Pak. J. Weed Sci. Res. 14(3-4): 169-200, 2008

HERBAL RMIDIES USED FOR GASTROINTESTINAL DISORDERS IN KAGHAN VALLEY, NWFP, PAKISTAN

Samin Jan[1], Mir Ajab Khan[2], Siraj ud din[1], Waheed Murad[1], Manzoor Hussain[3] and Aneela Ghani[4]

ABSTRACT

The herbal medicines occupy distinct position right from primitive period to the present-daytime. The utilization of biologically diverse plant resources for various ailments is the lifelong struggle of human race. In spite of their availability and utilization by large proportion by the middle hills dweller, no concreted effort has been made for sustainable development of this renewable natural resource. Kaghan Valley is no exception to this. Being a neglected part of NWFP, its people mainly depend upon plant resources for their first aid. In the present study indigenous knowledge of plants use for the gastrointestinal disorders collected from research Kaghan valley includes 27 poly herbal recipes. These recipes are composed of 43 medicinal plant species. Out of these, 27 plants species constitute the major component and the remainder 15 species are used as minor component. The maximum number of recipes (15) are used for the treatment of diarrhea and dysentery followed by anthelmentic recipes (10), while only 4 are used for abdominal pain.

Keywords: medicinal plants, ethnobotany, treatments, gastrointestinal diseases.

INTRODUCTION

To salvage mankind from the clutches of diseases has remained a consecrated responsibility of man from the time immemorial. The Herbal medicines were co-evolved with man within their societies since its inception on this planet. Large proportions of rural and urban population (about 80%) throughout of the world are dependent upon herbal medicine for symbolic and medicinal value (Ahmad, 1999). The

[1] Botany Department, Islamia College Peshawar, University of Peshawar
E-mail: saminicp@yahoo.com
[2] Department of Plant Sciences, Quaid-I-Azam University, Islamabad
[3] Government Postgraduate College, Abbottabad
[4] Government Girls Degree College, Charsada

majority (1.5 billion) of the population of developing countries uses traditional medicine either because the people cannot afford synthetic medicine or because traditional medicine is more acceptable. Just like the allopathic medicine system, the traditional herbal system uses special combination of plant to treat diseases. In China the use of traditional medicine is relied upon for non-toxicity and most Chinese avoid the allopathic or other systems (Sing and Khan, 1990).

Plants have diverse combination of chemicals that can produce different results on different organisms. Approximately 119 pure chemical substances extracted from higher plants are used in medicine throughout the world which is used for the treatment of various diseases. The development of synthetic chemical industry in the recent past gave boost to the allopathic medicine (Framsworth and Morris, 1976). Traditional knowledge should therefore be documented in systematic way if the communities themselves choose to do so, at their own initiative. Among the different diseases reported in the rural areas of Pakistan, the gastro-intestinal disease is the common one. These gastro intestinal disorders are treated by herbal product .The gastro intestinal disorder was divided into four classes according to the traditional system viz. abdominal pain, diarrhea, dysentery and worms. It should be noted here that the division of disorder is the true representation of the traditional system i.e. here abdominal pain is different from dysentery or worm infestation. In order to judge whether, majority of the population of Kaghan valley depend for its medication on traditional medicine or not; a study was conducted on the herbal recipes used for gastrointestinal disorders by local inhabitants. The region is the part of Hazara division. Intensive survey of the area showed that more than hundred recipes are locally prepared and used for treating various diseases. Forty-three plant species are used in combination or individually for gastrointestinal disorder. The present study communicates the information regarding the plant recipes used for gastrointestinal problems in Kaghan valley**.**

The Kaghan valley lies in Hazara division of District Mansehra between 34^{o} 14’ and 35 ^{o} 11’ North latitude and 72^{o} 49’ to 74^{o} 08’ East longitude. The tract is bounded by the state of Azad Jammu and Kashmir on the Eastern side as well as on Southern side, by Chilas and Gilgit on the North and Shangla and Buner on the West. It is the region of green belt of Himalaya mountain ranges and links the southern parts of the country with tourist spots i.e. swat and Gilgit. The valley covering an area of 19790.4 hectare spreads on either bank of river Kunhar. The general topography of the land is undulating, often cut by numerous small streams. Altitude in this area ranges from

915 m at Balakot to 5280 m Malika Parbat, the highest peak in the valley. The forests show a transition from sub-tropical zone to sub-humid zone in the lower parts of the valley and are situated at varying altitude between 1370 m to 1660 m. Above the forests, stretch the alpine pastures, which are visited by nomad and local grazer from different parts of the valley (Anonymous, 1998).

The climate of the valley as a whole is temperate with distinct seasonal variation. Winter is severe with heavy snowfall, which may be expected anytime from middle of November to middle of April. The total annual precipitation in the upper part is in the form of snowfall during winter season, whereas lower part of the valley receives its major portion in the form of rainfall during summer season.

Similarly the use of various herbal plants has also been highlighted by various workers from different parts of the world such as Nadkarni (1927), Youngken (1950), Mukarji (1953), Zaman and Khan (1970), Jafri (1973), Baquer (1989),Varavithya *et. al.* (1989), Anokbongoo *et al*. (1990), Gbile *et al*. (1990), Hedge (1990), Bhattaria (1992), Haq and Hussain (1993), Virendra and Singh (1994), Grosvenor *et. al.* (1995), Jain (1996), Gang (1997), Ahmad, 1999, Shehzad and Qureshi (2001), Prashanth *et al.* 2001, Matin *et. al*. (2002), Vector *et al.* (2002), Petrovic *et al.*(2004) and Pal *et al.* (2006).

MATERIALS AND METHODS

The survey of ethnobotanical information was conducted during summer, autumn, winter and spring following the method of Jain, (1967) and Trotter, (1981). Ethno- medicinal information was obtained by conversation and questionnaire from local inhabitants especially elder, women and local Hakims. Outcome of the results were rechecked and compared with literature. The collected dried plants were mounted on standard herbarium sheets, identified with the help of available literature (Flora of Pakistan). The identified plants were submitted to Quaid-e-Azam University Herbarium, Islamabad.

