

Health Series



**Traditional Family
Medicine**

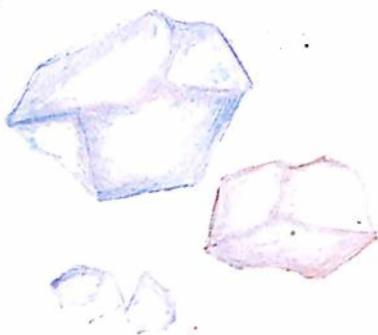


Karkatashringi, Indubar, Navasadar and Fitkari

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TRADITIONAL FAMILY MEDICINE

Karkatashringi, Indubar, Navasadar and Fitkari

K.H. KRISHNAMURTHY

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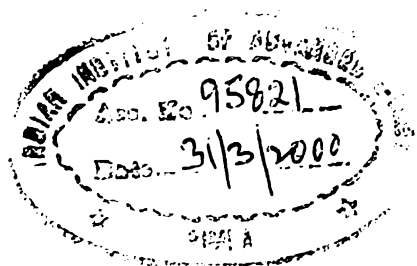
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The information contained in these pages has been culled from various sources. This information is solely meant to create an interest about the wondrous qualities of our medicinal plants. On no account should this be utilised in a lay manner. Help of a trained physician is necessary.



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INTRODUCTION

The system of Medicine as developed in India and known by the name of Ayurveda is reputed in modern times specially among the practitioners and researchers of modern medicine as almost an inexhaustible source of still to be rediscovered wealth of medicinally useful plants, plant parts and plant products. This however should not mean that the drugs employed by Ayurveda are wholly vegetable. They do include unusual sources even among the plants--for instance, the galls and other such peculiar formations as developing on them as direct consequence of an insect infection. The mineral wealth of Ayurvedic drugs is also not at all negligible. There is a whole system of administering mineral, metallic and specially mercurial preparations for all types of ailments in man, constituting an entire discipline by itself termed

Rasashastra. Infact there do exist specialised and exclusive Texts like Lohasarvasva (All about iron and metal preparations) whose author definitively claims that he wrote this book mainly for those people who hate taking medicine (*bheshaja dvestinam*). The recipes he suggests consequently are those that are to be given in very small doses in which situation alone they are very effective.

The drug materials included in the present book illustrate mainly such a class of substances which are not very common in Ayurveda. They are: *Karkatashringi* — a crab horn like gall formation as found in some plants; chickory or a powder of the roots of a plant most well known as an admixer of coffee but also having quite a few medicinal values; and, two inorganic substances, both of which have popular and effective uses in their own fields namely, *navasadar* or ammonium chloride and *fitkari* or alum.

A. KARKATASHRINGI

Man has found medicinal and other uses to many unusual substances. Galls happen to be one such material. These are actually abnormal products of some plants though developed regularly! They are peculiar growths caused by the infection of certain insects, that assume characteristic shapes and also act as reservoirs of many important chemical substances. Another such disease product which gives a precious and costly scent is however an animal product; this is amber gris, the commercial

base of a few very expensive scents. It is actually a pus forming wound found on the body of whales when they get injured and infected.

The term *karkata shringi* called *kakra singi* in Hindi, means a horn like structure similar to the crab claw referring to the unusual shape of excrescences found regularly in some trees of the species of the genera *Rhus* and *Pistacia* that belong to the family Anacardiaceae to which the familiar Mango tree also belongs. Another substance that these trees also produce often and is equally useful in many ways to man is the resin. This is an oxidation product of various essential oils and is highly complex and varied in its detailed chemical composition. It is usually secreted in definite cavities or passages within the plant body and normally oozes out through the bark and hardens on the surface on coming into contact with air. For commercial scale of securing the resin however, the trees need to be regularly tapped.

Resins have some features that make them of great value in industry. Since they harden gradually as their oil evaporates, they are ideal commercial varnishes. They are first dissolved in solvents and then applied as a thin film on the desired surface. As the solvents and the oils evaporate, a thin waterproof layer of resin develops. Resins have been used for waterproof coatings and decorative coatings since times immemorial. Egyptian mummy cases had such a varnish. Lacquer art is exquisitely developed in China and Japan for centuries.

The Greeks and the Romans were familiar with many of the resinous materials that are used now for example, amber (a fossil resin), mastic (from *Pistacia lentiscus*) and sandarac (from an Australian pine tree). Another useful property of resins is their ability to dissolve in alkalies to form soap. Resins are also used in medicine (they are good antiseptics), to size papers, as a stiffening material for mats, to prepare sealing wax and also to manufacture incense and perfumes.

Mastic is also a very old resin that was well known at least 400 years before the Christian era commenced. Its most useful variety is called chois mastic and this comes from *Pistacia lentiscus*, a small Mediterranean tree. The resin flows here naturally or aided by tapping and hardens on the surface of the tree as long, ovoid, pale yellow, brittle "tears". What is called Bombay Mastic in trade comes from another species *P. cabulica*. Mastic yields a pale coloured varnish much used for coating metals and pictures of both oils and water colours. It is also used in lithographic work, perfumery and medicines, and also as a cement for dental operations. It constitutes one of the most expensive and high grade resins.

Kakra singi is a much praised drug material in Ayurveda and Yunani but not in modern medicine. The genus *Rhus* that produces these galls include a large number of species—that are of much use in various ways. Some of them are: *R. chinensis* Mill, Chinese sumac - the source for tannin writing inks;

R. copallina L, Dwarf sumac - whose dried leaves are an important source of tannin; *R. coriasia* L Sicilian sumac, a very much prized tannin yielding leaves highly preferred for tanning quality leather products and *R. glabra* L Smooth sumac L - whose leaves are also rich in tannin; *R. succedanea* Lf or Japanese wax tree or the *karkataka shringi* of Sanskrit and the source of the Japanese lacquer works; *R. semialata* Murr - *tatri* in Hindi and synonymous to *R. chinensis*; *R. typhina* L staghorn sumac, whose leaves are also rich in tannin and *R. verniciflua* Stakes, the Lacquer tree, the most famous lacquer tree of Asia, a native of China but long cultivated in Japan. Lacquer trees are carefully cultivated and regularly tapped; their exudation is milky white but this darkens and thickens rapidly on exposure but can be kept unchanged by storing in closed containers though filtered before use. Applied as a varnish, the thin film hardens rapidly. Lacquer offers a remarkable protection as it is unchanged by acids, alkalies, alcohol or even heat upto 160° F. When pigments are used, they are mixed with lacquer before the latter dries. Japanese have excelled all countries in their superb lacquer works. We shall now see a few of these plants in some detail.

1. *Rhus succedanea* Linn

Names and Botany

This is known as *karkata shringi* in Sanskrit.

In English this is Crab's claw, Japanese wax tree and Red lac sumac.

In Hindi, it is *kakra singi*; in Marathi and Gujarati *kakad singi*; in Kashmiri and Bengali, *kakrasringi*; in Punjabi, *sumak*; in Kannada, *karkatam*, *shringi*, *visha mulike*; in Telugu, *kakarashingi*; in Tamil, *kakkata shingi*; in Bombay market, *takada singi*.

This is a medium sized tree of the temperate Himalayan mountain range on the North West from Kashmir to Shimla in Himachal Pradesh at an altitude of 3000 -6000 feet. In south India there is another closely related species *Rhus mysorensis* Heyne called *sabale* in Kannada. They are also grown in Sikkim (5000-6000) and Bhutan (2000-6000 ft).

The galls are horn like excrescences caused by a kind of insects—a type of aphids. These are formed on leaves, petioles or leafstalks and branches of the tree. They are hard, hollow, thin walled, generally cylindrical and tapering at both the ends.

Medicinal and Other Uses

The galls have the following constitution: essential oil (responsible for the smell) 1.21 per cent, crystalline hydrocarbine 3.4 per cent, tannin materials 60.00 per cent and gum mastic 5.0. The essential oil is pale yellow and has the odour and taste of the turpentine. The crystalline principle is mostly insoluble in water, but soluble in almost all the organic solvents. It is tasteless but has a sharp boiling point of 146°C. The tannins are yellowish and crystalline.

Actions as a medicine: Galls are astringent, tonic, stimulant and expectorant (cough promoting) and also cholagogic (evacuating bile). Powdered galls are very astringent and slightly bitter in taste and have a strong turpentine like odour. The galls are particularly advised for diarrhoea and dysentery in children.

They are medicinally useful in coughs, phthisis or consumption, asthma, fever, loss of appetite, irritability of stomach and the disorderly state of respiration. The dose advised is about 20 grains; it is given in combination with other astringent drugs in diarrhoea, as it has too much of tannin by itself.

Externally galls are used in the form a paste in cases of psoriasis. They are employed in the form of lotions or decoction to gargle so as to check bleeding from gums. They also prevent bleeding from nose, discharges from mucous membranes and in gleet, leucorrhoea and so on.

Hakims advise that the galls are useful in diarrhoea and vomiting as they contain much essential oils.

These are also believed to be useful in snakebites and scorpion stings.

Fruits of the tree are much used in treating phthisis or consumptions. Japanese Wax is produced from the fruits.

Leaves are rich in tannin. Their juice causes blisters on the skin. In fact, leaves, bark and fruit produce dermatitis or inflammation of the skin.

Compound Preparations or Yogas

Since the plant is quite famous in Ayurveda, there occur some special preparations of *karkata shringi* as the major and a number of other drug materials as the associate ingredients. A few of them are as follows:

1. A powder: Take *karkata shringi*, root of *bharangi* (*Clerodendron siphonanthus*), raisins (dried ripe grapes), ginger, long pepper and *kachura* (*Curcuma zedoaria*) - all in equal parts. Powder and mix.

This is given beneficially in dry cough.

Dosage is 30 grains given with treacle or honey.

2. Another Powder: Take equal parts of *karkata shringi*, bark of *kaiphal* (*Myrica sapida*) and long pepper, powder, mix and store.

This is excellent in catarrhal fever with difficulty of breathing.

Dose is one drachm given with honey.

3. A linctus or a *lehya*: Take *karkata shringi*, *atis* (*Aconitum ferox*) and long pepper - all in equal parts. Powder, mix, add honey and make a Linctus or *lehya* to be taken by licking.

This is a much esteemed drug for cough in children, as Sharngadatta recommends. This is also much useful in diarrhoea of the infants and their stomach and intestinal troubles during teething.

Rhus: Other species.

Some of the species of the genus *Rhus* that have attained considerable reputation medicinally are as follows:

R. semi alata Murr. This is *tatri* in Hindi, the fruits are much used in checking colic or twisting pains in the stomach.

R. wallichii Hook: This is *chosi* in Nepal and *akoria* in Hindi. Juice of its leaves is corrosive. It is a small tree from Garhwal to Nepal.

R. insignis Hook: Which is *sehr* in Lepcha and *kagphulai* in Nepalese. This is a small tree of the interior Sikkim Himalayas. Leaves, bark and fruit produce dermatitis. The juice is powerful in causing blisters.

2. *R. coriaria* Linn

Names and Botany

This is called *tatrak*, in Hindi, *al sumac*, *sumac*, *tamtam*, in Arabic; *samac* in Persian and *sumak* or *sumac* in English.

This is a tree of Europe, Asia Minor, Iran, Afghanistan, Turkey and North Western India. Its fruits (*tatrak*) are imported to Bombay from Iran.

This is a well known dried fruit of a famous tree looking much like a *makoy* (*Solanum nigrum* or *kakamachi*) fruit but rather flattened and larger,

either round or somewhat elongated and round. The rind of the fruit is thin, light, reddish brown in colour, odour-less, sour and slightly astringent in taste. It can be easily rubbed with hand to release the seeds inside. It is this thin rind of the fruit that constitutes the drug material - astringent and potent. In Persian and among the Yunani physicians this is called *post samac* or *gard samak*. The seeds are very hard and somewhat kidney shaped; they do not have any special taste or smell. Both the fruits and the seeds are sold by the druggists under the name *sumac*. Their potency remains unspoilt for three years.

Fruits and leaves contain much tannic acid.

3. *R. parviflora* Roxb

Names and Botany

This is called *tintideeka* in Sanskrit.

In Hindi, it is *tatrak*, *ray tung*; in Punjabi, *ninava*, *tungala*, *samak dana*; in Arabic, *samac*, *sumac*; in Marathi, *dasariya*; in Kannada, *samak*; in Kumaon *tunga*.

This is a tree, a little larger than pomegranate. New regions of the plant are always clothed in dense hairy coverings of the colour of the iron rust. Leaves are compound with three leaves, the middle one being the largest.

4. *Pistacia integerrima*. Stew

Names and Botany

The plant has many names in Sanskrit: *chakra*, *chakrangi*, *chandraspada*, *ghosha*, *kulngi*, *navanga*, *shikhari*, *vakra*, *vana murdhaja* and *visantika*.

This is *kakra* in Bengali, Gujarati, and Hindi; *dreck*, *gurgu*, *kakkar* in Kashmiri; *kakra* in Kumaon and Marathi, *drek*, *kakkar*, *kakkrangche*, *tanhar* in Punjabi; *dustapachatva*, *karkata shrngi* in Kannada.

