Folk herbal knowledge on the management of respiratory disorders prevailing in ethnic society of Valsad district, Gujarat

Brijesh Shah¹, Falguni Sheth²* and Minoo Parabia²
¹Dolat Usha Institute of Applied Sciences, Valsad, Gujarat, India
²Shri Bapalal Vaidya Botanical Research Centre, Department of Biosciences
Veer Narmad South Gujarat University, Surat-395 007, Gujarat

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Valsad district of Gujarat state (India) possesses a rich plant biodiversity. It also has traditional knowledge rich ethnic society. A survey was carried out for exploring the treasure of tribal knowledge wealth. The four years survey in the area extracted nearly two thousand recipes for different common ailments. The information gathered was then classified under different major disease categories, of which present paper deals with 115 herbal recipes used for treating various respiratory disorders.

Keywords: Ethnobotany, Folk herbal knowledge, Respiratory disorders, Valsad district.

INTRODUCTION

Tribal knowledge on utilization of plants for treating different ailments has offered vast scope of new drug discovery for modern medical research. Natural products are the most consistent successful source of drug leads, since remote past¹. It is reported that about 122 molecules/compounds presently used in mainstream medicine are derived from the leads provided by ethnic knowledge². It is further known that about 80% present modern medicine owe their origin in plants, e.g. vincristine from Catharanthus roseus G. Don³, quinine from the cinchona, morphine and codeine from the Papaver somniferum Linn., digoxin from the Digitalis lanata Ehrh. and many more³,⁴.

Flora of Gujarat State enlists about 1808 Angiospermic taxa belonging to 155 families and 827 genera⁵. Out of these, 915 species have been identified to be used medicinally by people⁶. The survey of GEER foundation revealed that the villagers of Valsad utilize a very high number of herbal medicines⁷. Valsad district lies in South-west of Gujarat and is situated between two major business hubs Surat and Mumbai. This district has a pleasant climate and blessed with Damanganga, Paar, Auranga, Kolak, Taan and Maan rivers and several tributaries. The Arabian Sea lies west of the district. The area is inhabited by about 14, 10, 553 people with 73% living either in rural areas or in forest areas (census, 2001). Different ethnic societies of the area are Mahyavansi and Bhami (scheduled tribes), and Dhodia, Dubla, Konkana, Vaarli, Naika, Gamit, Kotwaliya, Chodhra, etc. (scheduled castes) inhabiting the area. District has very rich flora⁸,⁹ and knowledge rich tribes hitherto depend on the herbal wealth available in the area inhabited by them. This glorious tradition of science of healing is now loosing its glamour as the new generations are more attracted towards the modernization ignoring the wealth they inherit. Therefore, the authors felt the need for the documentation of such traditional knowledge before it gets lost in antiquity.

MATERIALS AND METHODS

The survey was carried out for three years. A number of rural herbal healers and tribal practitioners were contacted. Frequent casual and formal visits were made for gathering the information. Protocol for ethnobotanical studies was followed¹⁰ and survey was undertaken with the help of a systematic documentation, questionnaire and personal interviews. The plants used were collected from the wilderness with their reproductive parts for correct identification. Collection and preservation of the specimen as herbarium was carried out following

*Correspondent author:
E-mail: falgunianona@rediffmail.com;
Phone: 261-2227141-44 [O]

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standard methods. The voucher herbarium specimens were deposited in the Herbarium of Shree Bapalal Vaidya Botanical Research Centre, Department of Biosciences, Veer Narmad South Gujarat University, Surat and the Botany Department of B. K. M. Science College, Valsad. Identification and authentication of the specimens were done by using published literature\textsuperscript{5,11,12}. The survey had yielded about 115 recipes involving the use of 53 dicotyledons plants and 12 monocotyledons plants belonging to 38 families and involving 60 genera and 65 species (Plate 1). Diversity was also observed in use of different parts of the plant in use e.g. fruit and seeds (24), underground plant parts (09), leaves (16), bark (6), whole plant (4), other (6) like gum (1), flowers (1), latex (2), galls (1) and young shoot (1) were used.

Folk herbal recipes for different ailments along with plant names, their local names, families, voucher specimen number, plant part used and dosages are listed as under. The data are presented as group of recipes useful on a particular disease condition.

