World Health Organization
Regional Office for South-East Asia

Traditional Herbal Remedies for Primary Health Care

Captions for photographs in the front cover:

Upper row, Left to Right: Pods of *Elettaria cardamomum* Linn. and *Holarrhena antidysenterica* Roxb. ex Flem.

Lower row, Left to Right: Fruits of *Phyllanthus emblica* Linn. and *Terminalia chebula* Retz.

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Glossary

Churna	Fine powder of the medicine.
Ghrita	*Ghrita* or *Ghee* is obtained by heating butter at high temperature and it is almost anhydrous milk fat.
Kvatha	*Kvatha* is a liquid prepared by boiling a herbal drug in water till one fourth of water remains and filtered.
Lepa	Local application of paste of the medicine.
Malahara	Semisolid preparation containing a medicine for external application.
Taila	Oil extracted from seeds of the plants.

Foreword

Traditional systems of medicines, including herbal medicines, have been used for many centuries for health care by people in countries of the South-East Asia Region as well as in other parts of the world. Traditional medicine continues to be a valuable source of remedies that have been used by millions of people around the world to secure their health. It has been developed from empirical experiences and from observations made by people who use them. It embodies age-old wisdom and knowledge accrued over thousands of years, and forms an integral part of the social and cultural heritage of peoples and countries. The system has been inherited and handed down from one generation to the next by custom and tradition.

Since the concept of "Health for All" through primary health care (PHC) was launched at the International Conference on Primary Health Care at Alma-Ata in 1978, there has been a global movement to realize universal health-care coverage. However, in spite of advances made in the health sector, equitable health care coverage; availability, accessibility and affordability to conventional health care and services are quite often beyond the reach of people who are indigent, marginalized and underserved. Moreover, the present upsurge in the use of traditional medicines or complementary and alternative medicine – generated after the Alma-Ata International Conference – has become a global phenomenon. This development portends well for a more comprehensive health care delivery and health sector reform in facing new challenges in PHC due to demographic, economic, environmental, and social changes that have a negative impact on health development.

The revitalization of primary health care in 2008 was yet another clarion call for governments, all health and development workers and the world community to protect and promote the health of all people. In these efforts, the rich resources of traditional and herbal remedies are available and accessible to all who choose to use them – by tradition or cultural acceptance in the far and remote corners of countries or by choice of those in the affluent urban communities where there is a desire to return to nature and to use natural remedies in taking care of their own health.

The global health scenario is facing new challenges due to global warming and economic down-turn that are now threatening health development. It is therefore crucial that all systems of medicine – whether conventional or traditional – in so far as they are beneficial and not deleterious to the health and well-being of the people must play their respective roles in promoting health, in preventing disease, in curing the sick, and in rehabilitating the infirm. It is through these concerted efforts that tangible gains can be achieved.

It is envisaged that this publication will be instrumental in revitalizing primary health care in empowering community participation in self-care, in promoting the application of appropriate technology that is socially and culturally acceptable to the people, in making the health system more people-centered, and in improving equitable access to national health systems.

Dr Samlee Pliangbangchang
Regional Director

1

Amalaki powder for acidity and gastritis

Heartburn is due to excessive secretion of gastric acid or its reflux to the food pipe along with delayed gastric emptying and fermentation of food. Gastric acidity and inflammation of the stomach is called gastritis, which produces a common symptom of burning sensation in the middle part of the upper half of the abdomen, while acid reflux causes throat and heartburn and delayed gastric emptying with fermentation leads to gaseous distension of abdomen and belching. These abnormalities lead to symptoms like nausea, loss of appetite, indigestion and mild to moderate upper abdominal pain and distress.

Frequent dietary irregularities and ingestion of irritant materials like too spicy and sour foods, alcohol and analgesic drugs like aspirin are the common causes of acidity and gastritis. Mental stress significantly aggravates the symptoms of acidity and gastritis.

Ayurveda designates the symptom complex of acid peptic disease as *Amlapitta* attributed to the impairment of digestive juices and protective lining of stomach. Improperly treated acidity may lead to peptic ulcer due to damage in the mucosal lining of the stomach and duodenum. Judicious use of *Amalaki* powder is effective in successful management of acidity and gastritis with certain do's and dont's described in the Ayurvedic texts:

(1) It is advisable not to overeat and have long gaps between meals. Small frequent meals of soft and easily digestible food items should be taken.

(2) Consumption of raw and leafy vegetables, fried, spicy, sour, salty, heavy and improperly cooked food, sheep's milk, alcohol, curd, sesame seeds should be avoided.

(3) Use of vegetables with bitter taste such as bitter gourd, banana flowers, and pumpkin, pomegranate, honey, boiled and cooled water and food grains like wheat, rice and barley is beneficial in patients with acidity and gastritis.

(4) Suppression of natural urges, particularly of vomiting and passing stools should be avoided.

Amalaki (*Phyllanthus emblica* Linn.)

The formulation is made from the dried mature fruits of *Amalaki*, which is a small or medium-sized tree found abundantly in mixed deciduous forests and cultivated in gardens and home yards. Ripe fruits are collected in late winter or early summer and are dried in shade. Dried fruits are then separated from the seeds and are kept in airtight plastic bags or boxes under dry storage conditions. Extensive uses of *Amalaki* as medicine and tonic are described in Indian Medicine and the medicinal plant is included in the Ayurvedic Pharamacopoeia of India[1].

Composition: The formulation is a fine powder made of single herbal ingredient *Amalaki*.

English name	Indian gooseberry
Latin name	*Phyllanthus emblica* (Linn.)
Family	Phyllanthaceae
Plant part used	Fruit

A leafy branch of *Amalaki* with fruits.

Dried fruits of *Amalaki.*

Main chemical constituents[2]: Vitamin C, minerals and amino-acids.

Quality standards[3]

Purity and strength of dried mature fruits of *Amalaki* is determined on the basis of:

Foreign matter	Not more than 3%
Total ash	Not more than 7%
Acid insoluble ash	Not more than 2%
Acid-soluble extractive	Not less than 40%
Water-soluble extractive	Not less than 50%

Method of preparation

(1) Seedless dried fruits of *Amalaki* are cleaned and ground into fine powder using a grinder or pulverizer.

(2) Powder is sieved through mesh 80 to remove coarse particles and fibers.

(3) The powder should be kept in a dry airtight container to prevent exposure to moisture.

(4) Potency of the properly preserved dried fruits lasts for one year.

Dosage form: Fine, sour-tasting grayish to blackish powder.

Therapeutic properties[4]: Antacid, anti-ulcer, anti-emetic, anti-inflammatory, antioxidant, immunomodulator, rejuvenator and a rich source of vitamin C.

Dose and mode of administration

In adults, the dose of *Amalaki* powder is 3 to 6 grams and in children 500 mg to 1 gram, twice a day, to be swallowed on an empty stomach or just before meals with water.

Indications and uses

(1) Hyperacidity, gastritis, anorexia, vomiting during pregnancy and anaemia associated with chronic acid peptic disease are the common indications for *Amalaki* powder.

(2) Clinical trials have proven *Amalaki* to be effective in the management of acidic gastritis, non-ulcer dyspepsia and duodenal ulcer with significant prevention of recurrence of symptoms.

(3) *Amalaki* powder can also be used as a natural supplement of vitamin C in nutritional deficiencies, pregnancy and chronic diseases.

Precautions and safety aspects

(1) *Amalaki* powder is generally a safe medicine. No toxic or adverse effects are reported even with continuous use. Assay study for cellular toxicity of crude alcoholic extract of *Amalaki* has proved it safe. Safety of *Emblica officinalis* is attributed to its anti-mutagenic, anti-microbial, anti-inflammatory, anti-carcinogenic, anti-oxidant, anti-tumour and immuno-modulatory activities and numerous indications for its use in children and pregnant women. It is also safe to the baby if the nursing mother is taking this medication.

(2) Individuals sensitive to sour taste should add sugar to the formulation or consume it in capsule form. Mixing it in warm water or with sugar or honey makes ingestion of *Amalaki* powder easy.

(3) *Amalaki* has a cooling property and hence individuals intolerant to cold should consume it with ginger powder and warm water or honey. Even then if symptoms worsen, medication with *Amalaki* powder may be stopped.

(4) It is advisable for patients of acidity and gastritis to avoid the intake of spicy, hard, heavy, dry and raw foods, particularly leafy vegetables and salad. Tendency of overeating and frequent munching and use of alcoholic beverages should be avoided.

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2

Trikatu powder for common cold

Common cold or coryza is a common respiratory problem caused by a variety of viral infections; commonest among them is the influenza virus and its variants. Individuals show considerable variation in susceptibility and environmental exposure is a contributory factor.

The word "cold" is a catch-all term that describes symptoms such as sneezing, wet nose, running nose, scratchy throat, heaviness in head, body ache, headache, indigestion, nausea, stomach ache, vomiting, diarrhoea and fever.

Frequent attacks of cold are a reflection of a temporary dip in immunity that is most often caused by insufficient rest; too many rich foods, stress and exposure to cold and dampness can also precipitate its occurrence. Frequent colds can make the individual vulnerable to secondary lower respiratory tract infections. Early and consistent attention, along with adequate time for convalescence, keeps all colds from becoming problematic.

Trikatu is a simple herbal preparation with which common cold can be managed successfully taking prescribed precautions:

(1) Patients suffering from common cold should prevent direct exposure to cold wind, intake of heavy meals, drinking of cold water, suppression of natural urges of stools, urine and flatus, sleeping on the floor and during daytime.

(2) Light meals with spicy, sour and salty taste, curd, garlic, frequent drinking of warm water, fresh radish, brinjal (eggplant), and hot soup of green gram are helpful in common cold.

(3) Covering head with cap or any warm cloth, steam bath, head massage, gargles with warm water and avoidance of anger facilitate recovery from the common cold.

Trikatu powder

Trikatu powder is a simple formulation made by mixing fine powders of three commonly used herbal drugs in equal quantity namely dry ginger (*Shunthi*), black pepper (*Maricha*) and long pepper (*Pippali*). *Trikatu*, literally means 'three pungents,' because all the three ingredients are predominantly of pungent taste. All the three are spices used commonly in the kitchen and traded widely from India since ancient times.

Composition

Trikatu powder consists of fine powder of three pungent drugs viz. *Shunthi, Maricha* and *Pippali* in equal proportion. *Shunthi* is the dried rhizome of ginger. *Maricha* is the dried fruit of black pepper and *Pippali* is the dried fruit of long pepper.

Name	English Name	Latin Name	Family	Part used
Shunthi	Dry ginger	*Zingiber officinale* Rose.	Zingiberaceae	Rhizome
Maricha	Black pepper	*Piper nigrum* Linn.	Piperaceae	Fruit
Pippali	Long pepper	*Piper longum* Linn.	Piperaceae	Fruit

Dried rhizomes of *Shunthi.*

Dried fruits of *Maricha.*

Dried fruits of *Pippali.*

Main chemical constituents of *Shunthi*[1]: Essential oil, pungent constituents (gingerol and shogoal), resinous matter and starch.

Main chemical constituents of *Maricha*[2]: Alkaloids (piperine, chavicine, piperidine and piplartine) and essential oil.

Main chemical constituents of *Pippali*[3]: Essential oil and alkaloids (piperine, sesamin and piplartine).

Quality standards

Ingredients	Total ash	Water soluble ash	Alcohol/ ethanol soluble extractive	Water soluble extractive	Foreign matter
Shunthi[4]	Not more than 6%	Not more than 1.7%	Not less than 4.5%	Not less than 10%	Not more than 2%
Maricha[5]	Not more than 6%	Not more than 1% (acid soluble ash)	-	-	Not more than 2%
Pippali[6]	Not more than 5%	Not more than 6% (acid soluble ash)	Not less than 12%	Not less than 11%	Not more than 2%

Method of preparation

(1) Take 50 grams of each of the three ingredients, dry them further to remove the moisture for easy powdering.

(2) Take an equal quantity of each drug of *Trikatu* and mix well in a dry container.

(3) Grind the mixture in a grinder or pulverizer till fine powder is obtained.

(4) Sieve the powder through 85 size mesh to remove the coarse fibers and other particles if any.

(5) Keep *Trikatu* powder in an air-tight dry container of glass or food grade plastic; store in a dry cool place away from direct sunlight. It is good to use the powder within one year.

Dosage form: Blackish-brown fine powder.

Therapeutic properties: Anti-inflammatory, analgesic, expectorant, digestive, carminative.

Dose and mode of administration

Adult dose of *Trikatu* is 2 grams given three times a day preferably with warm milk or water or honey. In children the dose may be reduced according to the age and can be given in a dose of 125 mg to 500 mg thrice a day. Another way is – add *Trikatu* powder to one cup of milk, boil it for a few minutes and take it warm.

Indications and uses

Trikatu is used in combination with honey to alleviate diseases such as colds, rhinitis, cough, breathlessness, asthma, dyspepsia and obesity[7]. It also improves the digestive power.

Precautions and safety aspects

(1) No side effect or toxic effect of *Trikatu* has been mentioned in the classical literature. Clinical studies have also shown no adverse effects in patients treated with recommended dose of *Trikatu* powder alone as well as in combination with other herbal preparations.

(2) Since *Trikatu* powder is hot in nature, large dose should be avoided as the patient may complain of burning sensation, burning micturition, etc. In such conditions, the use should be stopped immediately and the patient should be advised to take cooling agents and milk in plenty till the complaints subside completely.

(3) Take simple diet with warm, light, soft and liquid foods. Avoid cold drinks, cold juices, ice cream, spicy, oily and too dry foodstuff. Stay in a warm and well ventilated room.

(4) Warm saline gargles, steam inhalation and fomentation help in relieving cold symptoms.

(5) Medication with *Trikatu* is not advisable for pregnant women. However, it is safe for the baby if a nursing mother is taking this medication.

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3

Daruharidra decoction for conjunctivitis

Inflammation of conjunctiva causing redness of the eye is conjunctivitis. Conjunctiva is a thin, transparent mucous membrane covering the under surface of the eye lids and it extends from the eye lids to cover the anterior part of the eyeball up to the margin of the cornea.

Common symptoms of conjunctivitis are redness, itching, stickiness, foreign body sensation, irritation, watering from the eyes and sometimes intolerance to light. Vision is generally normal but a slight blurring may occur if excess secretions form a film over the cornea. Conjunctivitis may begin in one eye but often spreads to involve both eyes.

Conjunctivitis is most commonly due to viral and sometimes bacterial infections. But it can also result from allergic reactions or from chemical irritants, air pollution, smoke, shampoos, dirt, swimming pool chlorine or noxious fumes. Rarely, underlying chronic inflammatory conditions can also cause a persistent conjunctivitis. The infectious form of conjunctivitis is very common in children and is highly contagious.

Traditionally, home remedies have been successfully used for soothing inflamed eyes with uncomplicated symptoms, minor infections, or allergies. Treatment consists primarily of cleansing the eyes and preventing the condition from spreading. *Daruharidra* decoction is a popular traditional formulation mentioned in *Ayurvedic* texts for the management of uncomplicated conjunctivitis.

Daruharidra (*Berberis aristata* D.C.)

Daruharidra (Indian berberry) is a shrub or small tree, distributed in the temperate and subtropical parts of Asia, Europe and America.

Daruharidra has been in use (as eye drops/ointment) for centuries for prophylactic as well as curative purposes in common eye ailments like conjunctivitis. It is an important ingredient of many traditionally used formulations meant for local ophthalmic use, commonly as decoction and solidified water extract called *Rasanjana*. These drug forms are used orally, locally as well as for topical ocular preparation. Antimicrobial activity of *B. aristata* is well demonstrated against a variety of bacteria, fungi, protozoas, helminths, chlamydia and viruses. The alkaloid berberine is known to possess anti-microbial properties against gram positive and gram negative bacteria.

Composition

The formulation consists of the decoction or solidified water extract of the stem or root of *Daruharidra (Berberis aristata* D.C.) termed as *Rasanjana.*

English name	Indian berberry
Latin name	*Berberis aristata* D.C.
Family	Berberidaceae
Part used	Stem and root.

Flowering shoot of *Daruharidra.*

Roots of *Daruharidra.*

Main chemical constituents[1]

Alkaloids like berberine, berbamine, aromoline, karachine, palmitine, oxyacanthine and oxyberberine.

Quality standards[2]:

Foreign matter	Not more than 2%
Total ash	Not more than 14%
Acid-insoluble ash	Not more than 5%
Alcohol-soluble extractive	Not less than 6%
Water-soluble extractive	Not less than 8%

Method of preparation

(1) Soak overnight 5 grams of coarse powder of *Daruharidra* in 100 ml of water.

(2) Boil the mixture till half of the water remains and filter it.

(3) Use the filtrate at room temperature to irrigate the inflamed eye(s).

Dosage form: Yellowish coloured liquid.

Therapeutic properties[3]

Anti-inflammatory, antimicrobial, anti-diarrhoeal, anti-trachoma activity, and antipyretic.

Indications and uses

Conjunctivitis, trachoma and eye infection resulting from *Chlamydia trachomatis*, and chronic ophthalmic inflammation.

Dose and mode of administration

(1) Patient is made to lie down on the back with the neck slightly extended. *Daruharidra* is poured on the eye as thin stream with undine or with syringe without injection needle or canula. This procedure can be repeated twice or thrice in a day depending upon the severity of the symptoms.

(2) Generally the eye should be kept closed but in case of eye discharge, pulling the lids apart and irrigating the eye may be required.

(3) In cases where redness and burning sensation in the eye are prominent, irrigating fluid should be cold. When pain and discharge are prominent, then lukewarm decoction should be used.

(4) *Daruharidra* decoction can also be applied in the form of eye drops in conjunctivitis. For this purpose keep 2 ml of the filtered decoction mixed with equal quantity of pure honey in an eye dropper vial and use this mixture within 12 hours by instilling 1 to 2 drops in each affected eye 4 to 6 times a day at regular intervals.

Precaution and safety aspects

(1) Decoction and eye drops solution must be prepared fresh daily and kept in a sterile vessel.

(2) Infection can be easily transmitted by touching or rubbing your eyes, make an effort to avoid it.

(3) Protect the eyes from dirt, sunlight, other irritating substances and from repeated rubbing.

(4) Avoid the use of cosmetics while suffering from conjunctivitis.

(5) Remove contact lens, if it is worn.

(6) For cleansing and soothing the eyes dip a clean cloth in warm water, wring it out and place it on the eye till it becomes cool. Then apply another cloth in the same way.

(7) Avoid prolonged work under artificial light and excessive use of the eyes.

(8) If eye symptoms aggravate or are not relieved within two-three days, seek doctor's advice for necessary treatment.

(9) Strictly avoid sharing clothes, handkerchiefs and towels and wash such items separately.

(10) On coming in contact with a person suffering from conjunctivitis, wash your hands with soap and water properly.

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4

Haritaki powder for constipation

Constipation is a common problem which usually refers to persistent, difficult, infrequent, or seemingly incomplete defecation. Other expressions of constipation include passage of unduly dry and hard faeces, sluggish action of bowel, etc. It is important to note that it is virtually impossible to define what constitutes a "normal bowel movement" in terms of frequency. Generally, frequency of bowel evacuation varies from person to person. As per a person's tendency, lifestyle and dietary habit, frequency of defecation of 1-2 per day to thrice a week is considered as normal bowel habit for that individual, unless it creates any discomfort or disturbs his routine life. The volume of stool passed differs greatly in different races.

Unsatisfactory bowel evacuation is the chief condition for diagnosis of constipation. Some other symptoms which accompany or result from constipation are indigestion, flatulence, abdominal pain or discomfort, headache and sleeplessness. The retention of hard faecal masses may give rise to spurious diarrhoea and in extreme situations can lead to intestinal obstruction especially in frail and bed-ridden older individuals.

Various causative factors for constipation are given below.

(1) Irritable bowel syndrome

(2) Related to diet factors:

- Too bland food, e.g. with low fibre residue
- Too dry and astringent food
- Inadequate fluid intake

(3) Intake of hard water

(4) Metabolic disease like hypothyroidism

(5) Obstructive diseases of lower gastrointestinal tract

(6) Drugs: opium, iron, blood pressure medicines

(7) Irregular bowel habit

(8) Sedentary lifestyle

(9) Depressive disorders

(10) Old age

(11) Suppression of natural urge of defecation

In Ayurveda, various laxative drugs are mentioned to treat such conditions. Out of these *Haritaki* powder is a simple herbal laxative which is frequently used for treating constipation following certain lifestyle changes. Some do's and don'ts given in the Ayurvedic texts are helpful in preventing constipation:

(1) Persons suffering from constipation should not ignore defecation urge nor should they strain for a long time to pass out stools.

(2) Drinking of warm water and milk improves intestinal movements and is beneficial in relieving constipation.

(3) Much deviation from the normal timing of meals and quantity of food should be avoided. It is beneficial to take soft, digestible and semi-solid food.

(4) Heavy and untimely meals, eating food before the digestion of earlier food, and intake of dry, astringent and cold foods hamper intestinal movements adding to constipation.

(5) Regular walking, physical activity and deep breathing and certain edibles like, ginger, lemon, resins, dates, figs and almond oil help in alleviating constipation.

Haritaki (*Terminalia chebula* Retz.)