It is a tall deciduous tree of the sub Alpine Himalayas. The peculiar gall like excrescences are found to occur on the leaves and petioles looking like horns from a distance. These vary in size and are pale greenish brown in colour and have a fimbriate appearance on the surface (i.e. as if having fringed filaments). When they are broken, a reddish inner surface appears, covered with dust particles which on microcopic inspection seem to be the debres of the aphid insects that had caused the galls to start with. *Kakad singi* as sold in the market is hard, hollow, light or irregularly shaped structure somewhat like a goat's horn. It is pointed, darkish brown and in taste, bitter and astringent.

The galls, as stated earlier are much praised drug materials both by the Hindu and Mohammedan traditional physicians, specially for children's cough and curing even the *kali khast* - or "backening cough". They are also reputed cures for cough in the adults; consumption, asthma and many other respiratory afflictions. This is given with honey or

alone. European writers no doubt mention this drug but do not say anything about its properties or uses. Infact modern physicians are apt to consider its traditional reputations as rather overrated, there being many more effective expectorant drugs of modern pharmacopea; even its antiseptic efficacy is believed to be not of much great degree. Decoction of the plant is used in neuralgia and rheumatism. Leaves are rubbed with pepper in colds and fevers.

Yunani physicians point out that the drug becomes very useful in cases of cough when purging and vomiting accompany coughing. Phlegmatic affections in general respond well to its treatment. The collected phlegm is well expectorated and the new phlegm will not get formed.

Fruit is 0.5 centimetre in diametre, ovoid, sticky, brown and shining. Its seeds are reddish and lentil like and sold by the druggists as *sumac dana*. The unripe fruit is sour but the ripe one is sour and sweet; this is called *sumac dana* in Punjab.

This grows well in the outer Himalayan regions at an altitude of 2000 to 3000 feet and also in Kumaon and Nepal.

Medicinal uses

Yunani Physicians employ this drug with preference. This is astringent and strengthens stomach and intestines. It palliates biliousness or *pitta* and stops bleeding and excess urination. It is specially stimulative and curative to bilious dysentery as well as excessive thirst. It is then given

alone or with other useful drugs. It strengthens the stomach of persons of hot constitution and augments their hunger as well. The fruit is given for eating to stop excessive urine and menstrual flow. To strengthen the teeth and eradicate pain in the teeth gargling with its cold infusion is advised. It also enters into tooth powder. To stop bleeding from the nose this is ground in water and rubbed over the scalp. This is also applied externally in early stages of swelling.

Modern medicine regards it as astringent, stimulative and palliative to plethora or *rakta pitta*. It is advised in loose motions of the pregnant, bleeding motions of a weak person, vomiting due to biliousness and to reduce the heat and thirst of a patient of fever.

This is Mastic in English, the plant being famous for its resin (and not the galls as in *P. integerrima* or *Rhus succedanea*).

In Hindi, Marathi and Gujarati and also Kannada and in Persian it is known as *rumimastagi*, *mastaki*; *mustakka*, *mastakie rumi*, *kunduro e rumi*.

It is a resin collected from the evergreen tree growing in the Mediterranean countries, for instance, Southern Europe, North Africa, Rome, Armenia and Asia Minor from where it is imported to India.

This has a slight quantity of an essential oil responsible for its fragrance and the various resins.

Yunani physicians employ this medicinally to a considerable extent. It strengthens liver and

stomach, expels phlegm, dissolves oedematous swellings, dries up fluids and promotes urine and menstrual flow. It is stimulative to digestion and therefore used in feeble digestive abilities. As it softens up, it is mixed with *gulkhand* (a confection of rose petals) and given for eating. It is applied externally to bring down swellings. It is greatly used as an expectorant drug in phlegmatic troubles and bronchitis.

The drug is rather deleterious to kidneys and is likely to cause bleeding with urine. Vinegar is its counter acting agent.

Modern medicine considers it as an aromatic material, stimulative, antiphlegmatic and astringent. It strengthens mucous lining of the respiratory passages.

It is kept in mouth and chewed to remove foul smell of the mouth, strengthen the teeth and to augment gastric secretions.

B. INDUBAR

Indubar is called as chicory and under this name it is very well known. It is botanically known as *Cichorium intybus* and belongs to a very large family of very familiar herbs, Compositae under which the garden flowers of Dahlia, Chrysanthemum and Zinnia come. The genus *Cichorium* includes one more species *C. endivia* (endive) which is also a very famous plant. Both chicory and endive are under cultivation by man since more than 1000 years but

are still so wild looking that they show but slight effect of their association with man, unlike most cultivated plants that are vastly different from their wild relatives.

Chicory or Indubar is a perennial (living for many seasons) herb with a long tap root, a coarse branching stem and a radical cluster of many leaves at the base. The flowers are mostly blue and quite attractive. The herb is a native of Europe but now found in many places and is a common weed in the United States. It is much used as a salad plant or as a green leafy vegetable or as greens. The roasted root is an important adulterant of coffee and the plant is most famous for this purpose, chicory powder being commonly mixed nowadays deliberately with the coffee powder to secure the desirable thickness in the final beverage.

Endive is a native of India, though well known in many other places. This was a favourite salad plant for Egyptians and Greeks and is much cultivated in almost all European countries as well as the United States. The young basal leaves that often have curled margins are used as the salad material. They are frequently blanched, as is done for the leek (another European green) and then used as a delicacy. The plant is either an annual or biennial viz. living for one or two seasons only. In its use it very much resembles lettuce, the most famous of the salad plants which is a native of Europe. In fact it is often known as the Indian lettuce.

***Cichorium intybus* Linn**

Names

This is called as *Hindubar*, *indyba*, *shikoriah*, *bazarula* in Arabic; *Hinduba*, *Kasni* in Hindi, Gujarati, Bengali and the bazars of Bombay; *kachani* in Marhati; *kasni*, *ambu bola*, *tukhm-e-kasani* in Persian, *kasini vittulu* in Telugu; *kasini-virai* in Tamil; chicory seed in Kannada; *kasani* in Urdu; *gul*, *hand*, *kasni*, *suchal* in Punjabi.

In English it is known as Bunk, Chicory, Succory, Wild endive, Wild chicory.

Botanical Aspects

The herb is small in size but perennial. It is sometimes considered to be a native of Western Hemisphere, but it grows well in a state of nature even in North Western parts of India. It occurs in Kumaon and Uttar Pradesh at an altitude of 6000 feet and also in Baluchistan, Iran and West Asia. Best *kasani* in India comes from Punjab and Kashmir.

It is successfully cultivated in many parts of Western India. In Punjab and Kashmir the plant is cultivated more as a fodder plant. But it is more often grown with care for the sake of its roots which constitute the article of commerce. Though the plant appears to grow well in any type of soil sandy loam is considered to be the best suited, if there is sufficient rain fall and a proper irrigation is also carried out. To secure a good harvest of the root, the

soil should be deep, fertile, easily workable and having a good drainage. The growing season lasts for six months and the crop needs a great amount of care and manual work. To raise it as a salad crop, seeds are broadcast on a well prepared bed and as a salad plant it lasts however for 5 to 10 years once it is well established.

Roots are to be lifted out for harvesting when they have reached a particular stage of "ripening" as it is called, preferably with a special type of plough and left in the field for drying, for fourteen days. If left unharvested at this stage they become fibrous and loose weight though they may just increase in size. The plant is usually not allowed to produce seed before the roots are collected. The roots are then dried well either in sun or kiln. Although the former has a better appearance, the latter method is generally preferred. The dried roots after roasting and powdering is used for mixing with coffee; it does not however contain any caffeine - the characteristic principle of coffee.

Chicory powder prepared from freshly dried older roots is a common adulterant of coffee and is often added to about 90 per cent of the ground coffee. A simple test to detect the presence of chicory in ground coffee is to place a little of this material in a glass of water. Coffee remains hard and floats on the surface for a long time while chicory soon softens and sinks down to the base of the glass colouring the water as well, more or less brown.

The parts of the plant used are seeds, roots and flowers.

Medicinal and Other Uses

Kasani is strengthening, cooling and unctuous. The seeds are strengthening and good for heart, their decoction is prescribed for obstructed menstruation.

Seeds contain a bland oil. Burnt chicory contains sugar, cellular matter, fat and so on. Roots contain nitrate and sulphate of potash, mucilage, some bitter extractive principle that is responsible for its bitter taste and enulin 36 per cent. Flowers have a colourless crystalline glucoside soluble in alkalies, hot water and alcohol, glucoside, chicorin and the bitter substances lactulin and intybin. Ash of the roots and also leaves is rich in potash. The bitterness of the root is due to a glucoside.

Chicory is totally devoid of caffeine and tannins. It gives a characteristic odour on roasting. Chicory is sometimes adulterated with sugar from the beet root. Western medicine does not assign any medicinal property to chicory though indigenous medicine attributes a few such properties.

In Its Medicinal Action: Chicory closely resembles *Taraxacum* which is dandelion, or, *dudal*, *dudli* in Hindi, a milky herb whose dried, powdered roots are also used frequently to be mixed with coffee. This increases the secretion of bile and promotes digestion. It is good for stomach and acts as a tonic. In large doses it is a mild laxative and

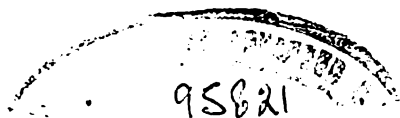
also a diuretic, provoking much urination. It has alterative effect bringing about desirable alterations in vital functions of the body. But this has a narcotic or habit forming and stupor inducing effect on the nervous system. Hence chicory coffee is considered to be one of the many causes of amaurotic (slow) blindness. Seeds are carminative (i.e. expelling gases in the stomach) and are cordial as well (i.e. good for the heart). The root is bitter.

A decoction of the seeds or powdered seeds is used in curing obstructed or distorted menstrual flow. Thick decoction of the powdered seeds is excellent in preventing vomiting due to biliousness. A strong infusion of powdered seeds is useful in obstruction or torpor of the liver and also in checking bilious enlargement of the spleen accompanied with general dropsy or collection of morbid waters in the body. *Kasani* decoction taken with *sherbet* thickens semen.

Flowers are made into *sherbet* and given in liver disorders.

Chicory is useful in removing stones in urine. For this, a powder is prepared as follows. Take *chicory* 5 parts, *gokshura* 6, melon seeds 7 and sweet fennel 8 parts respectively; mix, powder and store. This is given in a dose of 30-40 grains.

The plant is ground and applied in inflammatory affections because of its cooling properties. The root and the fruit are the most medicinal parts. The older the root, the better it is. This is cut into small pieces, dried in the sun and utilised.



Yunani Opinion

Yunani drug suppliers deal commonly with the roots and seeds of *kasani*. These as well as the whole plant are used in this system of medicine.

The leaves of the fresh plant are 1° cold. The dry leaves are cold and dry. The leaves are to be used without washing them even.

Kasani is pungent and astringent. This alleviates the heightened temperature, thirst and the aggravation of blood and bile. It is diuretic, promotive of menstruation and dissolves swellings of stomach, liver and spleen. Its application cools down hot inflammations. It strengthens stomach and liver.

In cases of heart throb, parched grain meal (*sattu* in Hindi) is mixed with its fresh juice and applied or the leaves are ground with barley flour and applied. For headache due to heat and biliousness, the fresh juice of its green leaves alone or with vinegar and sandal paste is applied over the head. Freshly extracted juice of the plant is beneficially employed in cases of swellings of stomach, liver and spleen, jaundice, bilious ascitis (*jalodara*) thirst and bilious aggravations in general. The juice is also given with advantage for urinary afflictions.

The Seeds of *Kasani*

In Persian this is called *tahm-e-kasani*.

They pacify the aggravations of biliousness and blood; they are diuretic, stimulative, curative of bilious fever as well as other diseases of liver.

The general properties are similar to those of the leaves. Gargling with a decoction of these seeds will mitigate pain at the gums. Its *sherbet* induces sleep. The seeds are much employed to cure chronic liver and spleen diseases. In cases of bilious fever it is given as a decoction or a cold infusion or its syrup is prepared and given. *Chakidar kasani* and *darid-e-kasani* are much used in Yunani dispensaries.

The Root of Kasani

This is 1° hot and 2° dry. It dissolves the *doshas* and is diuretic as well as promotive, to menstrual flow, dissolves oedematous swellings and is purificatory to blood and destructive of phlegmatic fever.

This is employed in many other phlegmatic diseases as well and also for promoting urination and menstrual flow as well. Because of its diuretic effect, it is useful in shooting pains at the loins, ascitis (*jalodara*) and fever due to more than one vitiation that act together.

A distillation of the endive plant is prepared and given in a dose of 7-14 *tolas*.

Modern medicine considers *kasani* as strengthening and diuretic. 2 *tolas* of the root are placed in a pint of water, boiled and prepared as decoction. This has proved beneficial in jaundice and liver enlargement.