RESULTS

The indigenous knowledge of plants used for the gastrointestinal disorders collected from research area includes 27 poly herbal recipes. These recipes are composed of 46 medicinal plant species (Tables 1,2 and 3). Out of the 43 plant species, 28 species constitute the major components and the remainder 15 species are used as minor component. The maximum numbers of recipes (15) are used for the

treatment of diarrhea and dysentery followed by anthelmentic recipes (10), while only 4 were used for abdominal pain. The families containing the plants used in the treatment of gastrointestinal disorders are arranged in alphabetical order for convenience. The detail of the herbal recipes is as under:

Family: Acanthaceae
Justicia adhatoda L.
Synonym: *Adhatoda vasica* Nees, *Adhatoda zeylanica Medic.*
Local names: Adulasa, Arusha (Urdu), Bhekkar (Punjabi and Hindko); Bhekkar, Bazy (Pushto)
English name: Malabar nut tree.
Parts used: Leaves, flowers and roots.
Flowering Season: February – April
Distribution in the research area: Balakot, Garhi, Jagir, Ghanul, Lower Kaghan.
Self-sown, especially in graveyards.etc.
Salient features*:*
An evergreen, tall, erect, gregarious shrub; flowers white in short dense auxiliary peduncles .Fruit capsule 2.5 cm long, (Malik and Ghafoor 1988).
Ethno-medicinal uses:
Leaves are chiefly used in diseases of respiratory tract particularly as a powerful expectorant, antispasmodic tuberculosis, chronic bronchitis, asthma, and other chest diseases. A poultice is used for fresh wounds, on inflammatory swellings; neuralgia, headache, and bleeding from the nose. The flowers and fruits are aromatic, bitter and their infusion is used as anthelmintic .
Family: Adiantaceae (Polypodiaceae)
Adiantum capillus- veneris L
Synonyms: Venus hair, rock fern.
Local names: Kakwa (Hindko) Kakpai (Pushto)
English name: Maiden hair Fern, Capillaire.
Part used: whole plant
Distribution in research area: Balakot, Paras, Manur, Kaghan, Naran.
Salient features:
Stem is underground rhizome, black, slender, shining; frond repeatedly forked, bearing short, wedge shaped leaflets, and membranous indusial covering the spore sacs at the outer edge of the undersurface of the incised leaflets. (Nasir, 1972)

Ethno-medicinal uses:

Mostly the whole plant is kept in water, boiled, cool down and then water is used for toothache, headache and cough at night. It is also used for washing the eyes and as salad.

Family: Amaranthaceae

Amaranthus viridis L.

Synonyms: *Chenopodium caudatum* Jacq*, Albersia caudata*(Jacq) Bois

Local Names: Ganhar, Chulari, (Hindko and Punjabi) Chulakay (Pushto).

English name:Amaranth

Part used: Whole plant

Flowering season: throughout the year

Distribution in the research area: Balakot, Kawai, Jared, Mahandri and Kaghan

Salient features:

Annual herb, flower green and slender auxiliary or terminal. Male and female flowers are intermixed but the later are more numerous. Seed rounded, dark brown to black (Townsend, 1974).

Ethno medicinal uses:

Plant is used as sag for cooking and fodder plant. It is used in snakebite and scorpion sting. Leaves are emollient and anthelmintic.

Family: Asteraceae

Artemesia maritima(Linn)

Synonyms: Santonica, Semen sentum, sencentra vermus.

Local names: Tarkha (Pushto); Chou (Hindko).

English name:Santonica, Wormseed.

Part used: Unexpanded flower heads

Flowering period: April-June

Distribution in the research area: Paras, Chanul; Kawai; Manur; Kaghan, Naran.

Salient features:

The plant is perennial woody and branched herb. Flowers head homogenous, often yellowish, disc florets fertile (Qaiser, 2001).

Ethno-medicinal uses:

The poultice of the flowering tops is given to relieve pain; bite of snake and sting of scorpion. Decoction of the leaves are given internally in dyspepsia, jaundice, cardiac or respiratory stimulant and in flatulence. It is used externally as an antiseptic. The ointment of the herb are applied over inflammation, tumors and foul ulcers

Family: Anacardiaceae.

Pistacia integerrima J.L Stewart ex. Brandis.

Synonyms: *P. chinensis* Bge*. ssp. integerrima* (J.I.S) Rech.

Local Names: Kakar Singi, Kangar (Urdu, Hindko).

English: Pistacio

Part used: Galls
Flowering Season: March – May
Distribution in the research area: Balakot, Kawai, Jared, Mahandri & Kaghan
Salient features:

A large deciduous tree; flowers reddish, diocious, in lateral panicles; male flowers in compact panicles; female flowers are in laxer panicles; fruit drupe (Nasir, 1983.).

Ethno-medicinal uses:

Galls are tonic and expectorant; used in cough and asthma. Also used for dyeing and tanning of cloth. The plant yields beautifully mottled ornamental wood, used for carvings, panels, inlay work, picture frames and turnery, for construction work, furniture, spinning wheel and ploughs. Leaves are used as fodder for cattle.

Family: Apiaceae
Cuminum cyminum L
Local name: Zira (Urdu, Hindko and Punjabi), Zankai (Pushto).
English name: Cumin
Part used: Fruit
Flowering season
Distribution in the research area: Wildly growing throughout the area especially Ghanul, Kawai, Paras, Bhunja, Jared, Manur, Kaghan and Naran etc.
Salient features:

Plant slender, tall and branched. Calyx teeth prominent short and erect, vittae solitary under the 2nd ridges, commeasure, 2-vittae (**Nasir, 1992)**.

Ethno-medicinal uses:

The fruits are used as spices. Mixed hot infusion with honey used in dry cough, cold etc. To the pregnant women it is administered in stomach problem due to stress and light-working schedules. Smoked in pipes relieves high cough. Washing face with infusion mixed with butter improves face complexion. It is also used in veterinary medicine. The essential oil is used as antiseptic, anthalmentic, and flavoring agent.

Foeniculum vulgare Hill.
Synonyms: *Foeniculum officinale*. *Anethcem foeniculum* L.
Local names: Sonf (Urdu, Hindko); Kagai, inalay (Pushto).
English name:Fennel seed, Fennel fruit
Part used: Whole plant.
Flowering season
Distribution in the research area: Garhi, Bisian, Kanshian, Bhangian, Ghanul, Kawai, Jared and Manur, wild as well as cultivated.

Salient features:

Perennial aromatic herb, attaining a height of 1 m bipinnate leaves, small yellow flowers in compound umbels and cremocraps are oblong (Nasir, 1992).

Ethno-medicinal uses:

Leaves are used as diuretic. Fennel water is given in colic and flatulence of children. It is anti-emetic and improves eyesight. Dried fruits are used as condiment, flavoring, soups, meat dishes, sauces, bread rolls, pastries and other confectionary items. A hot infusion of the fruits is used to increase lacteal secretion and to stimulate sweating. Fruit give quick relief in excessive acidity.

Family: Asclepiadaceae

Calotropis procera (Willd) R. Br.