**Enumerations:**

1. **Bronchitis**

*Allium cepa* Linn., *Dungli*, Liliaceae (BTS.140.1)

Chopped onion 200 g, ginger 2 g, *peeperimool* (roots of *Piper longum* Linn.) 2 g, and black pepper 10 g, sauté in *ghee* on a low heat. It is mixed with sugar syrup (boiling 250 g sugar with 250 ml of water) and turned into marmalade. Three spoons thrice a day is recommended.

*Allium sativum* Linn., *Lasan*, Liliaceae (BTS.140.2)

Garlic cloves (7-8) are deep fried in 20 ml oil till charred. Medicated oil is filtered and half a spoon (2 ml) with double the honey is given three times a day. *Elettaria cardamomum* (Linn.) Maton, *Elchi*, Zingiberaceae (BTS.132.8)

Cardamom powder with sugar candy is kept in mouth to soothe sore throat.

*Linum usitatissimum* Linn., *Alasi*, Linaceae (BTS.28.4)

Warm poultice of seed is applied on the chest and back to induce bronchial dilation.

*Pergularia daemia* (Forsk.) Chiov., *Chamar dudheli*, Asclepiadaceae (BTS.90.32)

Half a cup of leaf juice is consumed. It causes vomiting and relieves bronchial congestion.

*Piper nigrum* Linn., *Kala mari*, Piperaceae (BTS.117.16)

Powder of 7-8 black pepper is licked with a spoonful of honey twice a day.

*Trachyspermum ammi* (Linn.) Sprague ex Turrill, *Ajma*, Apiaceae (BTS.79.12)

Crushed seeds are slightly heated with groundnut oil or coconut oil and massaged on chest and back at the bed time.

Roasted seeds are powdered, rolled into a piece of cotton cloth and used as inhaler.

*Zingiber officinale* Rosc., *Aadu*, Zingiberaceae (BTS.132.1)

One spoonful mixture of dried ginger powder and black pepper in equal quantities is taken three times a day. It can also be taken with honey or infused with a daily tea.

Ginger paste with equal amount of honey is heated on a low flame. A spoonful of mixture is taken orally twice a day.

2. **Cough and cold**

*Acacia catechu* Willd., *Khair*, Mimosaceae (BTS.54.03)

*Kaththo* (*Catechu*), camphor, liquorice and *baheda* fruit \([Terminalia bellirica* (Gaertn.) Roxb.\] are ground, mixed with jaggery in equal quantities and rolled into small pills. Two pills are taken thrice a day.

*Acacia leucophloea* (Roxb.) Willd., *Hivar*, Mimosaceae (BTS.54.9)

Decoction of 10g bark powder is taken once a day.

*Acacia nilotica* (Linn.) Willd. ex Delile, *Baval*, Mimosaceae (BTS.54.20)

A small nugget of raw gum with sugar candy is kept in mouth and the juice is swallowed slowly.

*Achyranthes aspera* Linn., *Aghedo*, Amaranthaceae (BTS.111.12)

A spoonful of whole plant powder is taken twice a day with water.

*Allium sativum* Linn., *Lasan*, Liliaceae (BTS.140.2)

Garlic cloves (2-3) are fried into 10 ml oil. The oil is then strained. Five gram *ajma* seeds are smeared with this oil and then roasted on the iron pan. It is then tied in a cotton cloth and a fomentation is given on the chest and also used to inhale.

*Asparagus racemosus* Willld., *Shatavari*, Liliaceae (BTS.140.9)

Seeds powder with equal honey is an effective expectorant remedy. Recommended dosage is two teaspoon paste three to four times a day.

*Bambusa arundinacea* (Retz.) Willld., *Vaans*, Poaceae (BTS.156.38)

A cup of decoction of the young shoots with a tablespoon of honey is taken once or twice a day.
Plate 1 — Some of the medicinal plants used in Valsad district for respiratory ailments
Powdered bark (5 g) is boiled in a glass of water with a pinch of pepper powder till the content reduces to half. Few lemon drops and a pinch of salt are added after the flame being turned off. Two cups in a day is helpful to get rid of common cold. Its regular use during the rainy season is prophylactic against influenza.

**Cinnamomum zeylanicum** Breyn., **Taj**, Lauraceae (BTS.118.13)

One part lemon juice is heated with three parts honey. Two teaspoons four times a day serve as an effective cough syrup.