Haritaki powder is a simple formulation made of its dried ripe fruits. The plant is also named as *Pathya*, owing to its beneficial effect for the channels (patha) of the body. It is not only used for constipation but for various gastrointestinal and systemic problems. Scientific studies have established[2,7] its stomachic, laxative and anti-flatulence actions[1]. Judicious use of *Haritaki* with necessary dietary and lifestyle changes can treat constipation successfully as well as improve the physiological status of the gut.

Composition

Haritaki powder is fine powder of dried ripe fruits of *Terminalia chebula*.

English name	Chebulic myrobalan, Ink nut
Latin name	*Terminalia chebula* Retz.
Family	Combretaceae
Part used	Dried fruits without seeds

A fruit-bearing branch of *Haritaki* tree.

Dried fruits of *Haritaki.*

Main chemical constituents[2]

Anthraquinone, glycoside, chebulinic acid, chebulagic acid.

Quality standards[3]

Identity, purity and potency of *Haritaki* fruits for its oral use is estimated on the basis of the following physical constants:

Foreign matter	Not more than 1%
Total ash	Not more than 5%
Acid insoluble ash	Not more than 5%
Alcohol soluble extractive	Not less than 40%
Water soluble extractive	Not less than 60%

Method of preparation

(1) Take dried fruits of *Haritaki,* remove their seeds and dry them further in the shade avoiding direct sunlight. Fruits should not have been harvested more than six months ago.

(2) Make fine powder in a grinder or pulverizer.

(3) Sieve the powder through 85 size mesh to remove coarse fibers and other particles.

(4) Keep the powder in a dry and air tight plastic or glass container and consume it within six months or before the next rainy season, whichever is earlier.

Dosage form

Brownish fine powder.

Therapeutic Properties[4]

Haritaki has laxative, carminative, digestive, antispasmodic, anthelmintic, anti-microbial, anti-stress and endurance promoting properties.

Dose and mode of administration

To achieve laxative action of *Haritaki*, adult dose of powder is 3 to 6 grams and for children, the dose of *Haritaki* is 500 mg to 1 gram, to be taken with lukewarm water once a day on an empty stomach. It is preferably taken early in the morning or minimum three hours after dinner.

Indication and uses

Haritaki is useful in constipation, haemorrhoids, stomatitis, hyperacidity and associated gastrointestinal disorders.

Precautions and safety aspects

(1) No side or toxic effect of *Haritaki* is reported in classics with its recommended dose. Clinical studies have also shown no adverse effect in patients treated with *Haritaki* alone or with formulations.

(2) It should not be prescribed to pregnant women. It is safe for the baby if the nursing mother is taking this medication.

(3) The astringent and dry property of *Haritaki* may induce nausea in sensitive individuals. This may be masked by consuming it in tablet form or by preparing its decoction and adding jaggery to it.

(4) Dose of *Haritaki* as a laxative varies from person to person according to their constitution, digestive power and bowel habit. Administration of *Haritaki* should be stopped if the desired effect is not achieved.

(5) Sudden altered bowel habit, alternate diarrhoea and constipation or persistence of the constipation in spite of proper administration of *Haritaki*, are the signs of some serious pathological conditions inside the gut. Therefore, the underlying cause must be properly investigated and treatment should be taken under medical supervision only.

(6) Too dry a diet should be avoided and a diet with higher fibre content and liquids is advisable for the patient. Regular and proper lifestyle plays an important role in keeping the gut healthy.

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5

Pippali powder for cough

Cough is a reflex phenomenon characterized by a sudden, violent expulsion of air from the mouth, with or without sputum, after deep inspiration and closure of the glottis. This is the most frequent respiratory symptom. Coughing is an important way to keep the throat and airways clear. However, involuntary excessive coughing means there is an underlying cause that compels the person to cough.

The cough may be dry or productive. In dry cough there is only explosive sound with no or little material coming out from the airways. Whereas a productive cough is one that brings up phlegm or sputum, at times mixed with pus or blood or both. Cough can be either acute or chronic. Acute cough usually appears suddenly, goes away within 2-3 weeks and is often due to common cold, flu, or sinus infection. Chronic cough lasts longer than 2 to 3 weeks and is a symptom mostly of respiratory tract disease.

Besides respiratory infections namely tuberculosis, other common causes of cough include chronic tobacco smoking, naso-bronchial allergy, bronchial asthma, chronic bronchitis with or without airway obstruction, lung abscess, bronchiectasis and bronchogenic tumours, reflux disease of gastrointestinal system, air pollution, heart failure, valvular heart disease and certain medicines used for the treatment of high blood pressure. The diagnosis of the cause of cough is essential before definitive therapy is initiated.

Painful cough in association with fever indicates respiratory tract infection. Intermittent, ineffectual and exhausting cough occurs in chronic bronchitis and bronchial asthma and it is generally worst at night or on waking. Cough may be loose and readily productive of sputum in bronchiectasis and early stages of bronchial cancer. Sputum

production may be a relatively late development in lung tuberculosis. Loud and harsh cough without explosive character called stridor is found in whooping cough and in the presence of laryngeal or tracheal obstruction. Cough usually aggravates with change in temperature or weather. The explosive character of normal cough is lost in laryngeal paralysis. A short troublesome cough of old people due to chronic bronchitis recurs every winter and it is called winter cough. Cough due to smoking is usually dry and irritating. Clinical and radiological evaluation is usually diagnostic in a large majority of cases. While definitive therapy may wait diagnosis, symptomatic treatment usually provides relief.

Ayurveda considers *Kasa* (cough) as a disease for which a specific line of treatment and various remedies are prescribed. Simple herbal remedies such as *Pippali* can successfully treat uncomplicated cough, if patients observe the prescribed precautions along with medication. These are:

(1) Exposure to fumes and dust, sudden change of temperature in the surrounding, dry and spicy foods, chilled water and food, leafy vegetables and heavy meals should be avoided.

(2) Soft, hot and easily digestible meals, edibles like honey, small cardamom, fresh ginger, radish, meat soup, goat milk and resins help to control cough.

(3) It is advisable to resort to sleeping during the day and not to suppress urges of stools, urination and belching. Cough symptom can be controlled easily with frequent drinks of warm water, mental relaxation and with less talking.

Pippali (*Piper longum* Linn.)

Pippali powder is a single-ingredient herbal formulation made from the fruits of long pepper, an aromatic climber with perennial woody roots. The fruits are harvested around January while still green and unripe, as they are most pungent at this stage and of high medicinal value. Harvested fruits are dried in the sun till they turn grey or blackish. Use of *Pippali* as a multipurpose drug is first documented in *Charaka Samhita*, where it is listed among *Rasayana* (rejuvenative and immuno-enhancer) drugs and largely mentioned for the treatment of cough, respiratory distress, gastro-intestinal disorders, pulmonary tuberculosis etc. Besides codified knowledge about its uses, *Pippali* is largely used as a home remedy and in folk medicine. Long pepper

is a commonly used spice in India and other Asian countries and its medicinal usage is quite popular, particularly for the treatment of common ailments of childhood. Regarded as a drug of choice for cough of different origins, *Pippali* powder is widely used by Ayurvedic practitioners in India not only for symptomatic control but also for the treatment of root causes of cough affecting the naso-respiratory, digestive and blood systems. This popular plant medicine is even indicated for naso-respiratory allergy and tuberculosis of lungs and for immunodeficiency conditions. *Pippali* is described in the Ayurvedic Pharmacopoeia[1] and in formulations in Ayurvedic Formulary of India[2]. Being simple, the formulation can be easily prepared at home for personal use. Scientific studies have proven its bio-availability enhancing, liver protective and immuno-stimulatory actions[3].

Composition

Pippali powder is made from dried fruits of *Piper longum*.

English name	Long pepper
Latin name	*Piper longum* Linn.
Family	Piperaceae
Part used	Fruits

A twig with unripe fruits of *Pippali.*

Dried fruits of *Pippali.*

Main chemical constituents[4]

Essential oil and alkaloids – piperine, sesamin and piplartine.

Quality standards[1]

As per the Ayurvedic Pharmacopoeia of India, quality standards determining the identity, purity and strength of long pepper fruits are based on the following aspects:

Foreign matter	Not more than 2%
Total ash	Not more than 7%
Acid insoluble ash	Not more than 0.5%
Acid-soluble extractive	Not less than 5%
Water-soluble extractive	Not less than 7%

Pepper powder under the microscope shows deep, moss-green colour, fragments of parenchyma, oval or elongated stone cells, oil globules and starch grains.

Method of preparation

(1) Dried long pepper fruits are cleaned and powdered in a grinder or mortar.

(2) Powder is sieved through mesh of 85 size and kept in an air-tight plastic or glass container.

(3) Exposure to moisture should be avoided. It is advisable to prepare at least 50 grams of powder at a time.

Dosage form

Blackish green powder with aromatic odour and pungent taste.

Therapeutic properties[5]

Pippali powder has anti-inflammatory, anti-phlegmatic, decongestant, anti-spasmodic, expectorant, anti-allergic, appetizer, anthelmintic, immunostimulatory and tonic properties.

Dose and mode of administration

The adult dose of the formulation is 1 gram to 3 grams and the children's dose is 125 mg to 250 mg, two or three times a day, mixed with honey or warm water. Honey is the best vehicle for consuming *Pippali* powder. Jaggery or liquorice root powder may be used in place of honey, if the cough is dry, irritating and persistent. Warm water should be taken after consuming the medicine to facilitate its swallowing and fast absorption.

Indications and uses

(1) *Pippali* powder is indicated for acute and chronic cough due to common cold, pharyngitis, laryngitis, bronchitis, naso-respiratory catarrh, respiratory allergy, asthma and smoking.

(2) Non-specific cough is adequately manageable with *Pippali Churna*.

(3) The formulation is also effective in controlling symptoms associated with cough-like sneezing, hiccough, nasal discharge, fever, poor appetite, indigestion, etc.

Precautions and safety aspects

(1) *Pippali* is regarded as safe in recommended doses. Ayurvedic literature does not specifically mention any toxicity or adverse effects from the use of *Sitopaladi* powder like formulations, which include *Pippali*. However, long-term use of *Pippali* alone is not recommended in *Charaka Samhita*. Scientific studies have shown 750-800 mg/kg dose as LD-50 value of piperine in mice.

(2) Do not consume *Pippali* powder without mixing properly with honey or warm water.

(3) Fried and spicy foods, chilled drinks, curd, yogurt, smoking and exposure to cold should be avoided while suffering with cough. Frequent sipping of warm water helps a lot to facilitate the effect of the medicine in controlling cough whether dry or productive.

(4) Patients with cough lasting over 10-15 days should take proper medical advice for exact diagnosis of underlying cause and for needful treatment.

(5) Patients with diabetes mellitus and obesity should use the formulation without honey or jaggery. Similarly, sugar and jaggery should not be taken with *Pippali* for long-term use in overweight and obese individuals suffering from chronic cough.

(6) The formulation could alleviate cough resulting from lung tuberculosis and tumour or cancer of respiratory tract, but it is not the remedy for these underlying conditions.

(7) If the sputum is mixed with blood or frank blood is coughed out, do not attempt to treat cough with *Pippali* powder.

(8) Stop medication with *Pippali* powder, if symptoms aggravate and dryness of mouth, excessive thirst and burning sensation in the body and urine appear.

(9) Owing to the hot and lubricating nature of *Pippali*, its excessive and long-term use is contraindicated in Ayurvedic literature. Ignorance about this fact may lead to untoward symptoms.

(10) Individuals with heat-dominating temperament and body constitution and menstruating and pregnant women should be careful in observing any unwanted effects while consuming *Pippali* powder. In case of adverse effects medical advice should be sought promptly.

(11) Proper medical advice should be taken, if cough accompanies difficulty in breathing, swelling of face or feet, high grade fever, expectoration with foul-smelling yellowish-green phlegm, blood in sputum, difficulty in lying down, night sweating and unintentional weight loss.

(12) *Pippali* powder has a potent antifertility activity; therefore, it must be used with caution in the first trimester of pregnancy. Women planning for pregnancy should avoid use of *Pippali* powder. However, the baby is not harmed if a lactating mother is taking this medication.

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6

Kutaja powder for diarrhoea

Diarrhoea is defined as the passage of abnormally liquid or unformed stools at an increased frequency, and denotes a change in the usual bowel movement. It is a symptom of various disease conditions of the gastrointestinal system and is often considered as a disease itself. Diarrhoea can be acute and chronic as per its causes.

Acute diarrhoea lasts for hours or days and the number of bowel movements usually exceeds three per day. The causes of acute diarrhoea can be infectious or non-infectious. The usual clinical features of acute infective diarrhoea are frequent stools, sometimes with blood and mucous, pain during passing stools, abdominal pain, vomiting and fever. Severe diarrhoea leads to dehydration, which manifests itself as apprehension, cold clammy skin, rapid pulse, deep and rapid respiration, inelastic skin, sunken eyeballs, dry tongue, scanty urine and low blood pressure. Untreated acute diarrhoea can be fatal. The non-infectious category of diarrhoea can be caused by drugs such as antibiotics, certain antidepressants, antacids, bronchodilators, chemotherapeutic agents, laxatives, non-steroidal anti-inflammatory drugs, etc., and spurious diarrhoea, which follows chronic constipation especially in older people and in association with psychological stress.

Chronic diarrhoea lasts for weeks or months and may be either persistent or recurrent. The aetiology of chronic diarrhoea is usually related to structural and functional disorders of the gastrointestinal tract. The clinical features of chronic diarrhoea are either persistent or recurrent with intervening periods of normalcy or constipation. Stool volume may be large or small and may be watery, loose, bulky or frothy. Diarrhoea may be accompanied by abdominal pain

or discomfort and abdominal distension. Systemic symptoms such as fever, anorexia, weight loss, generalized weakness and malaise may also be present. Untreated chronic diarrhoea can lead to mal-absorption syndrome and malnutrition.

It is always important to understand the underlying cause of diarrhoea so that the right treatment can be planned. However, uncomplicated diarrhoea due to indigestion and infection can be managed with Ayurvedic formulation such as *Kutaja* powder along with necessary dietary precautions.

Kutaja [*Holarrhena antidysenterica* (Roxb. ex Flem.) Wall.]

Kutaja powder is a simple formulation prepared from the stem bark of *Holarrhena antidysenterica* (Roxb. ex Flem.) Wall., a small to medium-sized tree, found throughout India. The stem bark is collected from 8-12 years old trees during the middle of rainy season (July to September) and again at the end of winter by hewing and peeling and separating it from the attached wood. The stem bark is bitter in taste and used in Ayurveda for the treatment of gastrointestinal disorders, particularly diarrhoea and dysentery. Most of the Ayurvedic formulations described in literature and various commercially marketed formulations for diarrhoea essentially contain *Kutaja* as one of their ingredients. *Kutaja* is mentioned in the Indian Ayurvedic Pharmacopeias[1] as well as Formulary[2]. Apart from the preferred use of *Kutaja* in the treatment of diarrhoea, scientific studies have established its anti-protozoal, anti-giardia and anti-amoebic properties.[3]

Composition

Kutaja powder is prepared from the stem bark of *Kutaja.*

English name	Kurchi, Tellicherry bark
Latin name	*Holarrhena antidysenterica* Roxb. ex Flem. Wall.
Family	Apocynaceae
Parts used	Stem bark

Leafy shoots with flowers of *Kutaja*.

Dried stem bark of *Kutaja*.

Main chemical constituents[4]

Conessine, conessemine, kurchine, kurchicine, etc.

Quality standards[5]

Identity, purity and potency of *Kutaja Churna* for its oral use are estimated on the basis of the following physical constants:

Foreign matter	Not more than 2%
Total ash	Not more than 7%
Acid insoluble ash	Not more than 1%
Alcohol (60%) soluble extractive	Not less than 18%
Water soluble extractive	Not less than 10%

Method of preparation

(1) Take 50 grams of dried stem bark of *Kutaja* and further dry it in the shade to remove moisture for easy powdering.

(2) Grind stem bark in a grinder or pulverizer till fine powder is obtained.

(3) Filter the powder through 85 mesh to remove coarse particles and fibers.

(4) The shelf life of the powder is four months but it can retain its potency for at least six months, if kept in an air tight container and protected from direct sunlight and heat.

Dosage form

Bitter brownish powder.

Therapeutic properties[6]

The bark of *Kutaja* has anti-diarrhoeal, constipating, astringent, anti-dysenteric, anthelmintic, carminative and digestive properties.

Dose and mode of administration

The adult dose of *Kutaja* powder is 3-5 g and for children 500 mg to 1 g, twice or thrice daily with warm water, before meals.

Indication and uses

Kutaja bark is useful in various kinds of diarrhoea and dysentery.

Precautions and safety aspects

(1) No side effect or toxic effect of *Kutaja* powder has been mentioned in the classical Ayurvedic literature. Clinical studies have also shown no adverse effects in patients treated with *Kutaja* powder within the recommended dose alone as well as in combination with other home remedies. *Kutaja* may cause distension of the abdomen after using for a few days.

(2) As prolonged use of *Kutaja* powder may produce constipation, hence as soon as the diarrhoea is checked the dose of *Kutaja* powder should be tapered off.

(3) A study on the side effects of *Holarrhena antidysenterica* in patients has revealed that it can lead to subjective symptoms as well as hypertension[7]. Hence hypertensive patients should take *Kutaja* powder under medical supervision.

(4) Prolonged use of *Kutaja* powder during pregnancy should be done under medical supervision. However, it is safe for the baby if a nursing mother is taking this medication.

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7

Lashuna oil for earache

Pain in the ear is a very uncomfortable symptom, which may be due to the local causes in the ear or may relate to external causes. The earache may increase on lying down due to increased blood supply to the ear in recumbent position. The general causes of earache are as follows:

(1) Exposure to extreme cold weather.

(2) Exposure to pressure changes during diving or swimming and air travel.

(3) Picking or probing the ear canal.

(4) Improper instrumentation during the examination or treatment of ear.

(5) Exposure to very high-pitched sounds.

(6) Injury to the head especially the temporal bone.

(7) Entry of water into auditory canal during bathing.

(8) Local bacterial or fungal infection such as furuncles and otomycosis.

(9) Impacted wax.

(10) Referred pain due to carious tooth, impacted molar, ulcerative lesions in the oral cavity and tongue, osteoarthritis of temporo-mandibular joint, tonsillitis, etc.

The earache can also be functional, which needs to be carefully observed. Management of earache requires proper evaluation and treatment before complications develop. Ayurveda prescribes instillation of medicated oil and juice of certain medicinal plants in

the affected ear. One of the simple formulations for earache used in traditional medicine is mustard oil prepared with garlic.

Lashuna (*Allium sativum* Linn.)

Lashuna oil comprises of cloves of garlic heated in mustard oil. Both *Lashuna* and mustard oil are commonly used drugs almost in every Indian kitchen and are well known for their medicinal properties in the traditional medicine of the Asian region. *Lashuna* comprises of bulbs of *Allium sativum* Linn., a perennial bulbous plant, cultivated as an important condiment crop in India. It is mainly used for facial paralysis, lock-jaw, flatulence, colic, arthralgia and dental caries. The oil of *Lashuna* is used for skin rashes and as an ear drop[1]. *Sarshapa* consists of dried seeds of *Brassica campestris* Linn., an erect, stout, simple or branched, glaucous, annual herb, 50 to 60 cm tall, commonly cultivated in Bengal, Bihar and Punjab, also found occasionally in wastelands and fields. The oil of *Sarshapa* is also used in the form of gargle and is also applied with rock salt for dental caries.[2] In addition, it is also used for massage for increasing muscular strength and enhancing the colour and complexion of skin.

Composition

Lashuna oil comprises of *Lashuna* and mustard oil.

Name	English Name	Latin Name	Family	Part Used
Lashuna	Garlic	*Allium sativum* Linn.	Liliaceae	Bulb
Sarshapa	Mustard	*Brassica compestris* Linn.	Brassicaceae	Seed (Oil)

Cultivated plants of garlic.

Garlic bulbs.

Main chemical constituents

(1) *Lashuna*[3]: Volatile oil containing allyl disulphide, diallyl disulphide and also allin, allicin, mucilage and albumin.

(2) *Sarshapa* oil[2]: Fixed oil and the glycerides of palmitic, stearic, oleic, linoleic, linolenic, eicosenoic, etc.

Quality standards

Identity, purity and potency of *Lashuna* and *Sarshapa* are estimated on the basis of the following physical constants.

Ingredient	Foreign matter	Total ash	Acid insoluble ash	Alcohol soluble extractives	Water soluble extractives	Volatile oil/Fixed oil
Lashuna[3]	Not more than 2%	Not more than 4%	Not more than 1%	Not less than 2.5%	_	Not less than 0.1%
Sarshapa[4]	Not more than 2%	Not more than 5%	Not more than 0.5%	Not less than 8%	Not less than 16%	Not less than 35%

Preparation of mustard oil with garlic

(1) Take about 20 ml (4 teaspoonsful) of mustard oil in a vessel and add 5-6 pieces of peeled and slightly crushed fresh garlic cloves.

(2) Put the mixture on a slow fire for about 5 -10 minutes till garlic becomes brown and stop further heating.

(3) Filter the mixture through cotton cloth to obtain clear oil and keep it in a clean glass bottle.

Dosage form

Lukewarm, pungent, yellowish-brown oil.

Dose and mode of administration

(1) Instill medicated oil in the affected ear drop by drop by tilting the head to opposite side and retain it for about 30 minutes by plugging the ear with cotton swab.