The fresh juice of the leaves is placed in an earthen vessel which is then kept on a low fire and cooked. When its thick and thin portions get settled separately, the upper thinner portion is employed in medicine.

The Varieties of Kasani

There are two varieties of this species: the cultivated, sweet variety and the wild, bitter variety.

The cultivated variety has tonic properties and is good at cooling the body and calming down the thirst. Indigenous medical practitioners employ it to cure acute eye diseases and inflammations of throat and also beneficially in splenic enlargement, vomitings during fever and diarrhoea. The root is its most valuable part - this is aromatic and also diuretic (promoting good urination) and much reputed to purify and enrich blood. It also lessens inflammation and pain at the joints. Leaves are applied locally to secure relief from pain in the joints that are inflamed. The seeds are regarded as tonic to brain. They are good appetisers and also relieve headache and asthma.

The wild bitter variety is regarded as tonic, emmenagogue (regulating menstrual flow) and astringent (and therefore healing) to the bowels. It also cures asthma and enriches blood. A decoction from the plant is employed in cases of delayed menses and to check bilious vomitings. The plant is also used as a cure for diarrhoea and bilious attacks.

n Ally of Kasani

This is technically *Taraxacum officinale* wigg orandelion in English.

In Hindi and Punjabi it is *dudal*, *baran*, *kanphul*, in Sindhi, *lathur*.

This is a Western representative of *kasani* and much used in medicine there as a digestive and strengthening material and almost a mild laxative in great doses. It is considered to act as an elixir as it were when taken for long time and in cases of chronic afflictions. For persons of feeble digestive power, however, giving *Taraxacum* may actually lead to dysentery, shooting pains and splenic troubles while giving *kasani* would not lead to any such ill effects.

The herb is available in a state of nature in India in the Himalayas in the North and Nilgiris in the South and in Western Tibet. It has a characteristic habit of having ample radical leaves at the base of the plant, very much like another very common herb of the same family *Lactuca heyneana* (*sonki*). Leaves are exactly the same, simple, lobed irregularly, the terminal lobe being the largest and the whole shape is like that of lyre - a musical instrument of the West and hence called lyriform. Its margin is cut up and often toothed; there is no stalk. The plant grows very well in the cinchona plantations of the South.

The root forms the official drug here. It contains a bitter substance taraxacin and also taraxacerein and inulin. There also occur sugar and levulin because of which reason, the root is sweetish.

The root is a recognised drug of Indian as well as British Pharmacopea and is being utilised medicinally to a great extent. This is curative of chronic troubles, nourishing, elixiric and a cholagogue i.e. that which expels bile. This is used beneficially in indigestion or defective digestion, liver and splenic enlargements--specially the liver enlargements, jaundice and effectively for chronic skin diseases.

Taraxacum is a strengthening, curative and diuretic drug. In liver complaints it is a patent and a costly medicine. It improves bile secretion if defective and lessens it if excessive and keeps it optimum always. The powder of the dried root is used along with coffee just as in the case of chicory. Or, the roots are warmed up, powdered and employed as representative of coffee itself.

The diuretic effect of the root is very definite and well known. The freshly extracted juice from the root is given in a dose of 4 ounces, 3-4 times a day; its effect on stomach complaints is excellent. Because of its sugar content, a type of spirituous liquor is prepared from its roots in Canada.

But the plant of *Taraxacum* in India occurs as stated above only in the Himalayas and the Nilgiris. It is therefore useful to note that there are four herbs in India commonly available in many places, all belonging to the same family of Compositae; all of these can be used as substitutes of this valuable drug. These need to be therefore better exploited now.

The herbs are: *gojthwa* or *bankahu* in Sindhi (*Launea pinnatifida*, Cass); *sonki* in Gujarati (*Lactuca heyneana*); *dodak*, *dudhali*, *sonki* (*Sonchus oleraceus* Linn) and *sonaki pathri*, *kiran kurl* (*Emilia sonchifolia* Dc).

C. NAVASADAR--AMMONIUM CHLORIDE

Names

This is quite a well known mineral drug material in active medicinal use.

It is called *nava sagara* in Sanskrit and its names in many regional languages are closely related to this term only; its other names in Sanskrit are *nava sara* (the new essence) and *chulika lavana* (the salt of the firespace or the hearth). It is much used in Arabic medicine where it is called *armina*, *milhumar*. Its name in Persian and Punjabi is *noshadar*; in Gujarati, Marathi and Konkani, *navasagar*; in Kashmiri, *nausadar*; in Hindi, *nausadar*, *nauasadar*; in Kannada, *nava kshara* (the new alkali); in Tamil and Sinhala, *navacharam*; and in Teiugu, *navasaram*.

Occurrence: As it is found in the bazars it is generally very impure and in the form of dirty white or brownish or translucent cakes, since it is manufactured from a kind of clay found at Karnal in Haryana. It is also obtained by setting fire to the secretion of various animals or animal matters or by burning coals or common salt. Another source is that it occurs as a secondary product in the manufacture of coal gas. A common means of

securing it is from unburnt extremities of brick in which manure of animals, especially ca dung is used as a fuel. Coal and common salt added to this and sublimed into white gran crystals or transparent masses. It is readily solu in water and is in fact very deliquescent i.e. actively absorbs moisture from the atmosphere an melts into a liquid. In taste, it is salty, nauseou and pungent. One can purify it by dissolving it in hot water and then evaporating it to dryness. The resulting powder is preserved and stored in bottles.

Medicinal Actions

It is an alterative drug capable of bringing about many desirable changes in the vital functions of the body. It is expectorant causing an expulsion of phlegm by inducing coughing and a cholagogue - a purgative that evacuates bile. In large doses, it is an outright purgative. It exercises a marked stimulation on the mucous membranes, increasing their secretion and also on the absorbent system and glandular structures of the body. It gives a relief in hepatic (or liver) congestions and modifies in general the hepatic secretions. Because of this reason, it is a beneficial drug in hepatic abscesses, chronic hepatic congestion and also in dropsy (morbid collection of fluids) connected with liver and also in ovarian diseases. Cirrhosis of the liver (where the proper tissue of the liver gets washed out and an abnormal growth in connective tissues takes place and the diseased liver assumes a tawny or brownish red colour - as it commonly happens in

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persons who consume lots of alcoholic liquour) and jaundice that arises due to catarrh of the bile ducts are two important diseases where this is a very useful remedial agent. For hepatitis or the inflammation of the liver leading to jaundice, 8 to 15 grains of *nawsadar* is mixed with 105 grains of *absinthium* (worm wood) and ground well in mortar with a little water and given internally as a single dose which is enough to confer a considerable relief.

Sal ammoniac has proved valuable along with a liquid extract of *Glycyrrhiza (madhu yashti)* or liquorice root in many diseased conditions, such as gastric catarrh (discharge of excessive fluid) that occurs in biliousness, liver complaints which show the symptoms of coated tongue, foul, fetid breath and flatulence; and, also in bronchial and vesical catarrh and chronic pharyngitis. In whooping cough of children, it is given along with a few grains of powdered cinnamon.

Amenorrhoea (absence of menstrual discharge), dysmenorrhoea (where the rhythm of this discharge is in defect), gleet, leucorrhoea or the whites, chronic dysentery and other similar chronic discharges from lungs, stomach and other internal organs are a few of the other diseases where *nawsadar* has a beneficial action. For this purpose, it is given in *conjee* water in the proportion of 2 drachms in a pint of *conjee* in the dosage of a wine-glassful every second or the third hour. 10-13 grains of it are given similarly three times a day with

useful results in the cases of hysteria, nervousness and also jaundice and other liver complaints. As a stimulating expectorant, it is often prescribed in chronic bronchitis and in pneumonia when it is about to get resolved. It is given in an infusion of Indian *sarsaparilla* in various forms of neuralgia (pains in nerves along their course), chronic liver diseases-whether organic or only functional, and, also in rheumatic afflictions of the face.

Its action is markedly satisfactory when it is given in a *julep* or a medicinal sweet drink of camphor in the cases of intermittent fever, sick or nervous headaches, acute alcoholism and most effectively in delirium tremens which is a condition of delirious disorders of the brain produced by overabsorption of alcohol and often marked by convulsions and trembling symptoms. In dropsy due to liver disease and in that which follows fever, it is administered with an infusion of *Moringa* (drumstick) and *Asteracantha* (*talam khana* in Hindi).

As an alterative (i.e. that which alters vital functions desirably) drug it acts by slowly modifying the nutrition of the tissues. It is useful in chronic inflammatory diseases of glands such as the thyroid body, liver and spleen and also in induration (hardening) of the uterus, ovaries and the prostate glands. In urinary diseases due to a heavy collection of stones, it is very useful.

Externally it is applied in the form of a lotion for fomentation. Its solution is combined with nitre (potassium nitrate or salt petre) and then forms a

pleasant, cooling and stimulative application to the head for head-ache. This also acts well in many other conditions such as sprains, lumbago, rheumatism and sciatica; mania (violent madness) and apoplexy (sudden loss of sensation and motion--generally the result of haemorrhage in the brain or thrombosis, the local clotting in face). Erysepelas or *visarpa*, indolent (long persistent and non healing) tumours, enlarged glands, abscesses of the breasts (following confinement), abscesses in any other regions of the body and chronic skin diseases --all of these diseases also respond well for an external application of it. Bruises and blows to the eye (black eye) are also well treated by its dressing. For the abscess of the breast due to the blocking of milk it is used as a lotion with arrack or country liquor and also rose water in a proportion of 1 in 8 and 160 parts respectively. Mixed with sulphide of arsenic it is a beneficial application in scorpion stings. As an inhalation in the affections of the air passages, its vapours produced by heating a drachm of it in a dish proves useful and relieving. Sal ammoniac is also recommended for local application in case of cataract of the eyes.

Hakims of the Yunani system consider that there are three types of *nausadar*

(i) First is that which is available in mines like any other mineral matter. In warm countries like Africa this is found occurring in the soil much like salt petre (*shora* in Hindi).

(ii) In a much reputed work called Anjuman are-e-nasari, it has been written that this springs out from water channels along with water in the city of Damdan. When this water is boiled, white chunks of *nausadar* get collected. There are springs of such waters in Khorasan, Bokhara and Samarkand.

(iii) Burning of stools and faecal matter also yields *nausadar*. At first, this is of a buff or *khaki* colour and it becomes white and shining after purification.

Hakims regard the first type as the best for medicinal application.

Ayurveda regards *nausadar* as strong in action, well spreading in the body (*saraka*) and very hot. It is useful in wounds, splenic enlargement, constipation, stomach diseases, shooting pains, liver diseases, fever, head-ache, breast diseases, plethora, cough and uterine affections.

Yunani regards this as second degree hot and dry. It is digestive and gets rid of the upsettings of the stomach and sets right the enlarged spleen. It is very effective in over-coming the gas troubles of the stomach and also the swelling or flatulence caused thereby. It increases hunger and has a very desirable ability of stopping bleeding in any organ of the body. Cleaning any wound with its lotion will also heal up the wound. Applying it over carbuncles proves beneficial. The ill effects of any type of poison can be got rid of by eating four *mashas* of *nausadar*. It is said that if this is mixed well with

water and the house is sprinkled with such a water, no snakes will enter into such a house.

However, this itself will prove a poison if taken in excessive doses. For instance, its poisonous effects become clearly visible if ten *mashas* of it are taken in. This deranges the stomach and the intestine. To ward off this poison drinking milk and ghee, inducing vomiting, drinking cool and pacifying drugs as well as eating greasy and unctuous (oily) food are advised.

Allopathic physicians consider that application of ammonium chloride in the following conditions proves decidedly beneficial: regions of sprains and jolts, loosened joints, clotted areas and in apoplexy. Abscesses of the breasts respond particularly satisfactorily for an application of this drug. Smelling this will quicken blood flow and this is found to be useful in chronic swellings of the throat, chronic cough and also in the swellings of the ear.

It is important to note that in proper doses it is a very effective drug in many ways. For instance, it will then prove to be a good alterative drug for the tissues of the body, pacificatory in general, diuretic particularly and effective in regularising menstrual flow. Giving this along with a spirit of ether in old cough and the early stages of pneumonia is beneficial. In cases of cough that sets in after a bout of cold and fever, keeping a bit of it in the mouth and going on sucking in its juice proves very profitable. This is an excellent palliative of pains at the joints.

Nausadar has always proved to be beneficial in cases of headache caused by hysteria and uterine disorders. In ascitis (*jalodar*) caused by liver dysfunction, this has been seen to be beneficial when administered along with other diuretic materials. 10 grains of it are given thrice a day to commence a menstruation that has stopped. This is given with best results in haemorrhages or bleedings that occur in stomach, lungs and uterus. If milk does not flow in the breast properly or the breasts get swollen due to some reason or the other, employing it proves always beneficial. If water gets collected in the testicles of boys, applying a lotion of *nausadar* dissolving 2 drachms of it in one ounce of water proves effective.

Some Household Remedies

There are many domestic remedies that make use of ammonium chloride. A few of them are given below:

Thread worm infection: (*naru* in Hindi). External application will reduce the swellings associated with this infection. Making the patient eat 5-6 *rattis* of *navasadar* will expel the worms.

