphophallus campanulatus</i>	Root(Corm)	10 gm	The paste is prepared from A, B, C and D. This paste is kept in a copper utensil for one hour	Affected part is first washed with water and paste is applied on it once a day for a week	Suraj Mal	
		B. <i>Corallocarpus epigaeus</i>	Root	10 gm				
		C. Curd	-	50 gm				
		D. Alum powder	-	20 gm				
	2	A. <i>Trichosanthes bracteata</i>	Root	5 gm	The paste is prepared from A, B, C, D, and E	The paste is applied on the affected part once in a day for a week	Hem Raj	
		B. <i>Corallocarpus epigaeus</i>	Kernel	One kernel				
		C. <i>Azadirachta indica</i>	Seeds	5 gm				
		D. Curd	-	150 gm				
		E. Alum powder	-	5 gm				
	1	A. <i>Enicostemma hyssopifolium</i>	Whole plant	10 gm	A decoction of A, B, C, and D is prepared till half of the water remains	One TSF is given thrice a day for five days	Bhagwan Lal	
		B. <i>Tinospora cordifolia</i>	Shoot	10 gm				
		C. <i>Azadirachta indica</i>	Leaves	5 gm				
		D. <i>Calotropis procera</i>	Leaf	1 leaf				
Typhoid		E. Water	-	1 liter				
	2	A. <i>Corallocarpus epigaeus</i>	Root	Equivalent to one maize grain	Root is cut into small portions equivalent to maize grain.	This part of the root is eaten till recovery This treatment is given for three days	Toil Ram	
						The paste is tied in cloth and juice of it is dripped in the ear in the		
Tooth-	1	A. <i>Tridax procubens</i>	Leaves ,	In equal amount	A and B are ground on a stone	dripped in the ear in the	Smt. Rodi Bai	
		B. <i>Solanum</i>	Root					

ache	<i>xanthocarpum</i>				slab to get a paste.	morning for two days	
2	A. <i>Xanthium strumarium</i> B. <i>Spilanthus acmella</i>	Root Flower	10 gm One flower		-	(I)Tender root is cleaned and chewed twice a day (II)One small piece of the flower is placed in the cavity of the affected tooth	Varda Ram
Ulcer	1	A. <i>Acacia nilotica</i> B. <i>Cynodon dactylon</i> C. <i>Lawsonia inermis</i> D. Sugar crystals (Mishri)	Dried leaves Dried leaves Dried leaves -	In equal amount	A, B, C, and Dare mixed and ground to make a fine powder. A glass of water is added to it	The mixture is taken twice a day for five days	Rodi Lal
	2	A. <i>Embllica officinalis</i> B. <i>Abrus precatorius</i>	Bark, Leaves	500 gm 500 gm	A fine powder is prepared by A and B.	½ TSF is taken with honey twice a day	Bhaira Ram Meena

TABLE 2: SHOWING THE LIST OF MEDICINAL PLANTS USED FOR HERBAL FORMULATIONS BY HEALTH PRACTITIONERS (THPs) OF STUDY THE AREA