(2) Repeat the process for other ear if affected.

(3) Instillation of oil in the ears can be done twice daily for 2-3 days.

Therapeutic properties

Fresh garlic is anti-inflammatory, anti-fungal, anti-bacterial[1, 5] anti-viral, and anthelmintic.

Indication and use

Earache.

Precaution and safety aspects

(1) Local application of *Lashuna* oil is traditionally considered to be safe, but application on inflammatory lesions may produce burning sensation or slight irritation.

(2) While using the oil, it should neither be too hot nor too cold.

(3) The oil instillation should be avoided if there is ear discharge.

(4) If there is no relief within three days, seek medical advice.

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8

Shirisha powder for eczema

Eczema is a term that denotes different types of allergic skin inflammation usually of chronic origin. The symptoms of eczema commonly include itching, reddened and dry skin. Since the skin is itchy, prolonged scratching leads to a leathery thickening of the skin. Cracking and weeping of the skin may also occur and open sores may become infected.

Causes of eczema

Though the causes of eczema have not been fully determined, the following list provides some insight as to the triggers for eczema:

(1) Family history: there is a genetic component to this disease.

(2) Irritants: exposure to industrial solvents, chemicals, vehicle lubricants, soaps, cement, detergents, cleaning products, rubber gloves and even cosmetic lotions and creams, etc.

(3) Allergy: strong reactions to some allergens can cause violent skin eruptions.

(4) Chronic dry skin: dry skin that is left un-moisturized can develop into eczema especially in cold weather.

(5) Poor circulation: more common in the elderly and affecting lower limbs.

(6) Obsessive compulsive disorder: habitually rubbing or scratching skin.

(7) Reaction to an infection: some fungal, parasitic, bacterial and viral infections can cause localized eczema.

(8) Stress: stress causes the immune system to be compromised causing increased susceptibility to skin conditions.

(9) Diet: some have found modification to diet extremely useful in maintaining remission periods.

(10) Unknown factors: some forms of eczema are triggered by unknown reactions of the immune system.

Though eczema is very difficult to control, allergic component of eczema can be controlled to an extent by regular internal and external use of *Shirisha*, which is widely mentioned in Ayurvedic classics and used in clinical practice at large by traditional practitioners. Some do's and don'ts include:

(1) Excessive intake of sour, salty and pungent foods and drinks, curd, milk, jaggery, sesame seeds, black gram and alcoholic beverages should be avoided.

(2) If there is oozing from the eczema site, efforts should be made to keep the site clean and dry. Whereas in dry eczema it is always advisable to keep the affected area moist and smooth with vaseline or an oily preparation.

(3) Avoidance of aggravating factors of eczema, and eating simple, soft, easily digestible food helps. Edible items of bitter taste; regular use of honey and peace of mind help in management of eczema.

Shirisha (Albizzia lebbeck Benth.)

Shirisha consists of the powder of the bark of *Albizzia lebbeck,* a large, deciduous tree, which is found all over India up to 900 meters in the Himalayas. It grows wild especially in the moist and dry deciduous forests. The bark of the tree is thick and dark or brownish grey with numerous short irregular cracks. The seeds are oval or oblong, pale brown, smooth with a hard testa. *Shirisha* is described as one of the best *Vishaghna* (anti-toxin) drugs in Ayurvedic texts[1]. Clinical studies show that *Shirisha* acts as an antidote to animal poisons which are histaminic in nature and are also responsible for the production of allergic dermatitis, urticaria and anaphylactic shock[2].

Composition

Shirisha powder is prepared from its bark for oral use and decoction for washing the affected skin.

English name	Siris tree, East Indian walnut, Kokko
Latin name	*Albizzia lebbeck* Benth.
Family	Fabaceae
Plant part used	Stem bark

Leafy branches of a *Shirisha* tree.

Dried stem bark of *Shirisha.*

Main chemical constituents[2]

Condensed tannins and d-catechin, lebbecacidin, isomers of leucocyanidin, friedelin-3-one.

Quality standards[3]

The Ayurvedic pharmacopoeia of India provides quality standards of *Shirisha* which are based on the following physical constants:

Foreign matter	Not more than 1%
Total ash	Not more than 8%
Acid insoluble ash	Not more than 1%
Acid-soluble extractive	Not less than 12%
Water-soluble extractive	Not less than 6%

Method of preparation

(1) The powder of the bark is prepared by grinding dried bark in a grinder or pulverizer and then filtering it through mesh size 85.

(2) The powder should be kept in a dry container and stored in a moisture-free area. Properly kept powder holds its potency for 4-6 months.

(3) For making decoction, coarse powder is used.

(4) It is good to use the powder within four months of its preparation.

Dose and mode of administration

(1) *Shirisha* bark powder is given orally to adults in a dose of 3 to 6 g and to children in a dose of 1 to 2 g twice daily after meals with lukewarm water.

(2) The decoction is prepared by adding 16 times water to 10 g coarse powder of bark of *Shirisha* and then boiling on slow fire till about one fourth of water remains. The dose of the freshly prepared decoction is 40 ml twice a day after meals. For better relief add 5 g of turmeric powder in the decoction of *Shirisha* just before taking it. To mask the taste sugar may be added to the decoction. Fresh decoction is to be prepared for every dose.

(3) The lesions may be washed with the decoction prepared from the bark of *Shirisha*.

(4) The treatment may be continued for 3 to 4 weeks or till cure is achieved, if relief of the symptoms is sustained.

(5) If the condition gets worse, seek doctor's advice and check for allergic reactions.

Dosage form

Grayish-brown powder or warm dark brown liquid having bitter taste.

Therapeutic properties[2]

Shirisha bark is anti-protozoal, anti-histaminic, anti-allergic, anti-fungal, analgesic, anti-anaphylactic, anti-bacterial, central nervous system depressant and bronchodilator.

Indications and uses

The bark is useful in allergic and chronic skin diseases including various kinds of eczema.

Precaution and safety aspects

(1) Clinical and experimental studies have indicated the absence of any serious toxicity if normal dose of *Shirisha* is used.

(2) Its safety in pregnancy is not proven. Therefore, it must be used cautiously. However, it is safe for the baby if a nursing mother is taking this medication.

(3) As it has mild spermicidal activity, its use in oligospermic persons should be avoided.

(4) The following measures can help to prevent and treat eczema

(a) Moisturize your skin regularly.

(b) Protect skin from strong winds.

(c) Protect skin from temperature extremes (hot or cold).

(d) Keep the area clean especially if skin cracks.

(e) Keep bathing and shower times short.

(f) Keep your diet healthy and add vitamins.

(g) Use medications strictly as directed.

(h) Try to reduce stress.

(i) Do not vigorously scratch or irritate skin.

(j) Do not bathe with hot water.

(k) Do not expose skin to harsh chemicals, solvents, vehicle lubricants, etc.

(l) Do not wear woolen clothing.

(m) Avoid wearing tight fitting clothing especially made of synthetic fibers.

(n) Do not apply hydrocortisone creams without medical advice for long periods.

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9

Triphala decoction for eye discharge

Liquid discharge from the eye other than tears, with or without burning and itching, is found in many eye conditions and can also be due to environmental pollutants. Mostly, eye discharge is a common symptom in the inflammatory and allergic conditions of the eye. In viral conjunctivitis, the eye becomes red or bloodshot and irritation causes discharge but this condition does not last more than 10 days or so, if uncomplicated and proper hygienic care is taken. Bacterial conjunctivitis is not common, but when it develops as thick eye discharge of white, yellow or greenish colour; it is advisable to seek medical advice.

Cigarette smoke, chlorine in swimming pool water and chemicals in make-up materials are some of the uncommon causes of eye discharge. In such cases, eye discharge and other associated symptoms appear on contact with the irritant and do not last long. Specific medication is not required but the cause of eye irritation should be avoided.

Thin watery discharge coupled with itching and burning in the eyes is due to allergy and it is sometimes very uncomfortable. This condition necessitates determination of the cause of allergy.

For eye discharge, the simple principle of treatment recommended in Ayurvedic literature is to avoid the causative factor and palliate the symptom with medicines having antagonistic properties. *Triphala* decoction is one such medicine which is widely popular and considered to be quite effective in alleviating various eye symptoms including discharge, inflammation and irritation.

Triphala decoction

Fruits of three myrobalans are collectively designated as *Triphala* in Ayurveda, meaning the three specific fruits put together. This formulation is included in the Ayurvedic Formulary of India[1] and the ingredients are described in Ayurvedic pharmacopoeia[2]. It finds vivid description in Ayurveda literature and is frequently used by practitioners *inter alia* in the treatment of eye diseases, particularly conjunctivitis and vision disorders. Both *Kvatha* (decoction) and *Churna* (powder) of *Triphala* are indicated respectively for external and internal use in eye disorders.

Triphala decoction is mainly used for washing inflamed eyes with purulent discharge or as eye drops in controlling conjunctivitis. Apart from providing relief in inflammation-induced eye symptoms with its decongestant, anti-inflammatory and soothing effects, instillation of *Triphala* decoction in eyes is proven to have prophylactic value for preventing viral conjunctivitis during epidemics.

Composition

Decoction of *Triphala* is prepared by boiling together in water the coarse powder of dried fruits of the following three medicinal plants.

Local Name	Latin Name	English Name	Family	Parts Used
Haritaki	*Terminalia chebula* Retz.	Chebulic myrobalan	Combretaceae	Fruit
Bibhitaki	*Terminalia belerica* Roxb.	Belliric myrobalan	Combretaceae	Fruit
Amalaki	*Phyllanthus emblica* Linn.	Emblic myrobalan	Euphorbiaceae	Fruit

Main chemical constituents

Triphala as a whole is rich in vitamin C, gallic acid and tannins. Ingredient-wise the main chemical constituents are:

Haritaki[3]: Tannins, anthraquinones and polyphenolic compounds.

Bibhitaki[4]: Gallic acid, tannic acid and glycosides.

Amalaki[5]: Vitamin C, carotene, nicotinic acid, riboflavin and tannins.

Haritaki fruits and leaves.

Dried fruits of *Haritaki.*

Bibhitaki fruits and leaves.

Dried fruits of *Bibhitaki.*

Amalaki fruits and leaves.

Dried fruits of *Amalaki*.

Quality standards

Simple quality parameters for selection of raw materials could be followed for having desired efficacy from *Triphala* decoction.

Ingredient	Foreign Matter	Total Ash	Acid Soluble Ash	Alcohol Soluble Ash	Water Soluble Extractives
Haritaki[6]	Not more than 1%	Not more than 5%	Not more than 5%	Not less than 40%	Not less than 60%
Bibhitaki[7]	Not more than 2%	Not more than 7%	Not more than 1%	Not less than 8%	Not less than 35%
Amalaki[8]	Not more than 3%	Not more than 7%	Not more than 2%	Not less than 40%	Not less than 50%

Method of preparation

Triphala decoction for cleansing eyes is prepared the following way:

(1) Clean the dried fruits and remove the seeds.

(2) Take the required amount of each ingredient that is sufficient for the course of treatment. For 15 days' treatment, 500 grams of each ingredient is needed.

(3) Make coarse powder separately of the three dried fruits.

(4) Mix together the three powders in equal amounts to form a uniform mixture.

(5) Take 10 to 50 grams of the mixture for one application and soak it for about an hour in 16 times water. Then boil till half of the water remains. Filter the decoction through fine cotton cloth and keep in a clean bowl or jug. Slightly warm decoction should be used for washing eyes at the earliest after its preparation.

(6) For use in children and sensitive individuals, soak 50 grams of powdered *Triphala* in 200 milliliters of hot water for half an hour, filter and use it lukewarm.

Dosage form

Slightly warm, dark-brownish coloured liquid.

Therapeutic properties[1]

Anti-inflammatory, decongestant, soothing and wound healing properties.

Dose and mode of administration

Sufficient quantity of *Triphala* decoction, say about 100 to 200 milliliters, is required to wash eyes in one of the following ways:

(1) Dip a small piece of sterilized cotton in slightly warm *Triphala* decoction and clean with it each eye 3-5 times from nasal side outwards; each time with separate cotton. Wipe the eyes with clean and sterilized cotton or soft cloth. Do this procedure two to three times a day.

(2) Ask the patient to lie down on the back. Irrigate the open eyes, one by one, with *Triphala* decoction poured through a clean and sterilized dropper. The procedure may be done twice or thrice a day.

(3) *Akshi Tarpana:* With patient lying down on back, first clean the eyes with cotton or soft cloth soaked in clean water and then make rings of wheat-flour dough around both eyes. Put *Triphala* decoction in the rings in such a way as it may not spill out. Keep this position for 5 to 10 minutes and ask the patient to blink eyes and move eye balls in between. This procedure should be done at least twice a day.

Indications and uses

Triphala decoction is used for washing eyes in acute and chronic infections and inflammatory diseases of eye including trachoma, where watery or purulent discharge is the main symptom. It is also recommended for oral use in various eye diseases.

Precautions and safety aspects

(1) Due care must be taken to make and keep the decoction in a clean utensil. Do not keep the decoction uncovered and in an unhygienic place. Dipping fingers in the decoction to judge its temperature should be strictly avoided.

(2) Too hot and too cold decoctions should not be used as they may not yield the desired results.

(3) Frequency of eye wash should be determined on the basis of the severity of symptoms. It is advisable to wash the affected eye at least twice a day and for each application fresh decoction should be prepared.

(4) Warm compresses should be applied to soften and remove crusts in the eyelids, before washing the eyes. Softened crusts can be removed with cotton.

(5) Medical advice must be sought, if vision is decreased, the eye pain gets severe, the discharge is thick and frankly purulent or greenish or bloody and light sensitivity is intense.

(6) Do not continue using *Triphala* decoction in case eye symptoms of itching, discharge, redness etc. worsen or do not improve in one to two weeks.

(7) *Haritaki, Bibhitaki and Amalaki* fruits are traditionally considered safe in the prescribed doses and no adverse effects are reported in the literature.

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10

Kiratatikta powder in fever

Fever, also known as pyrexia, is a common medical symptom as well as a sign that indicates an increase in internal body temperature to levels above normal. Fever results from a temporary elevation in the body's thermoregulatory set-point, which is usually set at a normal temperature of 37° C (98.6° F). Body temperature varies with time of the day, with lower levels in the morning and higher levels in the evening.

Fever is present if oral temperature is over 37.2° C (98.96° F) in the morning and 37.7° C (99.86° F) in the evening, the corresponding rectal temperature (in anal canal) would be 0.4° C (0.72° F) higher. In addition to diurnal variations, body temperature is also influenced by age and gender (especially women in reproductive age group). Fever is not considered medically significant until body temperature is above 38° C (100.4° F). There are different accompanying symptoms of fever, which depend on its underlying causes. These include chills, rigors, malaise, arthralgia, anorexia, fatigue, dizziness, sweating, etc.

Fever serves as one of the body's natural defense against microbes. For that reason, low fevers should normally go untreated, unless accompanied by troubling symptoms. Fever is termed as low grade if it is between 38°–39° C (100.4°–102.2° F), moderate if it ranges within 39°–40°C (102.2° –104.0° F) and high grade if it is over 40° C (104.0° F). Depending upon the course of fever, fever can be:

(1) Continuous fever, if the temperature remains above normal throughout the day and does not fluctuate more than 1° C (1.8° F) in 24 hours; e.g. urinary tract infections, typhoid, lobar pneumonia.

(2) Intermittent fever, if fever touches base line for several hours of the day. If the spike occurs every day it is quotidian, spike every alternate day is called tertian and if this occurs after every third day then it is quartan intermittent fever; e.g. malaria.

(3) Remittent fever, if the temperature remains above normal throughout the day with fluctuations of more than 1 degree Celsius; e.g. infective endocarditis.

(4) Irregular fever if the pattern does not fit into any of the patterns indicated above.

Causes of fever

(1) Infectious diseases: viral infections, malaria, influenza, sore throat, typhoid, pneumonia, measles, chickenpox, tuberculosis.

(2) Tissue injury.

(3) Cancers of liver, kidney, lymph nodes.

(4) Immuno-inflammatory diseases such as systemic lupus erythematosus, vasculitis.

(5) Drugs and toxins.

(6) Exposure to high environmental temperature.

(7) Fever of unknown cause.

The main risk of moderate to high fever is dehydration. Patients with fever need more fluids than usual. Body temperature greater than 41.67° C (107° F), can result in brain damage and possibly death. Whatever may be the cause, uncomplicated mild to moderate fever can be managed with a simple herbal preparation mentioned in Ayurvedic classics such as *Kiratatikta.*

Kiratatikta [*Swertia chirata* (Roxb. ex Fleming) H. Karst]

Kiratatikta powder consists of dried, matured pieces of whole plant of *Swertia chirata* (Roxb. ex Fleming) H. Karst, an erect, annual, herbaceous plant. It is about 0.6-1.25 metres high, found in temperate Himalayas at an altitude of between 1200-3000 metres from Kashmir to Bhutan and Khasia Hills in Meghalaya. The plant is collected when it flowers during July to October and dried in the shade. The formulation is mentioned in classical Ayurvedic texts, Ayurvedic Pharmacopoeia and Ayurvedic Formulary of India for various types of fever.

Composition

The formulation is a powder made from dried, matured pieces of whole plant of *Swertia chirata*.

English name	Chiretta, Chirata, Brown chiretta, white chiretta
Latin name	*Swertia chirata* (Roxb. ex Fleming) H. Karst
Family	Gentianaceae
Part used	Whole plant

A *Swertia chirata* plant.

Dried *Swertia chirata* plants.

Main chemical constituents[1]

Xanthones, xanthone glycoside and mangiferine (flavonoid).

Quality standards[1]

Foreign matter	Not more than 2%
Total ash	Not more than 6%
Acid insoluble ash	Not more than 1%
Alcohol (60%) soluble extractive	Not less than 10%
Water-soluble extractive	Not less than 10%

Method of preparation

Take dried whole plant of *Kiratatikta* and further dry it in the shade to remove moisture for easy powdering or making coarse powder for decoction.

(1) Grind the material in a grinder or pulverizer until fine powder or coarse powder is obtained.

(2) For obtaining the fine powder filter it through mesh size 85. Coarse powder is used as such for decoction, there is no need to filter it.

(3) The shelf life of the powder is four months but it can retain its potency if kept in an air-tight container and protected from direct sunlight and heat.

Dosage form

Dark-brownish bitter powder or warm, dark brownish bitter liquid.

Therapeutic properties[2]

Anti-pyretic, anti-malarial, anthelmintic, anti-leishminial, anti-inflammatory, anti-tubercular, cholagogue, hepatoprotective, anti-diabetic, laxative, stomachic, tonic.

Dose and mode of administration

The dose of *Kiratatikta* powder for adults is 1-3 grams and for children it is 250 mg to 500 mg, with water. The dose of decoction for adults is 25-30 ml and for children, it is 5 ml to 10 ml, to be taken twice a day after meals.

Indications and uses

Fevers of known and unknown causes.

Precautions and safety aspects

(1) Although no toxic effects are reported with *Kiratatikta,* the patient taking oral hypoglycemic drugs should take the medicine under medical supervision as *Kiratatikta* may interact with oral hypoglycemic drugs potentiating its hypoglycaemic action.

(2) Medication with *Kiratatikta* should be stopped, if the intensity of fever does not decrease within a few hours and the symptoms aggravate. Chronic and severely feverish patients should consume *Kiratatikta* under medical supervision.

(3) Pregnant women should take this medication under medical supervision. However, it is safe for the baby if the nursing mother is taking this medication.

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11

Karanja powder for fungal dermatosis

Chronic fungal infection of the skin, hair, or nails is caused by specific species of fungi such as Trichophyton, Microsporum and Epidermophyton. In layman's terms, the condition is called "ringworm" or tinea infection which is extremely common in general practice. Ringworm is characterized by round lesions (rings) and there are multiple terms for ringworm infection of various body sites such as; tinea corporis (body), tinea paedis (feet), tinea unguium (nail), tinea capitis (scalp) or tinea cruris (groin).

It is highly contagious and can spread through contact with an infected person, animal, and objects like contaminated toilet articles, clothing, pool surfaces, showers, locker rooms and even soil. Acquisition of ringworm appears to be favoured by minor trauma (including that incurred during wrestling), maceration and poor hygiene of the skin. Heat and moisture help fungi grow and thrive, which makes them more common in areas of frequent sweating as well as skin folds in groins or between toes.

The signs and symptoms vary with the site of infection and the fungal species involved. Foot infection (athlete's foot, tinea paedis) may present as fissuring of the toe webs, scaling of the plantar surfaces or vesicles around the toe webs and soles. Inter-digital lesions may be itchy but become painful when bacterial superinfection occurs. Hand infection is less common but it resembles foot infection. Scalp infection (tinea capitis) is characterized by areas of alopecia and scaling. Nail infection (tinea unguium) presents as a white discoloration of the nails or as thickening, chalkiness and crumbling of the nails. Tinea of the groin ('jock itch') tends to have a darkening of skin colour and extends from the folds of the groin down onto one or both thighs.

Though skin fungal infection like ringworm is not so easy to treat, recent uncomplicated infection can be checked by one of the most popular herbal powders and oil made from a single drug, *Karanja,* and also by maintaining hygiene and following certain do's and don'ts given in the Ayurvedic literature.