**Cocos nucifera** Linn., **Nariyel**, Arecaceae (BTS.142.1).

Half a cup of coconut milk with one tablespoon of poppy (**Papaver somniferum** Linn.) seeds and one tablespoon of pure honey is taken daily at night before going to bed.

**Cuminum cyminum** Linn., **Jeeru**, Apiaceae (BTS.79.14)

A teaspoon of cumin is added to boiling water and allowed to simmer for two minutes. Pot is covered; added a pinch of salt and black pepper. A cup of this herbal tea is taken twice a day.

Cumin seeds, **ajma** seeds each 10 g, cloves 5, cardamom 2 pods are roasted on a hot **mitti** (clay) plate. They are then ground into a fine powder along with five black pepper and a rock salt. This mixture is taken half a spoon eight to ten times a day without water. It is good in taste. The mixture can be turned into the pea size pills by adding jaggery. Three to four pills three times a day are taken.

Two hundred ml of whey is heated to lukewarm. Cumin powder, black pepper powder, rock salt (five gram each) is added to it and divided in three dosages. Used warm for drinking. Continue the treatment for three days.

**Curcuma longa** Linn., **Haldar**, Zingiberaceae (BTS.132.2)

Half spoon roasted turmeric is licked with honey twice a day.

**Datura metel** Linn., **Dhatura**, Solanaceae (BTS.98.8)

Two gram leaf powder along with honey or jaggery is taken twice a day to alleviate constant coughing.

**Derris pinnata** Lour., **Karanj**, Fabaceae (BTS.52.19)

Two gram bark powder is taken twice a day.

**Eclipta alba** (Linn.) Hassk., **Bhringraj**, Asteraceae (BTS.81.9)

Two cups whole-plant juice and 50 g of rock salt is boiled with sesame oil (200 ml) till water evaporates. Few drops of filtered oil are put in each nostril once or twice a day.

**Emblica officinalis** Gaertn. syn.**Phyllanthus emblica** Linn., **Amla**, Euphorbiaceae (BTS.121.21)

Fruit powder is mixed with **Jethimadh** (root of **Glycyrrhiza glabra** Linn.) in 3:1 proportions. One spoon of the mixture is taken at empty stomach twice a day.

Fresh juice of **amla** fruit, basil leaves and ginger juice is mixed in 2:2:1 proportion and taken four spoons three times a day.

**Ipomoea pes-caprae** (Linn.) R.Br., **Maryad vel**, Convolvulaceae (BTS.96.9)

Five gram whole plant paste with sugar or honey is taken once a day.

**Justicia adhatoda** Linn. [syn. **Adhatoda vasica** (Linn.) Nees], **Ardusi**, Acanthaceae (BTS.106.28)

Seven leaves are boiled in 300 ml water till 150 ml remains then strained. Twenty gram honey is added to it and consumed by dividing it in three dosages.

An **avaleha** (Sort of marmalade) is prepared from fresh leaves of **ardusi** (100 g), black pepper (15 g), sugar candy (50 g), **ghee** (50 g) and honey (100 g). Preparation is taken two spoons thrice a day with a little warm water.

Powders of leaf of this plant (100 g), liquorice (50 g), **baheda** fruit (50 g), **amla** fruit (50 g), **bordi** stem bark (**Ziziphus jujuba** Lam.) (25 g) are mixed well. One spoon of the mixture is taken twice a day.

**Mentha viridis** Linn., **Phudino**, Lamiaceae (BTS.107.12)

Few mint leaves are boiled in a cup of water with a pinch of salt and black pepper powder. Preparation is taken three times a day.

**Musa paradisiaca** Linn., **Kela**, Musaceae (BTS.130.1)

Two inch piece of ripe banana is smashed and little black pepper, honey and cardamom powder is added to that. It is taken in the morning and evening for couple of days.

**Myristica fragrans** Houtt., **Jayphal**, Myristicaceae (BTS.13.1)

Nutmeg seed is abraded and mixed with **ghee**. Thin layer of this paste is applied over the palms and soles of a child suffering from cold.

**Ocimum sanctum** Linn., **Tulsi**, Lamiaceae (BTS.107.9)

Infusion made of five **tulsi** leaves, one lemon-grass [**Cymbopogon citratus** (DC.) Stapf] leaf, a small piece
of dried ginger with 10 g jaggery in 200 ml of water is consumed every morning.