Local names: Spalmay (Pushto), Aak (Urdu)

English names: Swallow wort, Milkweed, Mudar plant

Part Used: Latex of leaves, leaves and roots

Flowering Period: Throughout the year

Distribution in the research area: Balakot, Paras, Manur, Kaghan, Naran.

Salient features:

Erect shrub or small tree. Leaves large and apposite somewhat fleshy. Flower is terminal, with a solitary pollinium,. Follicle is inflated with an air sac (Ali, 1983).

Ethno medicinal uses:

Locally the bark is powdered and used as tonic, antispasmodic, expectorant and in large doses emetic. The ash of the plant is used for coloring the cloth. The leaves of *Calotropis* are heated and bandage is made to apply upon ulcer. The milky juice is poisonous and is used in various skin diseases, also act as purgative. The stem is used as *Maswak* (Tooth Brush), having the property of curing toothache. The hair is washed with flowers to remove dandruff from the hair. The leaves are used for washing of cloths.

Family: Brassicaceae

Lepidium sativum Linn.

Local names: Alum (Pushto), Halion (Urdu)

English name: Garden cress

Part used: Seed and leaves

Flowering period: January to March.

Distribution in the research area: Balakot, Kawai, Jared, Mahandri and Kaghan

Salient features:

An annual herb, 30-60 cm tall. Flowers ebracteate, small, white or pinkish. Fruit silicula (Jafri, 1973).

Ethno-medicinal uses:

Leaves are locally consumed as Salad, cooked with vegetable, curries and also used as fodder of cattle's. The leaves are stimulant, diuretic, used in scorbutic disease and hepatic complaints. Seeds are given in backache pain along with green tea or milk before breakfast. Also used in animal diarrhea.

Family: Celastraceae

Gymnosporia royleana (Wall. ex Lawson).

Synonyms: *Maytenus royleanus* (Wall. ex Lawson), *Celastrus royleanus* Wall; *Gymnosporia spinosa* Auct. *Celastrus spinosus* Royle.

Local names: Pataki (Hindko), Kandiari (Urdu).

English name: *Oleum nigrum*

Part used: Seed

Flowering Season: March – April.

Distribution in the research area: Throughout Lower Kaghan on dry sunny slopes.

Salient features:

A shrub, branches stiff, usually armed with straight thorns flowers many, white, in short axillary clusters, fruit 3-angled capsule (Nasir and Ali 1977).

Ethno-medicinal uses:

Smoke from the seed is said to be useful against toothache. Leaves used as fodder. Branches are employed for repair of houses and fuel. Bark is ground to paste and applied with mustard oil to destroy pediculi.

Family: Chenopodiaceae

Chenopodium album Linn

Synonyms: *Chenopodium viridis* Linn.

Local names: Lunak; Bathu (Pb. Urdu); Bathewa (Hindko); Sarmay and Bathewa (Pushto).

English names: Lambs quarter, peg weed or white goosefoot.

Part used: Whole plant

Flowering season: April-Jun

Distribution in the research area: Garhi, Balakot, Ganhul, Manur, Kaghan, and Naran

Salient features

Annual erect; greenish or nearly white, stem angled. Flowers, in cymose cluster, forming axillary spikes or long terminal panicles; seeds rounded, compressed with acute margin (Freitag, *et. al.* 2001).

Ethno-medicinal uses:

The plant is locally used for cooking purposes. Also used as fodder for cattle's, and laxative. For expulsion of worms the seed are mixed with honey and eaten before meals. The root and seeds are

purgative. The roots are used in jaundice, urinary diseases and rheumatism. Fruits and roots are antidote to snake poison

Family: Caesalpinaceae

Bauhinia variegata L.

Local Names: Kachnar (Urdu), Kaliar (Punjabi)

Part used: Bark, flower buds, roots

Flowering season: February-April

Distribution in the research area: Balakot, Kawai, Jared, Mahandri & Kaghan

Salient features:

A medium-sized deciduous tree, flowers large, fragrant, white or purple; fruit pods, seed flat and dehiscent (Ali, 1967).

Ethno-medicinal uses:

Leaves and bark is anthelmintic tonic, astringent; useful, and in skin diseases. Dried buds are used in night blindness. Decoction of root is given in dyspepsia. Root is an antidote to snake bite. Leaves, unexpended flowers and pods are eaten as vegetable. Bark and flowers are pickled to act as laxative. Wood is used for making agriculture implements, construction and as fuel wood.

Family: Cuscutaceae

Cuscuta reflexa Roxb

Synonym*: Convolvulus grandiflora* wall. *C. verucosa* sweet, *C. macrantha* Don.

Local names: Amil,Nilathari, Zarbut (Punjabi)Akashbel (Urdu); Niladhari (Hindko); Banosha (Pushto).

English name: Dodder

Part used: Stem, fruit and seeds

Flowering period: March-April

Distribution in the research area: As parasite on Zizyphus, *Sambucus, Vibernum, Acacia* and also on other plants in Garhi, Balakot, Kawai, Jored, Munar Kaghan and Naran etc.

Salient features:

Perennial herbs, flowers fragrant, waxy white and fruit is a capsule (Rajput and Tahir, 1988).

Ethno medicinal uses:

Its used as an anthelmentic, purgative, carminative, diuretic, blood purifier and alterative. Plant is boiled in water along with the bark of *Acacia nelotica* and used for toothache and septic gums. Also used in biological war to destroy the crop of competitor.

Family: Dioscoraceae

Dioscorea deltoidea Wall.

Local names: Knis, Kildri (Kashmiri); Kniss, Kitra (Punjabi, and Hindko).

English name: Yam.

Part used: Tuber
Flowering period: March-April
Distribution in the research area: Balakot, Kawai, Paras, Manur, Kaghan's Naran
Salient features:

A perennial herb with inedible tubers; male spike solitary, female spike few flowered; fruit capsule (Ali and Nasir, 1974).

Ethno-medicinal uses:

Tubers are employed in the treatment of bilious colic, diuretic and expectorant. A poultice is made and applied to pussy wounds. They are also used to kill the lice and also used as fish and rat poison.

Family: Euphorbiaceae
Mallotus philippensis (Lam.) Muell.
Synonyms: *Croton philippinensis* Lam: *Rottlera tinctoria* Roxb.
Local Name: Rottlera Kamela, Kamela Tree, Red Berry (English), Kumlie (Punjabi), Kambila (Pushto), Kamila (Hindko, Kashmiri).
Part Used: Glands, hairs on fruits
Flowering Season: February – November.
Distribution in the research area: Balakot, Kawai, Paras, Manur.
Salient features:

A small evergreen tree; flowers yellowish, dioecious; male flowers in terminal clusters, erect spike-like, female flowers spicate, fruit a capsule (Smith, 1986).

