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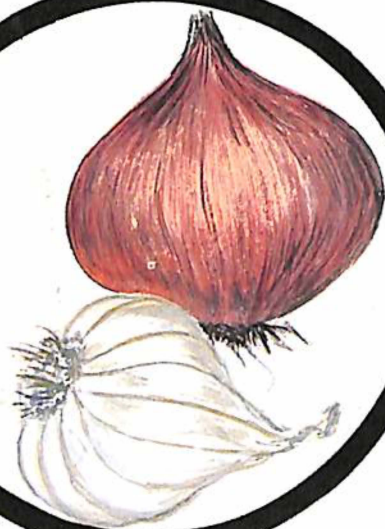
Traditional Family Medicine



Onion and Garlic

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HEALTH SERIES :
TRADITIONAL FAMILY MEDICINE

Onion and Garlic

K.H. KRISHNAMURTHY

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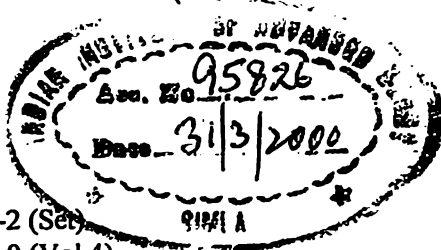
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The information contained in these pages has been culled from various sources. This information is solely meant to create interest about the wondrous qualities of our medicinal plants. no account should this be utilised in a lay manner. Help of a trained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

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INTRODUCTION

Suppose that you are asked to point out two plants which are well known for their various uses in medicine, distributed all most all over the world and familiar since very ancient times but are still much neglected and not utilised as much as they deserve, because of their very common placedness, a rather cheapness and an outright prejudice, you can unhesitatingly name onion and garlic under such a circumstance.

There is none who do not know them and probably nowhere, where these two plants and their bulbs are not familiar. Botanically both come under the family Liliaceae which includes many other famous medicinal plants such as aloes (*Aloe vera* *ghrita kumari*), asparagus (*Asparagus racemosus*

wild), *sarasa parila* (*Smilax* sp.) and the like. Both belong to the same genus *Allium* which itself consists of over 250 species, distributed all over the world, some of them occurring even in the polar regions. The commonest species of this genus, mainly under cultivation since very ancient times, are onions, garlicks, leeks, chives and shallots.

Onions (*Allium cepa* Linn.) are biennial (i.e. living for two seasons) herbs producing large underground bulbs and long, hollow and cylindrical leaves. The stem of the plant is reduced to a small yellowish disc at the base of the bulb, below which the roots occur and above which the leaves are found in a clump. It is the basal regions of these leaves which remain underground, become swollen, store food and closely encircle one another to form the characteristic bulb. The upper regions come above the ground to form the cylindrical and rather tapering leaves. During the first season the plant forms the bulb underground and stores food, mainly in the form of sugar and also much of water. This stored food is spent in the next season by producing the flowers and the seeds. The flowers are small, white and clustered together in a characteristic inflorescence called scape, which consists of a long, cylindrical and single green tubular stalk springing from the underground stem and piercing through the bulb. It is at the very end of this scape that the many and the stalked flowers occur in a bunch or an umbel (an umbrella) all from a common platform. Under cultivation, onion bulbs are taken out before the flowering commences and

marketed. Flowering is allowed only when securing of the seeds is needed. All parts of the plant viz. bulbs leaves as well as the scape and flowers when tender are used as articles of food. They are used as a vegetable, as a flowering and seasoning material as well as in medicine.

Garlics (*Allium sativum* linn) are perennial herbs with narrow flat leaves which also form underground bulbs like the onion. But these bulbs are small, egg shaped and several in number called cloves, enclosed together in a thin white papery skin. The inflorescence produces both seeds and bulblets. These bulblets, the cloves and the leaves have all been used from very old times for flavouring, seasoning and as a condiment. Generally they do not form the sole ingredient of a dish. They also have many uses in medicine as they possess antiseptic and bactericidal properties, principally.

Leek (*Allium porrum* linn) is another very old plant of the genus cultivated for thousands of years. It is a robust perennial herb of the Mediterranean regions having rather thick, flat, broad and massive leaves and small bulbs. The leaf bases are mild flavoured, edible and are often bunched and used like asparagus. They are mainly used in salads and for seasoning. Their use in kitchen is quite like that of the lettuce.

Chives (*Allium schooroprasum*) are hardy perennial herbs, growing in dense clumps. They have hollow cylindrical leaves and very small,

clustered bulbs and rather dense umbels of rose coloured flowers. The young leaves and the bulbs are used for seasoning. Shallots (*Allium ascalontum* linn) are also perennial herbs that do not grow in clumps. They have large clustered bulbs and cylindrical, hollow leaves that are short and oval shaped. The bulbs are much used in pickling.

In every one these famous plants of culinary art as well as drug trade, there are quite a few other varieties and related plants. Most of them do occur in India though many of us do not know this and much less appreciate or utilise them. It is because of these reasons it becomes necessary to take special efforts to publise these neglected boons of our backyards.

This is what is attempted below in some detail.

A very important factor one should keep in mind while discussing these plants is as follows. As indicated above these have been in use by man for several thousands of years. In fact some of them are not found at all in the wild stage, now; they occur solely as cultivated plants. During the course of this long association with them man has found quite a large number of uses to them for many of his ailments. Ayurveda as well as folk lore medicine offer a host of such diverse uses and efficiencies. It is significant to note that many of these age old claims have been justified by the vigorous trials and investigations of Modern Medicine. In fact practitioners of modern medicine also prescribe some medicines prepared with these plants as an

ingredient or the sole component. Rasana pills which are made of deodorised garlics is but just one of the many illustrations that can be given.

In general, onions and garlics are very common all over India by themselves as well as in their many cultivated varieties. The others in the list such as leek, chive and shallot are not so familiar.

A. ONION

The well known herb of onion grows to a height of 2-3 ft. Its leaves are rich green, tubular, elongated and tapering at the end where it is likely to become yellow first. From the middle of their clump the green cylindrical and hollow or tubular scape comes out growing to a height of nearly three feet. This bears at the end, the dome shaped or an umbel of small, white, stalked flowers. The bulb remains underground below. The plant flowers at the end of the cold season and produces the characteristically small seeds which are often mistakenly called *Kalaunzi* seeds; the true *kalaunzi* is an altogether different plants, *Nigella sativum* linn. The seeds are black, triangular and pungent.

Onion is believed to have been first evolved in Central Asia. But it has spread from there to all over the world. From nearly four thousand years it is known to be under cultivation; in fact, it is now known only as a cultivated crop, there being no wild varieties. It is propagated either by planting the bulbs or sowing the seeds. In the cultivated onions however there are quite a few varieties. These differ

mainly in colour, smell, taste and the like of the bulb. Mostly the bulbs are round and egg like; occasionally one meets with rather flatish bulbs. Colours are white or red most commonly but occasionally brownish or even yellow. There are big and small varieties also. A few varieties have distinctive trade names; some of the famous ones are Karachi Onions, Bombay onions and Bellary Onions, all large and very succulent and much praised as vegetables; all of them have long standing or keeping quality. Patna onions (*Patania*) are white, both small and big in size. The smaller white onions are called Horse's onion; the red and the big ones are also called the Royal onions. The white onions are more preferred for medicinal purposes but the smaller onions have greater content of vitamin C than the bigger ones.

The characteristic smell of the bulb resides in all onions. But it is less in the white and the big variety; in fact in its qualities and actions as well, the white onions are milder compared to the red ones. The smell is less in the tender bulbs as compared to the older and the mature ones. A completely smell-less white variety has been developed in America. This is extensively cultivated there and called Grenexe. One who eats them does not develop at all any foul smell peculiar to onion. However this variety is used only as a vegetable and not in any medicine. The cooked onions is less smelling and excitatory as compared to the raw ones. If onions are roasted under a cover of hot sand, the smell gets still reduced. But the cooked or the roasted onions lose

10 to 60 per cent of their vitamin C content and they also become promotive of *pitta* aggravation. The raw onion which is violently smelling is most effective antiseptically, more powerful and therefore medicinally more preferable.

Onion has been in use as an article of food as well as in medicine since very ancient times. All the classical authors of Ayurveda like Charaka, Sushruta, Harita, Vagbhata and so on, give extensive mention of onion in their works.

When purchasing onions as a vegetable, select the bulbs that are uniformly round, bright in colour and fresh. The keeping quality of the onion is very good. It also stands long and rough transport. Because of these reasons it is a favourite article of trade, everywhere. In ordinary temperature, it may lose some of its vitamin C contents only after a long duration of several months. They are best stored in the kitchen, hung within a bag of loose and large meshes or perforated buckets of iron wire. This will ensure enough aeration. When stored straight on ground or in wet places, they are likely to start either producing roots or become stale or attacked with fungi. With proper care onions can be preserved for 12 months or even more. But they cannot be fully dried, under any circumstance, as the water content is too high. Being covered by a thin colourless outer skin, the bulbs will not emit any smell as such. But when this skin is removed, the inner fleshy leaves are cut or injured, the smell starts getting emitted. This odour is pungent;

irritating and smarting to the eyes which will shed tears then, as every one knows.

The ancient use of onion is well recorded. An Egyptian mummy was having an onion in its hand which could then be taken out and made to germinate! Herodotos, the greek historian records that "sixteen hundred talents (a currency of those times) were spent on garlicks, onions and radishes for the workers employed in building the pyramids of Egypt." In fact, the role that garlic and onions played in Egyptian culture was something quite unusual; an ancient Egyptian was likely to call garlicks and onions as their witnesses in taking oaths, as if they were something like Gods. Even the old Testament of Bible has a passage "We remember the fish, which we did eat freely in Egypt and Cucumbers and the Melons and the Leeks and the Onions and the Garlic".

Onions have two fields of importance viz. as a food and as a medicine.