Two ml juice each of onion, tulsi leaves and fresh ginger added with honey is taken three times a day.

Phoenix dactylifera Linn., Khajur, Arecaeeae (BTS.142.2)

Fifty gram each of dates, raisins, fenugreek (Trigonella foenum-graecum Linn.) seeds and 10 g black pepper are ground. Fifty gram honey and 25 g ghee (clarified butter) are added to turn into a thick paste. The preparation is taken two spoonfuls twice a day to expectorate phlegm and calm respiratory spasms.

Piper betle Linn., Nagarvel, Piperaceae (BTS.117.11)

Chopped onion is wrapped in betel leaves. Five such packs are wrapped in a wet cloth and put on a fire over a wire gauge. Cloth is allowed to catch the fire. Burnt cloth is removed. The semi-cooked leaves and onion are squeezed to extract juice. Juice is taken to subside coughing.

Leaves, smeared with mustard oil are warmed and kept on chest to alleviate cough and to cure breathing problem.

Piper longum Linn., Lindi pipper, Piperaceae (BTS.117.17)

A piece of sugar candy along with a long pepper is kept in mouth and sucked slowly.

Pithecellobium dulce (Roxb.) Benth., Vilayati ambli, Fabaceae (BTS.52.11)

Masticating a small piece of inner bark helps in dry cough and relieves in sore throat.

Plectranthus amboinicus (Lour.) Spreng., Ajmapan, Lamiaceae (BTS.107.18)

A decoction of five leaves each of this plant, basil and mint, two gram each of ajma seeds, cumin seeds, black pepper, cinnamon, fresh ginger paste, turmeric, salt to taste and a spoon of ghee, is taken hot to relieve the congestion.

Plumbago zeylanica Linn., Chitrak, Plumbaginaceae (BTS.82.1)

Dried bark and drumstick (Moringa oleifera Lam.) seeds are powdered and mixed in equal proportion. A spoonful of this powder is taken once in a day with water.

Solanum surattense Burm. f. (syn. Solanum xanthocarpum Schrad. & Wendl.), Bhoi ringni, Solanaceae (BTS.98.4)

Fresh whole plant juice is boiled to turn into semi solid paste. The paste is then dried and powdered. Two to three gram powder is taken twice a day.

Terminalia bellirica (Gaertn.) Roxb., Baheda, Combretaceae (BTS.61.32)

Small piece of fruit rind is masticated in dry cough.

Five gram bark powder with a pinch of rock salt is taken 2-3 times a day to expectorate phlegm.

Trachyspermum ammi (Linn.) Sprague ex Turrill, Ajma, Apiaceae (BTS.79.12)

A pinch of seed powder with a crystal of common salt and clove is chewed.

Steam inhaled of seeds by boiling them in water is helpful to cure nasal congestion.

Half teaspoon roasted seeds along with a little turmeric is boiled with a cup of milk. It is taken hot twice a day.

Ajma seeds (25 g) and a spoonful of turmeric are boiled with 500 ml water. Pinch of black salt is added to this for a taste. After straining, a cup of this water is drunk warm twice a day and also used for gargle to soothe a sore throat.

Triticum aestivum Linn., Ghav, Poaceae (BTS.156.12)

Dough of wheat flour is made by adding some jaggery and pure ghee into it. Crisp chapattis are prepared out of it. The diet of this chapattis is to be taken for four days.

Vitex negundo Linn., Nagod, Verbenaceae (BTS.108.13)

Nagod and nilgiri (Eucalyptus globulus Labill.) leaves are boiled with enough water and used to take bath.

Zingiber officinale Rosc., Aadu, Zingiberaceae (BTS.132.1)

Half a teaspoon ginger powder with a quarter spoon of black pepper powder is boiled with 100 ml water for few minutes. It is then cooled and filtered. The filtrate is consumed during a day after adding a spoonful honey.

Some prefers to add ginger in their daily tea in case of cough, cold and fever. For this five gram of fresh ginger paste is added into a cup of boiling water before adding tea leaves.

3. Asthma

Ailanthus excelsa Roxb., Arduso, Simaroubaceae (BTS.78.2)

Powders of leaves and roots of tree and amla fruit are mixed in equal proportion. Honey is added to it and rolled into a pea size pills. Two pills are taken thrice a day with water.

