

Traditional medicinal Herbs: An Ethno botanical survey of Morni & Raipur Rani Range, Punchkula (Haryana) India.

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Abstract

Plants and human interaction is the strongest interaction since they are originated on the earth; this interaction had got more attention and appreciation when Sir Jagadish Chandra Bose hypothesised that plant can feel, understands affection and respond to their surroundings. In India, 65% peoples of rural areas used traditional medicinal plants to fulfil their primary health care. Morni hills and Raipur Rani range were the part of our study. There are several mythologies about the Morni and Raipur Rani range urbanisation and traditional healing knowledge. Approximately 553 species of flowering dicots and monocots plants have been reported in Morni. 76 plants species however, found to be ethno botanically significant and frequently used by the natives in the study areas. A natural salty water body has also reported in the same study area; which was used to treat various health ailments. Local traditional physician also claimed to treat several lethal diseases including cancer. Traditional herbal medicine may be work as a blueprint for modern scientific studies and help to improve human health with minimal side effects.

Key words

Salty water bodies; traditional physicians; traditional medicinal herbs; king of Nahan; 553 plant species in Morni Range, 76 traditional medicinal herbs.

Introduction

Plants and human interaction is the strongest interaction since they are originated on the earth; this interaction had got more attention and appreciation when Sir Jagadish Chandra Bose hypothesised that plant can feel, understands affection and respond to their surroundings. However, in India some plant species i.e. Tulsi (*Ocimum tenuiflorum*), Banyan tree (*Ficus beghalensis*), Peepal (*Ficus religiosa*), Amla (*Phyllanthus emblica*) have been worshiped and employed for sacred rituals from ancient era.

As per the estimate of the WHO, the traditional medicine obtained from plants is an important contributor towards providing health benefits and cover nearly 80% population of world. In India, 65% peoples of rural areas used traditional medicinal plants to fulfil their primary health care[1].

Indian State Haryana, had have an enriched biodiversity, especially in Punchkula district's Morni hills range and Raipur Rani range that were a part of our study (see *fig. 2* and *fig. 3*). Morni hills (650-1330 meter above from sea level, 30°55' to 34°45' N latitude and 70°00' to 75°15' E longitude) are a part of Siwaliks range, situated about 50 km from Chandigarh in Panchkula district whilst, Raipur Rani range

laid in the South east of Morni Range, 450-780 meter altitude; though, the range majorly covered by plains.

Approximately 553 species of flowering dicots and monocots plants have been reported in Morni [2]. The soil of this hugely diverse generally gravel, silt in hilly regions and sandy to loamy as well as more fertile in plains; the soil of this area found to be highly sodic. In this area villagers and tribes basically rely on the local herbs for their daily needs including food, fodders and traditional medicines. During the survey, they told us, how they used locally available herbs for nutrition, healing and to curing chronic disorders; additionally they are also used these herbs during scarcity for nutrition i.e. *Moringa oleifera* flowers used for making Rayata (a sour curry of buttermilk) whenever conventional vegetables are not available. As usual, remote areas natives are highly depends on the hilly region flora for their daily needs; however, Haryana government has been provided drinking water supply, transport, electricity, water reservoir for castles and agriculture purposes. Bhudi block is one of the four block of Morni range (see *fig.1*), the block further categorised into 4 small unites known as beats, namely Tipra beat, Chaplana beat, Bhedna and Bhudi beat followed by smallest unites compartment i.e. 228, 227, 224, 222, 216 and so on, the Tipra beat is found to be one of the most highest peak of Morni range, reported as 1330-1350 meter altitude. Natives generally grows *Zingiber spp* and sell its dried roots known as Sonth (Medically important in Ayurveda).