Food Value

The great food value of onion has been always recognised. They have been ever regarded as essential in the food of the labourers and all those whose employment involves much of physical exercise and hardship. This opinion was strongly held by the administration of Rome so that they served onions regularly to their labourers and soldiers to increase the strength of the former and the courage of the latter. Even in modern times now

onions are the chief source of nourishment to working class almost every where. The nourishing value of onions has been highly extolled in the following words by Sir John Sinclair in his "Code of Health and Longevity": "Onions can never be sufficiently recommended; they possess more nourishment than perhaps any other vegetable. It is a well known fact that a Highlander, with a few onions in his pocket, and a crust of bread or a bit of a cake can work or travel to an almost incredible extent two or three days together without any other sort of food whatsoever. The French are aware of this, the soup a l'orignon is now universally in use after all meetings and dances as the best of all restoratives. Garlics, of all plants, has the greatest strength, affords more nourishment and supplies more spirits to those who eat little flesh".

It is quite easy to find Indian parallels to this situation; a few *Roti* pieces or Javar *bhakri* or a little rice and the ever accompanying onion is all the staple food of many of our rustic workers. The inhabitants of a few districts of France eat garlic with some fresh butter every day in the whole spring season so as to continue to stay healthy and vigorous all the year round. A very beneficial way of eating onions is to eat them raw as follows: Cut them well, add a little lemon juice and also some black pepper or a little chilly and salt and then consume as a salad. By this way one can secure the greatest amount of juice and also maximum amount of vitamins. If the onions are cut fine, soaked for a little time in butter milk, washed and

then cooked and eaten, neither the foul smell will be there nor a great loss of vitamins.

Medicinal Reputation

The use of onion in medicine is well recorded since very ancient times and in all lands and in a very many way. It is true to say that there is no book on medicine, Indian, Chinese, Arabic, Egyptian or Greek which does not contain a long chapter on the multifarious uses of onion and garlic.

"Onions are a kind of all round good medicine. A whole onion eaten at bed time will by the next morning break the severest cold. They remove inflammation and hoarseness of voice. The fresh juice secured by mashing an onion is a remarkable smelling substance to quieten the most nervous person. Inhaling this strong odour for a few minutes will dull the sense of smell, weaken the nerves till sleep ensues by sheer exhaustion". Using onion in any type of ague (or pain) is very old. In many severe nervous diseases, both onions and garlicks are well mentioned to have been used. It is beneficial to take onions then regularly, preferably boiled, once or twice daily. The juice of onions diluted with water was given to those who suddenly became speechless and dumb. Pliny, an ancient Roman historian records the use of onions to keep awake persons who had fallen into a state of lethargy.

Before we go to some details it will be useful to have an over- all view of the general medicinal reputation of onion.

Onions and leeks have a narcotic (sleep or stupour inducing) effect and can therefore be usefully given to persons who suffer from sleeplessness. Onions offer a considerable relief in neuralgia (pain along the nerves), headache and migraine (the pain affecting only on one half of the head or face). For this purpose they are given internally or applied as a poultice over the regions of pain. They are used beneficially in dyspepsia or mild indigestion. In small or requisite dose, they excite appetite in food, remove catarrh (common cold), overcome flatulence (morbid gas collection and swellings of the belly) and generally improve digestion. Napoleon, who was a patient of indigestion was partial to onion and it is said, he indulged in a hurried meal of mutton and onion before the battle of Lelpaic. It is believed that the subsequent attack of dyspepsia, brought about by the very manner of eating rather than the onions as such, brought about his defeat. Chewed with bread, onions are found beneficial in inflammations, ulceration of mouth and gums and tooth ache. Onions are habitually used in gout; their regular use over the years is believed to keep off this painful disease. Cases of consumptions respond favourably to the judicious use of onions. The juice arrests all forms of bleeding and can be usefully employed with a lint in bleeding nose. As onions are good diuretics (which cause profuse urination), they are effective in urinary disorders.

This is specially, so in ascitis (morbid collection of water in the abdomen, jalodara) which can be cured by the sole use of onions. A very useful way by

which onions bring about their effect is to cause profuse perspiration, thereby removing much undesirable wastes from the body. Seamen of the ships often suffer from suppression of perspiration owing to frequent changes in the weather at sea. Onions are advised to be eaten by them in plenty. Scurvy is a painful disease of spongy gums, shaky teeth and foul breath caused by prolonged use of food deficient in mineral salts and vitamin C. This is again common among the seamen. Onions being rich in both are a good remedy here. Because of their laxative property, sliced onions mixed with curds are taken for the relief of piles. The juice of onion mixed with honey is applied to the hairs to bring about their rich growth and change their colour from grey to black.

Onions can be used in many ways. Ground as a pulp they are used as condiment in many vegetable and meat dishes. Cooking removes their acidity and strong odour by evaporating their volatile oil. The bulbs will become sweet and demulcent (soothing) and they add to the taste of the dish. Raw onions cut and chopped are a good addition to the salad of tomatoes, carrot, cucumber and the like. Sometimes they are mixed with vinegar or tamarind which heightens the taste. Sliced onions are very commonly cooked with brinjals, potatoes, ladies finger and many other vegetables. Sliced onions fried in butter along with eggs or mushrooms are said to form tasty dishes. Whole onions are cooked alone and used as any other vegetable. Raw or boiled onions pickled with vinegar or mustard make

a highly tasteful pickle. There are varieties of onion specially meant for pickling. This is carried out on a commercial scale in America.

Here is a recipe for a Delhi or a Celestial onion and garlic chutney that can be preserved and used for years together, one hundred years as they, the authors, would have us believe! "Take of green mangoes, raisins, mustard seeds, salt, green ginger or garlic (each one *ser*), onions (half a *ser*), dried red chillies (half to one *ser*), soft sugar (1 *ser*) and white vinegar (4 bottles). Ginger, garlic and onion are to be peeled, cut into thin pieces and ground together. The mustard seeds are to be washed, dried and then gently bruised and winnowed. The raisins are to be washed, dried, and cleaned from extraneous matters such as stems, sticks etc. Sugar is to be made into a thick syrup. The outer skin of the mangoes is to be removed and cut into thin slices and pounded. Some however boil them in the three bottles of vinegar adding the fourth when mixing it with the other ingredients. The remaining articles are to be separately pounded and then the whole is to be incorporated, put into a stoneware jar, tightly closed and placed in the sun for a month or two. If stored in a bottle it is to be occasionally kept in the sun."

Cautions in the Use of Onion

The many good qualities of onions should not lead one to their excessive use either in frequency or amount and much less than one should replace other articles of diet by onions. It is necessary that

one should always be moderate in their use. Besides, those who are of nervous nature and excitable temper should use them only in small quantities. Otherwise they are likely to suffer from excessive thirst, headache and turbulent dreams. Persons of phlegmatic (or *kapha*) temperament and "languid circulation can use them more often and in larger quantities. In such persons, onions excite the appetite, bring out the phlegm, clear the complexion, stimulate the perspiration and act as a general tonic".

One onion a day of the size of an egg is, in general, salutary to a healthy adult.

Some House hold Remedies

Onion bulbs are used in fever, dropsy and chronic bronchitis. Along with salt they form a remedy in colic (twisting stomach pains) and scurvy. Roasted or even raw, they are applied as a poultice to non healing boils, bruises, wounds and lesions to lessen the heat, the burning and also to heal. Onion juice is used like smelling salts in fainting, convulsions in children and epileptic or hysterical fits. It is applied hot to the soles of the feet in convulsive disorders. It is an antidote in tobacco poisoning. Mixed with an equal amount of mustard oil, it is beneficially applied for rheumatic pains and in inflammatory swellings and also for skin diseases in general. Onions are eaten to get rid of the cough in tuberculosis. Mixed with vinegar they relieve sore-throat. In malarial fevers they are eaten twice a day with 2 or 3 grains of black pepper;

the relief secured is remarkable and sure. Onions eaten with jaggery stimulate growth in children. Onions, *jeera* (cumin seeds), sugar candy and cow's ghee mixed together is a good soothing agent in piles-of the bleeding as well as the non bleeding variety. Specially in the former they will also help in curtailing bleeding.

Medicinal Importance

General Features

Ayurveda considers onions as heavy for digestion, acute in action, unctuous or oily in nature, sweet in taste as well as in post assimilatory effect (or *vipaka*) and not hot or only slightly hot in potency. It has a palliative effect on *vata* and its aggravations. It stimulates digestive power and is good for stomach and is regulatory of digestive tract (*anulomana*: slightly purging). It augments the *doshas* of *pitta* as well as *kapha* to a slight degree.

It is diuretic (stimulative of profuse urination), stimulative to liver, analgesic (or a killer of pain) scarifying and stimulative of the blood vessels and their circulatory system. It is styptic i.e. constricts the tissues and thus stops bleeding and is foul smelling. It removes out oedema (unhealthy swellings), brings about a dissolution of oedemas and wounds, eradicates the vitiations of skin and if given in small quantities it expels phlegm or *kapha*. It promotes the formation of sperms as well as oestrous secretion and is a reputed aphrodisiac

(stimulative of the urge of sex) and also a virilifying drug. It propitiates general vigour or *ojas*, expels the vitiations of *pitta* and establishes colouration (*rajah sthapantiya*) in the body. It is employed with beneficial results in many diseases. A few of these diseases are: many serious disorders of *vata* (eg. nervous pains in general), sciatica or *gridhrast* (i.e. the very painful inflammation of the great sciatic nerve passing down the back of the leg); rheumatism and epilepsy in women (that often accompanies child birth) and also hydrophobia (due to the biting of a rabid dog); feeble digestive ability and constipation; piles; jaundice; prolapse of the rectum; cough; seminal debility as well as impotence; and, weakness of the heart as well as in haemorrhage or bleeding.

Onion is particularly beneficial in the over-all build of the body and the beauty of its complexion. It promotes the development of blood in the body as well as its proper circulation throughout. It is specifically helpful in bringing out the beauty in women. Shodala, a classical author on Ayurveda of the recent past goes into rhapsody in extolling its magnificent actions in aiding the cosmetics of the beautiful ladies of the Shaka community amongst whom its use was most prevalent in those times.