Diseases of the wind pipe, bronchitis or inflammation of the bronchitis: Eating ammonium chloride after placing it in betel leaf will mitigate this affliction.

One sided headache: Taking it in a dosage of 5-10 *rattis* for 4-5 days will cure this oppressive affliction. Another procedure is to grind it with *kutaki*

(*Picrorrhiza kurroa*) and apply the paste at the head and the temple. Or, pour 2 drops in nose of 2 *rattis* of it and *kala dana* (*Ipomea hederacea*) ground in water.

Headache: Taking it in a dosage of one *masha* at an interval of three hours and doing so for three times will cure all headaches.

Enlarged spleen: Sprinkle powdered *nausadar* in the pulp of *Aloe berbadens* or *ghee kuvar* in Hindi or *ghrita kumari* in Sanskrit and give this for eating to the patient. This will rectify the abnormality.

Hoarseness of voice: Eating *nausadar* along with betel leaf and also *kulanjan* (*Alpintia officinarum* or the lesser Galangal) will clear the throat and restore the voice.

Whooping cough: A very good recipe is to sprinkle the powder of *nausadar* into a decoction of *Adhatoda vasica* (*vasaka* or *adusa* in Hindi).

Diseases of the urinary passage: Sprinkling its powder into a decoction of *gokhru* (*Tribulus terrestris*) and then drinking the latter is a beneficial procedure.

Liver Complaints: Administer it in a dosage of 5 *rattis*, 3 times a day. This is advisable to many liver complaints.

Tooth ache: Take it of the size of a *jawar* or *cholan* grain, enclose it in cotton and hold it pressed at the region of the aching. The pain will stop immediately.

Cataract (*motia bind*): Grind it very fine and apply with the help of the collyrium needle.

Grinding *nausadar* along with alum to a fine degree and applying this mixture by means of the tip of the collyrium needle gives a good relief in most diseases of the eye.

Fever: Take 3 *rattis* of *nausadar* and two grains of pepper and give this combine prior to an onset of fever. The latter will stop.

Leucoderma: Grind *nausadar* into a fine powder, mix it well with honey and keep applying this paste at the regions concerned. This does have some beneficial effect.

Scorpion sting: Grind *nausadar* along with *hadtal* (yellow orpiment) and apply at the region of the sting. The poison will come down. Another recipe is to make the patient take a deep smell of *nausadar*, lime or chunam and *sohaga* (borax) all ground together to a fine degree. The shooting pain and the poison will both come down.

Swellings at the spleen: Administer a drink of one and three forth *masha* of *nausadar* in the juice of radish. The swelling will come down.

There are also two compound preparations of *nausadar* that are of considerable value and actual use. They are (1) ammonia carb. Take equal parts of *nausadar* and *sarjikhhar* (barilla), place this mixture in a strong bottle with a good stopper. This is called ammonia carb. Smelling it would give

remarkable relief in headache, one sided headache, hysteria, loss of consciousness, fits, insanity and 'seizures' by spirits. The benefit is pronouncedly seen among the ladies who have been "seized" by such spirits (*bhuta badha*). Smelling this would be beneficial even for scorpion stings. (ii) *Namak suleman*: Take 1 *tola* each of *nausadar*, *yavakhsar*, and *saindhav* salt and 2 *tolas* of white pepper. Grind them all to a fine degree and store in a good stoppered bottle. This forms *namak suleman*, a much praised drug of yunani physicians. This is given in a dosage of one and half to two *mashas* along with water. The medicine offers an immediate relief to every type of stomach pain.

A draw back of *nausadar* as a drug is that if it is taken for an excessive number of days and in an excessive dose it causes great damage to liver as well as intestine.

The agents that can counteract these deleterious effects are milk, cow's ghee and almond oil.

In case *nausadar* is not available readily, *yavakshar* can be used as its substitute.

A general prescription for the dosage is 4 *rattis* to 15 *rattis*.

D. FITKARI--ALUM

Names

This is quite a common drug material known since ages and as such it has names in many languages.

It is called in Sanskrit, *sphatikari* (rystalline), *śurashtraja* (occurring in Saurashtra of Gujarat), *kamakshi* and *tuvari*; in English, sulphate of alumina and potash or aluminous sulphate; in Hindi, *phitkari*, *fitkari* *phitthar*; in Bengali, *phatkri*; in Gujarati, *phatkari*; in Marahati, *phatiki*, *turati*; in Kannada, *patika*, *patikara*; in Tamil, *patikaram*, *shina carum* (a Chinese alkali); in Telugu, *patikaramu* and Sinhalese, *shina karam*. Most of these names are obviously derived from the Sanskrit, *sphatikari*.

Occurrence

This is chiefly found with iron peroxide in *silajit* or asphalt (ejected out of rocks during hot weather in the lower Himalayas) or in alum earths of Nepal. It is also prepared from the alum shales in Punjab, Rajasthan and Bihar as well as the Runn of Cutch. It is mostly mixed with impurities as available in bazars but can be purified and rendered for medicinal purpose by dissolving it in water, straining the solution and evaporating it to secure the crystals that can be stored for use. Actually, alum is a group name for a whole class of double sulphates containing aluminium and such metals as potassium, ammonium, iron and so on.

These are colourless, transparent crystals with acid, sweetish and astringent (*tuvari*) taste.

General Actions

Used as a drug substance, alum has many important actions in the body. It is astringent

(constrictive of tissues and hence healing), caustic (burning; this has a corroding or a disintegrating action on the skin and flesh), haemostatic (stops bleeding), antispasmodic (counteracting spasms or convulsions) and antiseptic (killing the disease causing bacteria). In large doses it proves an irritant and causes purging. In repeated doses it brings about vomiting. It constricts small vessels and organic fibres, thus diminishing exhalations, secretions and supply of blood to any local region.

Some of the diseases over which it is useful are: leucorrhoea (the whites in women), haematuria (blood passing in urine), haemoptysis (vomiting blood), menorrhagia (excessive blood flow during menstruation), gastric and intestinal catarrh (discharging of fluid from the inflammation of the mucous membrane) and other haemorrhages (bleeding) as well; in fluxes or fluid discharges from respiratory tracts specially where a profuse rope like mucous phlegm occurs; and, also in chronic diarrhoea and dysentery. In chronic diarrhoea, a mixture of 10 grains of alum, 5 drops of laudanum (a tincture of an alcoholic solution of opium) and $1\frac{1}{2}$ ounces of infusion of acorus (*vacha*) roots is given thrice daily with beneficial results. In cases of diarrhoea preceding cholera and in diarrhoea associated with phthisis (or the tuberculosis of the lungs), a compound powder of alum, catechu (*katha*) and cinnamon (*dalchini*) each 10 grains is mixed with honey and given in repeated doses. This is also useful in painful urinary retention or discharge and vomiting when given in small doses of 2 to 10 grains.

Asthmatic spasms respond very well and stop down by just 10 grains of alum. In narcotic poisoning i.e. a poisoning which induces sleep or stupour, of children, it is a reliable antidote. Six *mashas* (i.e. 72 grains) of purified alum are given in buttermilk or water in cases of snake bite.

Alum is employed in many disorders seen in respiratory system. For example in whooping cough of children it is given with useful results in the following way. After the first or the acute stage has passed of, 2 to 4 grains of it is given, depending on the age, twice or thrice a day in the form of powder or as a solution in omum water (1 part omum in 10 parts of water). The dosage of the solution is one teaspoonful or dessertspoonful for a child from one to four years, thrice a day. Five grains of alum are given in rose water in cases of asthma and cough. Croup, is an inflammation of the larynx (the voice box) and trachea (the wind pipe) in children associated with a peculiar ringing cough, present specially in diphtheria. A teaspoonful of alum mixed with honey or syrup is an excellent remedy here; it causes vomiting and proves beneficial. In obstinate hiccup, alum given in a dose of one drachm twice or thrice a day induces vomiting and stops the hiccup.

Alum acts beneficially in the case of discharge and haemorrhages i.e. bleeding of many types. Along with the juice of *Adhatoda vasaka* (*vasaka*), 5 grains of alum given thrice a day act wonderfully well in certain forms of leucorrhoea or the whites in women, specially when the discharge is tinged with

blood. In haemorrhages (but not associated with much fever) of kidney, uterus and other internal organs, alum is given in a dosage of 10 to 20 grains three times a day with or without opium. The result is quite satisfactory. Two drachms of powdered alum boiled for ten minutes in a pint of milk and strained gives what is called Alum Whey or Lime Whey. This is a good medicine for menorrhagia and bleeding piles, where it is given in a dose of 1/2 to 2 ounces three times a day. It is applied externally as a saturated solution (5 per cent) in bleedings from the nose, gums, vagina or the rectum. It is also applied locally in diphtheria, croup and pharyngitis or the inflammation of the pharynges. Its solution is also injected to stop discharge in gleet (a flux from a mucous membrane) and leucorrhoea. A lotion of alum is administered internally to check haemorrhage for lungs, stomach, kidneys and many other internal organs and also to arrest excessive menstrual flow. In fact alum plugs combined with glycerine or alum douches are used in leucorrhoea. In cases of post partum (after delivery) haemorrhage, sterilised cotton plugs saturated with alum powder or sterilised alum lotion (15 per cent) will immediately stop bleeding. A lotion made up of alum and borax 40 grams each and 8 ounces of water is a useful remedy in weeping eczema that constantly oozes out. In bleeding piles, pieces of cloth saturated in a solution of alum and decoction of galls or of *babul* bark i.e. (*Acacia arabica*) - in a proportion of 2 drachms of alum to 8 ounces of the decoction, are kept constantly applied to the

afflicted region; bleeding will stop and quite often a process of healing will also commence. The same medicine is found to be useful in cases of the prolapse of anus, specially in children. A weaker solution of this again, (i.e. 2 drachms of alum in a pint of water) forms a useful remedy to be used for gargling in the diseases of mouth and throat. This itself serves as a useful injection in leucorrhoea and other vaginal discharges. Occassionally there occurs discharge from urethra as a result of a sore or a lesion between the head of the penis and the prepuce or the foreskin covering it and this is often wrongly mistaken to be a case of gonorrhoea. Here, 4 per cent solution of alum applied twice or thrice daily will prove very beneficial. For gleet and urethral stricture, an abnormal closing of the passage, Zad - garib, a famous yunani Text commends an injection of the lotion prepared by 1 *tola* of alum; 10 grains of *nil tutiya* (blue vitriol) and one *ser* of water dissolved by the aid of heat, and then strained and cooled. This is used for urethral injection. In chronic gonorrhoea 1 or 2 per cent solution of alum and potassium permanganate is used similarly.

Alum is a good healer. In injuries that result in concussion or violent shock of the brain or the spinal column and also in severe sprains or fractures, the very first thing to be given is alum - 5 grains of it with treacle, molasses or sugar. Weak solutions of alum (1 to 2 per cent) are used as a lotion to treat ulcers and chilblains, the painful red swellings in hands and feet particularly in cold

weather. It forms an astringent (i.e. constricting and therefore healing) gargle in a concentration of 2 drachms to a pint of decoction of gall or *babul* bark or just water. This is to be used beneficially in relaxed or ulcerated sore throat, aphonia (or loss of speech sound), atony (or voicelessness) of the larynx, spongy or bleeding gums, loose teeth, ulcers of the mouth and tongue, fissures of the tongue that often occur in consumption and also in excessive salivation. In inflammation round the ear, a paste made up of alum and gypsum in equal parts and *gile armani* or Armenian Bole is applied. It can be used as an ear drop to stop the discharge in otorrhoea viz. discharging ear. In recent ecchymosis (a discolouration of extravassation of blood or leakage of blood into the skin and the mucous membrane), contusions and sprains, a poultice made up of wheat bran and alum solution or 30 grains of alum powder mixed with the white of an egg will prove highly advantageous. The same medicine is very useful also in cases of sever blow on the eye and the resultant pain, heat and swelling. In apthae (white circular inflammations on the inside of the mouth), thrushes (a mouth and throat disease in the infant), spongy gums and many other afflictions of the mouth, alum is used with honey, beneficially. It is often sprinkled over indolent (i.e. persistent and non-healing) ulcers, specially the chronic umbilical ulcers in infants. It is used as a snuff in bleeding nose or as a gauze wet with alum solution (5 per cent) to plug the nose. If the lesion is higher up in the nose, alum solution can be used in the form of a

nasal spray. Four drachms of finely powdered alum, 1 drachm of similarly well powdered catechu (*katha*), 1/2 a drachm of opium and one or two ounces of kokum butter or ghee are together made into an ointment. This is applied by means of a piece of cloth for old, chronic, spreading and gangrenous ulcers. The result is always excellent. For bed sores which have already come up or in regions where they are likely to come up soon, a mixture of 30 grains of burnt alum and the white of an egg is just painted over the parts. This proves very useful for traumatic swellings and enlargements of the joints, specially those of the knees and for other swellings resulting from blows, bruises or sprains; pieces of cloth soaked with the lotion of 4 drachms of alum, vinegar and arrack (a country toddy) are kept applied to the part. This will give a good relief. In scorpion stings and insect bites, alum moistened with water is applied locally; this will give an instantaneous relief.