S. no.	Botanical name	Local name	Family	Plant parts used	Diseases
1	<i>Abrus precatorius</i>	Chirmi	Leguminosae	Root, leaves	Cough, tooth-ache
2	<i>Acacia catechu</i>	Kher	Leguminosae	Leaves	Asthma
3	<i>Acacia nilotica</i>	Desi babul	Leguminosae	Leave, stem bark	Ulcer, cough
4	<i>Achyranthes aspera</i>	Andhijara	Amaranthaceae	Whole, seeds	Asthma, external tumor
5	<i>Aegle marmelos</i>	Billa	Rutaceae	Fruits	Dysentery
6	<i>Amorphophallus campanulatus</i>	Surankand	Araceae	Root	Rheumatism, eczema
7	<i>Ampelocissus arnociana</i>	Khatolimdo	Vitaceae	Root	Bone fracture
8	<i>Anogeissus latifolia</i>	Dhawada	Combrataceae	Gum, leaves	Rheumatism
9	<i>Argimone maxicana</i>	Satyanashi	Papaveraceae	Roots, seeds	Piles, external tumors
10	<i>Azadirachta indica</i>	Neemdo	Meliaceae	Leaves, fruits	Malaria, piles, eczema
11	<i>Balanites aegyptiana</i>	Hingot	Zygophyllaceae	fruits	External tumors
12	<i>Bauhinia racemosa</i>	Jhinjhiyo	Fabaceae	Stem bark	Dysentery
13	<i>Boerhaavia diffusa</i>	Hatadi	Nyctaginaceae	Whole plant	Asthma
14	<i>Brassica campestris</i>	Harbo	Brassicaceae	Seeds	rheumatism
15	<i>Butea monosperma</i>	khankhara	Fabaceae	Stem bark, flowers	Kidney stone, dysentery
16	<i>Calotropis procera</i>	Aakada	Asclepiadaceae	Latex, roots, flowers	Malaria, kidney- stone, dysentery
17	<i>Caesalpinia bonduc</i>	katkaranj	Fabaceae	Seeds, leaves	Fever, rheumatism, stomach-ache
18	<i>Capparis decudua</i>	Ker	Caparidaceae	Shoot	Eczema
19	<i>Cassia tora</i>	Punwad	Fabaceae	Leaves, seeds	Fever, stomach-ache, rheumatism
20	<i>Celastrus paniculatus</i>	Malkangani	Celastraceae	Root, seeds	Cough, asthma, rheumatism
21	<i>Citrus limon</i>	Neembu	Rutaceae	Fruits	Eczema
22	<i>Citrus medica</i>	Bijara neembu	Rutaceae	Root, fruits	Piles, kidney-stone
23	<i>Cocos nucifera</i>	Khopra	Palmaceae	Fruits	Eczema
24	<i>Chorallocarpus epigaeus</i>	Mirchiokand	Cucurbitaceae	Leaves	Jaundice
25	<i>Curcuma longa</i>	Haldi	Zingiberaceae	Rhizome	Asthma, rheumatism, malaria
26	<i>Cynodon dactylon</i>	Doobghass	Poaceae	leaves	Fever
27	<i>Clerodendron phlimidis</i>	Arni	Verbenaceae	Root, leaves	Eczema
28	<i>Datura stramonium</i>	Dhatura	Solanaceae	Fruits	Rheumatism