There is a difference in the medicative action of the two principal varieties of onion: the white and the red. *White Onion*: This is a heavy for digestion, sweet in taste, relishable, mucilaginous and mucous promotive; unctuous or oily; brings about a

taste in food and stabilises and strengthens the constituents of the body. It is strengthening and highly nourishing to body; and is promotive of intellect; causative of phlegm or *kapha* and quietens pain anywhere in the body.

It is beneficial in *rakta pitta* or plethora (where spontaneous rupture of blood vessels and bleeding occur for instance, at the nose or the rectum) and phlegmatic cough. *Red Onion*: This is also heavy for digestion, powerful in action, cold in quality, unctuous and stimulative of digestion. It destroys *pitta* aggravation, expels phlegm and is highly virilifying. Its use promotes excess of sleep. It is strengthening and good in curing a dryness of the throat.

Individual Applications

There are innumerable ways in which onion constitutes a sole or an important component drug of very valuable household remedies. A few of them are indicated below.

In neurogenic pains anywhere in the body and in oedematous conditions accompanying any wound or abscess, onions are crushed into a paste or its *kalka* is obtained; this is kept in a cooling leaf (such as a banana leaf), warmed up comfortably or even a little more and then tied as a poultice over the region concerned preferably before going to bed. Most usually, there will be a perceptible relief the next morning itself.

Skin is likely to be often disfigured by moles (*nyaccha*) freckles, white leprous spots (*klasa*), and local deficiencies (*vyanga*). These will be most unwelcome if they occur at the face region. Freshly extracted juice or a *kalka* or onion is applied on them; the resulting beneficial action is considered to be an *udvartana* or a forcible bursting out attended by their disappearance. Onion is thus a very good cosmetic agent.

In the troubles of gas at the abdomen, specially when it forms a painful local collection (*vayu gola*), shooting pains of the stomach, flatulence of the belly or a morbid collection of gases within, resulting in a bloating out as it were or *adhmana*, freshly extracted juice or onion is given as a drink along with a small quantity of powdered *hing*, (*asafoetida*) and a pinch of salt.

For bleeding nose (*nakstr*) one is made to smell the juice of onion or is given a nasal drug or an errhine, of onion. Harita, a celebrated author on Ayurveda recommends that the fresh juice extracted from the leaves of onion is the best remedy for this purpose.

As a cure for insomnia or sleeplessness, raw onions are advised to be eaten or a particularly strong smelling onion is tied behind the neck of the patient. For curing headache, onion is crushed fine and applied at the soles of the feet. In cases of severe stomach pain, an onion is roasted, crushed, its juice is extracted and given as a drink with a pinch of salt.

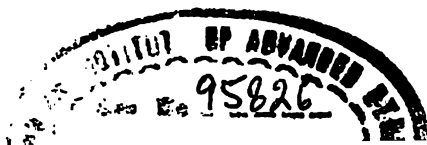
During urinary disorders quite often there is a burning sensation at the time of the passing of urine. A simple procedure to overcome this is the following. Six *mashas** of onion are cooked in half a *ser* of water till the quantity of the latter gets reduced to half. This is then cooled, filtered and given as a drink. In cases of goitre, onion is ground very fine and applied over the throat. For cases of nicotine poisoning or for instance to get relief from the distress and the anxiety a person suffers from, when he is forcefully given tobacco, giving one or two spoonfuls of onion juice will be immediately beneficial. For the patients of feeble digestive power, indigestion, splenic enlargement and jaundice, onion is cooked with vinegar and given to be eaten. To set right the constipation, three onions of ordinary size are ground along with a fistful of tender leaves of tamarind to prepare a chutney and given as a dish. To get rid of severe itching or even *eczema*, onions are gound with wine and applied. In rheumatic and other joint pains, general sensations of itching, discomfort and the like, sensation of burning and many other minor afflictions of the

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- * The modern equivalents of the traditional units of weight measurements in the Text henceforth are as follows:

1 *rattl* = 1 *gunza* (a seed of *Abrus precatorius*), 8 *gunzas*

= 1 *masha*, 10 *mashas* = 1 *tola*; 24 *tolas* = 1 *ser*, 1 *tola*

= 10 gram; 1 drachm (dram) = 1/12 of an ounce, 1 ounce is 1/12th of a pound troy = 480 grains.



skin, the juice of onion is mixed with mustard oil and a massaging is done with it over the parts concerned. Chewing onion along with salt will give a good relief for the inflammation of the gums. It will also destroy the germs responsible for the inflammation.

Phlegmatic complaints not accompanied with fever respond very well for a medication with onion in the aged as well as the children. For children the juice of raw onion is given as an electuary to be licked along with a bit of sugar candy and after making it slightly warm. This is cooled and given to the aged and the mothers. The regulative function (*anulomana*) of onion is most dependable and unfailing. For an expulsion of *kapha* or phlegm, this is a very excellent medicine. It confers its benefit at three distinct levels; it dilutes the phlegm, relieves the agitatedness in the mind and prevents the formation of fresh phlegm. The actions occur when the oily content of the oil is expelled out during expectoration, from out of the lungs.

In general, the employment of onion reduces the *vata* component of the body, expels out the *pitta* or the bile and destroys the *kapha* or the phlegm. It is thus playing an useful role in the aggravation of all the three *doshas* or vitiations of the body. It is also useful for patients of all ages. For young children and the mothers it thins down the phlegm and expels it and also mitigates their agitatedness. In chronic phlegmatic diseases of the adolescent this is as effective as *guggul* or *Commiphora mukul* Engl.

For the respiratory and the asthmatic complaints of the aged, this is a highly beneficial drug. Its employment augments the activity of the intestines and the bowels will therefore become clear and clean thereby. Its use is attended by a wholesome effect in the patients of piles and also the prolapse of the rectum.

The effect of the juice of onion on the diseases of skin has been seen to be more potent and beneficial than even the calcium sulphide that is usually recommended for this purpose. In glandular swellings; boils, eruptions and pimples; and, in goitre, cut pieces of onion are fried in ghee and then applied or a massaging with its juice is resorted to.

The virulently pungent and the smarting volatile oil found in the onion bulb has the property of stimulation, excitation, diuresis and causing an expulsion of phlegm. This has been found to be advantageously utilised in the cases of various types of fever, ascitis (collection of morbid fluid in the belly and its consequent bloating or *jalodara*), common cold, and old, chronic bronchitis or the inflammation of the bronchii or the wind pipes. Its use confers an appreciable benefit in the colicky or the twisting, intolerable and shooting pains of the stomach and also in scurvy, a disease marked by bleeding and sponginess of the gums due to the lack of vitamin C.

The use of onion has been considered to be stimulative of the urge of sex. Eating the bulbs raw has been noticed to bring about a desirable

regularity in menstruation among the ladies. To mitigate the severe burning sensation brought about by the biting of poisonous insects, a rubbing of the area with its juice is carried out with success.

We shall now discuss in some detail the use of onion as a household remedy in a few particular clinical conditions.

1. In the Diseases of the Ear

For the shooting pains in the ear, take a big sized white onion, cook it in the hot cinders or the ashes of the fireplate (*chulah*), remove the outer scales of the bulb and place the core of its within the ear, when it is still comfortably hot. Or, crush a hot onion, extract its juice and use this as an ear drop or apply similarly a warmed up fresh juice of the bulb. If along with this, vinegar and rose water are mixed in equal proportions, made luke warm and then dropped in the ear, the effect will be better. Adding a drop of opium to this will give an immediate relief to a severe aching.

If it is a case of continued oozing or discharge of pus from the ear, clean the area concerned with a swab of clean cotton and give three to four drops of freshly extracted juice of onion daily. If the disease has become chronic or the resistance power of the patient is feeble, such a measure may have to be continued for months together even, to get rid of the affliction completely. But there is no failure for this measure; complete healing is assured. To increase the resistance power of the patient, a nourishing

food is also advised to be given. Raw onions should form an important ingredient of this diet.

It is believed that even deafness may show some improvement by a regular practice of using a few drops of the onion juice in the ear.

2. In Cholera

Take 6 *mashas* of the onion juice, 1 *ratti* of red dried chilly, 2 *rattis* of comphor, and 2-1/2 *tolas* of lime or *banana* water. Mix them all together and keep giving it to the patient at an interval of every fifteen or thirty minutes. Vomiting and nausea as well as loose motion will get stopped and the spasms and the convulsions of the body will cease down. Just onion juice and clear lime water will also do for this purpose.

Another recipe is as follow. Take 2-1/2 *tolas* of the onion juice. Mix with it seven grains of black pepper so thoroughly that there would be no need to filter. Give this to the patient in as much water as he can hold in comfortably. As soon as the mixture enters the stomach, his thirst and agitatedness will disappear, the purging will stop and he will start recovering quite soon. It is quite likely that there would be no need to give this medicine a second time; the recovery becomes so apparent. If a need is felt, one can add a pinch of sugar candy with this drug. The beneficial effect improves markedly.

Or, let the patient keep one *ratti* of camphor in the mouth and drink over it one *tola* of onion juice.

This will set right even incurable affliction of cholera.

One more recipe is to crush the onion very much, extract the juice thereby and administer a spoonful of this at an interval of every ten or fifteen minutes drop by drop. This is to be continued till the vomiting stops, not reducing the interval of the administration at all. If the vomiting stops, the juice gets digested and the interval may then be lengthened to half an hour or to even one hour; the dosage is half the original quantity. If there is a complete stopping of vomiting, it is enough if the medicine is given after an interval of four to five hours.

There is a practice of keeping broken pieces of onion at different places in the house or to make a garland of onions to be hung over the doors as a preventive measure during an epidemic of cholera.