(1) Keep the affected part clean, wash it daily with warm water and wipe dry.

(2) Local application of simple medicaments like neem oil, turmeric paste made with water or sulphur ointment can provide added effect.

(3) It is always advisable to continue the treatment for sometime, even if symptoms come under control.

(4) The cloth once used at the affected part should be reused only after washing and dipping in an antiseptic solution.

(5) Curd and heavy foods should be avoided. Food items with bitter taste are beneficial.

Karanja (*Pongamia pinnata* Linn. Merr.)

Karanja botanically known as *Pongamia pinnata* Linn., is a medium-sized tree with a short bole and spreading crown and found almost throughout India up to an altitude of 1200 metres. *Karanja* seeds are used internally as well as externally in various types of skin aliments including fungal skin disease. Seed oil is highly esteemed for medicinal purposes and is indicated for local application in scabies, herpes, leucoderma and other cutaneous diseases. This remedy is also enlisted in Ayurvedic pharmacopoeia of India for management of various skin diseases[1].

Composition

Pongamia oil is extracted from *Karanja* seeds for local application on affected parts.

English name	Indian beech, smooth leaved pongamia, Pongam oil tree
Latin name	*Pongamia pinnata* Linn.
Family	Fabaceae
Part used	Seeds

A flowering *Pongamia pinnata* branch with pods.

Dried *Pongamia pinnata* fruits and seeds.

Main chemical constituents[2]

Karanja seeds contain fixed oil, flavones and traces of essential oil.

Quality standards[2]

Foreign matter	Not more than 2%
Total ash	Not more than 11%
Acid-insoluble ash	Not more than 3.5%
Alcohol-soluble extractives	Not less than 10%
Water-soluble extractive	Not less than 16%

Method of preparation

(1) Preparation of powder:

- Clean the dried fruits of *Karanja* by removing dust and other foreign particles. Remove the seeds from the shells and grind them into powder form.
- Filter the powder through sieve. Store in air-tight container, away from direct sunlight and in a cool and dry place.
- It is always good to use fresh *Karanja* seed powder for better results. It can be used only up to four months.

(2) Preparation of oil:

- Pongamia oil is extracted by crushing seeds of *Karanja.* Purified Pongamia oil available in the market can also be used.

Dosage form

Dusty powder and yellowish orange oil.

Dose and mode of administration

(1) The adult dose of *Karanja* seed powder is 250 mg and for children the dose is 30 mg to 60 mg, to be taken orally twice daily with lukewarm water after meals.

(2) Simultaneously, Pongamia oil is to be applied on the affected skin as per the requirement. Pongamia oil can be applied alone or in combination with sesame oil or neem oil.

Therapeutic properties[3]

Karanja has anthelmintic, insecticidal, anti-bacterial, anti-fungal, nematocidal, and wound-healing properties.

Indications and uses[4]

Karanja is indicated for skin diseases such as ringworm, scabies, eczema, urticaria, erysipelas, leucoderma, leprosy, gonorrhoea, herpes (shingles or herpes zoster and also against herpes genitalis), impetigo and pityriasis versicolor.

Precaution and safety aspects

(1) Overdose of *Karanja* seed powder should be avoided. If any adverse effect is observed, stop taking it further.

(2) Internal use of Pongamia oil is reported to have adverse effects due to its toxic components[3] and hence should be avoided.

(3) Adverse effects with external use of Pongamia oil are not reported but be observant while using this medicament.

(4) Internal use of *Karanja* is not advisable for pregnant women and nursing mothers.

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12

Pippalimoola powder for headache

Headache is defined as a pain in the head or upper neck. Headache can be a symptom of an underlying serious disease or it can be a disease itself. Headache can be due to many causes. Common benign causes of headache include: migraine, refractory error, mental tension, sinusitis, flu, viral fever, typhoid, etc. Some of the serious and life-threatening causes of headache include cerebral haemorrhage, sub-arachnoid haemorrhage, intracranial space occupying lesions (tumour), acute and chronic meningitis, brain abscess, etc. Trigeminal neuralgia can be a difficult and intractable cause of headache though not life threatening. Sudden and severe headache associated with symptoms like high fever, vomiting, convulsion, visual symptoms, stiffness in the neck and loss of consciousness warrant urgent medical attention.

Mild to moderate headache without any specificity can be managed with simple remedies such as *Pippalimoola,* which is specifically documented for the management of headache in Ayurvedic pharmacopoeia, Ayurvedic formulary and in various classical texts.

Pippalimoola (Root of *Piper longum* Linn.)

Pippalimool means roots of *Pippali* (long pepper) plant. The roots are perennial, woody, and aromatic and are used in powder form with warm water, milk or preferably with ghrita (clarified butter). Many references regarding the therapeutic use of *Pippalimoola* are available in ancient classical Ayurvedic texts for its carminative, antispasmodic and sedative actions. Use of ghrita with *Pippalimool* is emphasized because of its ability to negate hot and dry properties of *Pippalimool* and facilitate drug action for alleviation of vitiated *Vata dosha*, which is

considered as the underlying bio-humour responsible for the causation of headache. *Ghrita* is also known to be beneficial for mental faculties and recommended for use alone or with medicinal formulations for psychological problems including stress-induced headache, disturbed sleep and impaired mental concentration.

Composition

Pippalimoola powder consists of roots of *Pippali*

English name	Long Pepper
Latin name	*Piper longum* Linn.
Family	Piperaceae
Part used	Fruit

A flowering *Pongamia pinnata* branch with pods.

Dried *Pongamia pinnata* fruits and seeds.

Main chemical constituents[1]

Alkaloids (Piperine, Piperlongumine, Piperlonguminine, etc.), essential oils.

Quality standards[1]

Foreign matter	Not more than 2%
Total ash	Not more than 5.5%
Acid-insoluble ash	Not more than 0.2%
Alcohol-soluble extractive	Not less than 4.0%
Water-soluble extractive	Not less than 12%

Method of preparation

(1) Take 40 grams of dried roots of *Pippali*. Dry it further for removing moisture for easy powdering. Roots should not have been collected more than one year ago.

(2) Grind the roots in a grinder or pulverizer till fine powder is obtained.

(3) Filter the powder through mesh size 85.

(4) Keep the powder in a dry and air-tight plastic or glass container.

Dosage form

Reddish-brown to creamy-grey bitter powder.

Therapeutic properties[2]

The roots of *Pippali* have thermogenic, tonic, diuretic, purgative expectorant, anthelmintic, stomachic, digestive, emmenagogue, anti-bacterial, anti-inflammatory, central nervous system stimulant, antispasmodic, and analeptic properties.

Indication and uses

Headache, insomnia, cough, cold, and chronic bronchitis.

Dose and mode of administration

Dose of the powder for adults is 2 to 3 grams and for children it is 250 mg to 500 mg, to be taken twice daily, preferably on an empty stomach mixed with 3 to 5 gm of ghee or butter or honey and followed by warm water or milk.

Precautions and safety aspects

(1) No toxic effect or adverse reaction is reported with recommended dose of *Pippali* root powder.

(2) *Pippali* root should be used with caution in the first trimester of pregnancy. However, it is safe for the baby if a nursing mother is taking this medication.

(3) *Pippalimool* is hot in nature, so should be used with caution in summer and by hot temperament individuals and menstruating women.

(4) During medication with *Pippalimool*, diet should be simple, easily digestible and free from spicy and pungent-bitter-astringent food items.

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13

Chaturbhadra decoction for indigestion

Improper digestion of food usually results from over eating, frequent eating without having the feeling to eat, untimely eating, emotional outbursts and improper sleep. Decreased secretion of digestive juices is a relatively less common cause of indigestion. Usually there is a relative deficiency of digestive enzymes, an imbalance of gastrointestinal environment and impaired movement of the intestines. In order to facilitate proper digestion, food should be taken on time, in the right amount and should be of proper contents.

Individuals with a stressful lifestyle mostly suffer from persistent low-grade indigestion with acute attacks in between because of dietary indiscrimination. Indigestion can also result from gastrointestinal infection, consumption of contaminated food or due to certain medicines, which cause irritation in the stomach and in the upper part of the intestine.

Indigestion becomes apparent with a feeling of fullness or heaviness in the abdomen, low appetite, nausea, abnormal taste in mouth and disturbed bowel movements in the form of constipation or loose motions. In acidic indigestion, sour eructation or belching and water brash are usually present. Indigestion is primarily a self-limiting condition manageable with avoidance of solid food for a day or two followed by intake of soft, light and easily digestible food for a couple of days.

Severe and prolonged indigestion, however, always needs medication and can be effectively managed with simple digestive herbal formulations such as *Chaturbhadra* decoction.

Chaturbhadra decoction

Chaturbhadra decoction is a herbal formulation listed in the Ayurvedic Formulary of India[1] for management of indigestion and indigestion-induced gastro-intestinal problems. Its ingredients are individually described in the Ayurvedic pharmacopoeia and are reported to have therapeutic properties useful for management of bowel disorders including impaired digestion, diarrhoea, vomiting, loss of appetite and protozoal infection. The formulation is carminative and astringent and it improves the digestive and gastro-intestinal functions.

Composition

Chaturbhadra decoction is made from the following four ingredients in equal parts.

Sr. No.	Name of the Drug	English Name	Latin Name	Family	Part Used
1.	*Ativisha*	Indian Atis	*Aconitum heterophyllum* Wall.ex.Royle	Ranunculaceae	Root
2.	*Guduchi*	Tinospora	*Tinospora cordifolia* (Willd.) Miers. ex. Hk.f. & Th.	Menispermaceae	Stem
3	*Mustaka*	Nut grass	*Cyperus rotundus* Linn.	Cyperaceae	Rhizome
4	*Shunthi*	Ginger	*Zingiber officinale* Rosc.	Zingiberaceae	Rhizome

Ativisha twig.

Dried *Ativisha* roots.

Mustaka plants.

Mustaka rhizomes.

Guduchi stem with leaves and fruits.

Guduchi stems.

Shunthi plant with exposed rhizomes.

Dried *Shunthi* rhizomes.

Main chemical constituents

(1) *Ativisha*[3] : Alkaloids like atisine, dihydroatisine, hetisine, etc.

(2) *Guduchi*[2] : Terpenoids, alkaloids, etc.

(3) *Mustaka*[5] : Volatile oil.

(4) *Shunthi*[4] : Essential oil, pungent constituents: gingerols and shogaols, resinous matter and starch.

Quality standards

For quality assurance, physical constants of the ingredients used in the formulation should be as under.

Ingredient	Foreign Matter	Total Ash	Water Soluble Ash	Acid Soluble Ash	Alcohol Soluble Extractive	Water Soluble Extractive	Volatile Oil
Ativisha[3]	Not more than 2%	Not more than 4%	-	Not more than 1%	Not less than 6%	Not less than 24%	-
Guduchi[2]	Not more than 2%	Not more than 16%	-	Not more than 3%	Not less than 3%	Not less than 11%	-
Mustaka[5]:	Not more than 2%	Not more than 8%	-	Not more than 4%	Not less than 5%	Not less than11%	Not less than 1%
Shunthi[4]	Not more than 1%	Not more than 6%	Not less than 1.5%	-	Not less than 3%	Not less than 10%	-

Method of preparation

The decoction is prepared as follows:

(1) First dry and clean all the four ingredients.

(2) Make coarse powder of each ingredient.

(3) Take the coarse powder of all the four drugs in equal quantity and mix properly.

(4) The mixture should be stored in an air-tight container for use within one year, after which its potency is reduced.

(5) Boil 10 grams of the mixture in 160 millilitres of water till one fourth water remains.

(6) Filter the liquid.

(7) Add 1-2 grams of fine powder of ginger (*Zingiber officinale* Rosc.) and cumin seeds (*Cuminum cyminum* Linn.) in the decoction just before taking, to make it more effective.

Dosage form

Warm, light-brownish decoction.

Therapeutic properties[1]

Chaturbhadra decoction has digestive, appetizing, anti-emetic, stomachic, carminative and anti-diarrhoeal properties.

Dose and mode of administration

The dose of *Chaturbhadra* decoction for adults is 40 millilitres of freshly prepared warm decoction and 5-10 ml for children, to be administered twice a day before meals. It is advisable to sip the decoction instead of swallowing it in one lot.

Indications and uses

(1) The decoction is mainly used for the management of indigestion resulting from overeating, untimely meals and consumption of heavy food items and from liver dysfunction.

(2) Other indications include poor appetite, vomiting, flatulence, nausea and indigestion associated with diarrhoea and dysentery.

(3) Gastro-intestinal upsets due to giardia and amoebic infections can also be managed with *Chaturbhadra* decoction[6].

Precautions and safety aspects

(1) Freshly prepared decoction should be used always. Stale decoction may not be useful.

(2) Individuals not liking the taste of the formulation can add sugar or honey.

(3) To facilitate recovery, patients should consume soft, light and semisolid or liquid diet and avoid cold and heavy foods and raw vegetables.

(4) If indigestion is induced or aggravated due to stress, mental relaxation must be achieved.

(5) The formulation is traditionally considered to be safe in the recommended doses and side effects are mostly unlikely. However, due to presence of *Ativisha* and *Shunthi* in the formulation, an overdose may cause symptoms like dryness of mouth, tremor, nervous depression, etc.

(6) Pregnant women should use the formulation under medical supervision.

(7) It is safe for the baby if the nursing mother is taking this medication.

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14

Katuka powder for jaundice

Jaundice is yellowish discolouration of the sclera (white part of the eyes) and skin caused by high levels of bilirubin in the blood. It is a major symptom and sign of serious disease of many organ systems; most important among them being the liver. Jaundice is often associated with yellow urination which reflects excessive excretion of bilirubin in the urine as well. There is a direct correlation between the blood levels of bilirubin and the extent of tissue discoloration.

Jaundice reflects a deranged state of bilirubin metabolism. Bilirubin is a waste product produced in the body from the globin part of haemoglobin, which is released from the destruction of old red blood cells and remains in the blood after iron is removed. It is the liver that is responsible to remove bilirubin from the blood by conjugating it and then secreting bilirubin containing bile into the intestine via bile ducts. Jaundice may result from the following three main conditions:

(1) Due to over-production of bilirubin exceeding the capacity of the liver to remove it from the blood. This kind of jaundice is found in excessive breakdown of red blood cells due to their defective formation, or due to the effect of toxins or certain drugs when a large amount of bilirubin is released into blood.

(2) Due to functional disturbance of the liver that prevents removal, conversion and secretion of bilirubin. It is characteristic of hepatitis.

(3) Due to blockage of the bile ducts causing reduced flow of bile and bilirubin from the liver into the intestines. It is seen in conditions in which bile ducts get obstructed due to gall stones, cancer or inflammation.

Symptoms

If the jaundice is due to liver disease – hepatitis, the patient apart from yellowish colouration of eyes and skin may have symptoms like loss of appetite, mild fever, fatigue, weakness and exhaustion. The liver may be slightly enlarged and tender. The stool may be light in colour but the urine is yellow. In haemolytic jaundice, the patient suffers from anaemia and both the urine and stool are of orange colour. In jaundice caused by blockage of the bile ducts, bile does not enter the intestines so there is impairment of fat digestion and absorption of fat-soluble vitamins. This condition leads to fatty stools and deficiency symptoms of fat-soluble vitamins. The stool is clay-coloured in obstructive jaundice because of the absence of bilirubin that normally gives stool its brown colour. A troublesome symptom found in patients with this type of jaundice is itching, which may be as severe as to cause scratching and disturbed sleep.

The patient's history can suggest the possible cause for jaundice. For example, excessive use of alcohol is suggestive of alcoholic liver disease, whereas use of hepatotoxic drugs suggests drug-toxicity-induced jaundice and sharing of syringes for injection of drugs points towards viral hepatitis. Attacks of abdominal pain in a patient with jaundice suggests blockage of the bile ducts usually by gallstones. Bulky and clay coloured stools and dark urine suggests obstruction in the passage of bile.

Judicious use of *Katuka* powder along with necessary dietary precautions can successfully treat uncomplicated jaundice.

Katuka (*Picrorhiza kurroa* Royle ex Benth.)

Katuka is a perennial hairy herb grown in alpine regions with temperate climatic conditions. The medicinal plant in Indian medicine is named as *Katuka* or *Katuki* owing to its immense bitter taste. The rhizome of the plant is a bitter tonic used for the treatment of febrile and liver disorders. Uses of *Katuka* are documented in the ancient classical texts – *Charaka Samhita* and *Sushruta Samhita*. Most of the Ayurvedic remedies described in literature and commercially manufactured for jaundice and liver disorders essentially contain *Katuka* as one of the ingredients. *Katuka* and its formulations find mention in the Ayurvedic Pharmacopoeia and the Ayurvedic Formulary of India. Apart from highly preferred use of *Katuka* in the treatment of jaundice and related diseases by Indian practitioners, scientific studies have established that it has an anti-inflammatory property, provides liver protection and improves bilirubin excretion.

Composition

Katuka powder is made from dried rhizomes and roots of the plant for oral use.

English name	Picrorhiza, Hellebore
Latin name	*Picrorhiza kurroa* Royle ex Benth.
Family	Scrophulariaceae
Part used	Rhizome with roots

Katuka plants with flowering shoots.

Dried *Katuka* roots.

Main chemical constituents[3]

Glucosides: picrorhizin and kutkins (mixture of kutkoside and picroside).

Quality standards[4]

Identity, purity and potency of *Katuka* rhizome for its oral use is estimated on the basis of the following physical constants.

Foreign matter	Not more than 2%
Total ash	Not more than 7%
Acid-insoluble ash	Not more than 1%
Alcohol-soluble extractive	Not less than 10%
Water-soluble extractive	Not less than 20%

Method of preparation

(1) Take 50 grams of dried rhizomes of *Katuka*. Dry them further to remove moisture for easy powdering. Rhizomes should not have been harvested more than one year ago.

(2) Grind rhizomes in a grinder or pulverizer till fine powder is obtained.

(3) Filter the powder through mesh size 85 to remove coarse fibers and other particles.

(4) Keep the powder in a dry and air-tight plastic or glass container and consume it before the next rainy season.

Dosage form

Dusty grey fine powder.

Therapeutic properties

Katuka is a bitter tonic with cooling, laxative, carminative, digestive, stomachic, cholagogue, hepato-protective, anti-viral, anti-pyretic, immunomodulating, free-radical scavenging, anti-spasmodic and anti-inflammatory properties[5]. In large doses, it acts like a purgative.

Dose and mode of administration

The dose of *Katuka* powder for adults is one to three grams and for children 500 mg to 1 gram, to be taken twice daily with water, preferably after meals. Consuming the medicine on an empty stomach should be avoided as it may cause nausea and vomiting due to its highly bitter taste.

Indications and uses

Katuka is useful in jaundice, liver and spleen dysfunctions, decreased appetite, flatulence, constipation and piles. It is also used in intermittent febrile conditions and skin diseases.

Precautions and safety aspects

(1) No side or toxic effects are reported in literature with the recommended dose of *Katuka*. Clinical studies have shown no adverse effects in patients treated with *Katuka* alone and with formulations containing *Katuka*.

(2) *Katuka* being a purgative, large doses should be used carefully in patients with loose motions and in pregnant women. The dose should be reduced; if stools are watery and associated with abdominal pain.

(3) Bitter taste of the medicine may induce nausea and vomiting in sensitive individuals. This tendency can be masked by consuming the medicine mixed with honey or sweet syrup.

(4) Medication with *Katuka* should be stopped if the intensity of jaundice does not decrease within three to five days and the symptoms get aggravated. Chronic and severely jaundiced patients should consume *Katuka* under medical supervision.

(5) Jaundice with complications such as body itching, bleeding, anaemia, edema, loss of weight etc. should be properly investigated and treated under medical supervision.

(6) Hot, spicy, pungent, sour, fatty and heavy foods should be avoided. It is advisable to take a soft, semi-solid or liquid diet during and after medication till normal digestive power is restored and the blood bilirubin level becomes normal.

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15

Ajamoda powder for joint pain

Joint pain or arthralgia is caused by inflammation or degeneration of tissues in one or more joints. When associated with stiffness, swelling and painful joint movement it is called arthritis. Joint pain can be a manifestation of acute febrile illnesses, trauma, excessive mechanical stress, a variety of medical conditions elsewhere in the body or a more serious form of disabling arthritis which may be infective, non-infective or degenerative. The common non-infective joint diseases with joint pain as a major symptom are rheumatoid arthritis, osteoarthritis, gout, and non-specific inflammatory arthritis such as psoriatic arthritis.

Rheumatoid arthritis is a chronic, systemic inflammatory disorder that may affect many tissues and organs, but principally attacks the joints producing an inflammatory synovitis that often progresses to destruction of the articular cartilage and ankylosis of the joints. Although the cause of rheumatoid arthritis is unknown, auto-immunity plays a pivotal role in its chronicity and progression. The onset of rheumatoid arthritis in a majority of patients is insidious. Morning stiffness is its characteristic feature and before the involvement of the joints the patient may complain of tiredness, fatigue, general malaise, low grade fever, etc. Generally the small joints of fingers or toes are initially involved, then it spreads to the wrists, elbow, shoulders, ankles and knee. The temporo-mandibular joint and sterno-clavicular joint may also be affected. As the disease progresses, the pain and swelling of the joints increases. Swelling of the proximal inter-phalangeal joint and muscular atrophy gives rise to spindled shape of the fingers. Suggestive clinical features with consistent radiological changes, high erythrocyte sedimentation rate and a positive rheumatoid factor test usually help in diagnosing the disease.