A brief History of Study Area

It is believed that the area name Morni came after Queen Morni, who once ruled this area vigorously perhaps before British era in India. The area Raipur Rani however had a different story, according to the tale “ The King and queen of Nahan (Himachal pradesh) was childless until a *Vaidh* (traditional doctor) treat them for infertility; consequently, they blessed by a baby boy after several years of marriage. The king hailed and praise to *Vaidh* for their successful treatment and donate him several Bhoj (Villages) of the Raipur Rani area as a reward. The fort of *Vaidh* existed yet, in Raipur Rani’s compartment-30 in decayed condition (see *fig. 5*).



Fig.5. A panoramic view of the Vaidh 's fort, at the top of hill

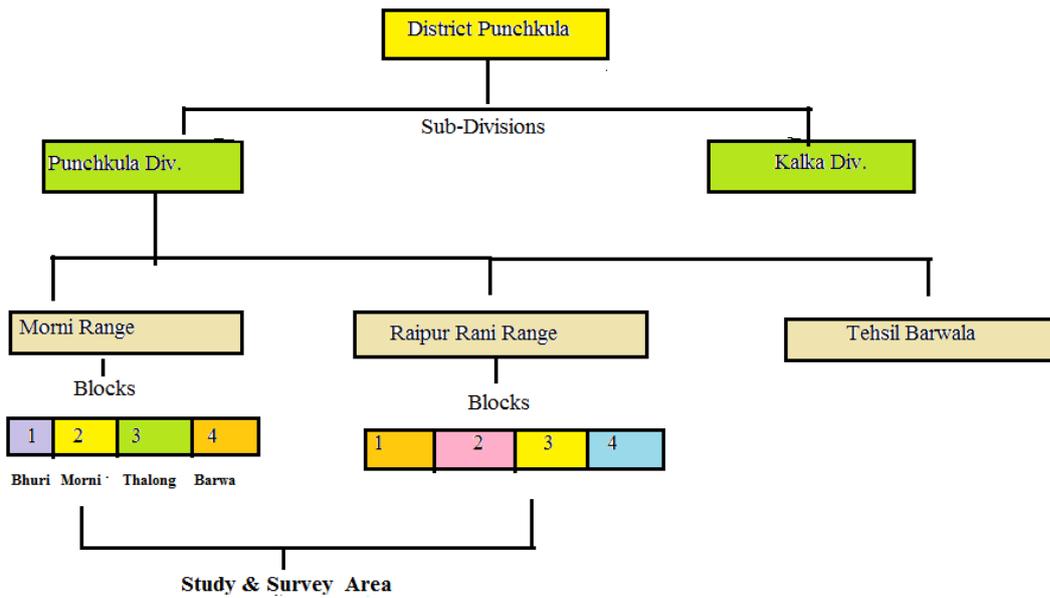


Fig. 1. Schematic Representation: Division, sub-division, Range and Blocks of Punchkula District.

Methodology

To analyse the traditional knowledge of medicinal herbs, numerous natives (n = 500-600) living in the area of Morni and Raipur Rani volunteered to participate in the study. All participants were randomly and separately recruited and underwent a questionnaire-based interview; their traditional herbal medicine uses reported in a tabular form (Table no. 1). Farther more the report compared with the previously published articles. Finally, all medically important collected and preserved by standard method. All medicinal herbs were also verified for vernacular name and medicinal uses by the Morni and Raipur Rain range native and Rakhas (local forest care taker, hired by Forest Department of Punchkula). Additionally, in Raipur Rani range's Sherjaun village, compartment – 24, a local 'Vaidh' (traditional medicine practitioner) named was Indrajeet Gaur shared his -