A few other interesting and useful medicinal application of alum are as follows: In obstinate cases of malarial fever, desiccated (or dried) alum in a dosage of 5 grains in any aromatic compound (in only a teaspoonful of water to disguise the taste) is given 2 hours before the expected rigour. The result is very satisfactory.

In cases of colicky pain (i.e. the acute and twisting pain) of stomach due to lead, frequent and repeated dose of alum will give relief by precipitating soluble salts of lead. Alum in a dosage of 45 grains mixed

with honey is given internally to expel the guinea worm. In diabetes and albuminuria—where albumen occurs in urea, alum acts as a palliative drug. Used externally, alum forms an ingredient of some hair dyes and hair lotions. It checks excessive sweat at the arm pits, groins and the soles of feet when applied locally. It is also used as a colyrium preferably with rose water for an application at the eyes for many diseases of the eye—chronic and purulent (pus forming) ophthalmia, chronic conjunctivitis and in what is called as the country sore eyes specially among the children. In the last case, a solution of 3 to 6 grains to an ounce of distilled water or rose water is adequate. Alum powder mixed with talc and zinc oxide is a good remedy to be used in sweating feet.

Alum Therapy

Alum or *fitkari* is so variedly useful in medicine that it will not be much of an exaggeration if one speaks of a whole system of therapy using alum as its principal if not the sole ingredient. An additional advantage in knowing the “details” of this therapy is that the drug is quite cheap and easily procurable as well, by all. As such, alum is a readily effective drug, always at hand to be used as and when we desire, provided we know at least some basic aspects of using alum in mitigating if not curing many an affliction that we suffer from. It is these ideas that are presented below in some detail as this knowledge will be of great service to most people. Interestingly the value of alum is

much respected in all systems of Medicine. Keeping a bottle of alum in the house will prove of great value when we know its multifarious medicinal efficacies.

These will be dealt with for some selected diseases, where alum treatment has been seen to be effective.

Diseases of the Head Region

Headaches: There are many types of head-ache. The following remedy proves beneficial in many such types.

Take one *tola* of raw, reddish, alum and another *tola* of the whitish seeds of the smaller cardamom. Grind them well separately, strain through a fine cloth, mix together and store safely in a bottle. When an occasion arises, administer two *mashas* of it along with fresh water. This will ward off many types of headaches.

Sinusitis and Cold: Sinusitis means the blocking of sinuses or the passages in the region of the nose. Such a blocking is associated with cold and running nose and quite often this constitutes a regularly recurring affliction during some seasons. This is a very distressing malady for which an alum preparation has proved effective.

For this, take a *tola* of white alum, thin it by placing it one day in the milk of *madar* (*Calotropis*) and the next day in the freshly extracted juice of *dhattura* (*Datura*), and then prepare flat pills (*tikla*) from this treated alum. Place them in the same

juice and heat it on a red hot heap of stones of about 10 sers. It will then become a calcified ash, which is to be stored in a bottle after grinding it very fine.

One *ratti* of this medicine is to be given enclosed within butter or any suitable confection. This is a good medicine for tertiary fever as well as chronic cough. The ash will be white coloured. If however it becomes blackish due to defective quantity of *Calotropes* milk, heat it again. It will then become white.

Sometimes the medicine is so effective that the patient becomes relieved even after one dose! The patient should avoid cold and soury food. The best diet is wheat *roti* and *mung dal*. This is a very effective medicine commended by many.

Weakness of the brain: Headache, dizziness, fits, insanity - all of these are relatable to some weakness of the brain or the other. Strengthening the brain is a good step in avoiding both the possibilities. The following medicament is advised for this purpose.

Take 2 *tolas* of shells, and 1 *tola* each of white alum and *kamala gantha* (the seeds of lotus). Pound the shells in a coarse manner and spread one *tola* of it at the base of an earthen pot, place the rest of the ingredients on it and then cover this with the remaining 1 *tola* of the pounded shells. Wrap the lid with moist earth and dry. Heat the pot now on 1 *ser* of red hot stones. When the latter get cooled down, remove the whole ingredients, grind them to a fine degree and store in a bottle safely.

Insanity: The following recipe is considered excellent in such cases where insanity is of 3-4 years and the patient remains sleepless at night. Within 3-4 days of its administration the patient is expected to resume sleeping well. With this he commence a road towards recovery which is also presumed to come soon.

Keep white alum well ground as a store. Prepare seven packets of it, each of 3 *mashas* in turn. One packet is to be given daily in a *pav* ($1/4$ *ser*) of curds prepared out of cow's milk. The patient should necessarily be fed with half a *pav* of cow's butter after one hour of this intake. All the seven packets should be consumed in this way regularly within the duration of the week, along with curds and butter as prescribed. Relief is unfailing.

The factors to be avoided are garlic, onion and brinjal; and, so also physical fatigue as well as staying alone.

The diets prescribed are: easily digestible and light food. *Khir* (sweetened milk preparation), *mung dal*, well baked *chapati* (*phulka*) and green vegetables are the best.

Mental confusion (bhram): To get rid of this the patient should be continued to be given mental assurance by people on whom he has faith. In addition, giving one *masha* of roasted alum morning and evening along with hot milk will be of some help.

Weakness of memory: Alum is soaked in the fresh juice of *brahmi* (*Centella asiatica*) for ten hours. It is then made into pills dipped in wine and then kept over a red heap of 10 sers of hot stones. It is removed when cooled down and stored.

Two *rattis* of it are to be given for eating along with milk, morning and evening.

Just roasted alum given with milk morning and evening would itself be of great help.

Delirium: The use of alum in delirious states is presumed to be useful.

Diseases of the Eyes

Alum is much reputed as being remedial for eye diseases. There are some specific conditions where it forms a particularly useful application. The following are a few of them.

Patiful eyes: (1) Take 4-1/2 *tolas* of *rasaut* (extract of *daruhaldi* or *Berberis aristata*), 2-1/2 *tolas* of roasted alum, 14 *mashas* of opium, 5 leaves of neem and 4 *rattis* of pure saffron or *keshar*. Thin this mixture with rose water, prepare pills and store.

When the occasion comes, rub a pill with opium water, apply on the eye lid twice a day, morning and evening. This will immediately stop redness, swelling and pain in the eyes.

This is the composition of the famous black pills prescribed by the Hamdard Hospital at Delhi under the name "habesyah chashm".

(ii) Another recipe is to take 3-1/2 *tolas* of fried alum, 7 *mashas* of well ground turmeric powder, and 5 *mashas* of opium. Mix them all and keep in a metallic vessel in which lime juice is already poured. Cook it on a low fire till the liquid becomes quite thick. Remove from the fire, cool down, prepare longish pills out of this mix and store. When the occasion arises, moisten a pill and apply over the eyelids.

(iii) One more surprisingly effective remedy is to take 6 *mashas* of roasted alum and 6 *mashas* of opium. Cut the latter into small pieces; place them on charcoal fire. Over this, place fresh neem juice to such a degree that all the ingredients will sink in it. When it starts boiling, keep stirring with a bamboo laddle. Remove when this becomes thick, and store it safe in a porcelain container. When the occasion arises apply with collyrium and let the patient stay in open air with breeze; fan him if needed.

Two to three such applications are enough to cure.

A simple external application which is however quite effective is to take 2 *rattis* of roasted alum, 1 *ratti* of opium and 5 leaves of neem, grind, prepare a paste and apply at night before going to bed. Things will become normal the next day morning.

An effective lotion is prepared as follows:

Take 4 *rattis* of alum and 1 *ratti* of copper sulphate. Wash and mix them in rose water or direct rain water and store in a bottle. Keep placing 2 drops of it in the eyes as the occasion arises. This is a medicine that will ward off pain and haziness (*dhundh* in Hindi) in the eyes. As a lotion it is much superior to the more familiar caustic lotion and zinc lotion.

Pain in the eyes due to billousness: The medicine specified here is particularly useful to pain in the eyes due to heat. For this, take the leaves of tamarind, pound them on an anvil with a hammer, add a bit of alum and a pinch of alum and prepare a packet. Take a glass of water, keep dipping this packet in this water and go on applying over the eyes, gently moving it around.

This is good for all distresses of the eyes, specially for the redness.

Or, take one *masha* of alum and one *ratti* of opium, grind them both to a fine degree, mix with the pulp of *Aloe vera* leaf (*ghrita kumari*), make it into a packet and move around over the eyes.

Or, grind the alum to a fine degree, mix this with the cream of milk and tie over the eyes.

Or, mix well 3 *mashas* of alum finely powdered with 3 *tolas* of pure honey and apply on the eyes with a colyrium needle twice.

Runing at the eyes: (netrabhishyanda).

In such a condition eyes need rest which they normally do not get by any means. One very effective method is: take 6 *mashas* of white alum, place it on an iron pan and heat. When the alum melts, keep adding small quantities of the fresh juice of *Aloe vera*. Even if it dries continue to add the juice till you have added finally 3 *tolas* of this juice. Remove it afterwards, cool, grind fine again and store.

Place it in the eyes as the occasion demands.

A very effective medicinal preparation is the following:

Take 3 *mashas* of raw alum and 1-1/2 *mashas* each of pure *rasaut* and sugar candy, 5 *rattis* of opium and 3 *rattis* of copper sulphate. Thin up *rasaut* and copper sulphate in rose water. The other ingredients are to be ground fine and mixed with this water. Strain this with a piece of soft *mulmul* cloth and store in a bottle.

When the occasion arises place 2 drops of this liquid by means of a dropper. Immediately there will be an outflow of water. Again apply after 10 minutes; the outflow will be less. Keep doing so at an interval of 10 minutes. Four to five times of such an application would prove adequate. Both the pain and the redness would disappear.

This is an excellently effective and simple remedy.

Alum alone is useful in many ways. For instance, fry alum, powder it fine and store in a bottle. When

you need a lotion take one *masha* of this powder and mix it very well in rose water or direct rain water. That is all the preparation. Store in a clean stoppered bottle and use as you desire. This can be applied three times a day.

Or, take one *ratti* of alum, two *tolas* of rose water or direct rain water, and mix. Apply 2-3 drops morning and evening.

Or, grind 1 *masha* of alum, mix well with 2 *tolas* of honey and apply with colyrium needle. The relief is immediate.

Or, grind white alum to a fine degree, store in a bottle and apply with the colirium needle thrice a day. There will be an immediate relief.

Cataract (phullt — rala in Hindi) : Cataract is a progressive disease and may take the form of a white cloud or flower (*phulli*) or a network (*jala*). This can be rectified rather easily with children but becomes difficult of treatment in the case of the adult and the old. The medications below are meant for such stages but work well even for haziness (*dundh*) of the eyes.

A very effective medicine is to take two *tolas* each of alum, *saindhav* salt and salt petre (*shora*), grind them and extract their essence in two cups as follows: The two cups should be fully dry with no trace of water and they should be such that they meet fully when opposed against each other. Place the powder of the 3 ingredients within these cups one above the other with their faces opposing, seal

the joining area with moistened earth, dry and then place on low fire. Place 3-4 pieces of thick *khaddar* cloth, wetted well on the upper cup. When these dry, remove and place another set of cloth pieces. Let the fire be low for two hours and increase it afterwards. After 5-6 hours of such heating, the essence will come out and get collected at the upper vessel. When the cups cool down, open them, scrape out the upper cup, grind and store safely in a well and strongly stoppered bottle. Use as the occasion arises. This is strong but reputed to be an effective medicine.

Or, take alum, *nausadar*, borax (*sohag*) and copper sulphate (*nila totha*), in equal parts. Grind to a fine degree, place in a fully dry cup and get the essence extracted in the above fashion, on a fire of *faras* wood (*Tamarix articulata* vahl).

Apply at night in a dosage of 2 times with a colyrium needle.

This is also presumed to be very efficacious.

Or, take white alum, *nausadar*, and sugar candy in equal parts. Grind, store in a bottle and apply with a colyrium needle as the occasion arises.

Or, take alum, soak it in breast's milk of a woman for three hours, dry it and when fully dry, store in a bottle and use.

Or, take one *masha* of alum, mix it with six *mashas* of pure honey, grind to a fine degree in a mortar and keep applying twice a day. The cure will be quick.

Discharge from the eyes : If there is a continued discharge from the eyes and seeing any object with attention becomes difficult, the medicines below may be tried with benefit.

Take red alum as required, add twice its quantity of ghee, place on fire when it becomes white, remove from the ghee and place it on red hot flaming coal. This will very soon become dark like a piece of charcoal. Let it remain there for some more time so that it will be free from smoke and stickiness. When it is fully dry, remove from the fire, grind well in a dry mortar and store in a well stoppered bottle. Half a *ratti* is to be applied at a time, morning and evening. Three to four applications would be adequate.