Ten gram arduso leaves and 10 g whole plant of Solanum xanthocarpum Schrad. & Wendl. are
crushed and boiled in 200 ml of water till it reduces to 50 ml. One gram *suhaga* [borax] is mixed in it. It is then divided in two equal doses and taken in morning and evening.

*Ailium sativum* Linn., *lasan*, Liliaceae (BTS.140.2)

Three garlic cloves are boiled with 30 ml milk and consumed once in a morning to cure in early stage of asthma.

Twenty gram garlic paste is boiled in 120 ml pure natural vinegar. Equal amount of honey is then added to this strained mixture on cooling. One or two teaspoons of this syrup can be taken with fenugreek decoction in the evening and before retiring to bed. This helps in reducing the frequency and severity of asthmatic attacks.

*Alstonia scholaris* (Linn.) R.Br., *Saptparni*, Apocynaceae (BTS.89.05)

Flowers are crushed with long pepper. Little honey is added to lick paste. Two spoons twice a day is helpful.

*Bambusa arundinacea* (Retz.) Willd., *Vaans*, Poaceae (BTS.156.38)

Five gram ginger powder, 5 ml young bamboo shoot juice and 5 g honey are mixed together and rolled into pills. Pills are shade dried. Two pills twice a day is recommended. The treatment should continue for some more duration though relieved.

*Brassica juncea* (Linn.) Czern., *Rai*, Brassicaceae (BTS.11.3)

During the attack, mustard oil mixed with little camphor is massaged over the back of the patient. This will expectorate the phlegm and ease breathing. *Calotropis gigantea* R. Br., *Aakado*, Asclepiadaceae (BTS.90.03)

Latex (25 drops) is dropped onto sugar and taken once. This causes vomiting and expelling of phlegm.

Flowers are shade dried and powdered. Half spoon of the powder is taken with two black pepper powder twice a day.

*Citrus limon* (Linn.) Burm.f., *Limboo*, Rutaceae (BTS.36.1)

A lemon wrapped into the wet mud pack is put on fire. The dried mud packs are then removed and the lemon is taken out. Juice is squeezed and mixed with warm mustard oil. This medicated oil is used to massage the chest, back and neck to loosen and expectorate obstructing phlegm.

*Curculigo orchiodes* Gaertn., *Kali moosli*, Liliaceae (BTS.140.27)

Rhizome juice [a half cup] is taken twice a day.

*Datura metel* Linn., *Dhaturo*, Solanaceae (BTS.98.08)

The smoke of the burning leaves is inhaled or the powdered leaves are rolled into cigarettes and then smoked to relieve asthmatic attack.

*Emblica officinalis* Gaertn. syn. *Phyllanthus emblica* Linn., *Amla*, Euphorbiaceae (BTS.121.21)

Half teaspoon of long pepper powder is soaked into 25 ml *amla* fruit juice. Little honey is added and mixed well. The preparation is taken in the morning at empty stomach.

*Ficus religiosa* Linn., *Peepalo*, Moraceae (BTS.123.03)

Half spoon leaf powder is taken daily in the morning with water.

*Justicia adhatoda* Linn. [syn. *Adhatoda vasica* (Linn.) Nees], *Ardusi*, Acanthaceae (BTS.106.28)

Leaves are steamed, crushed and juice is extracted. Four teaspoons juice with ½ spoon of honey is taken three times a day.

*Moringa oleifera* Lam., *Saragavo*, Moringaceae (BTS.51.1)

One teaspoon fruit powder is taken with a cup of water for 15-20 days.

Soup prepared from leaves and fruits is given once or twice a day.

*Musa paradisiaca* Linn., *Kela*, Musaceae (BTS.130.1)

A longitudinal incision is made on a banana with skin. Quarter spoon of rock salt and black pepper powder are stuffed into the slit and kept under moonlight. In morning the banana fruit is roasted on fire and then consumed. It is advisable to keep this banana overnight in *Pushya Nakshatra* or *Sharad Purnima* and taken next day.

*Pergularia daemia* (Forsk.) Chiov., *Chamar dudheli*, Asclepiadaceae (BTS.90.32)

Whole plant paste (100 g) and *ajmo* seeds (25 g) are decocted with water till it turns into semi solid. It is then dried and turned into pea size pills by adding jaggery. Two pills twice a day is taken with water. In chronic condition dosage can be increased to three times a day.