Osteoarthritis is a degenerative arthritis resulting from excessive mechanical stress on a diseased or degenerated joint. It generally involves big weight-bearing joints such as the knee, hip, spine but in women it may involve the terminal joints of the fingers. The patients are frequently obese. Pain in joints initially is intermittent and appears after using the joints and is relieved by rest. With the progression of the disease, movement in the affected joints becomes increasingly limited. Crepitus are felt or heard in the affected joints. Bony outgrowth may appear on the joint margins.

Gouty arthritis is a form of arthritis which is caused by accumulation of uric acid crystals inside the joint which evokes an acute inflammatory response. It is one of the most painful joint diseases. Gouty arthritis usually strikes a single joint, most commonly the big toe, however, it can also affect the ankles, knees, wrists, fingers and elbows. Elderly males are more likely to develop gouty arthritis than women.

Psoriatic arthritis is a prototype of a group of chronic non-specific arthritis secondary to a primary immuno-inflammatory disease elsewhere like skin psoriasis. The exact causes are not yet known, but several genetic associations have been identified. Psoriatic arthritis can develop at any stage. However, on average it tends to appear about 10 years after the first signs of psoriasis. For the majority of people this is between the ages of 30 and 50, but it can also affect children. Men and women are equally affected by this condition and the arthritis symptoms may occur before any skin involvement.

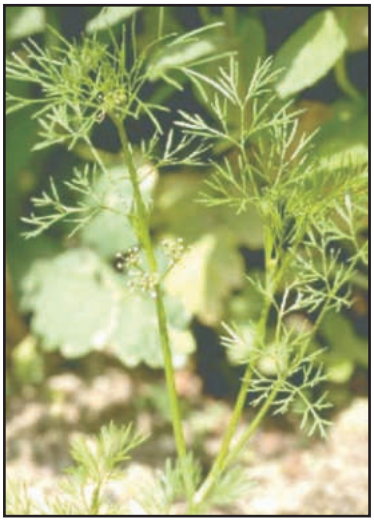
Of the many drugs and preparations for arthritis documented in Ayurveda, *Ajamoda* powder is a simple and effective remedy. It is used internally as well as on the affected joints of the patient in the form of poultice.

Ajamoda (*Apium leptophyllum*) (Pers.) F.V.M. ex Benth.

Ajamoda consists of dried, aromatic fruits of *Apium leptophyllum*, an annual herb cultivated in the central and southern states of India. It is collected by thrashing plants on a mat and dried in shade or in drying sheds. *Ajamoda* is a well-known drug for rheumatism and gout. *Ajamoda* is one of the chief ingredients in many formulations

useful in rheumatoid arthritis. Poultice of crushed fruits can also be applied to painful joints along with oral use.

English name	Slender celery, Wild celery
Latin name	*Apium leptophyllum* (Pers.) F.V.M. ex Benth
Family	Apiaceae/Umbelliferae
Parts used	Fruit



Terminal twigs of *Ajamoda* plant.

Dried *Ajamoda* seeds.

Main chemical constituents[1]

Essential oil and fixed oil.

Quality standards[1]

As per the Ayurvedic Pharmacopoeia of India, quality standards determining the identity, purity and strength of *Ajamoda* fruits are based on the following:

Foreign matter	Not more than 5%
Total ash	Not more than 14%
Acid-insoluble ash	Not more than 14%
Alcohol-soluble extractive	Not less than 14%
Water-soluble extractive	Not less than 3%
Volatile oil	Not less than 2% v/w

Method of preparation

(1) Clean the dried fruits of *Ajamoda* by removing the stalks, dust and other foreign matters.

(2) Grind in a pulverizer or in a mortar and pestle to make a fine powder.

(3) Filter through a fine sieve of mesh size 85.

(4) Store in an air-tight container and consume within one year.

Dosage form

Aromatic, slightly bitter yellowish-brown powder giving a sensation of warmth to the tongue.

Therapeutic properties[2]

Seeds have antiseptic, diuretic, anti-inflammatory, analgesic, anthelmintic, and anti-spasmodic properties.

Dose and mode of administration

(1) The dose of the formulation for adults is 1 to 3 grams and for children 125 to 500 mg, two or three times a day, with warm water.

(2) For local application as poultice, make a paste of the powdered seeds in warm water and apply on the affected joint.

Indications and uses

(1) For relief from joint pain in arthritis such as osteoarthritis, rheumatoid arthritis, gouty arthritis, and non-specific arthritis.

(2) It is useful in dyspepsia and colic with or without joint pain, when taken with salt and warm water.

(3) Local application of the paste or poultice of *Ajamoda* seeds is recommended in painful joint condition.

Precautions and safety aspects

(1) *Ajamoda* powder should not be used during pregnancy and nursing mothers are advised to take it under medical supervision.

(2) The diuretic action of *Ajamoda* works by irritating the kidneys and therefore should be used with caution in cases of renal disorder.

(3) Where joints are without swelling or inflammation but pain is dominantly present, massage with warm sesame oil can also be done following fomentation with *Ajamoda* seed powder.

(4) Persons having arthritis should avoid eating sour and cold items.

(5) Excessive use of the affected joints should be avoided.

(6) If pain does not subside within two to three days or joints develop effusion of fluid, medical advice should be sought.

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16

Lodhra powder for leucorrhoea

Leucorrhoea is a whitish mucous discharge from the female genital tract. The basic cause of this problem is overproduction of secretions from the genital tract due to continuous irritation. Mostly there is a change in the vaginal flora due to change in pH. Vaginal infection is the most common cause, which usually results from poor hygiene. Other causes of leucorrhoea are ill health, under-nourishment, marital disharmony, psychological, and endocrine disturbances, genital tract inflammation, any growth in the uterus and use of contraceptives.

Leucorrhoea without any underlying pathological condition is seen in early pregnancy, sexual excitement and at puberty. This type of leucorrhoea needs no medication but assurance as it may correct itself though excessive secretions are sometimes enough to keep the vulva moist and stain the under-clothing.

Differentiation of the underlying causes of leucorrhoea can be grossly done according to the period of a woman's life.

(1) Leucorrhoea at an early age, up to puberty usually occurs due to inflammation of the vagina.

(2) Post-puberty leucorrhoea up to marriage usually occurs from poor genital hygiene, vaginal infection, ill health and anaemia.

(3) Post-childbirth leucorrhoea occurs mainly due to vaginal or cervical tear. Leucorrhoea during the childbearing age after the birth of the first child usually occurs due to cervical erosion or chronic infective inflammation of the cervix and vagina, use of contraceptives, excessive vaginal medication or use of tampons.

(4) Pre-menopausal leucorrhoea results from uterine polyps, fibroid, carcinoma and prolapse. Post-menopausal leucorrhoea is mainly the result of genital tract growth, uterine prolapse or senile changes in the vagina.

Leucorrhoea without severe pathologic conditions can be successfully managed with a simple remedy such as a powder made from *Lodhra* bark and by following certain do's and don'ts in the Ayurvedic texts. These are:

(1) Nutritious diet, proper physical activity, mental relaxation, regular bowel habits and local hygiene are the key to effective management of leucorrhoea.

(2) Excessive intake of water, unripe fruits, sweet foods and drinks made of sugar, sedentary lifestyle and indulgence in fear, anger and grief are the negative factors for leucorrhoea patients and should be avoided.

Lodhra (*Symplocos racemosa* Roxb.)

Lodhra powder is a single-ingredient powder made from dried stem bark of an evergreen tree *Symplocos racemosa* Roxb., which is 6 to 8.5 metres tall, found abundantly in the plains and lower hills throughout India. The bark of *Lodhra* tree is used orally as well as for topical application in the form of a vaginal douche. The formulation is mentioned in classical Ayurvedic texts and in the Ayurvedic Pharmacopoeia of India for use in conditions with increased discharge like diarrhoea, dysentery, leucorrhoea, excessive menstrual bleeding, haemorrhagic disorders, conjunctivitis, etc.[1]. The bark has astringent, styptic, cooling, anti-inflammatory and anti-microbial properties and is used in various Ayurvedic formulations meant for the management of excessive vaginal discharge. Scientific studies have shown that *Lodhra* bark has an inhibitory effect on the growth of *Micrococcus pyogenes var. aureus, E. coli,* and enteric groups of microorganisms[2].

Composition

The formulation consists of finely powdered stem bark of *Symplocos* tree.

English name	Symplocos bark
Latin name	*Symplocos racemosa* Roxb.
Family	Symplocaceae
Part used	Dried stem bark

Leafy shoot with flowers of *Lodhra* tree.

Dried stem bark of *Lodhra*.

Main chemical constituents[1]

Alkaloids (loturine, loturidine and colloturine) and red colouring matter.

Quality standards[3]

The bark of *Symplocos racemosa* Roxb. used for making medicinal powder should adhere to the following physical constants.

Foreign matter	Nil
Total ash	Not more than 12%
Acid insoluble ash	Not more than 1%
Acid-soluble extractive	Not less than 9%
Water-soluble extractive	Not less than 15%

Method of preparation

(1) Properly dried stem bark of *Lodhra* is cleaned first to remove foreign matters and then powdered and sieved through 85 mesh. Exposure to moisture should be avoided during preparation of the powder and it should be kept in an air-tight container in a dry place. Properly kept powder retains its potency for one year.

(2) For preparing a decoction for vaginal wash, the stem-bark of *Lodhra* is cleaned and coarsely powdered. The decoction is prepared by boiling 20 to 30 grams of coarse powder of *Lodhra* bark in 300 to 500 ml of water till 100 to 125 ml remains. The decoction is filtered and the liquid thus obtained is used warm for vaginal douche. Fresh decoction should be prepared for the wash every day.

Dosage form

Grayish-brown powder for oral use and decoction for vaginal wash.

Therapeutic properties[4]

Lodhra bark has astringent, styptic, anti-inflammatory, and anti-microbial properties.

Dose and mode of administration

(1) *Lodhra* powder is given orally in the dose of 3 to 5 gram, twice a day, with rice water or warm water. Rice water is prepared by soaking one tablespoon of raw rice in 50 ml plain water for an hour and then taking out the liquid part. Alternatively, a mixture of the given dose of powder with the equal amount of honey can be swallowed with warm water or rice water.

(2) Vaginal wash with the decoction of *Lodhra* bark should be done daily for two to three weeks till local symptoms are adequately controlled. Thereafter, only oral medication should be continued.

(3) Concomitant use of powder orally and decoction for vaginal wash helps in speedy and better control of leucorrhoea.

Indications and uses[5]

(1) Leucorrhoea.

(2) Menorrhagia or metrorrhagia.

Precautions and safety aspects

(1) It is advisable to diagnose the cause of leucorrhoea before starting treatment with *Lodhra*.

(2) Overdose and empty-stomach consumption of *Lodhra* powder may cause abdominal heaviness, nausea and constipation in individuals prone to gastro-intestinal upsets. These symptoms can be avoided by taking light or liquid diet.

(3) Decoction of *Lodhra* bark for vaginal wash should be prepared fresh and should not be left uncovered for a long time. It is better to use the decoction within an hour or so of preparation.

(4) A smaller dose of *Lodhra* powder may be taken, if menstrual flow gets diminished.

(5) Excessive use of spicy and sour food items, curd and yoghurt should be avoided during medication.

(6) Mental stress aggravates the symptoms of leucorrhoea and hence an attempt should be made to remain stress-free, relaxed and physically active.

(7) If significant control of symptoms is not achieved in three to four weeks, medical opinion must be sought.

(8) No adverse effect of *Lodhra* powder is reported when taken in recommended doses.

(9) It is safe for the baby if a nursing mother is taking this medication. However, *Lodhra* powder should not be used for a long duration during pregnancy.

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17

Dhattura paste for lice infestation

Pediculosis is an infestation of the skin, hair or genital region caused by small insects called lice, which live directly on the body or in garments. The lice are small wingless parasites with sucking mouth parts that feed on human blood and lay their eggs on body hairs or in clothing. Lice infestation itself is not dangerous but a serious public health problem because some lice can carry microorganisms that cause diseases like relapsing fever, trench fever and epidemic typhus.

Lice infestation usually occurs due to poor upkeep and hygiene of hairy body parts for want of adequate facilities for bathing and washing of clothes, particularly undergarments. Any individual could get lice infestation; children with long hair are however more prone to suffer.

The most common site for lice infestation is the scalp, and it is transmitted from one person to another by close contact and by sharing of combs and hair brushes. Head lice infestation in epidemic form is common in school-going children. Adult lice can be seen on the patient's scalp close to the base of hairs and around the ears and these may spread from the scalp to the eyebrows, eyelashes, and beard in adults, although they are more often limited to the scalp in children. Grayish-white eggs called nits may also be visible along with lice. Nits are premature forms of lice, which take 3 to 14 days to hatch. Infestations of body lice and pubic lice are seen in individuals who maintain poor personal hygiene, wear the same clothes and vests continuously without laundering, do not bathe regularly and share bedding or clothes or towels with infected persons.

The common symptom of lice infestation irrespective of body location is itching, usually with injury to the skin caused by scratching or scraping. The itching may be intense, and may be followed by bacterial infection of skin that has been scratched open. The itching results from an allergic reaction to a toxin that is present in the saliva of the lice. Diffuse skin eruption or inflammation can result with repeated bites of lice.

Another common complication in head lice infestation is swelling or inflammation of the neck glands. Patients with body lice often have intense itching with deep scratches around the folds of shoulders, flanks or neck. The bites first appear as small red pimples but may cause a generalized skin rash. If the infestation is not treated, the patient may develop complications that include headache, fever, and bacterial infection with scarring. Pubic lice may sometimes produce small bluish spots on the patient's trunk or thighs.

Prevention of lice infestation and re-infestation is tedious requiring avoidance of close contacts with infected persons, sharing of garments, towels, etc. and maintenance of adequate body hygiene is more important than the treatment. Local application of the paste of certain medicinal plants and medicated oils is in practice in India for the treatment of lice infestation.

Some commonly used formulations are documented in the Ayurvedic Pharmacopoeia and Ayurvedic Formulary of India. *Dhattura* paste is one such formulation that is widely used in rural areas because of its effectiveness in killing lice.

Dhattura (*Datura metel* Linn.)

Dhattura is a popular medicinal plant of India documented for its anti-lice efficacy in the classical Ayurvedic literature. *Bhavamishra*[1] describes the use of *Dhattura* seeds for the treatment of *Yuka* (lice) and *Liksha* (nits). The plant is enlisted in the Ayurvedic Pharmacopoeia of India[2] providing pharmacopoeial standards and uses of the whole plant and seeds.

Dhattura plant grows as a weed throughout India. The plant is an erect and succulent annual herb or shrub about one metre in height with often purplish branches and triangular ovate leaves, bell-shaped flowers having purplish colour outside and white inside and round, thorny fruits. *Dhattura* seeds are light brown to yellowish brown in colour, odourless, kidney shaped, about 0.6 centimetre in length and 0.4 centimetre in width, compressed, flattened and thickened towards the curved edge with a bitter and acrid taste.

Composition

The paste for application over lice-infested parts consists of *Dhattura* seeds.

English name	Thorn apple
Latin name	*Datura metel* Linn.
Family	Solanaceae
Part used	Leaf and seeds

Leafy shoot of *Dhattura* with flower and thorny fruit.

Cut-opened fruit of *Dhattura.*

Dry seeds of *Dhattura.*

Main chemical constituents[3]

Tropane alkaloids such as hyoscyamine, atropine, scopolamine, etc. and fixed oil.

Quality standards[3]

Quality of *Dhattura* is estimated on the basis of the following physical constants.

Foreign matter	Not more than 2%
Total ash	Not more than 6%
Acid insoluble ash	Not more than 1%
Acid-soluble extractive	Not less than 5%
Water-soluble extractive	Not less than 7%

Method of preparation

(1) Fresh mature leaves of *Dhattura* are plucked and ground in a mortar or grinder with a little water. The juice is expressed from the ground leaves for application the same day.

(2) For making a paste, dry seeds are first finely powdered and then mixed properly with an equal amount of water or mustard oil.

(3) Adding mustard oil to the leaf juice or seed powder enhances the anti-lice effect of *Dhattura*.

(4) The body-part, where juice or paste of *Dhattura* is to be applied should not be wet and it is better to use the medicament at night to derive optimal effect.

Dosage form

Greenish juice of leaves and yellowish-brown oily powder of seeds.

Therapeutic properties[4]

Dhattura is known to have strong nematicidal, analgesic, anti-viral, anthelmintic and anti-spasmodic properties by virtue of which it is useful in treating lice infestation and associated symptoms.

Dose and mode of administration

(1) The amount of leaf juice or seed powder required for application depends upon the size of the affected area. Usually 25 to 30 millilitres of leaf juice or paste of seeds, 5 to 10 grams, made with 15 to 20 millilitres of water or mustard oil is required for a single application on the scalp. The paste of powdered seeds is preferred over leaf juice in case lice infestation is confined to the head.

(2) Fresh juice of *Dhattura* leaves or paste of seeds is to be applied uniformly over the affected area with hands and left for at least three to four hours and then washed with plain water.

The juice or paste should be applied against the direction of hairs to provide maximum exposure to the insects. The longer the medicine remains in contact with the body, the better the results seen. Due care must be taken to ensure that the medicine is applied close to the base of the hair on the scalp and other parts of the body.

(3) Washing the hair with shampoo before or after applying the medicine should be avoided as it dilutes the medicine's effectiveness.

(4) Dead lice or nits should be removed manually or with a comb after the paste or juice has dried.

(5) Application of *Dhattura* leaf juice or paste of seed powder should be done consecutively for three to five days till all lice and nits are killed and removed. Further hair wash should be done at least two days after the completion of the course of treatment.

Indications and uses

Lice infestation with or without nits in the head, pubic and other regions of the body and associated symptoms of itching and skin rash is the main indication for the use of *Dhattura* paste or juice on affected parts.

Precautions and safety aspects

It is important to observe the following precautions:

(1) *Dhattura* is a poisonous medicinal plant and hence it should be used with care.

(2) While applying or removing leaf juice or seed paste of *Dhattura*, due care must be taken that the medicine does not get into the eyes, mouth, ear, nose and other natural openings of the human body.

(3) Remove the dead or partially inactivated lice with a narrow-tooth comb or manually.

(4) Mixing *Dhattura* medication with other drugs with similar action is not desirable as drug to drug interaction is unknown.

(5) The most important step in treating head lice infestation is to treat the person and other family members simultaneously with medication to kill the lice and prevent re-infestation and cross-infection.

(6) Wash clothes and bedsheets used by the infested person two days before the treatment is started.

(7) The lice-infested person should wear clean clothing after each application of *Dhattura* medication.

(8) In case a few live lice are found after two to three applications of medicine, but are moving more slowly than before, there is no need for further treatment. Comb the hair to remove such lice and wait for a day or two for the medicine to kill the remaining lice on the head.

(9) Whereas no dead lice are seen and lice are as active as before, the medicine may not be working. In such a situation seek medical opinion and follow doctor's advice.

(10) After a course of 2-3 days treatment, check the hair bases and comb hair with a nit-comb to remove nits and lice on alternate days. Continue to check for 2 to 3 weeks until it is assured that all lice and nits are killed and removed.

(11) To kill lice and nits present in the clothing and bed linen that was used during two days before treatment, wash them using hot water with not less than 130°F temperature or dry laundry using high heat for at least 20 minutes. Similarly, combs and hair brushes should be dipped in hot water and washed with soap.

(12) Clothes such as coat, scarf, cap, etc. should be dry cleaned.

(13) In order to prevent re-infestation, all such activities should be avoided that are likely to spread lice such as head-to-head contact during play and at home; sharing of clothes and towels, hair brushes and combs; and lying on beds, sofas, couches, pillows, carpets, or stuffed animals that have recently been in contact with an infested person.

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18

Ashvagandha powder for malaise

Malaise is a symptom of psychosomatic origin characterized by a general feeling of illness or lack of well-being and may be accompanied by discomfort, fatigue, lassitude, restlessness, loss of strength and lack of interest and drive. This symptom is usually a vague sense of ill-being and exhaustion seen in patients suffering from any significant febrile infection and metabolic or chronic disease.

The mechanism of development of malaise is not fully understood and probably it may result from excessive presence of reactive molecules called free radicals. These molecules cause oxidant injury to the body cells and inadequate supply of antioxidants in the diet lead to a decline in the levels of antioxidants with increasing age. The onset of malaise may be sudden or staggering depending upon the nature of the underlying disease.

Malaise associated with other symptoms indicates significant illness. The following is the list of conditions that mostly cause malaise:

(1) Acute infectious diseases like pneumonia, influenza, and viral fever.

(2) Chronic infectious diseases like AIDS, parasitic disease, hepatitis and tuberculosis.

(3) Organ-specific chronic diseases like heart failure, obstructive lung disease, kidney failure and liver disease.

(4) Autoimmune diseases like rheumatoid arthritis, sarcoidosis, and systemic lupus erythematosus.

(5) Endocrinal disorders like diabetes mellitus, dysfunction of the thyroid and adrenal glands.

(6) Various cancers like leukaemia, lymphoma, colon cancer and solid malignant tumours.