Wicks for drying the discharge are prepared thus:

Take white alum in a required quantity, keep it in a vessel and pour in it the juice of sour pomegranate to such an extent that the quantity of the alum will get fully drowned. Place this on a slow fire so that the juice will enter in and you can prepare pills out of it. Dip cotton wicks in it, rub them in water and apply through a colyrium.

An alum lotion is a very useful and popular means to clean the eyes. Painful eyes also secure relief by its use. Its preparation is very easy. Take two *rattis* of alum, mix it well in two *tolas* of water; the lotion is ready for use.

Small, rose coloured pustules appear on the inside of the upper lid and sometimes on the lower

lid as well, often accompanied with a swelling, a redness of the eye and a continuous watery discharge. This is particularly common among children (called *rohe* in Hindi) but also occurs in the adult (*kukre*). A few effective medicines are as below:

Take 6 *mashas* each of *suhag* (borax) and alum and 3 *mashas* of *shora* (salt petre), grind fine and store. Take a pinch of it (never more than a *ratti*; dosage is to be still smaller for the children), expose the inner portion of the lids, apply and then wash afterwards in cool water; the pustules will burst out and the relief will set in. This is a very strong medicine and needs to be utilised with great care.

Or, take one and half a *tola* each of copper sulphate and *kalami shora*, grind fine, place this in an iron vessel and keep on fire. When the ingredients fully melt, add 2 *mashas* of camphor. Dip wicks in it and move them around the pustules. If rose water is added to the wicks they will prove particularly beneficial for the pain which is common here.

Extra hairs get formed sometimes in the eye.

For this purpose also, the above medicine will prove very effective. The hairs may be plucked out and the medicine applied with the help of the wicks, rather rubbing them in.

Night blindness: Here the patient does not see during the night times though his vision is perfectly normal during the day. The disease affects more in

cold seasons than in the hot seasons. Some of the simple remedies are as follows:

Take roasted alum and tobacco snuff, both in equal quantity, grind well and store in a bottle. Apply before sleeping at night in a dosage of 2-3 colyrium needles. This is reputed to be quite effective.

Or, store roasted alum and *nausadar* in equal quantity. Apply similarly at bed time. This is also believed to be much beneficial.

Here, the edges of the eyelids become swollen and injured. The whole eye would look unshapely. The following medicine would rectify it and the fresh eye lashes would grow back.

Take 2 *tolas* of alum, 10 *tolas* of butter and place both of them on an iron pan and heat. When alum melts add 3 *mashas* of opium, remove from the fire, place it in an iron vessel and thin it as fine as possible, till the mixture becomes completely homogenous.

Keep applying it morning and evening. This is considered to be very effective.

Injury at the eye: When there is an injury at the eye region, pain and heat have both subsided but a bluishness is still remaining, applying a poultice of alum will prove very beneficial. For this, take 2 *mashas* of very finely ground alum powder, rub it very well with the white of an egg till it becomes quite thick. Place this between 2 pieces of any thin

soft cloth and tie over the eye for a few hours. This will remove all pain and heat, as well as the bluishness.

Special eye preparations from alum: Many types of colyriums (*surama* and *anjan*) are available using alum as their principal ingredient. These are applied regularly as a cosmetic beauty aid and also for securing health and acuity of the eye. A few such recipes are as follows:

Take four *tolas* of roasted alum and 1 *tola* of whole clove buds, grind to a very fine degree and store. Apply at bed time.

Or, take 2 *tolas* of alum, place in a mortar, pound and add the following ingredients: *bhattal* (*Launaea nudicaulis* Hook), *siras* (*Albizzia lebbeck* L), neem, mehandi (*Lawsonia inermis*), *ghrita kumari* (*Aloe vera*), white cumin, *mundi* (*Sphaeranthus indicus*) and *lal indrant* (red flowered *Citrulus colocynthus* schrad). The juice of each one should be about 5 *tolas*. If these are fresh, pound them well and strain the juice through a piece of cloth. If they are dry, soak them over night in four times their quantity of water, pound them the next day, straining the juice through a piece of cloth. Go on adding the juice little by little and as they thicken up.

Or, take 2 *tolas* of alum and one *tola* of cow's milk. Place this on an iron pan and keep on fire. After sometime, alum will itself catch fire. Let it burn fully, become black and fully dry. Stop the fire now and when it becomes cool, place it in a mortar, grind well and store in a bottle.

This is a beneficial medicine for all types of eye diseases; including discharging eye, conjunctivitis and even the feebleness of vision.

Or, take white alum, *kalmi shor*, dry ginger and white *surma*—all in equal quantities. Grind to a very fine degree and store. Keep applying morning and evening.

This is specially beneficial for cataracts, and haziness of the eyes.

Or, take 3 *mashas* of roasted alum, and pound them well in 2 *mashas* each of the juice of *mehandi* and white cumin. The juice is to be prepared thus: take 2 *tolas* each of the ingredients, soak them in ten *tolas* of water for 10 hours. After 12 hours, pound and strain, you will get a golden coloured fresh juice. Keep adding this little by little as you pound in the mortar and dry as you pound.

This is a medicine and a cosmetic aid of a very pleasing colour. This is equally efficacious specially for early cataract and discharge at the eyes, and also very much for the redness of the eye.

Or, take raw alum, borax, *naushadar*, *kalmi shora* all in equal quantity. Grind them separately in a mortar and to a fine degree. Add them together and again pound in a mortar. By this way the medicine will melt on its own and become somewhat like a decoction. Apply on the colyrium needle and use as it dries.

This is specially praised much for haziness of vision, and also for cataract and its early stages.

Just moving around this medicine with the colyrium needle would be enough.

Or, take one *tola* of alum, one *masha* each of copper sulphate, and *nausadar*, grind and keep. Take a bit of alum, place it on an iron pan, heat so that it will melt. Add to this the finely ground down copper sulphate and *nausadar* and when the mixing is thorough, remove from the fire and utilise as it is rather still tepid or luke warm.

Using this daily at bed time will prove beneficial in conjunctivitis, discharging eyes, redness of the eyes and also for haziness (*dundh*) of vision and its acuity.

Diseases of the Nose

Among the disease of the nose, alum is a much reputed remedial agent specially for bleeding at the nose as it happens in plethora or *raktapitta*.

In the bleeding of the nose, the lining layers on the inside of the nose gets ruptured and becomes bloody; this blood oozes out or even runs out on occasions. Some persons are particularly prone for this rupturing and they do suffer so every season. There are a few alum based medications for the purpose. They are as below:

Grind alum to a very fine degree. Keep sniffing this at repeated intervals and just as one take's snuff. This itself will often prove very effective. In case however alum alone does not prove adequate, the following medications may be tried. These are

all considered to be quite effective and are in active use and often quite popular.

Take 2 *mashas* of roasted alum and 1 *masha* of opium, grind them fine and store. When the occasion arises blow a pinch of it into the nostril, through a blow pipe. There will be an immediate stoppage of the blood flow.

Or, take roasted alum, mix it well with a distillation (*ark*) of *kasari* (*Cichorium intybus*) and store in a tight stoppered bottle. Use a Syringe while dropping this in the nose or just give a few drops directly as the occasion arises. The bleeding will cease. It is advisable that a person prone to such bleeding avoids direct sun or the vicinity of fire and also avoid eating excitatory substances like meat, onion, garlic as well as excess of chillies, sugar and jaggery. Instead, he should take recourse to cooling foods, *khichadi* made of *mung dal*, coarsely broken wheat preparations and sweetened milk dishes like *kheer*.

Ozonea (peenas): In this case of foul smell, emanating from nose, take one *ratti* of alum, mix it well with one ounce of water and inject this solution into the nose by means of a syringe. This will prove definitely beneficial.

Diseases of the Ear

Formation of pustules in the ear followed by rupture and pus formation and oozing is a grave affliction that should be immediately treated

properly and never neglected. For, this may even lead to a delirium occasionally and the trouble becomes chronic and difficult to be rectified.

For this, grind alum to a fine degree and mix it well with very pure honey. Prepare wicks with soft *mulmul* cloth, dip them thoroughly in the medicine and place in the ear. Change them thrice a day with a fresh replacement every time.

This is no doubt a very simple remedy but acts well and also quickly.

In case there is an ulcer formation in the ear, often due to neglecting the pustules in the initial stages, the same medicine as above would be beneficial, though after a much longer period.

Infact this is a useful medication wherever ulcer formation has taken place not merely in the region of the ears. In case the ulcers are of big size, increase the size of the wicks.

Diseases of the Teeth

Alum is a very common and popular ingredient of many types of tooth powder. Their regular use is advised as a necessary factor of dental care and hygiene. In addition, however, alum finds much use for dental medication as well, in many circumstances. A few of these are mentioned below:

Painful tooth or the tooth ache: For this, a very effective medication is as follows: Take 6 *mashas* of alum, heat on an iron pan and when it starts melting add a *ratti* of opium in it. When the burning

is over, cool down, grind again and use it as a medicated tooth powder.

Here is a preparation which will immediately quieten down pain at the gums and the teeth. Take roasted alum and the ash of the "stone" (*guthali*) of *ritha* (*Sapindus emarginatus*) both in equal parts, grind together and then rub at the region of the pain. This will give a quick relief even if all the teeth are aching.

Or, take roasted alum and neem alkali (*nimba kshar*) and grind to a very fine degree and apply on the aching teeth. This is specially effective if the pain is at the jaws.

Or, in case teeth are severely aching, take a tooth brush of *babul* twig, drop a small quantity of alum over it and continue to chew. Doing so for a few times itself will be adequate. In case the medicine gets in, it may prove useful to control coughing.

Shaky teeth: This need not be treated at all either in the case of children where things will get right on its own or in the old, for in them the tooth is going to fall and then only the pain will stop. The medicine below is meant therefore for persons of middle age when the teeth become shaky.

For this, take 1 *tola* of roasted alum, burnt out betel nut, powder them very fine, mix and use as a tooth powder or apply on the region concerned. The shaky teeth will get firmly set back.

Or, take one *tola* of roasted alum, 3 *rattis* of roasted copper sulphate, grind together, store and use when the occasion arises.

Or, use only alum, powder finely, and apply to the region concerned. Even this is quite effective.

Bleeding teeth: This is actually the bleeding of the associated gums of the teeth. Some preparations are specially meant for such a condition.

For this, take one *tola* of *jamun* wood charcoal, and one *tola* of roasted alum, grind them together to a fine degree and apply. Bleeding will stop almost immediately.

Or, take 6 *mashas* of alum, grind well and dissolve in one *pav* of water and use this water for a thorough gargling. This will also stop bleeding.

Or, store well powdered alum alone and use as the occasion arises.

Fragile Teeth: If the teeth are loosing shape by breaking or getting crushed as it were, powder alum to a fine degree, mix it with honey and apply.

Or, prepare a finely powdered alum and store in a container. Next day morning chew a tooth stick of *khair* or *babul* wood (*Acacia arabica*) and often sprinkle this powder on it and move about the tooth surface. The fragility will disappear and the teeth would become strong.

A very excellent tooth powder which is medicative and curative as well to many as affliction of the teeth is prepared thus:

Take one *tola* each of chalk powder, roasted alum, and three *mashas* of camphor. Grind them all to a very fine degree and store. This is a very fragrant and good tooth powder.

Or, take one *tola* each of alum and *babul* charcoal, grind fine and strain. Rub over the teeth when the occasion arises. This is very beneficial to all types of dental diseases.

To Get the White Shine on the Teeth: Take one *tola* of roasted alum. Burn the husk of maize (from which the grains have been taken away) into an ash. Mix one *tola* of it with the alum. Rub it on the teeth. Immediately they will start shining.

Take roasted alum and the shell ash. Pound them together in a mortar the whole day in a the juice of the leaf of *gorakh* (*Sphaeranthus indicus*). When the juice gets fully absorbed and the material thus becomes dry, store in a bottle and rub on the teeth. They will start shining like pearls.

Or, take some bits of alum, place on an iron pan, heat and melt them. As it is melting in, add turmeric into which some *nausadar* has been applied as well as a little turmeric powder as such. Remove from the fire and prepare pills with this mixture and store. Rub a pill against the teeth. This will whiten the latter, give a shine as well as relief from pain.

Diseases of the Throat

Diphtheria: This is a very dangerous disease as it often proves fatal all on a sudden. There will be a heavy weight and scrapping at the throat of the patient and also repeated coughs. Something always seems to be obstructive within, to such a degree that there will be a feeling of difficulty whenever any swallowing is attempted. Unfortunately this affliction often occurs as an epidemic among the children, spreading as a contagious disease. A few effective medicines for this malady are as below:

Take one *tola* of the skin of *rittha* fruit (*Sapindus emarginatus*) and one *masha* of alum. Prepare a decoction of them and place it at the throat. There will be an immediate awakening, if the patient has lost consciousness. The patient should also utilise this medicine to gargle several times. *Ritha* alone is a good gargling material but adding alum will improve the value.

In contagious stages, there will be a leathery membranous growth within the throat. Sprinkling alum powder on this would often be beneficial. For this, roast alum on a crucible and then powder.