A diet advised during an outbreak of cholera is to cut the onion into small pieces, wash them in as little water as needed, add with them a required amount of vinegar and salt and eat them with fresh *rotis*, or keep drinking two *tolas* of onion juice after the meals at night adding to it a little bit of roasted *hing*, *sounf* and coriander powder.

3. In Diarrhoea and Dysentry

Get the bowels of the patient cleaned by a mild laxative. Then give to the patient an onion to eat after placing within it a *ratti* amount of opium and

roasting it in warm sand, or add half a *rattl* of opium in six *mashas* of the onion juice and give it two to three times a day as a drink to the patient. By this measure even *raktatisra* (dysentery accompanied with bleeding) will stop. Or, an onion is to be taken, cut into fine pieces, washed four to five times in water, and then given to be eaten along with curds prepared in a vessel of bell metal out of the cow's milk. This will stop dysentery accompanied with tenesmus (*av* in Hindi). During this period the patient should be given a dietary regimen of curds, rice and sugar candy. Administering this three times a day will control even violent dysentery as well as diarrhoea within about three days.

4. As a Virilifying Drug

It is the white onion that is to be chosen for this purpose. Prepare a *sherbet* from out of twenty *tolas* each of the juice of this onion and honey along with ten *tolas* of sugar. A daily dosage of two and half *tolas* of this medicine will render a person strong and highly virile.

Many other onion recipes exist towards this purpose. A few of these are as follows;

Six *mashas* of onion juice, four *mashas* of cow's ghee, three *mashas* of honey are to be mixed together and licked up as an electuary once in the morning and another time in the night; this total quantity being one dose. In addition, a cup of milk is to be drunk at night. This is not merely a virilifying drug but also acts as a cure for impotency.

gonorrhea and spermatorrhoea (*prameha*, wherein sperms accompany the urine discharge).

Take two *sers* of unhusked black gram (*udad dal*) in the morning and mix with it two *sers* of onion juice. Dry them under sun and after the drying is complete, add again another two *sers* of onion juice and dry as before. Continue to do so, till you consume about forty *sers* of onion juice this way. The final grains treated repeatedly in this manner (*bhavana*) are to be stored in a bottle.

Out of this, ten *tolas* of the grains, cook them well in forty *tolas* of milk of cow or buffalo add one *tola* of ghee and two *tolas* of sugar candy or sugar. Continue taking this dosage in the morning for a duration of forty days and consume whatever quantity of grains that still remain finally. Be celibate through out this period. Such a measure will overcome all seminal aberrations and confer a great virilification.

A simple recipe in the cold season is to take half a spoonful of onion juice mixed with one spoonful of honey. This makes the body strong, well nourished and invigorated.

Take two and a half *tolas* of onion juice, and five *tolas* of pure ghee, mix together, cook and prepare a decoction. This is to be drunk continuously for some time. Just after a few doses of taking this medicine, the whole body becomes red. This is a very virilyfying medication and therefore should be taken with great caution and care.

Take three to six *mashas* of the juice of the white onion, honey and the juice of ginger together, add to them three *mashas* of cow's ghee. Consume this morning and evening. Within twenty one days, there will be a noticeable increase in semen content, augmentation in personal beauty as well as power of memory and the vigour of body. The mood remains complascent and highly gratified, as a result of the intake of this medicine.

5. In Difficulties in Urination (*mutra kriccha*), Urinary Stones and Ascitis

In cases where urination occurs only in drops and is also accompanied with great difficulty, take an onion roasted in hot sand, cut it open and tie it over the bladder region in a comfortably hot state. This will make the retained urine, specially in children to come out. For the elderly patients, along with this measure, take two *tolas* of onion, slit them open and cook in forty *tolas* of water and when the latter becomes reduced to half the quantity, cool down, filter and then give it as a drink. This would remove difficult urination accompanied with burning.

In cases of stones in the urine, cut onion bulbs, wash them in water, extract two *tolas* of juice from them, add five *tolas* of sugar candy and make it as a drink. Continue this treatment once a day either in the evening or in the morning for a few days. The stones will break down and the urination becomes normal. Adding a little of the alkali or *kalmi shora* or

purified potassium nitrate or *yavakshara* (*kshara* extracted from barley or nitrate of potash), will improve the effect of the medication.

In ascitis, take the bulbs of onion, paste around them in coating of wet mud and cook in a fire of rice husk. This is to be taken then by the patient regularly. He is sure to secure appreciable relief thereby.

6. In Piles

If the piles are due to *kapha* or *vata*, take the onion and pare it into thin shavings, dry these bits in sun and then roast in cow's butter. Take one *tola* of it, add one or two *mashas* of white sesame seeds and two *tolas* of sugar candy. Give this to the patient every day in the morning and let him drink a cup of cow's milk following it. The measure proves quite beneficial.

If the haemorrhoids or the growths of the piles are paining excessively, take two ~~onions~~, roast them half in hot sand, remove, take away the outer scales, grind well in pine resin and make them into a pasty mass. Prepare small pills of this, roast them in ghee and apply over the growths. Immediate relief will be sure.

For bleeding piles, administer ten *tolas* of white onion juice in which two and a half *tola* of sugar candy are added as a drink, once or twice a day. This will prove beneficial. Or, roast onions under hot sand, remove their outer skin, add sugar candy, ghee and the powder of white cumin seeds (*safed*

jra). Eating this for some time will also prove advantageous.

7. In Bleeding Nose and Haemorrhage in General

To stop haemorrhage or bleeding any where, Charaka advises to take white onion cleaned and washed in buttermilk. Two other classical authors, Sushurta and Kaiyadeva also write that *kshirapa landu* or the milky white onion is the best in preventing the outflow of blood in any haemorrhage. Charaka also writes further that if onion is taken along with soup, curry or gruel (*yavagu*) or if onion alone is taken, either of this measure would prove very beneficial even in cases of extensive haemorrhage.

In the disorders based on blood such as anaemia, five *tolas* of onion juice in which one *tola* of sugar candy, and one *tola* of fried white cumin seeds are added is to be drunk daily.

When the nose has started bleeding, giving as an errhine (i.e. a nasal drug) the following will prove beneficial. Juice of onion bulb or its leaves as such or after being roasted in buffaloe's or goat's ghee. This is a recommendation that occurs both in Harita samhita as well as Charaka samhita.

8. In Respiratory Disorders

A decoction of onion prepared by boiling six *mashas* of onion in forty *tolas* of water till the latter is reduced to one fourth of its original quantity will

remove the vitiated phlegm of the patient, of cough. He will secure a great relief from his distress quite soon. Even its *sherbet* proves beneficial in chronic, persistent cough as well as common cold. Both of them will also greatly reduce the sufferings of consumptive coughing. Charaka advises the giving of the onion juice as an *errhire* - a nasal drug to smell, in cases of severe hiccup. The severity of hiccup is reduced well.

In asthmatic cough due to the aggravation of *pitta* or associated with *pitta* or the disorders of bile, take two *tolas* of onion pieces, repeatedly dip them in pure honey and let the patient eat them early in the morning before sun rise. This is to be continued for forty days. Such a measure will prove beneficial undoubtedly.

In difficulties of breathing or dyspnoea, take forty *tolas* each of onion juice, lemon juice and the freshly extracted juice of *saha devl* (*Vernonia cinerea* less). twenty five *tolas* of powder of the rind of wild pomegranate (*jangliantar*), twenty *tolas* of *gulkhand*, two *tolas* of ginger powder and fifteen *tolas* of pure honey. Mix them all together and store in a porcelain container safely. This is to be taken in a dosage of two *tolas* morning and evening. It is enough if it is taken for a fortnight. The benefit is quite quick.

A particularly effective recipe in dyspnea is the one prepared from wild onion. One *ser* of these onions are to be taken, finely chopped and placed in

an earthenware vessel. This is to be wrapped around with moist earth (*kapadmotti karna*), after pouring in two sers of pure vinegar, and closing it tight. Keep it as such for forty days. Open it then, sift through a fine cloth, add double the quantity of country sugar and cook in the closed fire of an oven. When the stuff becomes thick enough like an electuary (*a lehya*), remove from the fire, cool down and store in a container made up of bell metal (*kanch*). This is to be given in dosage of 1 *tola*. If the affliction of asthma is dry, adding a distillation of *gojava* (*gojthva* or *Caccinia glauca* sav) would prove beneficial. This will show its wholesome effect within seven days.

Metallic ashes prepared with the assistance of onion juice are quite useful in many respiratory disorders of continued coughing as well as the diseases of lung.

For hoarseness of voice, crush an onion after baking it in fire. Give two *rattis* of borax (*suhag*) to the patient first and then let him eat this crushed onion over it. His voice will soon become normal.

In the diseases of the lung, give six *mashas* of onion juice together with three *mashas* each of honey and ghee as a drink morning and evening. Before going to bed, the patient should also drink half a ser of boiled milk with sugar. This is to be adopted for one to two months.

It has been seen that taking the juice of onion or eating raw onion with salt is beneficial in

consumption; the tuberculosis germs get killed thereby.

9. In the Disorders of Spleen, Liver and Jaundice

Onion is employed in Cambodia and Vietnam, for most cases of disorders of bile. In splenic enlargements, good, fresh onions are taken, their outer thin papery skin taken out, and these are now drowned in hot salty water and kept so, for one to two days. Take them out, dry and store in a clean dry porcelain vessel after pouring in that much quantity of vinegar syrup as to keep them always drowned. Add salt, powder of black pepper and pieces of raddish. This pickle of onion is to be served to the patient of splenic enlargement.

Such a pickle is very digestive, appetising as well as augmentive of hunger as well as the power of stomach. It also proves beneficial in anaemia and controlling the tendency for vomiting.

For a patient of splenic enlargement, cook the onions on fire, keep them overnight exposed to the dew and let him eat them the next day morning. This proves beneficial.

In cases of anaemia, when the whole body has become pale due to the lack or deficiency of blood, a simple recipe is quite efficacious. This is to keep giving such a patient a drink of the white onion juice, jaggery and turmeric powder morning and evening. This same drink is also useful in jaundice.