29	<i>Emblica officinalis</i>	Anwala	Euphorbiaceae	Stem bark	Ulcer
30	<i>Enicostemma hyssopifolium</i>	Naami	Gentianaceae	Root, whole plant	Malaria, stoma -chache
31	<i>Euphorbia caudicifolia</i>	Danda thor	Euphorbiaceae	Shoot, latex	Baldness, tooth-ache
32	<i>Euphorbia microphylla</i>	Chotidudhi	Euphorbiaceae	Whole plant	Kidney stone
33	<i>Helicteris isora</i>	Marodphali	Sterculiaceae	Fruits	Stomach-ache, dysentery
34	<i>Holarrhena antidysentrica</i>	Kuro	Apocynaceae	Stem bark, seeds	Asthma, stomach-ache, dysentery
35	<i>Justicia adhatoda</i>	Adoosa	Acanthaceae	Leaves	Cough, asthma
36	<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Leaves	Ulcer
37	<i>Madhuca indica</i>	Mahuda	Sapotaceae	Flower, seeds	Paralysis, rheumatism
38	<i>Maerua arenaria</i>	Jethivela	Capparidaceae	Root, gum, stem bark	Rheumatism, dysentery
39	<i>Moringa oleifera</i>	Hingwo	Sapotaceae	Fabaceae	Stem bark, gum
40	<i>Phaseolus radita</i>	moong	Fabaceae		Baldness
41	<i>Plumbago zeylanica</i>	Chitraval	Plantaginaceae	Root	Eczema, migraine, ringworm
42	<i>Piper longum</i>	Lavang	Piperaceae		Cough
43	<i>Ricinus communis</i>	Arandee	Euphorbiaceae	Root	Rheumatism
44	<i>Smilax macrophylla</i>	Chobchini	Smilacaceae	Stem	Asthma
45	<i>Solanum xanthocarpum</i>	Bhurengani	Solanaceae	Whole plant	Tooth-ache
46	<i>Spilanthus acmella</i>	Rohin	Asteraceae	Stem bark	Anemia
47	<i>Sterculia urens</i>	Kadaya	Sterculiaceae	Root	Ulcer
48	<i>Tinospora cordifolia</i>	Galvel	Menispermaceae	Stem, leaves	Fever
49	<i>Tracyspermum ammi</i>	Ajma	Apiaceae	Seeds	Cough
50	<i>Triticum aestivum</i>	Gehu	Poaceae	Grain	Ashma, baldness
51	<i>Trichosanthes bracteata</i>	Adarana	Cucurbitaceae	Root, fruits	Baldness ringworm
52	<i>Tridax procumbens</i>	Kalali	Asteraceae	Whole	Jaundice
53	<i>Vitex nigundo</i>	Neergundi	Verbinaceae	Leaves, root	Paralysis, rheumatism
54	<i>Widhania somniferum</i>	Ashwagandha	Solanaceae	Root	Rheumatism
55	<i>Woodfordia fruticosa</i>	Dhatki	Lythraceae	Flower	Diarrhea
56	<i>Xanthium strumarium</i>	Andhya	Asteraceae	The whole plant, root	Tooth-ache, typhoid
57	<i>Zingiber officinalis</i>	Adark	Zingiberaceae	Rhizome	Asthma, cough, malaria
58	<i>Zizyphus numularia</i>	Chan-ber	Rhamnaceae	Leaves, root	Rheumatism

The traditional knowledge available with the ethnic people or tribals plays an essential role in quick and proper identification of natural resources and discussed the scope of ethnobotany^{12, 13}. 70 percent of the wound healing Ayurvedic drugs are plant origin, 20 percent of mineral origin and remaining 10 percent of animal products¹⁴.

India is rich in the history of medicinal plants and its 75 percent of the folk population is still using herbal preparations in the form of powder, extracts, and decoction because these are easily available in nature and the natives have strong faith on traditional knowledge¹⁵. The study of ethnomedical systems and herbal medicines as therapeutic agents of paramount importance are addressing health problems of traditional communities and the third world countries as well as industrialized societies^{16, 17}.

From 1977 onward once the World Health Organization (WHO) gave formal recognition to traditional medicine, there were several valuable publications on its belief. The role of WHO on the organization, promotion, and development of researches on traditional medicine with cooperation among the developing countries was emphasized^{18, 19}. Chaudhary, (1988) reported several examples for plants used by traditional healers²⁰. 30 plants species belonging to 23 families and 30 genera in the treatment of pneumonia, dermatitis, asthma, smallpox, chicken pox, diabetes, leucorrhoea and other ailments by the forest dwellers of Udaipur district –Rajasthan^{8, 10}. 43 medicinal plants species used by the tribes and rural people residing in Kotra region of Udaipur district. These plants are mainly used in the treatment of cough, tumors, fever and other common ailments¹¹.

CONCLUSION: The present study was carried out to unlock and document the mystery of unique herbal formulations prepared by the traditional health practitioners of the tribal dominated area of study sites. During the survey it was reported that these laymen doctors have perfect knowledge about the use of wild medicinal plants.

CONSENT: Consent was taken by all participants in this study, including tribal people and traditional health practitioners or Gunies. The authors have all copyright.

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CONFLICT OF INTEREST: Nil

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