Goitre (Kantha-mala): This is a very painful and distressing affliction when glandular swellings occur all around the throat externally and these often become ruptured. The disease should never be neglected and immediate steps ought to be taken up always.

Here are a few simple remedies for this purpose.

Take 3 *mashas* of alum, 6 *mashas* of the ashes of Fig twigs (*anjir*) and 3 *mashas* of water. Mix well as a paste and apply over the region. Some relief will definitely ensue.

Melt alum by heating it in a broken piece of earthen pot and grind in a mortar. Give one *masha* of it morning and evening along with water. This is probably beneficial.

In case there is a rupture and lesion as a result, cleanse it with alum water and do so twice a day. This acts slowly but definitely.

Chest and Lung Diseases

Cough: Alum is the most excellent and universally acclaimed drug for cough. Some significant recipes are as below:

Take 2 *mashas* each of alum and the essence of *mulethi* (or liquorice root) and one *masha* of borax. Grind them fine in a mortar, mix with 6 *chatak*, (1 *chatak* = 1/2 of a *pav*) of water in mortar again and store. Take 1-1/4 *tola* and give it for drinking 3-4 times. This is effective in cough, asthma and to clear the voice.

Take 3 *mashas* each of alum and roasted borax, 3 *mashas* of liquorice essence, 1-1/2 *mashas* of *nausadar*, grind fine and store in a bottle safely. Two *rattis* are to be given 2-3 times a day with *gojavan* distillation (ark) or of just plain water. This is beneficial in cough.

Take one *tola* of roasted alum add 10 *tolas* of country sugar and prepare 14 packets. Give this with hot water to a patient of wet cough and with hot milk to those of dry cough. Two weeks of treatment would cure any type of even very chronic coughing.

Or, take only alum, one *masha* of it in 5 *tolas* of water. Give 1-1/4 *tola* each time four times a day.

Or, add one *tola* of pure honey to one *masha* of alum and let the patient lick it up in a dosage of 3 *mashas* morning and evening. The patient should avoid sour and unctuous food. In dry cough, ghee can be used treating it well on fire.

Whooping cough: This mostly effects children once. For this, take one *tola* of alum, mortar it the whole day in the juice of *ajowan*, and place it in an earthen ware pot closing its lid with moistened earth and then dry. Heat this on 10 *serts* of red hot stones pebbles. When it cools down, grind fine and store. The medicine can be placed in sweet-meats, country sugar and cow's butter and then given. This is a well tried and effective remedy.

Breathing Difficulty Dyspnoea: Here are a few very effective remedies.

For this, take alum in any desired quantity, keep it in a vessel and pour on it the milk of *madar* (*Calotropis*) to such an extent that the alum quantity is fully drowned. Keep the vessel in a safe place. As the milk dries, again add the milk taken freshly. Do like this 3 times. Place it then within an earthen pan, close it with another pan inverted over.

seal the edges with moistened earth, dry and heat this on 6-7 sers of red hot pebbles. If the drug becomes white, consider the drug as ready; if not, heat it again similarly. When ready, grind fine and store in a bottle.

Dosage is 2-4 *rattis*. If wet phlegm is getting expelled give the medicine in country sugar (*boora*); if cough is dry, give with butter. 15 days of treatment is advised. This is good for ordinary cough also.

Spitting blood: Take one *tola* each of roasted alum, *babul* gum and marking nut (*geru*). Grind well, mix thoroughly and prepare 21 packets. One packet is to be given in the morning along with the mucilage of *iasphgol*.

Or, take 8 *mashas* of alum powder, add it to 10 *chataks* of milk and cook for 10 minutes. Give 4-5 *tolas* of it, three times a day. This will stop all types of bleeding.

Another recipe is to give a *masha* of alum along with goat's milk.

Pneumonia: Rural folks often resort to alum alone for this disease. Some recipes here are:

Take 2 *mashas* of alum, 2 *mashas* each of fried borax and liquorice essence and 1 *masha* of *nausadar*. Grind all of them. This is to be given with *ark* (distillation) of *gaylava* in a dosage of 2 *rattis* 2 to 3 times a day. This remedy is good for cough and asthma as well.

Or, take one *tola* of alum and one *tola* of methi grains (fenugreek), grind fine and administer 5 *mashas* of it along with honey. Give this again after two hours.

A *miraculous fomentation* is follows: This shows immediate results and has also saved many lives. The ingredients needed are: 5 *tolas* of alum, 5 *tolas* of turmeric powder and half a *ser* of sand roasted in an oven or *bhatti*. Turmeric is to be first ground fine; then strain through cloth and similarly grind alum and the sand to a fine degree. Mix them now and as you mix, keep adding mustard oil little by little. Do so in such a way that the entire mix will be moistened with oil but not to such an extent as to drip out oil. Make cloth packets keeping this medicine within. Take an iron pan now and place it on flaming coal. Over that place 2 leaves of *Calotropis (madar)*. Place the packet on the leaves and when they become hot, start the fomentation, keeping the packets on the leaves. Go on doing so repeatedly till the *madar* leaves start wrinkling by heat. When the latter do so, replace them with fresh leaves. Carry out such a fomentation for four hours spending about 100-150 leaves meanwhile. The patient will become alright as the fomentation progresses.

A *caution* is: The patient should not be given any water. Instead he should be provided with abundant tepid *saunf* water. He should not take any constipative food and give up potatoes and garlicks. The best diet is the water of *mung dal* and the sweetened gravy of sago.

Liver and Spleen Diseases

In the liver complaints, alum is an excellent drug. Some recipes are the following:

Jaundice: Grind one and half a *tola* of alum, prepare 21 packets, give one in the morning along with cow's butter. Do so till all the packets are over. This will cure any chronic jaundice even. This is a well tried medicine.

Roast good quality alum, give a pinch of it in the morning to be followed by a cup of curd. Next day, double the pinch and give similarly with curd. On the third day, give 3 pinches and curds. Give 3 pinches like this for the next 4 days. This will cure any severe type of jaundice even within a week.

Weakness of liver: Symptoms here are: palour of the face, upset digestive ability, complete loss of appetite and swellings arising at the face and the liver region. The following medicine is very effective to such a patient. Take a fruit of *Colocynth* (*Indrayan*) in the evening, cut open a bit at the top, remove the entire pulp within, keep 2 *rattis* of alum within and pour goat's milk over to fill. Then close it with the cut out bit and keep it as such, overnight. Next day morning give this to the patient for eating along with some sugar. This procedure will be followed by many purges, expelling all the vitiations within. Doing so for a few days will cure the patient fully. A speciality of this purge is that the patient will not feel any weakness thereby. Instead, he continues to become stronger.

This medicine is to be given only when the swellings have commenced at the face and the legs. the best diet for the patient is wheat *phulka* and *pudina chutney*.

Splenic enlargement: For this, take 1 *tola* of roasted alum, and another *tola* of *nausadar*. Mortar them well and add one *tola* of sulphur, 4 *tolas* of pure vinegar of *jamun*, mix them into a bottle and keep aside.

Patient should be given daily a *batas* (a dry fluffy or porous sweetmeat) or with sugarcandy adding two drops of this medicine into them; this is given morning and evening.

A distillation (*arka*) of alum is also prescribed for this purpose. For this, take white alum, *kalamt shora* and *nausadar*—each one *tola* and keep all of them well powdered. Take a well grown leaf of *Aloe barbadens* (*ghrita kumari*), split it into 2 halves longitudinally, sprinkle the mixed powder on the inside of these 2 halves, which are now to be opposed together, tied tight with threads and hung in sun. The distillation will fall down drip by drip; collect this in a cup.

This is an excellent medicament for splenic enlargement and also the shooting pains of the stomach.

The patient should avoid unctuous food stuff and also potato, *dal*, meat and brinjal.

The best diet is *pudina* chutney, radish pickles, camel milk and mung dal.

Diseases of the Stomach

Stomach pain: A very simple remedy for all types of stomach pain is to eat a *masha* of raw (i.e. unroasted) alum and drink a cup of curd over it. The pains will disappear.

Vomiting and vomiting sensations: Take one *tola* of roasted alum, mix with it 2 *tolas* of *sikarjabtn* (i.e. a special sweet syrup made up of sugar or sugar candy) of vinegar, and give it for the patient to lick it up. If *sikarjabtn* is not available, add sugar to vinegar and employ.

This drug is useful for both the vomiting and the sensation of vomiting.

Or, add one *ratti* of roasted alum to *batas* and let the patient eat it. There will be an immediate effect.

Tying a vomiting patient with a tight piece of cloth also stops vomiting. In case he is to be given water for drinking, he should be asked to take it in small sips and not in a whole bout. Just such a sipping of water may itself stop vomiting.

Cholera or Visuchika: This is a contagious and often an epidemic disease when there will be an excess of dysentery and diarrhoea as well as vomiting. This often proves fatal. The patient feels very thirsty.

Some effective remedies here are as follows:

Take one *masha* of roasted alum, 2 *mashas* of turmeric, and one *masha* of red chilly seeds. Grind them all together and prepare pills of a *ratti* size each. Administer one pill each time, coated with peepul leaf water and along with that water as well. This stops the purgings and vomitings soon and will also give great relief.

Another simple but effective medicine here is to grind 3 *mashas* of alum to a fine degree in one bottle of pure water and keep giving this water to the patient sip by sip.

Intestinal Diseases

Colicky pains: To stop the twisting pains of the stomach, some alum based remedies are as below:

Take 10 *tolas* of alum and 1 *tola* of pure opium, grind them fine and mix. Enclose this mixture in opposing cups, sealing the joint with moistened earth and drying it. Heat them on a fire of 5 *sers* of heated pebbles. At the top cup, a white sublimation powder would get collected. This is to be given in a dosage of one *ratti* along with *gulkand* (a confection made up of dried rose petals).

Or, take one *masha* of alum, place it in *munakka* or dried big sized black grapes after removing their seeds. Give this to the patient for eating morning and evening.

Eating just a few such fruits would stop chronic dysentery of 6 months duration.

Dysentery: For this, take 6 *mashas* of alum, and 6 *mashas* of the charcoal of the bark of the peepul tree, grind them well and keep. Give this in a dose of 1-1/2 *masha* along with water, but the dosage is to be altered depending on the age and strength of the patient. This is to be given morning and evening.

Though it is a simple remedy it is so effective that it is likely that even one dose may become curative.

Or, take 5 *rattis* of alum, 4 *tolas* of the decoction of *vacha* (*Acorus calamus*) and half a *ratti* of opium. This constitutes one dose to be given. This should be given 3-4 times a day. This is particularly effective for old dysentery and will also stop completely the bleeding associated with it. The decoction of *vacha* is prepared thus: heat 6 *chataks* of water to a boiling point, remove from the fire - as it is still boiling and add into it 2-1/2 *tolas* of *vacha* powder. Soak, strain and give 4 *tolas* of it every time.

Eating 1 *masha* of roasted alum three times a day would stop loose motion.

Intestinal malabsorption (*samgrahani*): Here the patient gets 4-5 purgings daily and this is followed by a constipation for two days. This is a very devastating affliction that gets relieved only with difficulty.

The following recipe is very effective.

Take 5 *mashas* of roasted alum, 2-1/2 *tolas* of pure *rasaut*, sprinkle water over their mixture and prepare 14 pills out of it.

Give one pill in the morning enclosed within butter and give over it, a cup of *lassi* from half done curds. This will give a good relief even for purging. For an intestinal patient the only food advised is cooked rice with curds or sago gravy.

Diseases of the Kidney

Renal pain: The pain is excessive, it starts from the kidneys and spreads throbbingly backwards. Urine comes interruptedly and there also occurs constipation.

Alum is a good remedy. Take 3 *mashas* of roasted alum, 7 *mashas* of *kalamishora*, grind them fine and prepare 7 packets. One packet is to be given in the morning and evening along with fresh cow's milk. The patient should avoid gas forming and heavy food, rice, *udad dal* (black grains) and cold water. The food should be *mung* or *gram dal* and wheat *phulka*.

Stones in urine: Two *mashas* of roasted alum given morning and evening will rupture out all stones of urine. If the distress is more, this can be given thrice a day.

Blood Urine: Take 3 *mashas* of roasted alum, grind fine and prepare three packages. Give one package morning and evening with *lassi* of milk. Bleeding will stop.

Difficult urination and gonorrhoea: Alum alone is a very reputed cure for gonorrhoea. Drinking alum water is itself an adequate medicine.

Another simple recipe is as follows: Take 5 mashas of alum, 4 mashas of smaller cardamom and 5 leaves of *kathi bair* (*Woody jujube*). Grind them all to a fine degree and let the patient lick it up embedded in cow's butter. This will stop difficult urination in 3 days and gonorrhoea in 7 days.

Or, take 1-1/2 mashas of red alum, one *tola* of fresh leaves of *babul*. Mix them thoroughly, add half a *ser* of water and strain. Add 4 *tolas* of country sugar and give it for drinking in the morning. A treatment of 10 days will be adequate.