10. In Billiousness, Acidity, Epilepsy and the Like

Cut the white onion into fine pieces, add sweet curds and a little sugar. Eating this will mitigate the disorders that arise due to the aggravation of bile or *pitṭa*. This is a good measure to calm down the burning at the throat that is a common accompaniment of the acidity of the stomach.

If the body has become much heated, taking roasted white onion ground along with cumin seeds (*jīra*) and sugar candy in two *tolas* of cow's ghee will prove salutary.

If one gets affected with *lu* (the heat wave of the summer days), a gentle massaging is done with fresh onion juice at the temples, the forehead and the chest. Simultaneously a roasted and an unroasted onion are ground together to a fine degree, two *mashas* of cumin powder and two *tolas* of sugar candy are added to it and this paste is given to be licked by the patient.

In fact, during the season of *lu*, onions are advised to be kept in the pocket, and to be eaten raw if needed. For children, a garland of onions is hung around their neck.

In cases of insanity the onion juice is applied as a colyrium to the eyes. In cases of swooning and hysteria accompanying child birth, onion juice is repeatedly applied to the nose ring or is given drop by drop into the nostrils.

For persons likely or prone to get epileptic fits, eight *tolas* of onion juice are given as a drink daily. This is expected to act as a prophylactic measure.

For intermittent fever due to *vata* or in the attack of malarial fever, take a small sized onion, slit it open lengthwise, place a *ratti* of opium in the centre and cook in the manner of *putapaka*. When it becomes cool, give it to the patient before the expected onset of fever. The onset may not come about at all. Another recipe is to let him eat two to four *tolas* of onion with three to four black pepper grains twice a day.

11. In the Diseases of Eyes

In the early stages of cataract (*motiya blind*) equal parts of the juice of onion and pure honey are taken, a quarter amount of *bhimsent* camphor is added to it and this mixture is applied as a colyrium at night, before going to bed. Such a measure administered for a few days will stop down the spreading cataract. In case *bhimsent* camphor is not available, onion juice and honey alone will do. This is an useful medication for feebleness of vision and pains at the eyes.

A special eye ointment or *surma* that is useful in disorders of vision in general is as follows: Take five *tolas* of black *surma*, dilute it daily in onion juice and dry and do so for three days and store. As you apply this to the eyes by means of the colyrium needle, there will be a relief for paining eyes.

haziness of vision (*dundh*), a net like appearance at the eyes (*kaala*) and cataract.

If there are eruptions, pimples or styne at the eyes, pieces of onion are tied over them. In cases of night blindness when the patient cannot see at night though he can very well do so during the day, drops of fresh onion juice are placed at the eyes.

12. In Rheumatic Pains and Hardness of the Vessels or Atherosclerosis

The regions of gout or rheumatism are massaged with onion juice mixed with an equal amount of mustard oil. In the famous work called *Gadanigraha*, it has been asserted that onion is next in importance in all cases of rheumatic pains; the first place however goes to garlic.

An onion is taken and its fine shavings are secured by means of a chopper, these are strained through a piece of clean cloth and the juice is obtained. An equal amount of honey is added to this juice and the mixture is stored in a cool place in an enamelled earthen ware container (*martaban*). One big spoonful of this medicine is given daily an hour earlier to meals or two to three hours after meals. This procedure is to be adopted for two months regularly. Such a medication is very beneficial in all cases of the hardness of the vessels and also for the brain. Quite likely, the benefit is secured by one such course itself. In case, full recovery is not obtained another such course can be commenced after an interval of fourteen days.

13. In Tooth ache and Others

If there is a persistent pain at the teeth or an inflammation of the gums that pains, take onion and *kalauryi* (*Nigella sativa* linn.) in equal quantity, grind them together to a fine degree, prepare pills of about six *mashas*. Keep one pill in the *chilam* and let the patient take its smoke in as one would a tobacco smoke. He should leave this smoke through mouth. Relief secured is quick.

In cases of any type of injury, a common medication known everywhere, is as follows: Grind onion and turmeric together and make a packet of it. In a small vessel, keep a little quantity of mustard oil and heat it. Go on dipping this packet in this oil repeatedly and then give a fomentation of it at a comfortably hot state in the area concerned continuously for about half an hour. Afterwards tie this as a poultice by means of a bandage. The pain will get greatly reduced and a good healing is also brought about.

To mitigate the pain and specially the burning sensation of an injury, an onion is to be split open, fried in ghee and tied in a rather hot state itself.

At the arm pits and the groins painful swellings of lymphoid spaces often arise. These are called lymphadenitis (*badganth*). If an onion paste or *kalka* is fried in oil and tied over, the swellings get spread out. If one desires to hasten their maturation, onion is roasted, a little amount of turmeric powder is added and also some amount of ghee. The mixture is now made comfortably hot and

tied up as a poultice. This is a mild and a very excellent poultice for all purposes.

14. In the Diseases of Women and Children

If it is a case where menstruation does not occur or is obstructed (*amenorrhoea* or *ruddhartava*), five *tolas* of onion are cooked in one *ser* of water, till the latter is reduced to about ten to twenty *tolas*. Then add three *tolas* of jaggery. This is to be made hot and drunk by the patient for a few days. Other recipes are: three *tolas* of onion juice are made luke warm and drunk before going to bed at night: Or, ten *tolas* of onion are cut into small pieces, *garam masala* is added to it and the whole is roasted in ghee and eaten. The obstructed menstruation will become rectified.

For breast wounds or morbid swellings there, take two and a half *tolas* of onion, place it in ten *tolas* of any sweet oil and cook. Burn a few leaves of neem and drop them in this oil. Mix them well, add a little bee's wax to make it into an ointment. This is to be applied for a few days over the region concerned. Quickly, the breasts will heal up.

For chronic stomach pains of the children, bake the onion over fire, extract the juice and keep giving this for a few days. The children will soon get relieved of their persistent distress.

In the dysentery of children, take the juice of onion, place it in a cup. Take the sticks of *peepul*, burn them and extinguish them in this juice. The

resultant charcoal is powdered fine and stored. The juice in which the *peepul* sticks are extinguished is to be given in a dosage of three *mashas*. Or, three *rattis* of the powder is thoroughly mixed up in water and drunk. The loose motion will stop. If the latter is very excessive, the juice and the powder are to be mixed together and drunk.

If the ears of the child are paining, take onion roasted in hot ash, extract its juice and give this in the form of two to three, comfortably hot drops in the ear concerned. Pain will get quietened very soon. If the eyes are paining, this juice is mixed with an equal amount of pure honey and added with a little amount of rose distillation. One to two drops of this is placed into the eye once in the morning and the next time in the evening. This will prove beneficial, but the medicine is to be prepared fresh every day.

Eating of onion and jaggery together daily will render the child well developed quickly and strong in body. His resistance power is also thereby made certain.

If the hairs are falling down in an unusual quantity (whether in the child or the adult), it is beneficial to keep applying over the head, onion ground down and mixed with honey. This is to be continued for a few days. The hairs will become firm and dense.

In children prone to frequent fits of epilepsy, the white onion is split out and its fresh bit is repeatedly kept in the nose or is made to be smelt. The

episodes of fits become warded off in this manner. This measure also gives a relief even in headache.

Occasionally the soft palatal part of the children becomes inflamed and gets displaced down towards the tongue (called *taluepat*, *talukantak*) or the uvular drop. To rectify this, white onion is roasted, ground fine, ghee is added and the mixture is now made into small flat pills. The pills are kept on the palate and tied. This is to be done daily for three days, applying them fresh every day in the evening. Along with this, the child should be given a drink of the juice of white onion mixed with a little cumin powder (*jeera*) and sugar candy.

15. In Bites of Poisonous Animals

Pound the onion bulbs well, mix a requisite amount of honey and apply in the region of the bite. Along with this are given to eat six *mashas* of a powder as one dose, made up of black pepper and white and black cumin seeds of two *mashas* each. This is given regularly for a few days and is believed to be helpful even for a bite by mad dogs.

Another method is to apply in the region of the bite, ground down onions mixed with alum (*fitkar*). In case the wound is not healing quickly, a soup of onion is given simultaneously as a drink. In cases of scorpion stings, onion is cut open, a little bit of extinguished lime is kept on it and the region of the sting is rubbed with this. The relief is quick. Or mix an equal amount of *nausadar* (sal ammoniac) to the onion juice and store in a bottle. A few drops of it

are placed on the region. This is a good and simple remedy for bites by wasps, stinging by the honey bee or the beetles.

For injuries by the centipedes (*kankhajura*) both onion and garlic are ground together and applied as a thin layer at the region.

It is presumed that a sprinkling of the house with onion water will repel poisonous creatures such as scorpions, snakes and the like and prevent their coming in as well.

16. In Treating Abscess and Wounds

Sometimes a purely localised abscess arises anywhere on the surface of the body and this persists for a long time, giving a dull continued pain, forms a hard and rather pointed swelling that neither quietens down nor ruptures. This dull abscess (*bad garth*) is best matured by using onions. Take a big sized onion, roast it in heated sand. Mix with it a spoonful of ghee and six *mashas* of turmeric powder. Heat this up and tie as a poultice kept on the bandage cloth. Next day clean the area with warm water and apply a fresh poultice similarly. Continue the treatment for four in five days. The abscess will disappear totally.

If a wound is paining, take an onion, cut it into large pieces, fry these pieces in ghee on low fire, apply and tie them over the wound while they are still rather hot. The pain will get mitigated.

17. In Sunstroke and Lu

Lu is a "wind" of hot air which commonly affects persons who move about in the very hot sun of north India.

As a preventive measure it is advisable to include eating onions during breakfast as well as the two principal meals of the day and the night. One should always keep onions in one's pocket while going out and keep smelling them at intervals.