(7) Severe anaemia.

(8) Mental illness such as depression.

(9) Medication with anti-convulsant, anti-histaminic, psychotropic and beta-blocker drugs and multi-drug treatments.

Certain herbal medicines called *Rasayana* in Ayurveda are proven to have excellent anti-oxidant, immune-enhancer, anti-infective, anti-degenerative and anti-stress effects. *Ashvagandha* is one such medicinal herb, which helps in many ways in the restoration and maintenance of health and vitality and to reinforce the psychosomatic mechanisms involved in preventing and treating malaise of varied origin.

Ashvagandha Powder (*Withania somnifera* Dunal.)

Ashvagandha is a perennial shrub, found in waste lands, cultivated fields and open grounds throughout India. It is widely cultivated in India. The roots are collected in winter, washed and cut into short pieces. *Ashvagandha* is one of the most commonly used medicinal plants in Indian medicine for a varied range of physical and psychological ailments. It finds mention in almost all classical compendia of Indian medicine, particularly in the context of rejuvenation therapy. The plant is best known for its tonic, anti-stress and vigour- and vitality-enhancing properties. The root of the plant is used as such in powder form or in combination with other medicinal plants in various kinds of formulations mentioned in official formularies and pharmacopoeia of India. A lot of scientific work has been done on *Ashvagandha* proving it to be useful as an immunomodulator, antioxidant and adaptogenic[1]. Due to these very beneficial effects, *Ashvagandha* is preferred for adjuvant use in the management of various psychosomatic, infectious and drug-induced ailments and nutritional deficiency states with malaise as a main symptom. *Ashvagandha* improves tissue vitality, physical and mental endurance and neuromuscular strength.

Composition

Ashvagandha powder consists of dried mature roots of *Withania somnifera* Dunal.

English name	Winter cherry
Latin name	*Withania somnifera* Dunal.
Family	Solanaceae
Parts used	Root

Ashvagandha plant with unripe and ripe fruits.

Dry *Ashvagandha* roots.

Main chemical constituents[2]

Alkaloids and withanolides.

Quality standards[3]

Identity, purity and strength of *Ashvagandha* root are determined on the following basis:

Foreign matter	Not more than 2%
Total ash	Not more than 7%
Acid-insoluble ash	Not more than 1%
Alcohol-soluble extractive	Not less than 15%
Assay of total alkaloids	Not less than 0.2%

Method of preparation

(1) Dried roots of *Ashvagandha* are cleaned and ground into fine powder.

(2) The powder is filtered through mesh size 85 to remove fibers and coarse particles and then kept in an airtight jar or polythene bag away from moisture.

(3) The potency of well-preserved *Ashvagandha* powder is retained for one year.

Dosage form

Cream-coloured fine powder.

Therapeutic properties[4]

(1) *Ashvagandha* is a tonic, anti-stress, adaptogenic, somniferous, stimulant, vitalizer, aphrodisiac and immuno-enhancer.

(2) Pharmacological studies have confirmed its immuno-modulatory, cyto-protective, anti-oxidant and anti-ageing properties.

Dose and mode of administration

(1) The dose for adults of *Ashvgandha* powder is three to six grams and for children the dose is 500 mg to 1g to be taken twice a day, with honey or warm milk before meals. It is advisable to first mix *Ashvagandha* powder properly with an equal amount of honey and the mixture to be swallowed with sips of milk.

(2) Alternatively, boil a single dose of *Ashvagandha* powder in four times milk and eight times water till milk remains. If needed, add sugar to the medicated milk and drink it lukewarm. Every dose of *Ashvagandha* powder has to be freshly boiled with milk and water.

Indications and uses

Ashvagandha powder is useful in malaise, debility, impotence, neurasthenia, mental stress and fatigue.

Precautions and safety aspects

(1) Malaise persisting for more than a week must be properly investigated and the underlying cause should be ascertained before starting *Ashvagandha*.

(2) Concomitant use of alcohol and psychotropic drugs should preferably be avoided while using *Ashvagandha* powder.

(3) Individuals with hot constitution should take a smaller dose of *Ashvagandha* and should avoid excessive consumption of hot beverages, sour, spicy and stimulant foods.

(4) *Ashvagandha* powder is generally considered as safe. Used in a dose of up to 9 grams per day for four weeks, it is reported to be well-tolerated.

(5) Larger doses of *Ashvagandha* may possess abortifacient property and thus contraindicated during pregnancy. Even normal dose should be given to pregnant women under medical supervision.

(6) It is safe for the baby if a nursing mother is taking *Ashvagandha*.

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19

Shatpushpa powder for painful menstruation

Painful menstruation, also known as dysmenorrhoea, is a common problem of women in the reproductive age group. There are several causes attributed to this condition; such as congenital malformation of the genital tract, mechanical obstruction, infection, vascular congestion and sometimes psychogenic causes. The nature, severity and time of pain vary from individual to individual depending on the underlying cause, tolerance capacity and the individual's perception of the condition.

Pain may occur before, during and after menstrual flow. Sometimes, it may occur between the menstrual periods. The pain can be dull and continuous with a sense of heaviness in the pelvic region and not infrequently intermittent and spasmodic. Anxiety, stress and unsatisfied sexual stimulation contribute significantly to induce or aggravate dysmenorrhoea without any structural or pathologic cause.

Primary dysmenorrhoea is present from the time of menarche, i.e. from the onset of menstruation and is also termed as congenital or essential, while secondary dysmenorrhoea results from congestive, inflammatory, obstructive and functional conditions of the genital tract.

Painful menstruation without pathologic conditions can be successfully managed with simple remedies such as powder of *Shatpushpa* and observing certain do's and don'ts:

(1) Food intake around menstual period should be light, soft and easy to digest. Heavy meals, overeating and dry, spicy, and cold foods should be avoided. If the appetite is weak, switch over to liquid or semi-solid diet.

(2) Women should maintain a relaxed state of mind before and during menstrual days keeping away aggression, anger, frustration and irritation. Proper sleep and deep breathing with relaxed mind help to improve tolerance and alleviate pain.

(3) Suppression of defecation and urination urges should be avoided.

(4) Sipping of warm water and hot water fomentation over lower abdomen give relief from pain.

(5) Excessive physical or mental exertion, dietary irregularities and mental irritation should be avoided and due care should be taken to have proper meals and rest.

Shatpushpa (*Anethum sowa* Roxb. ex Flem.)

Tribal communities use dried ripe fruits of *Shatpushpa* in the form of a decoction or powder or boiled with milk alone or mixed with other herbs for female health problems resulting during menstruation and after child birth. The formulation is listed with given indications in the Ayurvedic Pharmacopoeia of India[1]. The plant is cultivated in tropical and subtropical regions and its fruits are collected near the end of winter, dried in the shade and kept in dry conditions. Properly preserved fruits are dark brown and rich in essential oil with a faintly aromatic odour, warm and slightly sharp taste resembling that of caraway. Optimal potency of the herb and its powder lasts for about one year.

Composition

The formulation consists of powdered dry fruits of *Shatpushpa*.

English name	Dill
Latin name	*Anethum sowa* Roxb. ex Flem.
Family	Apiaceae
Part used	Dried ripe fruits

Flowering *Shatpushpa* plant.

Unripe *Shatpushpa* fruits.

Dried, ripe *Shatpushpa* fruits.

Main chemical constituents[2]

Essential oil, aromatic glycosides, monoterpenoid, ketodiols.

Quality standards[3]

Foreign matter	Not more than 5%
Total ash	Not more than 14%
Acid-insoluble ash	Not more than 1.5%
Alcohol-soluble extractive	Not less than 4%
Water-soluble extractive	Not less than 15%
Volatile oil	Not less than 3%

Method of preparation

(1) Clean *Shatpushpa* dried fruits by removing dust and other foreign particles.

(2) Grind fruits in a dry grinder or pulverizer.

(3) Filter the powder through sieve with mesh size 85.

(4) Store the powder in an air-tight glass or food-grade plastic container and store in a dry, cool place away from direct sunlight.

(5) Soft decoction or infusion is prepared by boiling 2 to 3 grams of *Shatpushpa* in 50 ml of water until half of it remains. Or, soak *Shatpushpa* fruits in 25 to 30 ml of hot water for half an hour and then filter the contents to obtain infusion.

Dosage form

Brownish powder and decoction is light brown liquid.

Therapeutic properties[4]

The preparation has anti-spasmodic, stomachic, carminative, anti-flatulent and emmenagogue properties.

Dose and mode of administration

Two to three grams of the powder is to be taken twice a day with warm water, preferably after meals. The powder can be mixed with an equal amount of honey and swallowed with warm water or milk. Or, 25 to 30 ml of decoction or infusion can be taken twice or thrice daily. For continous pain or heaviness use of 2-3 teaspoonsful (10-15 ml) infusion is recommended at hourly intervals.

Indications and uses

(1) Painful menstruation with or without abdominal symptoms.

(2) *Shatpushpa* is also indicated for improving menstrual flow and lactation after delivery.

(3) It is also used as a household remedy for first-hand management of common ailments like diarrhoea, flatulence, indigestion, acute abdominal pain and fever[5].

Precautions and safety aspects

(1) Hot (pungent) spicy and sour food items should be avoided during menstruation and medication with *Shatpushpa* powder. In summer either the dose of *Shatpushpa* should be reduced or should be taken with some cooling, soft and soothing liquid.

(2) Use of *Shatpushpa* may be discontinued if menstrual blood flow increases and symptoms of giddiness, heat, burning, excessive thirst and dryness appear. These symptoms usually appear in women with hot body-mind constitution, i.e. *Paittik* constitution and can be negated by consuming soft, lubricating, soothing, semisolid and juicy food items.

(3) Toxic or adverse effects of *Shatpushpa* are not reported in the literature.

(4) Deep-fried, oily foods that may cause abdominal heaviness, indigestion and constipation, etc. should be avoided.

(5) Cold water bath, dry massage, night awakening, irregularity in sleep, excessive walking, excessive coitus, strenuous exertion and mental stress, etc. should be avoided.

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20

Palasha powder for parasitic infestation

Parasites are organisms that live on or inside humans or other organisms from which they obtain nutrients to survive. There can be many different types of parasite worms living in human bodies. Some are microscopic while others can be seen quite easily. These parasites or their eggs can be found in the environment, in the air we breathe, in the water we drink, or in the food we eat. These parasites may be pathogenic or non-pathogenic.

Pathogenic parasites cause harm because they consume the nutrient of the host, invade body tissues and cells, and produce toxic waste, which makes people sick. Moreover, most parasites also require a host to complete their life cycle. One third of the world's population is infected with one or more species of intestinal parasites – easy victims being children. These infections impair children's growth and development. Studies have shown an association between parasitic infection and under-nutrition, iron deficiency anaemia, stunted growth, poor school attendance and poor performance in cognition tests.

Modes of transmission

People can become infested by intestinal parasites through:

(1) Walking barefoot on soil contaminated with faeces of humans, dogs, cats, etc.

(2) Eating raw or undercooked pork, beef or fish that are infected.

(3) Eating contaminated raw food, fruits and vegetables.

(4) Eating food prepared by infected handlers.

(5) Drinking contaminated water.

(6) Poor hygiene or sanitation.

(7) Contact with infected persons (sexual contact, kissing, sharing drinks, shaking hands, or sharing toys).

(8) Inhaling dust that contains parasitic eggs or cysts.

(9) Playing with or picking up pet litter contaminated with parasitic eggs or cysts.

Portal of entry into the body

In the case of internal parasites, the most common portal of invasion is through the mouth. This is the entrance for the intestinal protozoa and helminths such as round warm, pin worm, etc. in the fully embryonated egg stage. A few important infestations, viz. species of hookworms, strongyloides and dog tape worm enter the body from the soil via the skin route.

The symptoms and signs of intestinal parasitic infestation can be variable and include: dyspepsia, diarrhoea, weight loss, fatigue, abdominal cramping and pain, constipation, nausea, vomiting, loss of appetite, irritable bowel syndrome, anaemia, joint and muscle aches, fever, rash, frequent colds and influenza, cough, itching anus, blood and/or mucus in the stools or foul smelling stools and visible worms in the stools, itching on the genitals and grinding of teeth in sleep. Sometimes these parasitic infestations can be life-threatening in people with severe impairment of immune function.

Intestinal parasitic infestation

The most common intestinal parasites to infect humans are:

(1) Protozoa: *Giardia intestinalis (Giardia lamblia)*, *Entamoeba histolytica*, cryptosporidium species, etc.

(2) Intestinal helminths: roundworm, hookworm, pinworm, threadworm, whipworm, and tapeworm.

These parasitic infestations, particularly roundworm, threadworm and giardia can be treated with a single herbal drug named *Palasha beeja* powder along with maintenance of hygiene and following certain do's and don'ts:

(i) Persons suffering from worm infestation should avoid excess intake of sweet and sour foods, milk, leafy vegetables, and non-vegetarian diet.

(ii) Suppression of natural urges of vomiting, passing stools and day-sleeping should be avoided.

(iii) Foods made up of bitter, pungent and astringent items, honey, alcoholic beverages, garlic, chenopodium leaves, sesame oil and mustard oil are beneficial.

(iv) Keeping digestive fire proper is essentially required to prevent the development of intestinal medium favourable for parasites and worms, for which healthy eating habits and timely meals are important.

Palasha [*Butea monosperma* (Lam.) Kuntze]

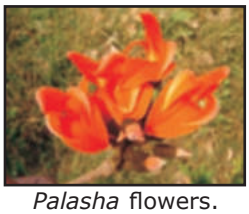
Palasha is a deciduous, medium-sized tree with somewhat crooked trunk and irregular branches, found in the dry deciduous forests, open grasslands and scrub forests of tropical zones. Its mature fruits are collected before the rains commence, either from the tree or off the ground, dried in the shade and kept dry. Properly preserved seeds are flat, kidney-shaped, dark reddish brown, thin, glossy; and rich in fixed oil with a faint odour and slightly acrid and bitter taste. Optimal potency of the seed and its powder lasts for about four months. It is used as a remedy for common ailments like worm infestation, skin diseases, etc. The formulation is listed with given indications in the Ayurvedic Pharmacopoeia of India[1]. Tribal communities make use of fresh or dried seeds of *Palasha* in the form of a decoction or powder and mixed with other herbs for the management of parasitic worm infestation[2].

Composition

The formulation consists of dried powdered seeds of *Palasha*.

English name	Flame of forest, Bengal kino tree, Bastard teak
Latin name	*Butea monosperma* Lam. Kuntze.
Family	Fabaceae
Parts used	Seeds

Palasha tree in bloom.



Palasha flowers.

Pods of *Palasha.*

Palasha seed.

Main chemical constituents[3]

Fixed oil (yellow, tasteless), enzymes (proteolytic and lypolytic) and small quantities of resins and alkaloids, glucose, butrin, and palasonin.

Quality standards[4]

The Ayurvedic pharmacopoeia of India provides quality standards of *Palasha* seeds based on the following physical constants:

Foreign matter	Not more than 1%
Total ash	Not more than 7%
Acid-insoluble ash	Not more than 0.5%
Alcohol-soluble extractives	Not less than 9%
Water-soluble extractive	Not less than 25%
Hexane soluble extractive	Not less than 15 %

Method of preparation

(1) Clean the dried seeds of *Palasha*, and grind them in grinder or pulverizer.

(2) Filter the powder through sieve mesh size 85.

(3) Keep the powder in an air-tight, dry container of glass or food-grade plastic and store in a dry, cool place away from direct sunlight.

(4) It is always good to use fresh *Palasha* seed powder for better results. However, it can be used up to four months after preparation.

Dosage form

Yellowish-brown powder.

Therapeutic properties[3]

Palasha seeds have anthelmintic, purgative, rubefacient and tonic properties.

Dose and mode of administration

The dose for adults is 2 to 3 grams twice a day. Children may be given 500 mg to 1 gram of the drug twice a day. This dosage form may be given on an empty stomach for 5 to 7 days continuously with honey or jaggery, rice water, butter-milk or warm water. It may also be given in a single dose up to a maximum of six grams in adults and three grams to children on an empty stomach.

Indications and uses

The *Palasha* seeds are internally administered as anthelmintic[5, 6] mainly for roundworm[7] and threadworm[8, 9] and also for giardiasis[10].

Precautions and safety aspects

(1) No side or toxic effects are reported in literature with recommended dose of *Palasha* seed.

(2) Women desirous to conceive and pregnant women should not use this drug.

(3) As *Palasha* seed powder is bitter, astringent and hot in potency, large doses should be avoided. Large doses may cause nausea, vomiting and abdominal colic.

(4) A high dose can occasionally cause nephrotoxicity and anaemia. Liver, lungs and spleen congestion can also occur with a very high dose.

(5) The seed suspension has shown teratogenic effects in rats[5]; therefore in pregnant women it should not be used. However, short term use of this medication may be safe for the baby if a nursing mother is taking it.

The following measures can help prevent parasitic infestation:

(1) Washing hands before eating and after using the toilet.

(2) Wearing gloves when gardening or working with soil or sand because soil can be contaminated with eggs or cysts of parasites.

(3) Do not allow children to be licked or kissed by pets that are not de-wormed regularly.

(4) Wash fresh vegetables and fruits thoroughly.

(5) Avoid eating raw meat, which may contain *Giardia lamblia*.

(6) Very sweet food items should not be taken in excess and regularly.

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21

Surana powder for piles (haemorrhoids)

Piles (haemorrhoids) are dilated veins within the anal canal. The precipitating causes of haemorrhoidal disease are chronic constipation, strain during defecation, sedentary life, pregnancy, chronic liver disease and abnormal bowel habits due to long-term use of low-fibre and fat-rich diet.

Piles may be internal, that is, above the internal anal sphincter or external, that is, below the sphincter; dry or with bleeding. The main and earliest symptom of piles is painless bleeding which is usually after and some times before defecation. Pain is not characteristic of haemorrhoids unless it is associated with infection, thrombosis or fissure-in-ano. Mucus discharge is a particular symptom of prolapsed haemorrhoids and anal itching may follow the discharge. Anaemia is seen in long-standing cases due to persistent and profuse bleeding.

Though piles are the most common cause of painless rectal bleeding, it is important that rectal and anal cancer must be excluded by proper physical examination and investigation before the condition is treated as piles.

In Ayurveda, various drugs are mentioned to treat piles. Of these, *Surana* powder is a simple herbal medicine which is frequently used for treating piles following certain life-style changes. The following do's & don'ts are to be observed by patients with haemorrhoids:

(1) Avoid heavy foods, untimely meals and food items that cause constipation and indigestion.

(2) Old rice, barley, garlic, black pepper, lemon, gooseberry, and ginger and judicious use of medicinal beverages are beneficial in the patients with piles.

(3) Regular use of goat's milk and yoghurt is beneficial.

(4) Avoid overeating and dry and spicy foods.

Surana [*Amorphophallus campanulatus* (Roxb.) Blume.]

Surana powder is a simple formulation made from dried corm of *Amorphophallus campanulatus*, a stout, herbaceous plant cultivated throughout the plains of India. This medicinal plant is named so owing to its ability to combat diseases like piles. *Surana* is mentioned in Ayurvedic Pharmacopoeia[1] as well as the Ayurvedic Formulary of India[2]. Its daily use is considered beneficial in relieving piles.

Composition

Surana powder consists of finely powdered dried corm of *Surana* for oral use.

English name	Elephant foot
Latin name	*Amorphophallus campanulatus* (Roxb.) Blume.
Family	Araceae
Part used	Corm or rhizome

Full *Surana* plant.

Unripe corm with roots.

Mature corm.

Main chemical constituents[3]

Betulinic acid, beta-sitosterol, stigmasterol, lupeol, glucose, galactose, rhamnose and xylose.

Quality standards[3]

Identity, purity and potency of *Surana* corm for its oral use are estimated on the basis of the following physical constants.

Foreign matter	Not more than 1%
Total ash	Not more than 8%
Acid-insoluble ash	Not more than 2%
Alcohol-soluble extractives	Not less than 3%
Water-soluble extractives	Not less than 9%

Method of preparation

(1) Cut *Surana* corm into small pieces and dry them in sunlight or oven.

(2) Take 50 grams of dried pieces of *Surana*. Dry them further to remove moisture for easy powdering.

(3) Grind the corms in a grinder or pulverizer till fine powder is obtained.

(4) Filter the powder through 85 size mesh to remove coarse fibers and other particles.

(5) Keep the powder in a dry and air-tight food-grade plastic or glass container.

Dosage form

Creamish-grey fine powder.

Therapeutic properties[4]

Surana has carminative, appetizing, digestive and analgesic properties.

Dose and mode of administration

The dose of *Surana* powder for adults is 2 to 10 grams and for children 1 to 5 grams, twice daily to be swallowed with water.

Indications and uses

Surana is useful in piles, liver disorders, abdominal pain and constipation.

Precautions and safety aspects

(1) Raw *Surana* corm may cause itching which can be relieved by its antidotes such as lemon and tamarind taken orally.

(2) Hot, spicy, fried, sour, pungent, fat-rich and heavy foods should be avoided during medication with *Surana*.

(3) The patient should take plenty of water, properly cooked green vegetables, fruits and milk in daily diet.

(4) Straining during defecation should always be avoided.

(5) Diet should be soft and digestible and not causing constipation.

(6) It is not advisable for pregnant and nursing mothers to consume *Surana*.