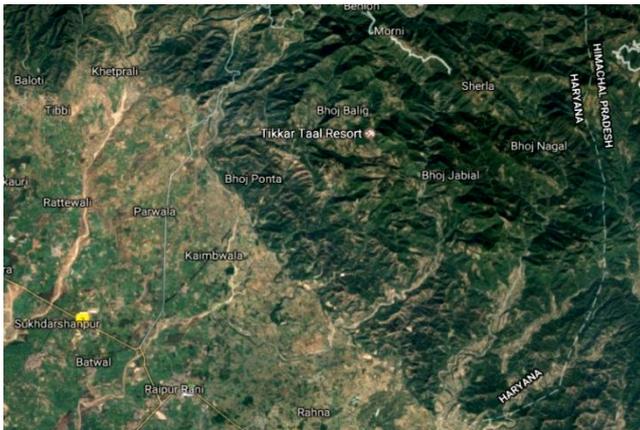
Fig. 4. A Sodic (Salty) water bodies (a, b) in Raipur Rani' remote area. Local peoples carrying salty water in plastic vessels from salty water bodies for medicinal uses.

-experience and knowledge to treat approximately 17 chronic to lethal diseases (Fig. 4 and table. 1). In the same area, compartment -157, at 550-600 meter altitude, N 36° 33'4.2" E 77° 8'34.7", a natural salty water body also

reported by our team (see image. 2); the water body was quite popular among the locals as well as nearby villages for medicinal purposes, they believed that salty water tend to cure kidney stone, gall stone, digestive disorders and cancer, if consumed regularly.



Figure 2. A detailed Map of Haryana



(e)



(f)

Figure 3. An Aerial view of Raipur Rani Range (e) Morni Range ‘s Bhuri and Tipta beat (f) (courtesy and modified from the Astrium, digital glob, google map , 2017).

S. N.	Latin name of species	Local vernacular name	Range/ Area	Part used	Uses
1.	<i>Ficus religiosa</i> & <i>Ficus benghalensis</i>	Peepal & Burgud or Bud	Raipur Rani	Dried Aerial root and bark	Infertility
2.	<i>Phyllanthus niruri</i>	Hajar Dana	Raipur Rani	Seeds	Infertility
3.	<i>Calotropis gigantea</i>	Aak	Raipur Rani	Latex or milky exudates used externally	Piles

4.	<i>Cissampelos pareira</i>	Path	Raipur Rani	Leaves extract used externally	Piles
5.	<i>Boerhavia diffusa</i>	Punarnava	Raipur Rani	Root extract	Antidote for snake bite and Jaundice
6.	<i>Bryophyllum pinnatum</i>	Patherchata	Morni & Raipur Rani	Leaves	Gall stone and kidney stone
7.	<i>Cannabis sativa</i>	Bhaang	Raipur Rani	Root extract	Abdominal pain and digestive disorders
8.	<i>Datura metel</i> & <i>Datura innoxia</i>	Kala datura and Safed Dhatura	Raipur Rani	Seeds and root taken in powder form in micro gram	All type of Cancer (seeds are highly toxic so special caution must be taken before use)
9.	<i>Tinospora cordifolia</i>	Giloy	Morni & Raipur Rani	Stem, leaves extract	All type of fever
10	<i>Justicia adhatoda</i>	Bassa	Morni & Raipur Rani	Leaves	Cough and cold
11.	<i>Helicteres isora</i>	Marorphali	Morni	Root and fruits	Dysentery, diarrhoea, abdominal cramp and colic
12.	<i>Moringa oleifera</i>	Shejan	Morni	Flower and fruit	Edible, nutritious
13.	<i>Zanthoxylum alatum</i>	Timur	Morni	Stem and fruits	Tooth ache and fever
14.	<i>Abrus precatorius</i>	Ratti	Raipur Rani	Roots and Seeds	Root and seed paste applied externally for paralysis treatment.
15.	<i>Acacia catechu</i>	Kher	Raipur Rani	Bark	Sore throat and cough
16.	<i>Achyranthes aspera</i>	Puthkanda ghass/ Charchita	Raipur Rani	Whole plant	Gynaecological disorders and ease to labour pain
17.	<i>Berberis lycium</i>	Kasmodo	Morni	Whole plant	Gastrointestinal disorders
18.	<i>Agave cantula</i>	Ram Bans	Morni	Whole plant	For fibre
19.	<i>Aegle marmelos</i>	Beli	Morni & Raipur Rani	Fruits	Diarrhoea & dysentery
20.	<i>Artemisia scoparia</i>	Dona	Morni	Leaves	Laxative and insect repellent
21.	<i>Asparagus racemosus</i>	Shatawari	Morni & Raipur Rani	Roots	Herb tonic, root juice with honey cures dyspepsia. Root oil cures nervous and rheumatic disorders.
22.	<i>Bacopa monnieri</i>	Jangali- Brahmi	Morni & Raipur Rani	Whole plant	Memory disorders, used in epilepsy, insanity and other nervous