18. As a Veterinary Medicine

Quite often from the nostrils of domestic animals like cow, ox, horses and the like, there will ooze out an excessive flow of mucous discharge. In such cases, seven bulbs of white onion and twenty *tolas* of jaggery are together given as a feed. Simultaneously an old lump of cotton is taken, a very large sized wick is made out of it. It is now burnt and its smoke is held at the nostrils, so that the latter would get fully dried up. This is to be carried out just for three days.

19. The Seeds of Onion

The small seeds obtained from the onion are sometimes called erroneously as the seeds of *kalaunji*, which are totally different, being the seeds of another plant called *Nigella sativa* Linn. These seeds of onion also have very many uses in medicine.

Ayurveda regards them as hot in quality, dry in nature, pungent in taste, and is scarifying to the body (viz. it thins and slims down). It is quite aphrodisiac (promotive of sex urge) and useful in urinary disorders and killing the germs of teeth. It is particularly aphrodisiac and invigorative to persons of cool constitution.

The seeds purify the uterus and the blood, for which purpose they are taken in along with rice kanjee or gruel. For virilyfying purposes a sweet meat (*majun*) is prepared out of them along with similar other materials and is eaten.

In cases of premature baldness, freckles, scabies, discolouring spots of the skin (*cheep*) freckles on the face (*jhayi*) and other minor deformities (*vyang*) of the skin, the seeds are ground and applied as a paste.

For ringworm (*dad*) and moles that are particularly thick and black (*chazan*) the seeds are ground down along with vinegar and applied. In the haemorrhoids of the piles, these are ground with salts and applied.

In cases for swellings and inflammations of the gums, pains at the jaw and the teeth, the seeds are kept at the *chilam* and smoked in as one does for the hookah or only the seeds are placed and kept chewed and retained under pressure at the jaws. To obviate the spots of leucoderma, the seeds are ground with cow's urine and applied.

To overcome insomnia or sleeplessness, a tea or cold infusion of the seeds is prepared and given. This is particularly helpful in quietening down a child that cries much and has become highly irritable or restless.

In any method of taking in, the preferable dosage for the onion juice is one to six *tolas* and for the powder of the seeds, one to three *mashas*. Taking them in greater dosage is likely to lead to undesirable effects such as vomiting, purging and obstruction in heart beat.

For persons of bilious constitution (*pitta prakriti*), the seeds increase thirst, bring about excessive perspiration, destroy the power of memory and are also injurious to brain. The counteracting drugs for these adverse reactions are, pomegranate juice, vinegar, salt, buttermilk, curds and honey. This is specially the advice of the yunani physicians.

In small doses the seeds expel phlegm and act as diuretic drugs, bringing about an excessive urination. But in large doses, they will cause restlessness, difficulties in urination accompaniment of blood with urination, sometimes a total obstruction of urine, intestinal burning, convulsions of the limbs and even a failure of heart and death, occasionally.

In acute burning sensations at the lungs, employing onion is ill advised; mostly this will prove injurious. In cases of aggravations of *vata*, disorders of sugar metabolism and skin and

oedemas due to the weakness of the heart, unaccompanied with fever, the seeds are employed along with another specific and famous drug digital in, for heart a desirable urination would ensure. Usually they are employed in these circumstances along with the fruits of *gular* (*Ficus glomerata*), *saunf*, the juice of fig fruit (*anjir*) and honey.

After taking onion, if lemon or orange are also taken in, the foul smell of the mouth will get obviated. An important caution to be remembered in connection with the use of onion is that it is contraindicated and therefore not to be taken along with meals by patients of syphilis, the venereal disease and also of difficult urination (*mutra kricchra*) and skin diseases. As it is essentially an excitatory diet, persons of feeble constitution will do better by avoiding taking onion along with food.

Yunani Opinion

Yunani physicians also recommend the use of onions for dissolution of morbid swellings, promotion of digestion and mitigation of vitiations and also expulsion and removal of phlegm. They also regard it as highly promotive of the urge of sex and specially effective in setting right the urinogenital disorders. They recommend the use of onion much in the treatment of wounds, inflammations and ulcers in general.

An excessive use of onion is regarded as injurious to brain. As an aphrodisiac a *sherbet* is prepared from the juice of onion. For an invigorating drink,

onion juice, honey and ghee are mixed in equal proportions and drunk. To reduce the violence of the outgrowths of the piles, onion is crushed into a paste and applied or even tied there with a bandage. In the days of an epidemic outbreak of cholera, onion juice is mixed with lime water, kept in store and drunk as and when needed. To get relief from defect in vision and haziness (*dundh*) onion juice alone or mixed with an equal quantity of honey is used in the form of a colyrium. A good advice given to the travellers to guard themselves against frequent changes of weather and water that they have to necessarily face is to keep onions with them always, use them as such in the raw or frequently consume onion pickles.

It is the seeds of onion that are mixed with many sweet preparations (*majun*) and eaten as an aphrodisiac and also more importantly to treat the impotent. Impotency is believed to be definitely rectified by its regular use. For treating the haemorrhoids of piles, onion is mixed with vinegar as well as a little salt and then applied. Onion is presumed to be particularly aphrodisiac to persons of cold constitution.

The use of onion in rectifying the errors in digestive system is also well recognised and much praised, in the Yunani system of Medicine. It is a generally invigorating article of diet that strengthens the body and its constitutes and also keeps the bowels clear and clean. It is beneficially employed in piles, prolapse of the rectum and also jaundice by the Yunani physicians.

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Yunani physicians also recommend the use of onions for dissolution of morbid swellings, promotion of digestion and mitigation of vitiations and also expulsion and removal of phlegm. They also regard it as highly promotive of the urge of sex and specially effective in setting right the urinogenital disorders. They recommend the use of onion much in the treatment of wounds, inflammations and ulcers in general.

An excessive use of onion is regarded as injurious to brain. As an aphrodisiac a *sherbet* is prepared from the juice of onion. For an invigorating drink,

onion juice, honey and ghee are mixed in equal proportions and drunk. To reduce the violence of the outgrowths of the piles, onion is crushed into a paste and applied or even tied there with a bandage. In the days of an epidemic outbreak of cholera, onion juice is mixed with lime water, kept in store and drunk as and when needed. To get relief from defect in vision and haziness (*dundh*) onion juice alone or mixed with an equal quantity of honey is used in the form of a colyrium. A good advice given to the travellers to guard themselves against frequent changes of weather and water that they have to necessarily face is to keep onions with them always, use them as such in the raw or frequently consume onion pickles.

It is the seeds of onion that are mixed with many sweet preparations (*majun*) and eaten as an aphrodisiac and also more importantly to treat the impotent. Impotency is believed to be definitely rectified by its regular use. For treating the haemorrhoids of piles, onion is mixed with vinegar as well as a little salt and then applied. Onion is presumed to be particularly aphrodisiac to persons of cold constitution.

The use of onion in rectifying the errors in digestive system is also well recognised and much praised, in the Yunani system of Medicine. It is a generally invigorating article of diet that strengthens the body and its constitutes and also keeps the bowels clear and clean. It is beneficially employed in piles, prolapse of the rectum and also jaundice by the Yunani physicians.

B. GARLIC

Once it happened that Garuda, the sacred Eagle of Lord Vishnu had stolen away the pot of nectar or *amrita* from Indra. As it was being stolen thus, a drop of nectar fell down on the surface of this earth. At that very spot, a little plant grew up having all the divine nectarine qualities, of this heavenly *amrita*. It was this that became called the *rasona*, the *lahsun* or the garlic. This small little fable highlights the nectar like abilities of the plant in a dramatic way and its remarkable efficiency in removing all vitiations, whatsoever that the human body is made to suffer from.

The plant of garlic somewhat resembles that of onion, grows to a height of a foot with a clump of narrow, long, slender, rather flattish but much smaller leaves. These are of a half an inch in diameter and taper upwards elongatedly. The scape is green, quite long, hollow and bears at the end, an umbrella like cluster of very small, stalked and numerous flowers. It flowers in the cold season. At the base of the plant in the underground are formed by the basal sheath like regions of the leaves, the bulbs, called the garlics. Each bulb has about 8 - 10 separate units unlike the onion and these are called the cloves. All are covered together in a thin whitish papery non succulent and inedible skin. The cloves emit a very strong and characteristic smell. The taste is also mainly sharp and pungent. The plant is cultivated all over India. It is very well known and used as a condiment, a *masala* and a vegetable;

both the bulbs and the leaves are used for seasoning. And, its medicinal uses are also so many that one wonders why these variegated facets of the familiar garlic are not better utilised by most of us. This is so either because of sheer ignorance or outright prejudice.

The Latin name of garlic is *Allium sativum* Linn. It is believed to have been evolved in the Tartar regions of Central Asia. It is known to be under cultivation in China since 3,000 years. Even now it occupies a chief article of food among the Chinese. Infact, 80% of the Chinese are believed to be constantly emitting the smell of garlic from their mouth. People of several countries have been using garlic in very many varied ways for eating, as an aid to increase beauty, as a medicine and also in sorcery, witchcraft and in warding off the evil spirits. The Chinese, the Egyptians, the Hebrew, the Greeks and the Romans have all used this as an article of diet or even more richly as a medicine. Hippocrates, regarded to be the father of modern Medicine praises very much the value of garlic in curing all sorts of digestive disorders. Homer, the epic poet of Greek sings of the divine properties of garlic. He also mentions the use of garlic in warding off the evil spirits. Aristophanes, a famous dramatist of the Greek includes a passage mentioning that garliics offers a great strength to the Greek Soldiers in war. The Roman historian Pliny extols much the use of Garlic. The wars of Crusades familiarised garlic to all over Europe and the bulb was considered best for the labourers to enable

them to tolerate the heat of travel and sun. It was believed to be the friend of the poor in Medieval Europe and an all round remedy.

Compared with onion, the smell of the garlic is not so strong and irritating but it is definitely more disagreeable, even obnoxious. Garlic is rarely used in India in a raw condition; they are mostly fried or cooked or pickled and then used. Pathans however are habituated to use raw garlic as such.