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22

Gandhaka ointment for scabies

Scabies is a contagious skin disease caused by infestation with itch mite (*Sarcoptes scabiei*). It spreads by skin-to-skin contact with a person who carries the mite. Less commonly, scabies can spread through sharing of clothes and bedding. Scabies is most common among household members and sexual partners of affected individuals. It is also common in congested areas such as hostels, dormitories, army camps, prisons, nursing homes and hospitals. In people with compromised immune systems and malnutrition, scabies can be an extensive disease of skin thickening and a scaly rash; and the syndrome called crusted scabies or Norwegian scabies.

The scabies mite cannot live more than three days without a human host, but it can survive up to a month when living on a human being and lays eggs on human skin, which hatch and grow into adult mites. The initial phase of infestation is asymptomatic. Subsequently, the disease manifests with intense itching especially at night or while taking a hot water bath. The itching is due to allergic reaction to the mites and their excreta or deposit in skin burrows. The skin lesion includes red rashes and raised spots. Due to scratching the skin may become crusty or scaly as the infection progresses. Early scabies rash may show little red bumps like hives, pimples and tiny bites. Scabies usually begins in the body's folds and crevices such as arm pits, around the nipples of women, on the penis of men, belt line, between the fingers, buttocks, elbows, inner thighs, wrist, and skin under rings, bracelets or watch bands. Except in infants and small children; the face, scalp, neck, palm and scalp are usually spared. The child may also have irritability, sleeplessness and tiredness due to itching. Secondary bacterial infection may occur over the scabies lesions and in many cases children are treated because of infected

skin lesions rather than for the scabies itself. Secondary skin infection with Streptococcus bacteria can sometimes lead to acute glomerulonephritis which is a serious complication of scabies.

Curing scabies needs several precautions and effort. A local application made from *Gandhaka* described in classical texts of Ayurveda can check the infection and reduce the spread of scabies.

Gandhaka ointment (ointment of sulphur)

Gandhaka ointment is an effective preparation made form *Gandhaka* (sulphur), *Tila* oil (sesame oil) and *Siktha* (bee wax). Both internal and external use of purified *Gandhaka* is mentioned in Ayurvedic classics as well as the Ayurvedic Formulary of India[1]. External use of sulphur possesses parasiticidal and fungicidal property attributed to the formation of hydrogen sulphide and pentatonic acid[2]. *Tila* consists of dried seeds of *Sesamum indicum* Linn. a herb extensively cultivated throughout the plains of India. *Tila* oil extracted from sesame seeds is used in skin diseases such as erysipelas, vitiligo, haemorrhoids, gout, gonorrhea, alopecia, dental disease, burn, etc.[3] Bee wax is obtained from the honey comb of the bees. In pharmaceuticals, it is an ingredient of paraffin ointment. Dermatological and cosmetic applications are probably the most common uses for bee wax and its extracts. Its effects on tissue regeneration and renovation have been well studied. Together with its bactericidal and fungicidal properties bee wax provides many benefits in various applications in cosmetics. In plastic surgery too bee wax extracts are used for improved wound healing and reduced scar tissue development.

Composition

Gandhaka ointment comprises of *Gandhaka*, *Tila* oil and *Siktha*.

Name	English Name	Latin Name	Family
Gandhaka	Sulphur	–	–
Siktha	Bee Wax	Obtained from bees *Apis mellifera*	Apidae
Tila oil	Sesame oil	*Sesamum indicum* Linn.	Pedaliaceae

Main chemical constituents:

(a) *Gandhaka*: Sulphur (S_2).

(b) *Tila Taila*: Fixed oil, natural lipids, glycolipids, phospholipids[4].

(c) *Siktha*: Myricin, free cerotic acid, small quantity of melissic acid and aromatic substance cerolin.

Raw *Sulphur.*

Quality standards

Quality of *Gandhaka* and sesame oil is determined on the basis of following parameters:

1. *Gandhaka*

Parameters	Impure *Gandhaka*	Pure *Gandhaka*
Carbon disulphide extract % w/w	100.00	95.7
Successive extract with % w/w		
1. Carbon disulfide	92.93	81.37
2. Chloroform	4.93	9.02
3. Hexane	2.69	5.36

2. Sesame oil[3]

Foreign matter	Not more than 2%
Total ash	Not more than 9%
Acid-insoluble ash	Not more than 1.5%
Alcohol-soluble extractives	Not less than 20%
Water-soluble extractives	Not less than 4%
Fixed oil	Not less than 35%

Preparation of *Gandhaka* ointment

Step 1: Method of purification of *Gandhaka*

(1) Take fine powder of *Gandhaka* in a ladle, add a little amount of clarified butter or *ghee*, melt it and pour into the vessel which contains cow's milk.

(2) This process is repeated seven times.

(3) Collect the purified *Gandhaka* on cooling to room temperature and wash with plenty of luke-warm water.

(4) After drying, prepare the fine powder of purified *Gandhaka* and preserve it for further use.

Step 2: Take the ingredients in following proportion.

No.	Ingredient	Quantity	Proportion
1	*Gandhaka* powder	25 grams	1/4th part
2	*Siktha* (bee wax)	100 grams	1 part
3	*Tila* oil	500 grams	5 parts

Apparatus required for preparing ointment comprises mortar and pestle, steel vessel, spoon, gas stove or heating plate, weighing balance, and thermometer. The procedure is as follows:

(1) *Tila* oil is taken in a steel vessel and heated up to 130 °C and then cooled to 70° C.

(2) Dissolve small pieces of *Siktha* (bee wax) into the oil with continuous stirring till a homogenous mixture called *siktha taila* is obtained.

(3) *Siktha taila* is taken in mortar and triturated with pestle adding *Gandhaka* powder till ointment-like consistency is achieved.

Precautions

(1) Over-heating of the oil should be avoided.

(2) The trituration should be firm enough to avoid formation of gritty particles.

Dosage form

The preparation has ointment-like consistency with light-yellow colour and a peculiar strong smell.

Therapeutic properties

Gandhaka ointment has parasiticidal, fungicidal, and antiseptic properties.

Indications and uses

Gandhaka ointment is useful in fungal infections of skin, scabies, eczema, and for application over chronic infective lesions.

Dose and mode of administration

(1) *Gandhaka* ointment is applied externally on the affected parts of the body once or twice daily and left on the lesions for an hour or so.

(2) Thereafter, the lesions should be cleaned with warm water.

(3) Repeat the procedure daily for 7 to 10 days or till all the lesions disappear.

Precautions and safety aspects

(1) *Gandhaka* should not be used in formulations without subjecting it to purification.

(2) Persons sensitive to sulphur should not use this application.

(3) If the skin lesions do not heal within a few days of application, proper medical guidance should be sought.

(4) *Gandhaka* ointment should not be used on open wounds and lesions.

(5) Persons with scabies having secondary bacterial infection should avoid the use of *Gandhaka* ointment.

(6) Persons known to have scabies should avoid having close skin-to-skin contact until they have been cured.

(7) If a member of a family has scabies, all other household members, sexual partners and close contacts should be treated simultaneously.

(8) Use gloves and gowns when treating others with a suspicious rash and itching.

(9) Wash all clothing, towels and bed linens that were used in the last three days by the affected person, with hot water.

(10) Use the dryer at high heat rather than air drying. Since the mites cannot survive on nonliving objects for several days, therefore place the objects that are not machine-washable such as coats and stuffed toys into a bag and store for a week.

(11) Cut nails and clean them thoroughly to remove any mites or eggs.

(12) Try to avoid scratching and keep all open sores clean and aseptic.

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23

Kapikacchu powder in sexual dysfunctions

Sexual dysfunctions are characterized by disturbance in sexual desire and in the psycho-physiological changes that comprise sexual response cycle. Such disturbances can cause marked distress and interpersonal difficulty in enjoying sexual intercourse. The sexual response cycle can be divided into the following phases:

(1) **Desire:** This phase consists of fantasies about sexual activity and the desire to have sexual activity.

(2) **Excitement**: This phase consists of a subjective sense of sexual pleasure and accompanying physiological changes. The major changes in the male consist of penile tumescence and erection. The major changes in the female consist of vasodilatation in the pelvis, vaginal lubrication and expansion and swelling of the external genitalia.

(3) **Orgasm:** This phase consists of a peaking of sexual pleasure, with release of sexual tension and rhythmic contraction of the perineal muscles and reproductive organs. In the male, there is a sensation of ejaculatory inevitability, which is followed by ejaculation of semen. In the female there are contractions (not always subjectively experienced as such) of the wall of the outer third of the vagina. In both genders, the anal sphincter rhythmically contracts.

(4) **Resolution:** This phase consists of a sense of muscular relaxation and general well being. During this phase, males are physiologically refractory to further erection and orgasm for a variable period of time. In contrast, females may be able to respond to additional stimulation almost immediately.

The sexual dysfunctions include:

(1) Sexual desire disorders: hypoactive sexual desire disorder, sexual aversion disorder;

(2) Sexual arousal disorders: female sexual arousal disorder, male erectile disorder;

(3) Orgasmic disorders like female orgasmic disorder, male orgasmic disorder, premature ejaculation; and

(4) Sexual pain disorders like dyspareunia, and vaginismus.

The sexual dysfunction may be lifelong when it is present since the onset of sexual functioning. Acquired type of sexual dysfunction develops only after a period of normal functioning. Psychological factors play a major role in the onset, severity, exacerbation, or maintenance of the sexual dysfunction.

Kapikacchu is one of the famous herbal drugs mentioned in Ayurvedic classics for various types of sexual disorders.

Kapikacchu [*Mucuna pruriens* (Linn.) D.C.]

Kapikacchu is an herbaceous, and twinning annual climber found throughout India in the hills ranging up to 3000 ft. height. Hairs on the pods of this climber are similar to that of monkey, that's why synonyms like *Kapikacchu, Kapiloma, Kapi, Markati* and *Vaanari* are used for it. Most of the Ayurvedic remedies described in literature for treating sexual dysfunctions and infertility contain *Kapikacchu* seeds as one of the ingredients. Two types of *Kapikacchu* seeds are described – wild and cultivated. The wild variety has better utility in clinical practice than the cultivated one and black seeds are considered better than white ones.

Composition

Kapikacchu powder consists of powdered seeds of *Mucuna pruriens* (Linn.) DC.

English name	Cow hedge
Latin name	*Mucuna pruriens* (Linn.) D.C.
Family	Fabaceae
Parts used	Seeds

Pod of *Kapikacchu.*

Dried seeds of *Kapikacchu.*

Main chemical constituents[1]

Mucuna pruriens is a good source of L-dopa, it also contains a number of amino acids.

Quality standards[2]

Quality standards of *Kapikacchu* seeds are based on the following physical constants:

Total ash	Not more than 3.45%
Acid-insoluble ash	Not more than 0.33%
Alcohol-soluble extractives	Not less than 10%
Water-soluble ash	Not less than 0.4%

Method of preparation

(1) Clean the dried seeds of *Kapikacchu* by removing dust and other foreign particles and grind them into a fine powder.

(2) Filter the powder through 85 mesh sieve and store in an air-tight glass or plastic food container, away from direct sunlight and in a cool place.

(3) The potency of *Kapikacchu* powder is best retained up to four months after preparation.

Dosage form

Light-brownish powder.

Therapeutic properties[3]

Kapikacchu powder has aphrodisiac, nervine tonic, anti-parkinsonism, anti-inflammatory, and hypocholesterolaemic properties.

Dose and mode of administration

Seed powder in the dose of 3 to 5 grams once a day with warm milk at night.

Indications and uses

Kapikacchu is useful in various sexual disorders including loss of libido, erectile dysfunctions, night emission, premature ejaculation, spermatorrhoea and oligospermia. It is also used in Parkinson's disease and hypercholesterolaemic conditions.

Precautions and safety aspects

(1) The use of *Mucuna pruriens* for a prolonged period causes weight loss. The protein fraction is said to be responsible for this effect.

(2) Judicious use in recommended dose is well tolerated.

(3) Persons consuming *Kapikacchu* may suffer from diarrhoea which if not controlled with dietery changes and normal medication may require discontinuation of *Kapikacchu* intake.

(4) Spicy, dry, sour and stimulant food items and emotional outbursts should be avoided during medication with *Kapikacchu.*

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Haridra powder and paste for sprain

The stretch or tear of soft tissues around a joint such as ligament is known as sprain. Common symptoms and signs of sprain include pain, swelling, bruising, instability and loss of function. One or more ligaments can be injured at the same time. The severity of the pain will depend on the extent of injury, i.e. whether a tear is partial or complete and the number of ligaments involved.

A sprain can result from a fall, a sudden twist, or a blow to the body that forces a joint out of its normal position. This results in an overstretching or tear of the ligaments supporting that joint. Typically, sprains occur when people fall and land on an outstretched arm, land on the side of their foot, or twist a knee.

Haridra powder mentioned in Ayurvedic classics is a simple formulation which is effective when taken internally as well as applied locally.

Haridra (*Curcuma longa* Linn.)

Haridra is a dried rhizome of a plant that grows to 2 to 3 feet in height with funnel-shaped yellow flowers. *Haridra* or turmeric powder is bright yellow in colour. It has an earthy aromatic and spicy fragrance with slightly bitter taste. Turmeric is an important spice in India with medicinal value. Plants are gathered annually for their rhizomes which are used fresh or in powder form. Turmeric is traditionally used locally and orally in sprain and swelling resulting from it. It is known to have anti-inflammatory and analgesic effects, and may be used

in inflammation induced joint pain and related symptoms. In recent studies, the three major curcuminoids found in turmeric have been found to limit the activity of chemicals and enzymes responsible for inducing and maintaining inflammation. Curcumin is found to be a powerful pain reliever in injuries and inflammatory conditions.

Composition

Haridra powder made from rhizomes is used orally as well as for local application.

English name	Turmeric
Latin name	*Curcuma longa* Linn.
Family	Zingiberaceae
Parts used	Rhizome

A bunch of turmeric plants.

Fresh turmeric rhizomes.

Dried turmeric rhizomes.

Main chemical constituents[1]

Curcuminoids including yellow colouring principal – curcumin, and an essential oil with high content of bisabolane derivatives.

Quality standards[2]

The identity, purity and potency of *Haridra* rhizome for oral use is estimated on the basis of the following physical constants:

Foreign matter	Not more than 2%
Total ash	Not more than 9%
Acid-insoluble ash	Not more than 1%
Alcohol-soluble extractives	Not less than 8%
Water-soluble extractives	Not less than 12%
Volatile oil	Not less than 4%

Method of preparation

(1) Take 50 grams of dried rhizomes of *Haridra* and dry them further to remove moisture for easy powdering. Rhizomes should have been harvested not more than one year ago.

(2) Grind rhizome in grinder till fine powder is obtained.

(3) Filter the powder through 85 mesh sieve to remove coarse fibers and other particles.

(4) Keep the powder in a dry and air-tight glass or plastic container away from sunlight.

Dosage form

Dusty, yellow-coloured fine powder.

Therapeutic properties[1]

Tumeric powder has anti-bacterial, insecticidal, anti-inflammatory, and anti-arthritic properties.

Indications and uses

(1) Sprain, inflammatory conditions of joints and burns are the main indications for local application of *Haridra* paste. *Haridra* powder is used internally for blood purification, skin blemishes and allergic conditions.

Dose and mode of administration

(1) For oral use, the dose of turmeric powder for adults is 2 to 5 grams and for children it is 1 to 2 grams. The dose of fresh turmeric juice is 10 to 20 millilitres in adults and 5 to 10 millilitres in children. Normally two doses a day should be taken with water or mixed with honey.

(2) A paste made from rhizomes, mixed with lime and salt, is applied to the sprained area and removed when it gets dried.

Precautions and safety aspects

(1) Turmeric being regularly used as a food item is considered safe and no adverse effects are reported of its long-term use. However, its oral use in children and pregnant women should be done under medical supervision. Turmeric or its alcoholic extract administered respectively in the dose of 2.5 grams per kilogram body weight and 300 milligrams per kilogram body weight on different species of animals proved non-toxic. It is safe for the baby if a nursing mother is taking this medicine.

(2) Turmeric's side effects may occur with the use of more than the recommended doses. In that case, it may cause stomach upset or other gastrointestinal problems like diarrhoea.

(3) As turmeric is bitter in taste, it is better not to take its powder or juice on empty stomach.

(4) Persons suffering from bile duct blockage, blood-clotting disorder and stomach ulcers should not take turmeric in excessive quantity.

(5) Treatment with turmeric may be stopped if it does not yield beneficial effects in a couple of days and medical advice should be sought.

(6) Proper rest to the affected part should be given along with the application of medicament.

(7) Persons receiving aspirin or warfarin should take turmeric with caution since their combined use may aggravate bleeding tendency.

(8) The following measures can help to prevent or aggravate sprain:

- Avoid exercising or playing sports when tired or in pain.
- Maintain a healthy, well-balanced diet to keep muscles strong.
- Practice safety measures to prevent falls.
- Wear shoes that fit properly.
- Do stretching exercises daily.
- Warm up and stretch before engaging in any sport or exercise.
- Avoid running or fast walking on uneven surfaces.

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25

Lavanga oil for toothache

Toothache is a commonly encountered problem. Any inflammatory condition affecting the gums and tooth pulp gives rise to pain. Enamel of tooth is insensitive to pain, toothache occurs only when the enamel is eroded. In most cases toothaches are caused by problems in the teeth or gums, such as cavities, gum disease, the emergence of wisdom teeth, a cracked tooth, infected or inflamed dental pulp, jaw disease or exposed tooth root. After having one or more teeth extracted, a condition known as dry socket can develop, leading to extreme pain. The severity of a toothache can range from mild discomfort to excruciating pain, which can be chronic or sporadic. This pain can often be aggravated by chewing or by hot or cold temperatures. Severe pain may be considered a dental emergency.

Toothache is a common symptom of an acute tooth abscess. It is associated with persistent throbbing pain at the site of the infection. Putting pressure or warmth on the tooth may induce extreme pain. In some cases, a tooth abscess may perforate bone and start draining into the surrounding tissues creating local facial swelling. In some cases, the lymph nodes in the neck get swollen and tender in response to the infection.

Though the cause of the toothache should be established before starting the treatment, topical application of clove oil to the affected area can be a first-aid management which is well-documented as an effective remedy in Ayurvedic classics.

Lavanga [*Syzygium aromaticum* (Linn.) Merr. & Perry]

Lavanga is the dried flower bud of *Syzygium aromaticum,* a tree cultivated in many parts of the world and also to a considerable extent in South India. Flower buds are collected twice a year, in the months of October and February when they change colour from green to crimson, and are dried carefully and separated from their peduncles. Clove is a fragrant floral bud, black or brown in color, widely used in Indian cuisines. Its pungent aroma and flavour is very familiar from its use as a culinary herb. The oil extracted from cloves is used as a home remedy for toothache. It is an ingredient of tooth powders, gargles and chewing gums. The oil is also used as a local analgesic for hypersensitive dental cavities; a mixture of clove oil and zinc oxide is used in dentistry as a temporary filling for tooth cavities.

Composition

Lavanga oil is extracted from the buds of clove.

English name	Clove
Latin name	*Syzygium aromaticum* (Linn.) Merr. & Perry
Family	Myrtaceae
Parts used	Flower buds

Leafy branch of *Lavanga* and unripe cloves in inset.

Dried cloves.

Main chemical constituents[1]

Eugenol, eugenol acetate and caryophyllene.

Quality standards[2]

The Ayurvedic Pharmacopoeia of India provides quality standards of *Lavanga* based on the following physical constants:

Foreign matter	Not more than 2%
Total ash	Not more than 7%
Acid insoluble ash	Not more than 1%
Alcohol soluble extractives	Not less than 3%
Water soluble extractives	Not less than 9%
Volatile oil	Not less than 15%

Method of preparation

Clove oil is usually available in grocery and medical shops. It is prepared by water distillation of clove buds containing the desired percentage of eugenol.

Dosage form

Clove oil has a warm, strong, spicy smell and the oil is colourless to pale yellow with a medium to watery viscosity.

Therapeutic properties[3]

Clove oil is analgesic, anaesthetic, antiseptic, refrigerant, digestive, carminative, stomachic, anti-spasmodic and rubefacient.

Dose and mode of use

(1) Cotton swab soaked in clove oil should be kept on the affected tooth without touching the gums.

(2) Clove oil-soaked tissue paper can also be applied directly to the affected site of the tooth. It may be used 2 to 3 times a day.

(3) Gargles with one to two drops of clove oil in a cup of warm water are useful as a mouth wash for toothache and gum problems.

Indications and uses

Clove oil is useful in toothache, halitosis, cephalalgia, dental caries, and painful condition after tooth extraction.

Precautions and safety aspects

(1) Clove oil is irritant and pungent. Therefore, it is advised to prevent the oil from touching the tongue and gums.

(2) If topical application of clove oil fails to relieve the pain, take dental consultation.

(3) Clove oil application in deep dental cavities should be done carefully.

(4) Clove is toxic, its oral use in large amounts (i.e. more than 3.7 g/kg body weight) may be life threatening.

(5) Enough information about safety is unavailable for the oral use of cloves and clove supplelments in pregnant and breast feeding women.

(6) Undiluted clove oil may cause allergic itching, rash and even burns, so its local application should be done carefully.