Ethno medicinal uses:

Gland and hairs on fruit are bitter, cathartic and styptic. Used as dyeing agent. Wood is used for fuel and rarely construction.

Fumariaceae
Fumaria indica (Haussk)
Synonyms: Fumaria parviflora
Local names: Shatara (Baluchi);Pita papara, Papra (Punjabi Hindko).
English name:Fumitory.
Part used: Whole plant
Flowering season: Mach-April.
Distribution in the research area: Balakot, Kaghan, Kanshian, Ghanul, Kawai, Paras, Jared, Manur, Phagal, and Naran etc.
Salient features:

A scandent-branched, annual herb flower pinkish or white. Sepal minute and upper petal with short sub-orbicular. Fruit globose, brownish. (Jafri, 1974).

Ethno-medicinal uses:

The decoction of the plant is used in fever to lower the temperature. It is also used as blood purifiers, stomach troubles and in all blood diseases. The juices mixed with honey useful in syphilis,

scrofula, leprosy and constipation. Locally used as fodder and in dried form as fuel for Tandoor.

Family: Fagaceae

Quercus incana, Rox.

Synonyms: *Quercu dialbata*, Wall. *Quercus lanata* Smith;

Local name: Salia supari (Kashmiri); Ban shindar, Kharpata serci (Punjabi) Serie (Pushto), Rin (Hindko)

English name: The Grey oak, Kumaon oak.

Part used: Bark

Flowering season

Distribution in the research area: Balakot, Sangar, Hangrai, Kawai, Paras, Manur, Kaghan etc.

Salient features:

A large evergreen tree, bark dark gray; male spikes slender, drooping; female flower axillary, sessile; fruit nut (Nasir 1976).

Ethno-medicinal uses:

The wood is employed for building and especially for making agricultural implements such as plough, handles and beams. The branches are used in roof making. It is also used as a fuel for making fire and charcoal. The acorns are given as a diuretic and in gonorrhea and also as astringent in indigestion, especially of that of children and in asthma. Before being administered, they are usually buried in the earth to remove their bitter principle

Family: Hypericaceae (Guttiferae).

Hypericum perforatum L

Synonyms: *Hypericum cernuum* Roxb.

Local name: Chamba, Sharan Gulab (Hindko, Urdu).

English: Common St. John's Wort

Part used: Whole plant

Flowering Season: February – April

Distribution in the research area: Balakot, Kawai, Paras, Malkandi, Kaghan

Salient features:

An erect medium size perennial herb; flowers yellow, in terminal or axillary short-stalked clusters; fruit capsule (Robson, 1973).

Ethno-medicinal uses:

The herb is astringent, detersive, anthelmintic, emmenagogue, diuretic, and poisonous to animals. The red juice is reputed as a popular and most curative application for excoriations wounds and bruises. A poultice along with seasmum oil is used in pussy wound healing and rheumatism

Family: Lamiaceae (Labiatae)

Ajuga bracteosa Wall.
Local name: Kauribooti , Urdu), Kamargul (Phushto), Jan-i-Adam (Hindko).
Part used: Whole plant
Flowering season
Distribution in the research area: Gahri, Balakot, Kawai, Paras, Manur and Naran.
Salient features:

Annual or perennial herb spikes much shorter than the leaf, corolla pale blue or lilac, pubescent, lip erect 2-fit (Hedge, 1990).

Ethno-medicinal uses:

The decoction of the plant is used in kidney pain, fever and as cooling agent. The plant is regarded as a bitter astringent, also used as stimulant, diuretic and aperients the smoke from fire is insect repellent.

Mentha longifolia L.
Synonym: *Mentha spicata* var longifolia L.
Local Names: Jangali podina (Urdu), Enalay (Pushto)
English: Mint
Part used: Whole Plant
Flowering season:
Distribution in the research area: Balakot, Kawai, Jared, Mahandri & Kaghan.
Flowering Period: July To September.
Salient features:

Annual herb with aromatic smell, inflorescence verticellaster; fruit Nutlets (Hedge, 1990).

Ethno-medicinal uses:

Locally the leaves are boiled in water along with cardamom seed or leaves powder is given along with green tea to children as antiemetic specially in chronic diarrhea. Also used as carminative in gas trouble and eaten in the form of chutney especially in summer along with butter to prevent the attack of diarrhea. *Mentha* roots are boiled in water and then the decoction is given to cattle's for fever and for increasing their milk

Family: Maliaceae
Melia azedarach L.
Synonyms: *Melia orientalis M. Roem.*
Local names: Bakayan (Urdu), Drek (Punjabi), Draik (Hindko), Bakayana (Pushto), Drem (Sindhi)
English: Persian lilac, bead tree
Part used: Whole plant
Flowering Season: March – May

Distribution in the research area: Common throughout Lower Kaghan.

Salient features:

A moderate-sized deciduous tree with long shallow vertical fissures; leaves bi-or tripinnate; flowers 8 mm, bisexual; fruit drupe yellow and purple when ripe (Abdullah, 1972).

Ethno-medicinal uses:

. The fruits and leaves are mixed with wheat and other crop plant to prevent the attack of insect, pest before storing. Leaves, bark and fruits accredited with insect- repellent properties. Leaf juices are anthelmentic, diuretic and emmenagogue. A gum collected from the tree used in spleen enlargement and infusion of the bark is used in ascries. Wood used for toys, cigar and packing cases; turnery, musical instruments also suitable for agricultural implements, and ornamental plywood. When the leaves become mature are good fodder for cattle.

Family: Moraceae

Morus alba L.

Synonyms: *Morus. indica* L *Morus. acidosa* Griff.

Local names: Shah Toot (Urdu), Toot, Chitta Toot (Hindko).

English: White Mulberry.

Part Used: Fruit, Bark

Flowering period: March-April

Distribution in the research area: Balakot, Kaghan, Kanshian, Ghanul, Kawai, Paras, Jared, Manur, Phagal, and Naran

Salient features:

A medium sized deciduous tree; flowers greenish, sexes often on different branches occasionally on different trees; male spike 1.2-3.8 cm long; female spike ovoid, sweet ovoid, white or reddish black when ripe (Ghafoor, 1985).

Ethno-medicinal uses:

Fruit is diaphoretic, refrigerant in fever and used as a remedy for sore throat, dyspepsia and melancholia. The bark is purgative and anthelmentic. Leaves can be eaten as vegetable, also as cattle fodder; mainly used for rearing silkworms, Wood is used chiefly for hockey sticks, rackets, bats and other sport goods and also suitable for house-building, agricultural implements, furniture. Branches are used as fuel and to support the tomato and pea plants.