					diseases.
23.	<i>Bauhinia purpurea</i>	Kachnari	Morni	Roots, Flower Pods, Bark, buds,	laxative, anthelmintic. Wood used for agricultural implements.
24.	<i>Bauhinia vahlii</i>	Maljan	Morni	Leaves	Fodder
25.	<i>Berberis aristata</i>	Kashmal/ Daruhaldi	Morni	Roots, Stem, Berries	For intermittent fevers and yellow dye
26.	<i>Diplocyclos palmatus</i>	Shivlingi	Morni	Seeds	Female infertility; especially helps to conceive
27.	<i>Barleria cristata</i>	Bansla	Morni	Roots, Leaves	Respiratory disorders
28.	<i>Zingiber officinale</i>	Adraak/ Dried form known as sonth	Morni	Root/tuber	Highly medicinal, powder used to treat several ailments i.e. obesity, indigestion, stomach irritation, inflammation etc.
29.	<i>Centella asiatica</i>	Mandukpami	Morni	Leaves	Neurological disorders and memory loss.
30.	<i>Centratherum anthelminticum</i>	Kali Jiri	Morni	Fruits	Fruits used as an anthelmintic
31.	<i>Costus speciosus</i>	Keu/ Kushta	Morni	Rhizomes	Used as a tonic
32.	<i>Crataeva nurvala</i>	Barna/ Varun	Morni	Bark	Sacred and bark infusion used to cure kidney stones and hepatic ailments
33.	<i>Digera muricata</i>	Taandla	Morni & Raipur Rani	Tender shoots,	For urinary disorders
34.	<i>Dioscorea belophylla</i>	Turar	Morni & Raipur Rani	Roots, Leaves	Tuber is abortifacient
35.	<i>Prosopis cineraria</i>	Jund	Raipur Rani	Stem and bark	Used as sacred wood to perform Homam
36.	<i>Eclipta alba</i>	Bhringraj	Morni	Leaves	antiseptic, gives a stain useful for blackening the hair. Used for washing the wounds of cattle.
37.	<i>Emblica officinalis</i>	Amla	Raipur Rani	Fruits	Fruit astringent, cooling, diuretic, laxative, rich in vitamin C, used in hair dyes, shampoos. Also eaten raw, pickled or in jams.
38.	<i>Citrus limon</i>	Galgal	Morni	Fruits	Edible, pickle
39.	<i>Euphorbia hirta</i>	Dudhi	Morni	Foliage	Useful in piles and dysentery
40.	<i>Ficus glomerata</i>	Goolar	Morni	Fruits & latex	Latex used to cure piles, fruits edible
41.	<i>Hemidesmus indicus</i>	Anantmoool	Morni	Roots	urinary tract problems and skin problems.
42.	<i>Mallotus philippensis</i>	Kamila	Morni	Bark, Fruit	Fruits used for skin diseases, it is also used as like vermilion