*Piper betle* Linn., *Nagarvel*, Piperaceae (BTS.117.11)

Betel leaf with a pinch of dehydrated alum is taken once in a day.

*Punica granatum* Linn., *Dadam*, Punicaceae (BTS.68.01)

Four spoons fruit juice added with one spoon fresh ginger juice and pinch of black pepper powder is taken thrice a day.

*Saraca asoca* (Roxb.) de Wilde, *Ashoka*, Caesalpiniaceae (BTS.53.13)
The patient suffering from asthma should keep fast on the day of the full moon. *Kheer* [dish of milk and rice] be placed in moonlight for a whole night. During the early morning hours, 10 g of *ashoka* bark powder is sprinkled over the *kheer* and consumed. Patient is not allowed to sleep at least for 12 hours after the treatment. This is believed to provide relief forever! *Solanum surattense* Burm. f. (syn. *Solanum xanthocarpum* Schrad. & Wendl.), *Bhoi ringni*, Solanaceae (BTS.98.4)

Whole plant water extract (half a cup) is taken twice a day.

*Syzgium aromaticum* (Linn.) Merrill & Perry, *Laving*, Myrtaceae (BTS.64.8)

A clove roasted in ghee is kept in mouth to relieve mild asthma problem.

*Tylophora asthamatica* Wight. & Arn., *Damanivel*, Asclepiadaceae (BTS.90.9)

Three leaves are to be chewed by the patient, early in the morning before sunrise for five days. The treatment can be repeated again if the asthma has not subsided. A patient vomits on ingesting first dose.

*Zingiber officinale* Rosc., *Aadu*, Zingiberaceae (BTS.132.1)

Chunk-shell powder is turned into ash (*Chunk-bhasma*). About a tea spoonful ginger juice is added to 25 g of *bhasma* and about 40 pills are to be made of it. Take two pills twice daily.

4. Breathing problem

*Brassica juncea* (Linn.) Czern., *Rai*, Brassicaceae (BTS.11.3)

Seeds are ground to a smooth paste by adding honey to it. One spoon is taken thrice a day.

Mustard powder and rice flour are mixed in equal amount. This mixture is boiled with water until turns into a paste. It is then spread on a cotton cloth to foment the chest and neck when bearably hot.

*Cocos nucifera* Linn., *Nariyel*, Arecaceae (BTS.142.1)

One teaspoon camphor is mixed in ½ cup warmed coconut oil and applied on the chest.

*Curcuma longa* Linn., *Haldar*, Zingiberaceae (BTS.132.2)

A thick cloth is folded four times spreading turmeric between third and fourth fold. Water is sprinkled over the cloth to make it damp. Cloth is then kept on the chest of the patient, placing a hot brick over the cloth to foment. The heat from the brick alleviates congestion.

*Foeniculum vulgare* Mill., *Variyali*, Apiaceae (BTS.79.17)

Two tablespoon seeds are boiled in a cup of water till it reduces to half. It is then filtered and taken four spoons three times a day.

*Musa paradisiaca* Linn., *Kela*, Musaceae (BTS.130.1)

For instant result banana fruit with skin is roasted on flame. Skin is then peeled off and pulp is taken along with some black pepper powder sprinkled on it.

*Nicotiana tabacum* Linn., *Tamaku*, Solanaceae (BTS.98.34)

Five hundred ml leaf juice along with 750 g sugar is boiled to turn into syrup. It is filtered and stored in a clean bottle. Three to four ml syrup is taken with water twice a day.

*Trachyspermum ammi* (Linn.) Sprague ex Turrill, *Ajma*, Apiaceae (BTS.79.12)

Seed powder, turmeric and salt are mixed in 6:3:1 proportions and kept ready. A spoonful is taken 3 to 4 times a day to get rid of congestion and coughing.

5. Sinus

*Zingiber officinale* Rosc., *Aadu*, Zingiberaceae (BTS.132.1)

One spoon of *Trikatu* (Powder mixture of ginger, black pepper and long pepper) is taken with dehydrated alum and honey.

Hundred grams dried ginger powder is light sauté in 50 g ghee. Two hundred gram jaggery is added to the mixture and rolled into pills. Two pills two times a day is swallowed preferably without water or chewed like an electuary.