Family: Plantaginaceae

Plantago ovata Forks;

Synonyms: Plantago. ispagula

Local name: Ispaghula, ispaghul (Urdu, Hindko, Punjab); Speghol (Pushto).

English name:Ispaghul or spogel seed.

Pat used: Seeds

Flowering season: March-Jun

Distribution in the research area: Garhi, Jagir Balakot, Kawai, Manur, Kaghan and Naran.

Salient features:

Small annual or perennial herb, flower stalks numerous, stout, smooth, flowers large, seed boat shaped (Kazmi 1974).

Ethnomedicinal uses:

The seeds are locally used in stomach troubles, catarrh, blenorrhoea, gonorrhoea, and affections of the bladder, urethra and kidney. It is also demulcent, cooling, diuretic, and is used in inflammatory conditions of the mucous membrane of gastro-intestinal and genitourinary tracts. An emollient poultice is made of the compound seeds with vinegar and oil for use over swellings of rheumatism and gouty affections form. The seed are mixed with cool drnks in summer.

Family: Polygonaceae.

Rumex hastatus D. Don

Local Names: Khatambal (Hindko). Chhika (Urdu), Saluni (Punjabi)

English name: Bladder dock.

Part used: Leaves, Juice, Seed

Flowering Season: May-August

Distribution in the research area: Common throughout Hazara.

Salient features:

A small, smooth, pale green annual herb; flowers small, pink or white, male and females separate, fruit nut (Ali and Qaiser 2001).

Ethno-medicinal uses:

Juice of leaves act as cooling, astringent, diuretic, aperients; also used in snakebites. Seeds are cooling, used in dysentery and scorpion sting. Leaves rubbed on the affected parts for relief from irritation caused by stinging nettles (*Urtica dioica*). Also cooked and consumed as vegetable. Fresh leaves are crushed and used to stop bleeding from wounds. Locally used to clean rusted vessels and as fodder for cattles.

Family: Punicaceae

Punica granatum L.

Local Names: Anar (Urdu, Punjabi), Daruna, Daruni (Hindko).

English name: Pomegranate

Part used: Flower, fruit and bark of stem

Flowering Season: April – July.

Distribution in the research area: Balakot, Paras, Manur, Kaghan, Naran..

Salient features:

Usually deciduous shrub but sometime a small tree; flower scarlet red, or white; fruit globular, crowned with calyx and with a thick leathery rind, pink juicy seed (Ghazanfer, 1976).

Ethno-medicinal uses:

The seeds are put in water, boiled, cooled down and used for headache, cold and flue. The bark of stem, flower buds and roots are used as anthelmintic, leucorrhoea, haemorrhage and tuberculosis disease of children. The powdered rind is mixed with honey and taken with black tea to relive dry cough. The stem and branches are used as fuel. The seed and juices are refrigerants especially in fever. Especially young ladies use the sour seed in curries and chutneys in menstruation period. Rearly the leaves are used as fodder.

Family: Pinaceae

Pinus wallichiana A.B.Jackson.

Synonyms: *Pinus excelsa* Wall. *Pinus griffithii* McClelland.

Vernacular Names: Blue pine (English), Biar, Kail (Hindko).

Local Names: Chil, Chir (Urdu, Punjabi)

English: Blue pine

Part used: Resin, Wood, Bark, and leaves

Flowering Season (cone): April – June.

Distribution in research area: Lachi Khan, Mukhair, Malkandi, Naran, Manur and Kamalban depending upon the aspect, its distribution varies from 1370 to 2950 meters.

Salient features*:*

Tree up to 30 m tall. Bark gray, scaly; branches whorled; male cones 1-15 cm long, in dense clusters; female cones 2-3 at the tips of branches (Lindly, 1987)

Ethno medicinal uses:

The wood is of good quality and yields valuable timber and good quality sleepers. The wood is highly resinous and therefore used for house building, furniture making, vehicles flooring, packing cases, agricultural implements, fencing, poles, crates, doors, frames, etc. The easily ignited wood and resin is used as torches. Oil of pine (turpentine) and resin is an important ingredient in medicine, paints, incense, ink, lubricants, perfumes and insecticides etc. Medicinally wood is diaphoretic and stimulant; also used in cough and ulceration.

Pinus roxburghii Sargent.

Synonyms: *Pinus longifolia* Roxb.

Local Names: Chir (Hindko, Urdu, Punjabi). Nakhtar (Pushto), Chir, Chil.

English Name: Chir pine, long leaved pine

Parts used: Resin, bark, leaves and seeds

Flowering Season (cone): February – April

Distribution in research area: Balakot, Paras, Manur, Kaghan, Naran.

Salient features:

A tall evergreen tree with whorled branches; female cones solitary or 2-3 at the tips of branches, mature ones woody; bract and scale distinct (Lindly., 1987)

Ethnomedicinal uses:

Cultivated for ornamental purposes. The seeds are edible. The wood is used as fuel and can be easily ignited because of the presence of resin. Dried leaves are used in fruit storing and along with branches and female cone also act as fuel.

Family: Paeoniaceae

Paeonia emodi Wall ex.Royl,.

Local names: Mamekh (Punjabi, Hindko and Pushto). Mid (Kashmeri), undsalib (Urdu).

English names: Paeoney rose, Himalayan peony.

Part used: Rhizome

Flowering period: March-April

Distribution in the research area: Kanshian, Ghanul, Bhunja, Manur, Kaghan and Naran.

Salient feature:

Perennial tall glabrous herb; leaves biternate; flowers solitary, fruit follicle (Nasir, 1978).

Ethno-medicinal uses:

Locally tuberous roots are used in rheumatism, in uterine diseases, colic, bilious, obstruction, dropsy, epilepsy, convulsion, hysteria, tonic, stimulant and blood purifier. It is also used in cholera and whooping cough. The seeds are emetic and cathartic and used in veterinary medicine.

Family: Rubiaceae

Randia tetrasperma (Roxb.) Bth. and Hk.f.

Synonyms*: Gardenia tetrasperma* Roxb*. Randia dumatorum* (Gaertn.)

Local name: Gangeri, Kikra, Kukal, Khukhuri (Hindko), Mainphal (Urdu), Mindla (Punjabi.

Part used: Fruit

Flowering Season: April – July

Distribution in the research area: Balakot, Kanshian, Ghanul, , Paras, Jared, Manur.

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Salient features:

A large shrub with horizontal spines; flowers hairy, yellowish-white, fragrant; fruit berry, fleshy (Nazimuddin and Qaiser 1989).