43.	<i>Martynia annua</i>	Gokhru/ Bhagnakhi	Morni	Fruit and roots	Antidote for snake bite, inflammations.
44.	<i>Physalis minima</i>	Rasbhari, Papotan, Bambholan	Morni & Raipur Rani	Fruit	tonic and appetizer
45.	<i>Solanum erianthum</i>	Ban Tamakhu	Morni	Roots, Leaves	Leaves mild sedative, sometime smoked as tobacco
46.	<i>Solanum nigrum</i>	Makoe	Morni & Raipur Rani	Foliage, Fruits	fruits edible, appetizer.
47.	<i>Terminalia bellirica</i>	Baheda	Morni & Raipur Rani	Fruits	Astringent and laxative, used for indigestion
48.	<i>Terminalia chebula</i>	Harad	Morni & Raipur Rani	Fruits	Digestive disorders
49.	<i>Terminalia arjuna</i>	Arjun	Morni	Bark and fruits	Bark and fruits employed for cardiac ailments
50.	<i>Withania somnifera</i>	Asgandha	Raipur Rani	Roots, Leaves, Fruits	Fever and general weakness
51.	<i>Woodfordia fruticosa</i>	Dhau	Morni	Bark, Flowers	bark and flowers are used in dysentery
52.	<i>Butea monosperma</i>	Dhak	Raipur Rani	Leaves and flowers	Leaves used as disposable plate and flowers used as dye
53.	<i>Syzygium cumini</i>	Jammun	Raipur Rani	Fruits and leaves	Fruits used as anti-diabetic.
54.	<i>Vachellia nilotica</i>	Kikkar	Morni & Raipur Rani	Stem	As a tooth brush to relive in toothache
55.	<i>Prosopis juliflora</i>	Muskad kikkar/ Vilayati Kikkar	Morni & Raipur Rani	Stem	As an Adulterant of kikkar (spine is said to be very painful)
56.	<i>Lannea coromandelica</i>	Jhingan	Morni & Raipur Rani	Leaves	As a fodder
57.	<i>Melia azadirachta</i>	<i>bkain</i>	Raipur Rani	Leaves	Sometime as fodder for goats, however it is said to be toxic
58.	<i>Euphorbia royleana</i>	<i>Siyuri</i>	Morni	whole	Sometime local used it to indicator of Shilajeet (an Ayurvedic formulation) occurrence
59.	<i>Azadirachta indica</i>	<i>Neem</i>	Raipur Rani	Whole plant	Blood disorders, antidote of snake bite, tonic, bark used for wounds etc.
60.	<i>Ficus mollis</i>	<i>Dudhala</i>	Morni	Leaves	Fodder
61.	<i>Cassia tora</i>	<i>Panwar</i>	Morni	Leaves	Leaves used against insect bite.
62.	<i>Diospyros melanoxylon</i>	<i>Kendu</i>	Morni & Raipur Rani	fruits	Fruits used as the fish poison
63.	<i>Holoptelea integrifolia</i>	<i>Chilbil/ Papadi</i>	Morni & Raipur Rani	Bark	Bark used as an antidiabetic
64.	<i>Cassia fistula</i>	<i>Amalthash</i>	Morni	Bark and fruits	flesh of the fruit is used as a laxative, while the bark can be used to treat skin infections.
65.	<i>Celastrus paniculatus</i>	<i>Mal-Kangni</i>	Morni & Raipur	Seed and leaves	Leaves used as the fodder; seed oil employed for arthritis and joint pain.

			Rani		
66	<i>Ipomoea carnea</i>	<i>Besharm/ Behaya</i>	Raipur Rani	Leaves	purgative
67.	<i>Morus alba</i>	<i>Shahatut</i>	Morni & Raipur Rani	Fruits	Edible
68.	<i>Morus australis</i>	<i>Tut</i>	Raipur Rani	Fruits	Edible
69.	<i>Murraya koenigii</i>	<i>Caddy patta</i>	Morni & Raipur Rani	Leaves	As anti-inflammatory, cuisine
70.	<i>Nyctanthes arbortristis</i>	<i>Harshingar</i>	Morni & Raipur Rani	Leaves	As fodder
71.	<i>Phoenix acaulis</i>	<i>Khajuri</i>	Raipur Rani	Fruits	Edible, some time as an aphrodisiac.
72.	<i>Psidium guajava</i>	<i>Amrood</i>	Morni & Raipur Rani	Fruits & Leaves	Fruits are edible while leaf decoction used for cough.
73.	<i>Punica granatum</i>	<i>Daadma/ Anar</i>	Morni	Fruits	Fruits edible, dried seeds used to treat digestive disorders.
74.	<i>Colebrookea oppositifolia</i>	<i>Bindda</i>	Morni	Leaves	Fodder
75.	<i>Flacourtia indica</i>	<i>Kandai/ Panyala</i>	Morni	Leaves & roots	Leaves and root are used to treat diarrhoea and pneumonia
76.	<i>Kigelia africana</i>	<i>Balamkhira</i>	Raipur Rani	Fruits	For gastrointestinal problems