6. Tuberculosis

*Allium sativum* Linn., *Lasan*, Liliaceae (BTS.140.2)

Two gram garlic is boiled with 250 ml milk and 1 litre water till water evaporates or 1/4th of the decoction remains. One cup preparation is preferred to be taken thrice a day.

*Bambusa arundinacea* (Retz.) Willd., *Vaans*, Poaceae (BTS.156.38)

Leaf juice (500 ml) is boiled with 500 g of sugar to make syrup. Ten ml of this syrup is taken thrice a day.

*Brassica oleracea* Linn., *Fulavar*, Brassicaceae (BTS.11.3)

Cauliflower soup is taken three to four times a day.

*Cichorium intybus* Linn., *Chicory*, Asteraceae (BTS.81.23)

Seeds of this plant with *Azadirachta indica* A. Juss. leaves (each 10 g) are boiled in 300 ml water till 50 ml remains. Liquid is strained and split in two dosages to be taken two times a day.
**Ficus benghalensis** Linn., Vad, Moraceae (BTS.123.4)

Half spoon turmeric powder with honey and a few drops of **vad** or **peepalo** latex is taken with water. This is especially good on TB with hyperacidity. It is recommended to continue for couple of months.

**Justicia adhatoda** Linn. [syn. **Adhatoda vasica** (Linn.) Nees], Ardusi, Acanthaceae (BTS.106.28)

Twenty ml fresh leaf juice is taken three times a day.

**Piper longum** Linn., Piprimool, Piperaceae (BTS.117.17)

Black raisins, dry root of this plant and sugar candy are ground together in equal quantity. One spoon with a pinch of turmeric is taken twice a day with warm milk.

**Piper nigrum** Linn., Kala mari, Piperaceae (BTS.117.16)

Seed powder, **ghee**, honey, and sugar-candy are mixed in equal proportion, stirred; 5 g of this is added to the warm milk and taken twice a day to give the relief.

**7. Epistaxis**

**Bambusa arundinacea** (Retz.) Willd., Vaans, Poaceae (BTS.156.38)

Leaves (500 g) are ground with fresh turmeric (20 g) to a fine paste. To this 25 g rock salt is added and it is then boiled with 2 liters of water. Boiling is continued till the quantity reaches up to 1/4th. It is then filtered and cooled. Ten ml preparation is given every hour.

**Citrus limon** (Linn.) Burm.f., Limboo, Rutaceae (BTS.36.1)

**8. Fruit juice is dropped in nostrils**

**Coriandrum sativum** Linn., Kothmir, Apiaceae (BTS.79.8)

Fresh leaf juice is used as nasal drops.

**Justicia adhatoda** Linn. [syn. **Adhatoda vasica** (Linn.) Nees], Ardusi, Acanthaceae (BTS.106.28)

Ten leaves are crushed to extract juice. It is taken with honey once in a day.

**Quercus infectoria** Olivier, Majuphal, Fagaceae

A mixture of fine powders of alum, camphor and **maju** (galls of the plant) in equal proportion is inhaled as snuff.

**9. Hoarse voice and Sore throat**

**Artocarpus heterophyllus** Lam., Fanas, Moraceae (BTS.123.12)

Juice of the cloves of jackfruit is taken at every half an hour interval.

**Azadirachta indica** A. Juss., Limdo, Meliaceae (BTS.41.23)

Leaves are boiled with water and filtered. Pinch of salt, **ghee** and honey is added and used warm to gargle.

**Glycyrrhiza glabra** Linn., Jethimadh, Fabaceae (BTS.52.21)

A decoction of root with sugar or honey helps subsidizing sore throat.

**Hordeum vulgare** Linn., jav, Poaceae (BTS.156.29)

Coarsely ground grains with fennel seeds (each 2-teaspoon) are boiled in 300 ml of water, cooled and consumed during the day.

**Mangifera indica** Linn., Ambo, Anacardiaceae (BTS.49.5)

Ten ml fruit decoction is used for gargling.

**Spilanthes calva** DC., Akkalkaro, Asteraceae (BTS.81.3)

Root is chewed to soothe throat.

**10. Tonsillitis**

**Aloe vera** (Linn.) Burm. f., Kuvarpathu, Liliaceae (BTS.140.31)

Leaf paste added with salt is warmed and applied on throat by covering with cloth.

**Carica papaya** Linn., Papaiyu, Caricaceae

Latex of raw fruit is added into water and used for gargle.