Ethno-medicinal uses:

Fruit is irritating and emetic; used as fish poison. Pulp of fruit is used in dysentery, as anthelmintic, abortifacient. Wood used for making walking stick, ploughs, mathematical instruments. Plant browsed by goats and lopped for fodder and rarely as fuel.

DISCUSSION

Herbal recipe collection for medicinal purposes was one of the most popular aspects of vernacular medical literature in the early modern period. The popularity of these texts is attested by a large number of manuscript and printed materials in various libraries of the world. In the last five years, there has been a flourish of research on both medicinal and culinary recipes. Scholars from diverse disciplines have begun to realize and understand the important role-played by these herbal recipes in modern period. The recipe collection will allow us better access to science, medicine and literature. Traditional medicine has maintained its popularity in a number of Asian countries including Pakistan as the local people have centuries old indigenous knowledge of traditional uses of most of the plant of the area. This indigenous knowledge of plants is transferring among them from generation to generation.

Gastrointestinal disorder is a syndrome manifested by waves of intense muscular cramps, frequent passage and small-volume of bloody mucoid stool. The skin is wrinkled, dry and cold. The toxin produced by bacteria cause fluid loss in the small intestine, leading to dehydration and salt imbalances (Paul and Roth, 2001).

The recipes listed in table 1 compensate the disorder of diarrhea and dysentery leading to dehydration and salt imbalances. The plants which either stop or kill the harmful bacteria in these recipes are *Adiantum capillus-veneris, Feoniculum vulgare,Calotropis procera, Gymnosporia royleana, Lepidium sativum, Punica granatum, Ocimum albus, Ammi visnaga, Eletteria cardomomum, Cuminum cyminum, Coriandrum sativum, Ferulla asafeotida, Mentha longifolia and Zingiber officinale.* According to Youngken (1950) and Khan (1958) the main constituent of these plants are the essential oils. The antimicrobial activity of plant may reside in a variety of different components, including aldehyde and phenolic compounds (Lai and Roy 2004) The antimicrobial activity of essential oils is assigned to a number of small terpenoids and phenolic compounds (thymol, carvacrol, eugenol), which also in pure form demonstrate high antibacterial activity. The antibacterial and antiseptic properties of the above mentioned plants are also supported by (Nadkarni,1927;Youngken,1950; Mukarji, 1953; Khan and Zaidi, 1991; Kashyap and Chand, 1992; Bhattaria, 1992; Conner, 1993,

Gul,1994; Jain, 1996; Said, 1996; Prashanth *et al.* 2001; Matin *et al*. 2002; Vector *et al.* 2002;Petrovic *et al* .2004;Pal *et al.* 2006) On the other hand mucous membrane damage during diarrhea and dysentery is repaired by ingredients of plants such as *Aloa barbadensis, Acacia arabica, Bauhinia varigata, Justicia adhatoda,Lepidium sativum, Plantago ovata and Myristica fragrans*. These plants contain mucilage, which not only act as antibacterial but also lubricate the intestinal tract.. (Varavithya *et. al* 1989; Anokbongoo *et al*.1990; Grosvenor *et al.* 1995; Somro *et al*., 1997; Cousins, 1995; Shehzad and Qureshi, 2001).

According to Brock *et al*. (1984), Said (1996), Khan (1999), Shehzad and Qureshi (2001) these plants also act as carminative, stomachache and antiflatulent.

Dehydration produces salt imbalances and nutritional deficiency. Milk, sugar, molasses and butter (desi ghee) compensate these disorders, as these constituents are the rich source of minerals elements necessary for the normal growth (Winton and Kate, 1935). *Sesamum indicum*, *Quercus incana* and *Pistacia integerrima* are the rich source of digestive enzymes and have antibacterial activities (Gbile *et. al*. 1990; Matin *et. al*. 2002). The curd, which is the rich source of beneficial microflora in the digestive tract, is the minor component of some recipe (Winton and Kate, 1935). The results are further supported by previous reports that the methanol extracts of *Quercus ilex* leaves from Turkey (Gulluce *et al*., 2004) and *Quercus robur* bark (Andrensek *et al.,* 2004) show antibacterial activities. Similarly Berahou *et al.* (2007) reported the antibacterial activity of the different extracts of the bark of *Quercus ilex*

The main causes of abdominal pain is the presence of infection bacteria, worms and accumulation of gases or the presence of obstruction in the gastrointestinal tract (Brock *et al*. 1984).. The recipes mentioned in table 2 are best remedies for the cure of abdominal disorders. The ingredients *Ajuga bracteosa ,Feoniculum vulgare, , Amaranthus viridis and Mallotus philipensis* act as an antibacterial, antiviral and anthelmentic component(Mukarji, 1953; Virendra and Singh, 1994 and Said, 1996; Prashanth *et al.* 2001; Matin *et al*. 2002; Vector *et al.* 2002;Petrovic *et al* .2004;Pal *et al.* 2006).While the *Azadirachta indica, Ammi visnaga Coriandrum sativum, Cuminum cyminum, Eletteria cardimomum and Myristica fragrans* act as antispasmodic, carminative and antiflatulent (Zaman and Khan, 1970; Gbile *et al.* 1990; Kashyap and Chand 1992; Rios *et al*. 1988).

According to Said (1996) the *Coriandrum sativum* is also a rich source of vitamin c and it strengthens the immune system of the body against diseases.

The intestinal parasites living within the duodenum of the human beings are constantly bathed by nutrients rich fluid from which they absorb their food and in return disrupt the function of the organ resulting in diarrhea and dysentery (Brock *et al*. 1984). For such type of disorders associated with worm infection the suitable recipes are shown in table 3.The major ingredient in these recipes have got multipurpose uses against various disease beside possessing anthelmentic properties. The *Amaranthus viridis, Chenopodium album, Cichorium intybus, Mellia azadirach, Morus alba and Solanum nigrum* act as laxative (Youngken,1950; Jain, 1996; Gbile *et al.* 1990; Rios *et al.* 1988; Said, 1996 and Matin, *et al*. 2002). *Paeonia emodi ,Artemisia maritima, Crocus sativus, Momordica charantia ,Randia tetrasperma, Amaranthus viridis, Cuscuta reflexa, Fumaria indica, Hypericum perforatum acts as* antispasmodic, antiflatulent and demulcent, while the *Artemisia maritima, Fumaria indica , Momordica charantia, Pistacia integerrima, Emblica officinale* and *Pinus wallichiana act* as antibiotic and tonic (Youngken,1950; Ahmad, 1956; Wren, 1956; Zaman and Khan, 1970; Haq and Hussain, 1993; Rios *et al,.* 1988; Said, 1996; Gang,1997). The minor constituents such as Molasses (ghur) and sugar are used as the readily available source of minerals and energy.