Take roasted alum and marking nut in equal quantity. Grind fine and add country sugar in a quantity that is equal to their net powder. Take this morning and evening in a dosage of 3 mashas along with *serbet bajuri*, i.e. of *bijauri* lemon. Continued for a few days, this has proved beneficial.

Anal Diseases

For many a type of anal affliction alum proves very beneficial. A selected few examples are given here.

Piles: There are two types, bleeding and dry. In the former, there is a discharge of blood and the latter is often accompanied with constipation and is always associated with some upset or the other. There are two types of medication, some being taken

in orally and others are applied on the out growths.

Take 10 *mashas* of alum, 2-1/2 *tolas* of *nagakeshar* (*Mesua ferrea*) and country sugar equal to the net quantity. Grind and prepare 14 packages of equal weight. Give one package in the morning and evening along with the water of *sathi* variety of rice (that ripens in six months). This is very good for bleeding piles.

Smoking alum by means of a *hookah* is also useful here.

Or, giving just alum alone, 2 *mashas* of roasted alum, along with water proves effective.

A fomentation with water in which roasted alum is melted twice a day at the region concerned is also very effective.

Fever: Fevers are of many types. Alum is of value in some of them.

Billous fever: This may remain constantly or occur with intervals but repeatedly. There may be tremors as well as a great rise in temperature.

For this, take 1 *tola* of roasted alum and 4 *tolas* of powdered opium pod. Grind them fine and store. Dosage is 1-2 *mashas* for the adults and half a *ratti* only to the children. This is to be given 2-3 hours before the expected onset of fever and along with fresh water. The patient is to fast that day. Quite likely the fever will stop on one administration itself. If not, give a light laxative and again another dose of this medicine. He is sure to secure relief.

A distillation of alum is also reputed here. Take 2 *mashas* each of alum, *nausadar* and *kalami shora*, dissolve them in 3 *chataks* of water. Dosage is 1-1/4 *tola* and this is to be given thrice a day. This removes fever and also brings about sweating and urination and a great relief thereby.

Fever with Tremors: Take 3 *tolas* of alum, 3 *mashas* of black pepper, grind them fine and store in a bottle. One dose is to be given 3 hours before the onset of fever. This will be effective in most cases. If the intestines are cleansed with some mild laxative and the medicine is then given, this will be almost fully effective.

Typhoid and malarial fever: Some of the preparations shown here are quite efficacious and are in no way inferior to quinine, the well known medicine of choice. Take 3 *mashas* each of roasted alum, roasted borax and *nausadar*, 5 *mashas* of *kalami shora* and 1-1/2 *tolas* of the powder of *kutaki* (*Picrorhiza kurroa*). Mix them all together and keep as such for 10 hours and then use. The dosage advised is 3-4 *rattis* along with water, milk or *saunf* water. This will quieten down the fever that has set in and prevents any fresh attack of fever. This is presumed to be so unfailingly effective that it is advised to be used prevalently at any epidemic break-out of malaria.

Another recipe is: 2 *tolas* of roasted alum, 2 *tolas* of marking net and 5 *tolas* of raw sugar. Grind them all fine and mix homogenously. This is to be given in a dose of 1-3 *mashas* a couple of hours

before the onset of fever. In case it is desired to be given when fever has already set in, administer it along with a decoction of *suarf* three times a day and with an interval of one hour. There will be an onset of sweating then and a subsidence of fever.

Tertiary Fever: Here fever sets in after an interval of a day. There will be excessive sweating and a persistent sensation of nausea or even vomiting.

1-1/2 *mashas* of roasted alum, and an equal amount of black pepper are to be ground well and kept. Cut a good sized lime fruit into two, place this medicine on the cut surfaces and let the patient suck the juice directly and do so an hour earlier to the onset of fever.

Or, one *tola* of roasted alum, 3 *tolas* of *dhathura* (*Datura stramonium*) leaves are both to be ground and pills of 1 *ratti* each are to be prepared. Give 2 pills with fresh water an hour or two before the onset of fever, and an hour after, exactly when fever commences. This is believed to be unparalle effect.

Syphilis: In this contagious venereal disease, pustules or lesions appear first on the genitalia and as the affliction becomes slightly old, the whole body becomes studded with small spots appearing rose red in the early stages and getting blackened soon.

Here are a few alum based drugs. Take 5 *tolas* of *kalamishora*, place them on an iron pan and keep this on live coal. Season it with *harmal* (*Peganum harmala* linn.) The entire *shora* melts down.

Remove from the fire immediately. After 15 minutes keep this back on fire, and when it has become somewhat like an oil, add 2-1/2 *tolas* of powdered alum. Both will melt after some time and mix well. When it has become somewhat cold, add one *tola* of country camphor; the alum mixed with *shora* should stick to camphor fragments. As it cools down, keep it again on live coals and when the heat reaches to a peak, place a *tola* of the fragment of nonshining billory (*Polygonum bistorata* Linn or Snake weed) and cook very well. Remove after 15 minutes. Take out a bit of this fragment of billory, set it to fire and test. If steam is given out, consider that the drug is not ready still and cook again then till no smoke will come out - a sign for the completion of the drug.

This is to be given in 1 *ratti* of butter daily. One week's treatment is believed to be adequate for curing; it is necessary that the drug should not be taken raw, i.e. when it is not fully ready. The remaining portion of the *shora* etc should be kept as such, since it can be used again for preparing the drug afresh.

Just giving 2 *mashas* of roasted alum morning and evening along with water is itself beneficial for patients of syphilis.

Syphilitic wounds are best cleansed by alum water. The patient should avoid oil, sour stuff, jaggery, pickles and hot articles like garlic, onion and masur. The preferable diet includes gram dal,

lady's fingers and *churma* (crushed bread or *chapatti* mixed with sugar and butter).

Itching and Eczema: This may be dry when nothing comes out on scratching, wet when an yellow fluid and blood comes out on being scratched.

3 *mashas* of roasted alum is to be mixed with the white of an egg and carry out a massaging with it. This is very beneficial for all types of itchings.

Or, grind alum in mustard oil and rub over the body. This cures both the dry and the wet type. Or, taking a bath in hot water in which alum is dissolved will also be profitable.

An excellent ointment is prepared thus: alum, salt petre (*shora*) and zinc sulphate are to be taken in equal parts and ground. Add pure vaseline and prepare the ointment. Apply on the regions concerned. There will be an immediate cooling and relief.

For ringworm and freckles on the skin, apply alum ground in cow's urine or vinegar.

Roasted alum, raw borax, sulphur and the pulp of the *amala* fruit (*emblic myrobalan*) are to be taken, one *tola* each and 3 *tolas* of sugar candy. Grind the first three ingredients to a fine degree, grind the sugarcandy separately and add. This powder is to be applied over ringworm spots and rubbed in for five minutes. Effect can be seen within 3-4 days.

Thread worm infection: This is caused by drinking foul water of the tanks. Once the worm enters in, it stays in the body without causing any troubles for an year or two. When it starts reproduction, the young ones grow very quickly and may come out even through mouth.

Mix alum and borax in equal quantity, grind, add honey and apply at the region concerned. There will be good relief.

Lesions: 3 *mashas* of roasted alum are to be mixed in a *ser* of water and wash the lesions with such a water. There will be a thorough cleaning as well as a healing. Foul smell disappears and this is beneficial even when the flesh is rotting. After washing with alum water, sprinkle the area with alum powder. And then apply tender leaves of banyan after dipping them well in any sweet oil. This will afford good relief and there will be no pus formation either.

For spreading lesions and wounds accompanied with rotting flesh, take 16 parts of alum, 24 parts of *hira kasis* (green vitriol or iron sulphate), 16 parts of copper sulphate, 1 part of *nausadar* and 2 parts of *jangar* or copper sulphate. Mix all and melt and prepare wicks dipped in it. Moving this about in the rotten and the vitiated areas of the wounds would rectify the situation.

Take 5 *tolas* of sweet oil, an equal amount of water, place in mortar and go on pounding, till a butter like white substance results. Add 1-1/2

tolas of alum, 5 *tolas* of resin (*ral*), 5 *tolas* of *kattha* after grinding them to a fine degree. Apply this with the help of any piece of clean cloth.

This is a very beneficial drug for bed sores, caused in patients when they are forced to lie down on bed continuously for a long time.

Non-medicinal Uses of Alum

There are many other medicinal application of alum but it is time now to look at a few significant non-medicinal utilisations of this very common substance. Just some are listed below. Though these are simple uses, they are all highly profitable and alum can definitely take its role as an economically viable component of cottage industry.

Dyeing Woollen Cloth: Bright colours look very beautiful in woollen cloth. Usual colours here are yellowish or orange. One can dye them bright green also thus:

Take water that is well hot but not unbearably so to hands. Grind half a *ser* of alum and add it to this water. Soak the cloth to be died and squeeze out the water. Take now 3 *tolas* of granular green dye, mix it with 3 *mashas* of water and heat till the boiling point. When it is boiling, drop the cloth in this water and let it remain there for 10 minutes. Move the cloth within thoroughly, remove and squeeze out the water. An excellent green dyeing comes about.

Similarly soak half a *ser* of alum in water, add granular, onion coloured dye and adopt the other procedures as above. A bright red dyeing will result.

Add 4 *tolas* of almond coloured dye stuff instead, in the above procedure. This will result in a bright orange dyeing.

Dyeing light black is not easy as its dyestuff comes in a raw state. To bring about this shining black colour, a mixture of a number of dyes of different hues are employed as above; the colours are: 1-1/2 *tolas* of granular green dye, 1-1/2 *tolas* of granular brinjal dye and 1-1/2 *tolas* of granular almond dye. Boil them in water and then use.

Dyeing Leather: This is also a very profitable work. Take a *ser* of the flour of *bazra*, add water and cook to a thin consistency. When fully cooked, take half a *ser* each of alum and salt, grind fine, add and cook well. When it becomes cold, apply this to the inner surface of the deer skin where there is no hair. Place it in an open vessel and keep heavy weight and keep applying this stuff daily. After five to six days rub well with a stone or a brick piece so as to remove all flesh. Wash with water, dry it half in sun, apply the stuff and beat against a stone as a *Dhobi* would do. After a considerable treatment this way dry and inspect. If the skin has become very tender and soft, it is a good quality. If not, take half a *pav* of alum and an equal amount of salt, add them in water and soak this skin in it for 3 days. The skin will become velvet like and white, almost like *mulmul* cloth. If this is to be died now, boil it in

turmeric and *naspal* (green pomegranate) water. A charming yellow colour will result.

To give it a green colour, take 1 *tola* of green dye and 1 *tola* of *alum* in 2 *sers* of water, heat till it boils up, adding copper sulphate in the required amount. The leather is to be soaked for 3 days within this mixture.

Colouring Horn: Many decorative articles are made out of various types of horns of animals. To die this horn, heat it in alum water; mix blue dye stuff in water and slowly boil, removing it as soon as the desirable shade of the colour has been obtained. To dye it yellow, heat horn in alum water upto the latter's boiling point, mix the yellow stuff in water and keep the horn soaked within it for 24 hours.

Giving a Golden Gilt on Metal: Take 12 *tolas* of alum, 10 *tolas* of salt petre and 10 *tolas* of Lahore salt and add them in water. Take now a *tola* of gold guilt powder, add it here and keep for 24 hours. Keep this on fire so that it becomes fully dry and attains a powder form. Take this mixture as much as you need, mix it with rectified spirit and make a thick mixture like honey. This can now be applied with brush on any clean metal article.

To Join up Broken Porcelain Articles: Take 4 *tolas* of shellac, an equal amount of alum, burn them together on fire and make a homogenous mix. Apply at the broken edges in a warm state and join.

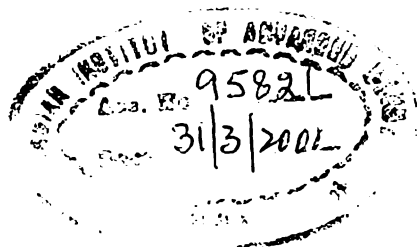
To Dye the Hair on the Head Black: Take 5 *tolas* each of copper sulphate and *kalami shora*, 1-1/2

tolas each of well water and alum, secure a strong acid extract from them. Take a *tola* of this acid extract, add a *masha* of silver powder, 2 *mashas* of rose water and keep for twelve days and then apply on the hair. It will turn black like bees.

A Bed Bug Powder: Grind alum very fine and use it as a bed bug repellant. If this is mixed with *chunam* and the walls are then white washed, there will be no incidence of bed bug in such a house.

Magic Writing and Burning: Grind alum very fine, mix it with water, write with this water by means of any fine pen on paper. When the latter dries, the writing will not be seen at all. But give a little warming up to this paper on a flame, the writing will come black in reddish letters.

Mix white alum, egg white and salt. Apply this as a thin coating on cloth. If even flaming coals are kept on such a cloth, the latter will not catch fire. Or, take a spirit of wine, add on *masha* of finely powdered alum and close the bottle immediately; otherwise the spirit will evaporate. Now soak a piece of cloth in this spirit and set it aflame. Flames will come up but the cloth will not burn.



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