Medicinal Importance

General Properties

Garlic is called *rasona* since among the six *rasas* that exist, all excepting one (viz. the acidic taste) are present in it. Its name in Hindi and many other languages viz. *lahsun* is a corrupt form of this *rasona*. Ayurveda considers it as impletive (i.e. augmentive) of the body constituents (*brimhana*), virilifying, unctuous or oily in nature, hot in quality; digestive; pungent in taste. Its digestion is heavy; *rasa* is pungent and sweet. It helps in joining the fractures, spreads very rapidly and extensively in the body (*saaraka*) and is good for the throat. It is bilious (*pitta*), promotive of blood and salutary to the strength, colour and complexion of the body. It is good for the eyes as well, promotive of intellect and is an elixirising drug (*rasayana*) and cooling to brain. It is beneficially employed in many ailments such as heart diseases, chronic fever, shooting pains of the stomach, constipation, colicky pain, chronic enlargement of the spleen or glandular

enlargement of the abdomen (*gulma*), anorexia (tastelessness in food), cough, oedema, piles, leprosy and skin diseases, feeble digestion, worm infection and all diseases of the *vata*. It is good for the development and health of the hairs. It is useful in the diseases of the aged, particularly.

The five tastes or *rasas* are distributed differentially in the several parts of the plant. Its bulb is pungent, leaves are bitter, the central scape or the stalk of the inflorescence is astringent, the tips of the scape are salty and the seeds are sweet.

Garlic is very nourishing to flesh and also an aphrodisiac or stimulative of the urge of sex.

For habitual eaters of garlic, liquor, meat and acidic foods are agreeable. For persons who are fatigued, who have had an excessive exposure to direct sun recently, who have taken excessive drink of water and who consume milk and jaggery habitually, garlic is *not* advised. For persons of angry disposition also, garlic is *not* advisable, as it is generally excitatory. Garlicks should *not* be given to patients of dysentery, urinary disorders due to *vata*, diabetes melitus, plethora, gout and vomiting tendency. They are also considered unwholesome to emaciated persons and those who are dessicated. Persons who are naturally lustful and are affected in addition with dysentery should also better avoid using garlic.

But the beneficial effects of garlic far out weigh its few drawbacks just listed above. It is very good as an expeller of worms and is a known destroyer of

germs, effective in oedema, salutary in the aggravations of *kapha* and unfailing in counteracting the vitiations of *vata*. It is a well reputed drug in reducing and counteracting fever and one of its highly desirable feature is its capacity of rapid and extensive spreading in the body. A very striking illustration of this specially is easily observed. It contains an active principle called allic sulphide. Take two to three bits of a bulb of garlic, grind them well, make a mess of it and tie this at the flat base of the foot of a person. Within an interval of fifteen to twenty minutes, one can observe that his breath gives out the characteristic smell of the garlic!

Though most Texts consider garlic as heavy for digestion, a quite reputed text called Navanitakam regards it as actually being light. It looks that because of its violent and pungent smell it gets called as heavy though it is actually quite light and easily digestible. Sushruta writes extensively on the multifarious utilities of garlic both as a food as well as a medicine. Many other authors viz. Charaka, Bhava Mishra and Kalyadeva have also added to this praise. Kashyapa regards it to be beneficial in a whole list of diseases; this includes hiccup, fevers of all types, chronic common cold or catarrh, piles and shooting pains any where, piles of both types - bleeding and not bleeding, and in stimulation of the development of hair and its healthy maintainance.

We shall now see a few individual applications of garlic. Many of these are famous and popular household remedies.

1. In the Diseases of the Digestive System

Garlic is an unfailing remedy to expel the intestinal worms, specially the tape and also the round worms. For this purpose, ten drops to half a drachm of a tincture (viz an alcoholic solution) of garlic is to be taken in, along with milk. The proprietary drug or a yog called *rasonadi vati* made with garlic as its principal ingredient is beneficial for most diseases and upsets of the digestive system. Eating garlic ground with ghee cures splenic enlargements due to *vata*, feebleness of digesting, shooting pains of the stomach and the like.

A small spoonful of garlic juice in which one *masha* of *hingvashtak churna* is mixed should be taken with ghee at the first morsel of the meals. This will start healing the almost incurable duodenal ulcers within just a few days. Garlic tincture or garlic juice proves remedial even in choleric dysentery. Both of these are infact counteractive to all vitiations of the intestine. Even consumptions or tuberculous of the intestine and the intestinal cancers respond well to this treatment. These two drugs also act as good prophylactic (preventive) drugs in intestinal fevers. They are efficacious both as curative medicines and preventives equally. In cases of defective digestion due to intestinal debility, garlic tincture is to be given in a dosage of half a drachm, two to three times a day for as many days as felt needed. Quite soon the intestinal rhythm comes back to normalcy and the digestion improves.

Because of their diuretic property of promoting profuse urination, these drugs are useful in ascites or *jalodara* also. The water gets expelled soon and the bloating also disappears.

Amavata is a constipation or torpor of the bowels accompanied with flatulence or gas collections and swelling. This is called *gathia* in Hindi or nodular swellings when the swellings are local. Such a patient should keep drinking six *mashas* of garlic juice in five *tolas* of cow's milk. The comparison given for the efficacy of the cure secured this way is that garlic will remove the diseases just as fire would burn away cotton!

Eating garlic chutney or taking a distillation of garlic (*rasona arka*) would destroy shooting pains of the stomach due to indigestion or due to the aggravation of *vata*. Even in choleric dysentery due to indigestion, if a garlic *vati* is given half an hour before the expected onset, both the vomiting and the purging will stop soon; in fact, they may not appear at all following such an administration.

2. In Respiratory Diseases

In cases of whooping cough in children, giving half a spoonful of garlic juice along with one *ratti* of a proprietary medicine or a yoga called *shwasa kuthara rasa* proves very beneficial. Garlic juice alone will also be effective here. But the dose is to be regulated according to the age of the patient. An interesting aspect is that this can be used even as a prophylactic or preventive measure specially during

an epidemic. In this respect garlic juice is in no way inferior to the whooping cough vaccine that is available among the druggists and recommended by the practitioners of modern medicine.

For consumptions (*kshaya*) of the lungs and also chronic phlegmatic collections, freshly extracted juice of garlic or its tincture has proved a very excellent and unfailing remedy. This has been seen to be efficacious in many diseases of the lungs besides consumption, for instance, in the cases of burning sensations at the lungs, lesions in the lungs, pleuracy (inflammation of the pleura, a delicate serous membrane that covers the lung and lines the cavity of the chest), and also in bronchitis (the inflammation of the bronchii or the branches of the wind pipe). Both the fresh garlic juice as well as garlic tincture are useful in this respect. For patients of these diseases a massaging on the chest with garlicks ground down is also done, apart from an internal giving of the juice or the tincture. A massaging of the chest with garlic oil will dissolve out of the phlegm collected within. In many lung infections the garlic tincture is given in a progressively increasing dosage of one to twenty drops.

Take two *tolas* of ghee, fry three bulbs of garlic in it and add one *tola* of honey to this preparation. This is an extremely successful remedy for difficulties of coughing due to *kapha* or *phlegm*.

A very unfailing medicine for even very old and chronic asthma is the following:

Take five *tolas* of white arsenic (*sankhiya*), powder them very fine in a mortar and when it has become fully pulverised, go on adding repeatedly small quantities of garlic water. Continue to powder with full force and adding garlic water till the powder becomes dry and you have ultimately added ten *sers* of water. After this, take a *pav* of nutmeg, cook this in five *sers* of water till it gets condensed and the quantity of water is reduced to one and a quarter *ser*. This nutmeg water is also to be made entered into the garlic preparation above in the same manner. The medicine is now ready and should be stored safely.

The course of treatment with this medicine is as follows:

For the first two to three days the patient is to be served with *khichadi* mixed with ghee. Then give him a purgative such as *jamal gota* (*Croton tiglium*) and get this stomach cleaned. He should now be given the *khichadi* but without ghee for two days. Giving of the medicine should be started now. One *ratti* of it is to be given with five *tolas* of ghee, daily. After this, continue giving ghee either ten *tolas* as the minimum or twenty *tolas* as the maximum. Within a week an asthma of even twenty years standing will disappear. An important caution is that this medicine should *not* be given to such persons who are not capable of drinking this amount of ghee. During the treatment the food taken should be very simple and light. It should consist of *mung dal* (green gram), *roti* or a curry of smooth bottle gourd (*ghia*) or red pumpkin (*kaddu*).

Garlic is a simple, cheap and unfailing medicine in whooping cough (also called *kukar khasi* or *kali khasi*). If garlies are crushed and their smell taken in for about four hours daily, the troublesome symptoms of the whooping cough will become largely reduced. This is probably the reason for the village custom of placing a garland of garlies on the necks of such children. For small children and infants, giving twenty to thirty drops of fresh garlic juice in a *sherbet* will result in a quick relief.

The usual medicines given in whooping cough are belladonna, antipyraxin, adrenalin and so on. Compared to all of them the use of garlic is much more effective. The episodes of coughing get reduced in number and even when they occur, their violence is much less. In severe cases of whooping cough, vomitings would occur at intervals and since the rectal muscles become weak, frequent purgings would also come about. Giving garlic just a few times would give surprisingly beneficial results even in such cases. The patient would get sound sleep within a week or so and become completely normal. A good way of giving garlic to them is to cook the bits of dehusked garlic in milk and give them as a drink. The quantity of the milk may be reduced in small children. In summer days whooping cough spreads almost like an epidemic. Using garlic in the early stages itself is well advised then. It is a good prophylactic measure to give garlies to play with, to these children, for they would then be engaged in dehushing them and keep biting them as well. For infants and small children, twenty to thirty drops of

fresh garlic juice in *sherbet* at an interval of every four hours is a good step. If the onset is in the preliminary stage, quick relief is secured.