**Curcuma longa** Linn., Haldar, Zingiberaceae (BTS.132.2)

Rhizome powder, salt and honey are mixed and applied on tonsils with a cotton swab.

**Ricinus communis** Linn., Arando, Euphorbiaceae (BTS.121.16)

Seed oil (Castor oil) is applied on the affected area of the throat.

**Viola odorata** Linn., Banafsha, Violaceae

Ten gram flowers are boiled in 50 ml milk. Milk is strained and taken hot before retiring to bed. The flowers should then be fried in a little **ghee** and tied on the throat.

**Results and Discussion**

It is evident that inhabitant of Valsad district rely largely on the plant diversity around them for maintaining primary health. Respiratory disorders are either allergic, physiological or due to infection. Tribes do not have any discretion to diagnose such disorders. They describe the symptoms and it was up to the authors to class it to particular broad group. In all, nine broad groups were recognized and about 115
recipes or formulations are listed here. It appears that the recipes used by the remote tribes depend mostly on the local herbs available in the surrounding area, however people have also been found to be aware of adjuvant like salt, alum and honey with which the drugs were to be employed or administered. The administrations of therapy were variable like poultice, liniment, nasal drops, infusion, electuary, decoction, fomentation, paste or swallowing of powders. The major components used are the one having volatile oils (Basil, black pepper, long pepper, onion, garlic, etc.) or the taxa having vasodilatory actions (Ardusi, Datura, etc.). Some of the medicinal plants used by these people are already in use of preparation of Ayurvedic medicines by some pharmaceutical companies e.g. Solanum surattense Burm. f., Justicia adhatoda Linn., Ocimum sanctum Linn., etc.¹³.

Some species mentioned here are reported to be used for the same disorder in other part of the country by earlier workers. However, the method of drug preparation is different e.g. Trachyspermum ammi and Vitex negundo for cold & cough in Andhra Pradesh¹⁴, Solanum xanthocarpum for asthma in Tripura¹⁵, Piper longum for cough and bronchitis¹⁶, Pergularia daemia for cough¹⁷, Achyranthes aspera, Calotropis gigantea, Datura metel, Pergularia daemia, Tylophora asthmatica for asthma in Andhra Pradesh¹⁸, Acacia leucophloea for cough in Maharashtra¹⁹, Moringa oleifera for tuberculosis¹⁹, etc.

Many of these plants uses have also been supported by different pharmaceutical and scientific works e.g. ethanolic extract of Achyranthes aspera shows broncho-protective effect in toluene disocyanate (TDI) induced occupational asthma in Wistar rats²⁰. Adhatoda vasica showed significant antitussive activity and significant efficacy on acute upper respiratory tract infections²¹,²². Alstonia scholaris for anti-tussive, anti-asthmatic and expectorant activities²³.

The same plants are also found to be used for some other diseases in other community e.g. Cynodon dactylon has been reported for urinary complaints²⁴, Acacia nilotica for piles²⁵, Achyranthes aspera for rheumatism²⁶, Adhatoda vasica for acidity²⁶ and Ipomoea pes-caprae for eczema²⁷.

Some novel uses of plants are also reported during study for the first time for respiratory ailments, viz. Ipomoea pes-caprae (Linn.) R. Br. and Pithecellobium dulce (Roxb.) Benth. Though many plants are used repetitively in the same disease, it is important to note the variations in preparation of the drug. Variations in preparation are mainly observed depending on the choice of person to accept the medicine.

Conclusion

Valsad district being a coastal zone has sultry humid climate during summer. The humidity of heavy rains is combined with the coastal position. This is the favourable situation for bronchial disorders including allergic deposition. The personal discussions with all willing households yielded scores of information especially to deal with bronchial disorders. All the recipes do not offer the complete cure but are good to give relief in diseased condition. Some of the recipes are employed to alleviate the other associated symptoms of diseases. It was also noted that for tackling the asthma, by and large people are averse to using sprays unless when in traveling, where it is cumbersome to carry all paraphernalia.

The local recipes are by and large very popular locally. Authors have attempted to document them before they are forgotten under the influence of modernization. It is hoped that the documentation of such traditional recipes would help the future researchers to develop dispensable, standardized medicines to withstand scientific scrutiny and shall have international acceptance. Further studies on chemical and pharmacological actions are suggested to validate the claims.

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