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Gokshura powder for urinary disorder

Difficult urination or dysuria is a general term referring to disturbances of varied nature in urinary flow and consistency, but by and large this condition represents difficulty in passing urine. Other problems in the urinary system include kidney failure, urinary tract infections, stone in kidney, ureter and urinary bladder, prostate enlargement and impaired bladder control. These problems usually manifest in the form of difficulty in urination, incontinence of urine, retention of urine or abnormally altered amount of urine. Urinary problems may be caused by the following:

(1) Increasing age: As one gets old; changes appear in the structure and capability of kidneys, ureters, bladder and urethra. These age-related changes tend to bring about disturbances in the production and flow of urine.

(2) Urinary Infections.

(3) Urine incontinence: Decrease in the strength of pelvic muscles and bladder sphincters usually associated with age, can cause incontinence, i.e. inability to hold urine.

(4) Functional damage to kidneys: Any illness or injury to the kidney and other parts of the urinary tract can impair urine formation and proper passing of urine.

(5) Uncontrolled high blood pressure, diabetes, chronic obstruction in the path of urine and untreated prostate enlargement usually lead to a disturbance in kidney function.

Symptoms of various urinary disorders include frequent urination, particularly at night; burning or difficulty during urination; infrequent urination and presence of blood or any other abnormal component in the urine.

Depending upon the extent and nature of the underlying condition, the following symptoms may be associated with the main urinary disorder indicating failure of renal functions including: loss of appetite, nausea and vomiting, fatigue, puffiness around eyes, swelling of hands and feet, darkening of skin, muscle cramps, high blood pressure, frequent headache, and itching all over the body.

Whatever may be the cause of a urinary disorder, it is always important to treat the symptom. Judicious use of *Gokshura,* a traditionally used medicinal herb, is effective in successful management of urinary disorders and should be resorted to, in case proper medical facility is not readily available and the patient is not suffering from severe symptoms of urinary disorder.

Gokshura (*Tribulus terrestris* Linn.)

Gokshura is a prostrate, annual or biennial weed of the pasture lands growing in hot, dry and sandy regions in the rainy season. The herb has natural occurrence but it can be propagated by seeds. The fruits are small, rounded and spiny consisting of five woody chambers, each with many seeds. Harvesting should be done preferably in winter when the properly dried ripe fruits could be preserved to retain potency till the next rainy season. Fruits, roots and the whole plant alone or in combination with other medicinal plants are extensively used in Ayurvedic medicine for the treatment of genito-urinary disorders ranging from difficulty in urination to urinary stones and sexual weakness. Simple and multi-ingredient formulations made of *Gokshura* are listed in the Ayurvedic Formulary[2] and Pharmacopoeia of India[1] and scientific studies have provided enough evidence of its varied usefulness in urinary and other diseases.

Composition

The powder and decoction of *Gokshura* are made from dried ripe fruits or the entire plant.

English name	Land caltrops, Puncture vine.
Latin name	*Tribulus terrestris* Linn.
Family	Zygophyllaceae
Parts used	Fruits and whole plant

Gokshura twig with a flower and fruits.

Dried *Gokshura* fruits.

Main chemical constituents[1]

Potassium nitrate, sterols, sapogenin, diosgenin, chlorogenin.

Quality standards[1]

Quality standards of *Gokshura* fruits as per Ayurvedic Pharmacopoeia are based on the following physical constants:

Foreign matter	Not more than 2%
Total ash	Not more than 15%
Acid-insoluble ash	Not more than 2%
Alcohol-insoluble extractives	Not less than 6%
Water-soluble extractives	Not less than 10%

Microscopically, the fruit shows small epidermal cells in each coccus with rosette of calcium oxalate crystals in abundance.

Method of preparation

Depending upon the duration of treatment take 50 to 100 grams of dried fruits or whole plant harvested not more than one year before. The raw material should be dried further by keeping it in sunlight or in a drier.

Make fine powder in grinder and filter it through a 85 mesh sieve to remove coarse woody particles and fibers. Keep the powder in an air-tight glass or plastic food container away from moist surroundings.

Decoction of *Gokshura* is prepared by boiling 20 to 30 grams of the coarse powder of the raw material in 160 to 240 milliliters water till one fourth liquid remains. Decoction has to be prepared daily and consumed fresh same day.

Dosage form

Fine, pale-coloured powder and straw-coloured decoction.

Therapeutic properties[3]

Gokshura has cooling, diuretic, anti-urolithiatic, styptic, antimicrobial, muscle relaxant, aphrodisiac, emollient, anti-inflammatory and cyto-protective properties.

Dose and mode of administration

The adult dose of *Gokshura* powder is 3 to 6 grams, twice a day, with water before meals. The dose of decoction for adults is 40 to 50 milliliters and it should be taken lukewarm.

Indications and uses

Gokshura is indicated for burning urination, difficulty in passing urine, decreased urination, urinary crystals and stones, albuminuria, haematuria and spermaturia.

It is useful for improving the urinary function and management of urinary complaints resulting from inflammation, infection, ulceration, calculi and abnormal discharge[4].

Benign prostate enlargement and erectile dysfunction are the other indications where *Gokshura* alone or in combination with other medicinal herbs is used[5].

Precautions and safety aspects

(1) *Gokshura* is conventionally regarded as safe. No side effects or toxic symptoms and contraindications are reported in Ayurvedic literature. However, in experimental studies seeds of the plant are found to be toxic to the liver of rats. Therefore, patients with liver dysfunction should use *Gokshura* without seeds and continue medication under medical supervision.

(2) As *Gokshura* is cooling in nature and the indicated urinary disorders result from predominance of dry and hot contents in urinary system, it is always advisable to avoid during medication alcoholic beverages and diet rich in spicy, pungent, sour, acidic, hot and dry food items. Indulgence in aggression, anger, furious states of mind and suppression of natural urges of urination, passing stools and flatus should be avoided.

(3) Simple, soft, digestible and liquid-rich diet is recommended while suffering from and medicating for urinary disorder. Old

rice, barley, butter-milk, pumpkin and aloe are useful articles of diet for patients of urinary disorder.

(4) Patients suffering from urinary disorder should abstain from strenuous exertion, excessive thirst and frequent sexual intercourse.

(5) Severe urinary symptoms with presence of pus and blood in the urine and inability to urinate should be properly treated under medical advice. If the patient's symptoms get aggravated or do not respond, medication with *Gokshura* may be stopped and medical advice should be sought.

(6) Urinary symptoms usually worsen, if constipation is concomitantly present. In such cases due care should be taken to treat constipation with modification in diet or with the use of a soft, lubricating laxative.

(7) The symptoms of urinary disease may mimic other medical conditions. Therefore, if empirical treatment with a given formulation fails, it is always advisable to consult medical expert for diagnosis and proper management

(8) Use of *Gokshura* is safe during pregnancy and lactation.

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Ela powder for vomiting

Vomiting is the oral expulsion of upper gastrointestinal contents resulting from contractions of the gut and thoraco-abdominal wall musculature. Vomiting is coordinated by the centres in brain and is effected by neuromuscular responses in the gut, pharynx and thoraco-abdominal wall.

The causes of vomiting are diverse and include gastritis, indigestion, gastrointestinal infection, worm infestation, obstruction in the gastrointestinal tract, inflammatory diseases of abdominal organs, myocardial infarction, raised intracranial pressure, motion sickness, pregnancy, uraemia, drugs, acute hepatitis and liver failure and may be psychogenic.

Psychogenic vomiting without any gastrointestinal cause is seen in persons suffering from anxiety and it usually occurs in the morning on awakening. Early morning vomiting is a frequent symptom in hypersensitive pregnant women in early pregnancy. This type of vomiting rarely occurs in the later part of the day. Water brash (regurgitation of stomach juices into the mouth), nausea, loss of appetite, salty taste in the mouth, etc. are the common associated symptoms of vomiting resulting from gastrointestinal causes. These symptoms do not accompany vomiting of psychogenic origin. By and large, this type of vomiting is a short-lived symptom and manageable with diet regulation and simple medication. Acute vomiting causes dehydration, fluid and electrolyte imbalance. Weight loss may result from chronic vomiting.

Ascertaining the cause of vomiting is essential so as to rule out serious illnesses. However, irrespective of the cause and nature of vomiting, it is always important to treat this symptom to prevent fluid

and electrolyte imbalance in the body system and untoward effects on the functioning of vital organs.

Judicious use of simple home remedies such as cardamom (*Ela*) is effective in successful management of vomiting and should be resorted to, in case proper medical care is not readily available.

Ela [*Elettaria cardamomum* (Linn.) Maton]

Ela (Cardamom) is one of the common spices found in almost every Indian kitchen and is known for its medicinal properties in traditional medicine. It is a stout large perennial herb that grows naturally and also cultivated in many parts of south India at elevations from 750 to 1500 metres. *Ela* seeds are used for aromatic and appetizing property in various food preparations and for chewing alone or along with other aromatic spices as a mouth freshener and appetizer. It is an effective home remedy for many common ailments of the digestive system. Many Ayurvedic formulations described in classical literature have powdered *Ela* seeds as one of the ingredients. Powder of cardamom seeds alone is specifically indicated for the treatment of symptoms resulting from excess heat or acidity in the body system. Easy accessibility, cost effectiveness, long history of safe use, palatable taste and small dose are attributes that make this formulation a simple but ideal home remedy for first-hand management of common ailments like vomiting, loss of appetite, indigestion, gastric irritation, nausea, burning sensation, thirst, giddiness, burning urination, bad smell from mouth, etc. This herbal drug is described as *Sukshmaila* in the Ayurvedic Pharmacopoeia of India[1] and is widely used by the people in self-health-care. *Eladi* powder described in ancient classical Ayurvedic texts is a popular formulation made of *Ela* seeds and other herbal ingredients for the management of different kinds of vomiting[2].

Composition

Ela powder consists of finely powdered seeds of dried fruits of cardamom.

English name	Cardamom
Latin name	*Elettaria cardamomum* (Linn.) Maton
Family	Zingiberaceae
Parts used	Seeds

Ela plants.

Ela fruits.

Main chemical constituents[3]

Essential oils (α-terpineol, myrcene, etc.).

Quality standards[4]

The Ayurvedic Pharmacopoeia of India provides quality standards of *Ela* seeds based on the following physical constants:

Foreign matter	Nil
Total ash	Not more than 6%
Acid-insoluble ash	Not more than 4%
Alcohol-soluble extractives	Not less than 2%
Water-soluble extractives	Not less than 10%
Volatile oils	Not less than 4%

Method of preparation

(1) Not more than one-year-old dried cardamom fruits with adequate aroma are taken in as much quantity as is required for making powder for medicinal use. Remove dust and any other foreign matter and the outer skin of the fruits before grinding the seeds to make powder. About 10 grams of seeds are sufficient for a treatment period of seven to 10 days.

(2) Grind the seeds in a clean grinder or mortar to make a fine powder and filter it through a metallic sieve. It is difficult to make powder, if the seeds are not properly dried due to presence of high moisture content. The powder should not be filtered through coarse cloth as it absorbs the essential oil, which contains aromatic and bio-active chemical constituents.

(3) Seed powder is then kept in a dry air-tight small bottle, away from direct sunlight where the temperature normally does not exceed average room temperature. Keeping the powder in hot surroundings should be avoided as it facilitates loss of volatile content leading to reduced therapeutic potency.

Dosage form

Brownish powder with strongly aromatic odour and characteristic taste. The powder can be filled into capsules.

Therapeutic properties

(1) *Ela* has cooling, anti-emetic, stimulant, carminative, digestive, stomachic and appetizing properties[5].

(2) Pharmacological studies have proven *Ela* seeds to have anti-inflammatory, analgesic, anti-spasmodic, anti-microbial and anti-fungal properties[6].

Dose and mode of administration

(1) Seed powder of *Ela* (Cardamom) is recommended in a dose of 250 milligrams to 500 milligrams (about 3-4 pinches), for adults and 60-120 mg for children, two to three times a day with a little warm water or any soft, sweet syrup, e.g. honey. It is advisable to consume the powder on an empty stomach or half-an-hour before eating meals.

(2) The best way to consume *Ela* powder for control of vomiting is to swallow it with a small amount of water or syrup. Intake with a large amount of water or any other liquid should be avoided.

(3) In cases of vomiting due to indigestion, gastritis, pregnancy and high levels of blood urea in kidney failure, it is advisable to administer concoction of *Ela* powder in small frequent doses for fast absorption of the medicine.

(4) Concoction is prepared by putting half to one teaspoonful (2.5 to 5 grams) of *Ela* powder in 30 milliliters of warm water and kept as such for 30 minutes and then it is filtered on getting cooled. Infusion is given in the dose of 5 to 10 milliliters (one to two teaspoonfuls) at regular intervals and is to be consumed the same day.

Indications and uses

Nausea, vomiting, gastritis, indigestion, anorexia, excessive thirst, giddiness and bad taste of mouth.

Precautions and safety aspects

(1) Traditionally, cardamom seeds are regarded as safe owing to their use as a home remedy and a common spice in various food items and beverages. No adverse effect and toxicity is reported in the literature. However, there are reports that cardamom seeds can trigger gallstone colic and hence not recommended for self-medication in patients with gallstones.

(2) Patients with vomiting as a major symptom should take small meals in liquid or semi-solid forms made of soft easily digestible materials. Overeating, irregular eating and heavy, fiber-rich and spicy foods should be avoided.

(3) Fresh concoction of cardamom seeds as described above should be used if the patient does not find seed powder palatable.

(4) Strenuous work, anxiety and stress should be avoided for successful management of vomiting. Adequate bed rest and sleep at proper time help a lot to enhance the effect of medication.

(5) Medical advice should be sought if vomiting is drastic and is not controlled with *Ela* powder and the patient's condition deteriorates rapidly. The underlying cause of vomiting must be properly treated with suitable medication.

(6) Mere symptomatic relief of vomiting should not be attempted, if the condition gets severe and non-responsive to self-medication with *Ela* powder and similar other home remedies.

(7) Medication with *Ela* powder should be restricted to mild to moderate vomiting mainly resulting from gastrointestinal causes and pregnancy. Specific treatment of the underlying cause is required in kidney failure, cancer of stomach, worm infestation, brain tumour and psychogenic vomiting.

(8) *Ela* powder is safe during pregnancy and for breast-fed children.

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Haridra powder for wound

Wounds are commonly encountered. Though extremely common, without proper and timely intervention, they may get complicated leading to sepsis, septicaemia and scarring. Wounds are due to various types and intensity of physical injury wherein the skin is torn or punctured or a contusion is formed due to blunt force. Accordingly, a wound is called open when the skin is breached due to injury and closed when there is no tearing or cutting of skin. A wound is considered minor when it is superficial, away from natural orifices, with minor or no bleeding and not caused by a tool or instrument or animal.

Other types of wounds including stab and gunshot wounds and those with doubtful background are considered as major or severe and must receive proper medical attention. In severe open wounds, the risk of blood loss and infection is high. Such wounds need to be cleaned and covered until medical help is provided. Internal wounds are comparatively dangerous as the extent of damage to the tissues is not known.

Here, the term wound is confined to external and superficial injuries including incised wounds, lacerations, abrasions, puncture wounds, contusions and mild haematoma. If not severe and complicated, wounds can be successfully managed with simple traditional medical care making use of *Haridra*.

Haridra (*Curcuma longa* Linn.)

Haridra is a well established medicinal plant of Indian medicine known for its wound healing properties. Classical medical literature is replete with the uses of turmeric and adequate evidence is available

for its antiseptic, anti-inflammatory, anti-bacterial and anti-allergic properties[1]. The earliest reference to turmeric with its indications for skin diseases and wounds is found in Ayurvedic text *Charaka Samhita*. Use of turmeric is recommended for facilitating wound healing in para-surgical procedures prescribed in Ayurveda such as leech therapy for chronic wounds and Kshara Sutra therapy for piles and fistula. Turmeric is the most common household medicine for first-hand management of injuries and wounds. Its juice, paste, powder, decoction and various formulations are used externally and internally. *Haridra* is dried rhizome, like that of ginger, of a perennial herb of *Zingiberaceae* plant family, which is extensively cultivated in all parts of India and harvested between October to April when the lower leaves of the plant turn yellow. The rhizomes are boiled and then dried and the skin peeled off. Turmeric is available in the market both in raw and powder forms. Powdered *Haridra* is an essential commodity in Indian homes used as a condiment in almost all sorts of cooking.

Composition

Haridra powder is made of a single herbal ingredient *Haridra*.

English name	Turmeric
Latin name	*Curcuma longa* Linn.
Family	Zingiberaceae
Plant part used	Rhizome

Whole plants of *Haridra* with rhizomes.

Dried rhizomes of *Haridra*.

Main chemical constituents[1]

Curcuminoids including yellow colouring principal, curcumin, and an essential oil with high content of bisabolane derivatives.

Quality standards[2]

For quality assurance of turmeric rhizome, the following parameters are recommended in the Ayurvedic Pharmacopoeia of India.

Foreign matter	Not more than 2%
Total ash	Not more than 9%
Acid-insoluble ash	Not more than 1%
Alcohol-soluble extractives	Not less than 8%
Water-soluble extractives	Not less than 12%
Volatile oil	Not less than 4% volume/weight.

Quality testing of turmeric is done by adding concentrated sulphuric acid or mixture of concentrated sulphuric acid and alcohol to the powdered turmeric. Appearance of deep crimson colour confirms the quality.

Method of preparation

(1) Powder of turmeric is prepared by grinding dried rhizomes in a grinder or pulverizer and then sieved through mesh size 80. The powder should be kept in a clean container and stored in a dry area away from direct sunlight.

(2) Decoction of turmeric for washing wounds is made by boiling 10 grams of powder in 200 millilitres of water till one fourth liquid remains.

(3) Paste for application over the wound is prepared by mixing 5 to 10 grams of turmeric powder in an equal amount of clean water.

Dosage form

Yellow-coloured fine powder, decoction, and paste.

Therapeutic properties[3]

Haridra has anti-inflammatory, blood purifying, anti-allergic, anti-bacterial, anti-fungal, anti-protozoal, demulcent and wound-healing properties.

Dose and mode of administration

Haridra may be used simultaneously for washing the wound, application as paste on wound and orally in the following ways and dose schedule:

(1) For oral use the dose of turmeric powder for adults is 2 to 5 grams and for children it is 1 to 2 grams or juice of fresh turmeric in the dose of 10 to 20 millilitres for adults and 5 to 10 ml for children. It is administered twice daily with water or honey.

(2) Wash the wound twice daily with turmeric decoction.

(3) Apply a thin paste of turmeric over the wound and keep it for 8 to 10 hours and then remove by gently washing the affected part with luke warm water. Alternatively, the wound is dressed with gauze soaked in turmeric decoction or juice or mixture of turmeric and mustard oil or honey. A new dressing should be used after cleansing the wound.

Indications and uses

(1) External and internal use of turmeric is indicated in acute and chronic wounds with not much damage to the tissues.

(2) Sepsis, allergic reaction, inflammation and skin discoloration around the wound are also manageable with oral use and topical application of turmeric.

Precautions and safety aspects

(1) Due care must be taken to keep the wound clean and dry. It is advisable to use turmeric decoction for washing the wound.

(2) Frank bleeding and pus discharge from the wound should be attended to properly.

(3) Treatment with turmeric may be stopped if it does not yield beneficial effects in a couple of days.

(4) Being regularly used as a food item, turmeric is considered safe and no toxic or adverse effects are reported of its long-term use. However, its oral use in children and pregnant women should be done under medical supervision. It is safe for the baby if a nursing mother is taking this medication.

(5) Persons receiving aspirin and warfarin should take turmeric with caution since their combination may cause bleeding.

(6) Side effects with turmeric may occur with use of more than the recommended doses. In that case, it may cause stomach upset or other gastrointestinal problems such as diarrhoea.

(7) As turmeric is bitter in taste and may induce nausea or vomiting, it is better not to consume the powder on an empty stomach.

(8) Persons suffering from bile duct blockage, blood-clotting disorder and stomach ulcers should not take turmeric in excessive quantity.

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Herbal medicines constitute the main component of traditional medicine, which have been used since thousands of years. They have made significant contribution to human health through their health promotive, curative and rehabilitative properties and in the prevention of illnesses. Indeed, many herbal remedies used traditionally have become modern medicines through drug development. Digoxin, morphine, colchicine, and artemisinin are some notable examples. Long tradition of use of many herbal remedies and experiences passed on from generation to generation has brought about reliance by the people on herbal remedies. At present, the use of medicinal plants for health benefits is increasing worldwide.

This publication contains 28 monographs on common ailments which can be readily treated with simple herbal remedies. They can be prepared easily and used within the ambit of primary health care. Each monograph provides description of the ailment, the form of traditional preparation, its composition, English name, Latin name and family of the plant, plant part used, main chemical constituents, quality standards, method of preparation, dosage form, therapeutic properties, indications and uses, dose and mode of administration, precautions and safety aspects, and important references.

It is an attempt to promote the rational, safe and appropriate use of herbal medicines and mainstreaming of traditionally used herbal remedies. This manual can be used by health planners, policy makers, national and district health authorities and others involved in the health sector development and reform. It is also an attempt to increase availability and accessibility to cost-effective treatment of commonly encountered health problems with herbal remedies. It will be useful for education and training of community health workers as well. These efforts would eventually promote 'health for all' in the context of primary health care.

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