Table 1. List of medicinal herbs

Result

Morni and Raipur Rani Area contain dry deciduous forest type dominantly. The area remained almost arid throughout the year; however rivers like Ghaggar, Beghna, Dangarwali are the life line for the regional farmers, flora and fauna. In the Morni range, mostly peoples and animal depends on rainy water, while on the other hand in the Raipur Rani range water checked by several dams and use throughout the year for agriculture and cattles. Our team collected more than 500 plant species from the study area; 76 plants species from them found to be ethno botanically significant and frequently used by the natives. We have also reported their unique methods to treating various health ailments. A local Raipur Rani's vaidh claimed to treat serious disorders like cancer, especially gall bladder and kidney cancer; he also mentioned few successfully cured patient full address and contact details, as we asked for prove. Similarly, in the same area salty water bodies frequently used to treat urinary, skin and kidney stone; however, there were no scientific logics behind the salty water medicinal potential.

Discussion

Undoubtedly, India is a hotspot for biodiversity; vast varieties of plants have been reported since past few decades. Varied geography of country responsible for its diverse flora, hence herbal products are quite popular in India. Since medicinal herbs have been played a remarkable role in traditional as well as in modern medicinal systems; several medically important novel chemical constituents such as

Paclitaxel (from *Taxus brevifolia*, to treat various cancers), Artemisinin (from *Artemisia annua*, to treat malaria) have been isolated from the traditional medicinal herbs and successfully being used to treat several health ailments. Herbal medicines being appreciated in entire world due to the minimal contraindication; however, despite debilitating nature conventional allopathic medicine used to treat majority of ailments yet, i.e. common cold to AIDS. India has some widely popular medicine systems such as Ayurveda, Siddha and Unani; all these conventional system of medicine mainly deals with various herbal formulations. Peoples and tribes of India's remote areas generally rely on local herbs for acute to chronic ailment, though there are only few scientific evidences for traditional herbal medicine. In this whole scenario traditional herbal medicine knowledge that scattered in several Indian tribes and villages (e.g. Study area Morni and Raipur Rani) may be a blue print for further scientific studies and research. For instance *Datura metel* known for its toxic alkaloids constituents, hence said to be hazardous for health but it has long been used in traditional Chinese medicine and Ayurveda; similarly in Raipur Rani Range a vaidh described *D.metel anti-carcinogenic* potential and claimed to cure 5-6 cancer patient successfully, he also showed some contact details and medical report to prove his treatment efficacy for cancer, infertility, gynaecological problems etc. Additionally, the salt water bodies has also similarly popular to treat various ailments in the same area; however, it is hard to believe that how simple *D. Metel* based remedy and salty water cure serious health ailments? To understand and validate traditional herbal medicine system we need to expend more scientific studies based on traditional herbal remedies or formulation. Traditional herbal scientific study might be helpful for humankind by the following ways: As an alternative safe treatment system compare to conventional system; promotion of herbs cultivation will help to strong financial condition of natives; it will provide an authenticity to traditional herbal medicine. Overall, scientific studies will promote the herbalism.

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Conflict of Interest

Authors do not have any conflict of interest.

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