It is evident from the above that the recipes which were used by the inhabitant of the area are very well supplemented with ingredients for the relief of all type of disorders associated with gastrointestinal tract. These recipes were prepared according to the need of the body and disease. Not only the main disease is treated, but attention is also given to the side symptoms associated with the disease so these recipes are very accurate and well suited for these ailments.

Table-1. Plant recipes used in diarrhoea and dysentery.

Major component	Ingredients	Method of preparation	Dosage	Uses
Adiantum capillus veneris	Rhizome of *Adiantum capillus – veneris, Papaver somniferum*, seed and fruits of *Foeniculum vulgare* (20g each)	An infusion is prepared by soaking the ingredients overnight in 10 liter of water. The next morning the decoction is prepared by boiling the infusion till the volume of the liquor is halved. The decoction is sieved through a cloth sugar is added and stock in bottles	25 ml at night and early in the morning before breakfast	Now this decoction is use for diarrhea and inflammation of stomach
Aloe barbadensis	About 350 g, each of dried *Aloe barbadensis* and *Zingiber officinal, Ferulla asafeotida* gum and *Sesamum indicum* oil (1 Liter), *Pistacia integerrima*	About 350 gm, each of dried *Aloe barbadensis* and *Zingiber officinal* are grounded separately and sieved through a cloth and added to *Sesamum indicum* oil and heated. The *Ferulla asafeotida* gum is added. The mixture is clothed filtered after sometime and reheated. To the hot oil are added *Pistacia integerrima* and wax. When both the ingredients dissolve, the liquid is taken off the fire and stocked in bottles	a) 1-2 spoonful twice a day b) Applied on the inflamed spot twice a day.	a) Severe dysentery b) Suppository for internal organs e.g. liver, stomach and bowels. C)Antiphilogistic and detersive for uterus inflammations
Calotropis procera	*Calotropis procera* Flower *50g and Papaver somniferum, Eletteria cardomomum(20 gm* each)	The flowers of *Calotropis* are dried and then grind along with the remaining two ingredient. The powder is stored in bottles.	The powder “which “is locally called Talley (about one teaspoonful) three time daily.	Cholera and severe dysentery

Major component	Ingredients	Method of preparation	Dosage	Uses
Feoniculum vulgare	Dried fruits of *Foeniculum vulgare, Ammi visnaga*, capsule and seeds of *Papaver somniferum* (20g each) 'desi ghee' 100ml and sugar 200g	The entire ingredient is roasted in 'Desi ghee'. When the mixture become red in color then sugar is added and grounded into powder form to form a powder	About one teaspoon thrice a day.	It is a very good remedy for bleeding and non-bleeding and all types of dysentery and diarrhea.
Gymnosporia royleana	*Gymnosporia royleana* 20g, water 2 L, sugar 10 g and table salt 1 g	The entire components are boiled together for one hour, cooled and stoke in bottles.	1-2 teaspoonful twice or thrice a day	For colic, dysentery and diarrhea in children
Justacia adhataoda	*Justacia adhataoda*, *Camellia sinensis*, and *Foeniculum vulgare* (10g each)	The leaves of *Justacia adhataoda, Camellia sinensis, and Foeniculum vulgare (10g each)* are boiled in 8 liters of water at night and left overnight. The decoction is filtered and stored in bottles	Drink early in the morning before breakfast. Some people also drink it before dinner	It is very effective for the stomach pain and Bleeding dysentery. Also controls the sugar level in the blood
Lepidium sativum	Seed of *Lepidium sativum* 20g, 'Desi Ghee' 10 g and milk 1 glass	The above constituents are boiled together for 15 minutes and partly cooled.	One teaspoonful thrice a day;	Best remedy for curing cholera and abdominal pain.
Malia azadirachta	*Malia azadirachta* (leaves) *Acacia arabica* gum, *Myristica fragrans* fruits *Cuminum cyminum, Punica granatum* flowers (50g each) 5g of opium latex	The weighed quantity of the given components are grounded together and make into powder(safuf). Then 5g of opium latex (Afium) is soaked in 100 ml of water in a cup for a night, warmed on next morning and dissolved in water. The safuf is also added and kneaded and then cut into small pieces, which are dried and stored in bottle.	One piece after 4 hours dissolved in mother milk	1) Anti dysenteric for children. 2) Purgative in children

Major component	Ingredients	Method of preparation	Dosage	Uses
Mentha longifolia	*Mentha longifolia and Foeniculum vulgare(15 g)* outer covering of orange(*2g)* water 2 liter	*Mentha* leaves are grinded and then boiled in water along with and fennel and outer covering of orange . After cooling down the decoction is stored in bottles.	Used three times a day from one to two teaspoon, usually given to children.	It is very useful in diarrhea, dysentery, abdominal pain and fever. It also make good vision of the eyes and used for body cooling
Plantago ovata	*Plantago ovata*, *Ocimum album* seeds, (30g each)*Bambusa arundinacea, Rumex hastatus* seeds (50g each), *Acacia arabica* gum (20g)	*Bambusa arundinacea, Rumex hastatus* seeds, *Acacia arabica* gum, and wheat starch are grounded together and sieve through a cloth. Afterward the seeds of *Ocimum album*, *Plantago ovata* seeds are added to the sufuf and stored in a glass vessel.	Very useful as astringent	In chronic dysentery
Punica granatum	*Punica granatum* L. seed root, bark of stem and Rind of fruit (20g separately) Sugar (5gm) Milk (one glass) :	One of the given plant components is dried, crushed into powder, boiled in one glass of milk and 5 gm of sugar. The decoction is prepared and stoked in a vessel	A single cup of this decoction is taken before breakfast early in the morning	For body cooling, abdominal pain dysentery, diarrhea, burning of urine controlling of excretion of urine during sleeping especially in children

Major component	Ingredients	Method of preparation	Dosage	Uses
Quercus incana	Dried *Quercus incana*, *Emblica officinalis and Terminalia chebuba peel (200g each) Crocus sativus* (1g) Opium latex (2g)	The first three Dried ingredients are grinded and made into powder by sieving through a cloth. Camphor is now placed in a mortar and the powder is added to it gradually by triturated till the camphor's and the powder mix. Finally grounded *Crocus sativus* is now added in the mortar. Opium is separately heated in 100 ml of water till it dissolves. Finally the powder is kneaded in the opium solution, dried and preserved in bottle	About 5 g before bed time with water.	It is best anti dysenteric, antispasmodic, and anodyne. Prevent excessive dejection. In case of heaviness in the stomach, the intestine should be cleaned with castor oil after which the medicine may be used.
Rumex hastatus	Seeds *of Rumex hastatus*, *Lepedium sativum and Ocimum albus* (Each 30g) and *Acacia arabica* gum (10g)	About 30g each of *Rumex hastatus*, seeds, *Acacia arabica* gum and wheat starch (Nishasta) are grounded and sieved through a cloth. Afterward 50 g seed of *Lepedium sativum and Ocimum albus* are added to the safuf.	5 g soaked in ghee thrice a day.	Very effective as 1) Astringent for bilious dysentery. 2) Alleviate the heat of the liver. 3) Febrifuge in chicken pox and small pox. 4) Curative for bilious and bleeding dysentery

Table-2. Plant recipes used in abdominal pains.

Major component	Ingredient	Method of preparation	Dosage	Uses
Ajuga bracteosa	*Ajuga bracteosa(500g)* Sugar (200g)	The plant is kept overnight in water and the next morning decoction is prepared. To the decoction sugar is added and stocked in bottles	Half a cup twice a day	Fever Removal of abdominal pain
Cuminum cyminum	*Cuminum cyminum* seed, Honey, table salt and clarified butter	Cumin seeds are grinded and a paste is prepared by mixing the given components. The past is stored in glass vessel	1 to 2 teaspoonful early in the morning and evening dissolving in milk	Proves effective against abdominal pain, , in diarrhea and dyspepsia. insect bite
Foeniculum vulgare	*Foeniculum vulgare, Eletteria cardomomum, Bambusa arundinacea, Coriandrum sativum (100g)* and white sugar (200g)	The above ingredient and white sugar are grinded together sieved through a cloth and made into a powder (safuf). Afterward Sodium bicarbonate and safuf are mixed together and store in a glass jar.	50 mg to 1g to be given to children	1) Useful for person suffering from indigestion after meals. 2) Digestive and appetizing. 3) Best carminative
Mallotus philppinensis	*Mallotus philppinensis(*100 g), *Azadirachta indica* leaves(28 g) sugar (20 g), water (8 litre)	About 28 gm of *Azadirachta indica* leaves are put in a vessel containing, 8 liter water on fire. 100 gm of *Mallotus philppinensis* and sugar (20gm*)* is added by stirring the mixture. After which the mixture is removed from the fire. It is then cloth filtered. The syrup is preserved in bottle	Half a cup early in the morning before breakfast	Abdominal pain and Anthelmintic

Table-3. Plants recipes used as anthelmentic.

Major component	Ingredient	Method of preparation	Dosage	Uses
Amaranthus viridis	Leaves of *Amaranthus viridis* (30 g), guar (2g) and water	Leaves are collected, boiled in water with 'gur' and filter through a cloth	Half a cup twice daily before meal.	Use for expulsion of worms, abdominal pain and diarrhea
Artemesia maritima	50 gm of *Artemesia maritime, water (1 liter), Seasamun indicum* oil (50ml)	Locally about 50 gm of *Artemesia maritima* is soaked overnight in water and boiled for sometime after which it is filtered through a cloth. Then *Sesamun indicum* oil is heated and when very hot the filtered A.*maritima* solution is gradually added till the latter dissolve in the oil .On cooling filter through a cloth and preserved in a jar.	1) 1-2 teaspoonful thrice a day before meal with 'gur' syrup 2) In the form of poultice twice daily	a)Expel all type of worms b) In the inflammation of liver and kidney
Chenopodium album	*Chenopodium album, Cichorium intybus Solanum nigrum (150gm)*	Green *Chenopodium album, Cichorium intybus Solanum nigrum* are grounded and their juices filtered through a cloth-piece. The filtrate is boiled and when the gum part separate from the water the decoction is cooled and filters through a cotton wool spread over the vessel. After ward white sugar and citric acid is added to the filtrate, which is now heated. After heating the filtrate is cooled and stocked in bottles.	About half a cup in the morning.	Especially given to children, which relieve abdominal pain Antiphlogistic for liver stomach and bowels. Very effective in, Jaundice and refrigerant for the liver.
Cuscuta reflexa	*Cuscuta reflexa* ,water and sugar	The plant is soaked overnight in eight times its weight in water and boiled the next morning till the volume of water is halved. On cooling the decoction is filtered through a cloth and sugar is added. The syrup is stoked in bottles	Half a cup morning and evening	a) Anathematic b) Mental disorder

Major component	**Ingredient**	**Method of preparation**	**Dosage**	**Uses**
Fumaria indica	*Fumaria indica* (50gm), sugar (2gm), water ½ liter	The Whole plant is crushed and the juices was extracted . The sugar was dissolved in water. Now the sugar solution and the juices were mixed and preserve in bottles.	3-4 teaspoonful before sleeping	Best anthelmentic
Hypericum perforatum	*Hypericum perforatum* (10gm), water (1/2 liter) and sugar.(3gm)	The whole plant is crushed and put in water along with sugar. Place in dew at night and the next morning filter through a cloth and stored in vessel	Half a cup before breakfast or meal at night	Anthalmentic and blood purifier
Morus alba	*Morus alba* Bark (10g) guar (2g) and milk (2 cup)	The bark of the tree is dried, crushed in to powder, mixed with milk and guar. after boiling filter through a cloth	A single cup is taken before breakfast early in the morning.	For expulsion of worms and purgative.
Paeonia emodi	Leaves of *Ruta graveolens*(50g), *Paeonia emodi* root(50g), *Crocus satives(2g), Mamordica charatia* (100ml), *Ferula narthex* (10)	The leaves of *Ruta graveolens*, *Paeonia emodi* root, are grounded together and sieved through a cloth. Next the hinge (*Ferula narthex*) are finely grounded and triturated with above-mentioned sufuf. Safron (*Crocus satives*) *Mamordica charatia* and water are mixed together and added to sufuf of 1st 4 ingredients	Half a teaspoon with water or mother milk.	Recommended for infantile convulsion
Pinus wallichiana	*Pinus wallichiana* resin,Butter and Honey (10 g each),	All the ingredients are mixed together and stock in bottles.	1 -2 g before meal twice a day	!) Anthelmentic 2) Externally for itching
Randia tetrasperma	*Randia tetrasperma* (5g), sugar and 'desi ghee' (1g each)	The fruit is dried, roasted in ghee, grinded and mixed with sugar	Two-time a day before meal	Anthalmentic, abdominal pain, hepatitis and gas trouble

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