Garlic has a very commendable efficacy in treating consumption or tuberculosis (*kshaya*). It proves effective even in very advance stages of this disease. For instance, consumption may spread upto the feet and the hands to such an extent as to cause deep pus forming ulcers locally and to such a degree that even amputation is advised. Grind a few pieces of garlic to a very fine degree, mix them in any bland fat and tie this fat (which is meant to prevent burning sensation if garlic is directly used in such cases), changing the application once in twenty four hours. The result would be quite satisfactory.

Garlic has a very curative effect on wounds in general, oedema, abscess, eruptions, boils and ulcers. But it is advisable to apply garlic preparation before pus formations commence in these afflictions. If it is applied in the very early stages of them, the malady will not develop or at least not get aggravated. However, after the oozing of pus has commenced its use is not much effective. For curing an abscess, garlic is crushed and applied along with vaseline.

3. In the Urino Genital Disorders

As garlic is diuretic, it is employed in difficulties of urination (*mutra kriccha*). But its use is contra indicated to the pregnant.

In difficult menstruation its use renders the flow comfortable.

In cases where much pain is felt at the loins during menstruation, garlic juice is given internally and crushed garlicks are applied externally as a massaging material. There will be a great relief from the pains.

4. For High Blood Pressure and Fever

A recipe for bringing down high blood pressure is to eat frequently a *chutney* made by grinding down garlic, *pudina*, *jira*, *dhania* (coriander), black pepper and *saindhava lavan*.

Sometimes in fever, the body becomes very cold following excessive perspiration. In such cases, take garlic juice, juice of betel leaf and the juice of ginger. Mix all of them, add a pinch of *hing* (asafoetida) and massage the whole body with this. Soon, the normal temperature will come about.

Taking garlic paste (*kalka*) added with gingiley oil and *saindhav* salt in the morning will obviate intermittent fever, typhoid fever, fever due to *vata* and *kapha* and also all *vata* aggravations.

5. In the Blood Vascular System

In the oedemas of the heart (*hricchotha*), employing garlic is found to be very useful and mitigatory. In the wounds of the vessels (*nadi urana*) cold infusions of garlic are used to wash them with. This cleans them up and hastens the healing. In

vitiated wounds of the vessels (*dushta nadihrana*), injecting two to three drops of pure and fresh garlic juice on the four sides of the wound gives a surprisingly useful result.

6. In the Diseases of Neuromuscular and Neurohormonal Nature (*Vata samsthana*)

In several diseases that are based on an involvement of neural and hormonal systems of the body such as sciatica, paralysis, rheumatic pains, severe pains of the joints, a massaging with the garlic oil is taken recourse to. Apart from such a massaging, a decoction of the garlic is also administered orally.

For patients that are prone to epileptic attacks, garlic is seen to act as a good errhine or a nasal drug (*nasya*). Loss of consciousness due to epilepsy or convulsions will get rectified by placing a few drops of garlic juice on the nose. In many disorders of *vata*, garlic is employed according to the manner of what is called *kshira paka vidhi* viz. in a milky syrup. In the painful ear ache due to *vatic* causes, deafness and oozing at the ears, either garlic oil or fresh juice is used as an effective ear drop. For this purpose the juice is slightly warmed up and used, in small quantities - just a few drops in fact.

Garlic is made to be eaten in many disorders of *vata* and it is also employed for an external application. Take garlic and *vaya vidanga* (*Embelia ribes*) and boil them in sixteen times the quantity of water and milk. When the water gets evaporated

and the milk alone is seen to be remaining, filter, cool and give it as a drink. By this decoction nerves are strengthened on a permanent basis and this proves beneficial also in dry coughs of the children. This medicine is useful in many diseases such as sciatica, (painful inflammations of the sciatic nerve down the thigh), cramping of the back, facial paralysis, paralysis of the limbs, partial paralysis and paralysis of the thigh.

7. Some Miscellaneous Uses

In typhoid fever, giving garlic on an empty stomach in the morning is beneficial. In the body pain originating due to cold and head-ache, garlic juice is given internally along with an external application on the regions concerned, specially the temples. In cases of diphtheria giving a sherbet of garlic gives beneficial results-beyond expectation. Some physicians advise its use even in cases of snake bites.

The generally advised dosage pattern is as follows:

Freshly extracted juice (*swarasa*) - in 5 to 30 drops depending upon the age. Tincture - in 5 to 30 drops depending upon the age. *Avaleha* (an electuary) - in 1 to 2 -1/2 *mashas*, depending upon the age. Whole bits of the bulbs - in 1 to 20 bits depending upon the age. A few cautions are:

For small children and infants, the dosage has to very carefully regulated. For the pregnant, it should not be given at all. For patients of nausea, vomiting

tendency, dysentery and also in infants, an excessive dosage of garlic may even prove fatal.

In cases which show adverse reactions due to the employment of garlic, using sweet almond oil or freshly extracted juice of coriander will prove counteracting and beneficial. In any external application of garlic it should be remembered that it is a very burning drug to skin. Peels of skin will come off if it is kept long.

There is a method of purifying garlic in the sense, a means to overcome its strong repulsive smell. Select well grown and good quality garlies, remove their outer papery scales as well as the inner sprouting bulbils if any. Soak them overnight in butter milk. If they are taken out the next day both the foul smell and the pungency would have disappeared. If the violence of the pungency is to be lowered, soak them like this overnight for three days using fresh buttermilk every day. However reducing the pungency would also reduce the power of garlic. It is therefore, always advisable to use garlic as much as possible and tolerable to the patient, *without* any such purification.

8. As An Antiseptic Drug

Very surprising experiences of the army surgeons during the first world war have been reported in this regard. They noticed that warmed and then cooled down water mixed with garlic juice is an extremely effective antiseptic lotion. Application of this to a purulent ulcer of any intensity,

even in case it has gone upto the bones, will always prove effective. It can also be used as a washing and cleaning lotion in such cases, or, bandaging the area with a cloth soaked in this solution was also seen to be efficacious. However large or deep and intensive may be the ulcer, the effect of garlic always proves commendable.

9. In Diphtheria

Garlic is in no way inferior to any medicine in treating diphtheria--an infectious throat disease of the children in which the passages of air within get covered with a leathery membrane at the throat (*gala rohinī*). But this is to be applied in a rather mild form. A very good and simple way to do so is to let the patient keep a bit of garlic in his mouth. Periodically he should chew it once and gulp in the juice. He should keep doing so till the entire juice within the bit gets exhausted. When the juice is taken in fully in this manner, the crushed remaining bulb is also to be gulped in now. And then, he should commence the same procedure with another bit of garlic. This is to be continued for about three to four hours altogether consuming about one to two ounces of garlic meanwhile. The hard leatheriness of the membrane will disappear. The rise in temperature also gets reduced, quickly. Within hours, this affliction comes under control and the patient becomes normal. Diphtheria is a terrible and painful disease specially for the growing children. Garlic is an unfailing remedy for this affliction.

If a patient finds taking raw garlic like this too hot, an equal quantity of water may be mixed with fresh garlic juice and this mixture may be applied well over the hardened and the inflamed membrane. He should take in this mixture also, half the quarter of a ser in the first four hours.

Even after the hardened membrane is fully controlled, it is advisable to keep chewing the garlic pieces for a few days - one to two ounces of it. It is interesting to note that a diphtherial patient will neither get the smell of garlic nor experience the taste of it. All that he is aware of, is the warmth or the heat of garlic.

10. In One Sided Headache

Slit open a few garlcs, grind them fine in a mortar and extract one *tola* of fresh juice. Strain this through a fine piece of soft clean cloth, add six *ratls of hing* or *asafoetida*, mix them thoroughly and store this safe in a bottle. In cases of hemicrania or one sided headache, place three drops of this medicine into that nostril on which side the head is aching. If there is a phlegmatic collection due to this headache, relief will be secured within five minutes.

There is another method of using garlic during hemicrania. The garlcs are slit into pieces, mixed with honey and thoroughly ground down in a mortar. This is then applied externally on the temple of that side where the head is aching.

11. In Paralysis

In partial paralysis of the body take five *tolas* of garlic water, mix them well with half a *ser* of any bitter oil, cook them on fire till the water is fully evaporated and only the oil is remaining, remove from the fire, cool down and store in an air tight bottle. Use this for massaging the affected limbs.

An useful beverage for patients of partial paralysis is to prepare tea in the morning and evening and add three *mashas* of garlic in it and then give it for drinking. Instead of sugar use honey to sweeten and this is to be prepared without adding milk. This is preferably taken on a hungry stomach. A treatment of about five to six days itself may show useful results.

Garlic is employed even for comatose patients (*sanyasi rog*). The patient should be given one garlic bulb on the first day, two on the second day and thus continue to increase it by one every day till the fortieth day. Then reverse the dosage reducing it by one every day and after you reach a dosage of one garlic alone, discontinue the treatment. During this period itself, the affliction will be rooted out.

There is an interesting and effective medicine for partial paralysis as well as facial paralysis. Cook a *pau* of cleaned bulbs of garlic in half a *ser* of milk on a low fire. When this cooking is done for the duration of nearly a day, stir the material very well, filter and then again keep it on fire till it turns into a *khova*, of a semi solid consistency. Then add the requisite quantity of sugar and prepare *phedas* out

of them. This is to be given to the patient for eating once in the morning and the other in the evening. This proves very beneficial in the case of both, viz partial paralysis and facial paralysis.

In the paralysis of the thigh (*urustambha* - paraplegia or paralysis of the lower limbs), a garlic preparation proves beneficial. For this, dehusk and clean one *tola* of garlic add then, three *rattis* each of the following; roasted *hing*, *jira*, black *jira*, *saindhav* *lavan*, black salt, black pepper and peepal. Grind them all together into a *kalka* or a chutney. Add a little gingiley oil and give this to the patient to eat. Over this, let him also drink a decoction of castor (*eranda quatha*).

This regimen of medication is to continue for a month.

Such a garlic medicine wards off all *vata* diseases where *ama* (or undigested food) is a predominant factor (*pradhana*). This is efficacious in paralysis of any limb (*ekanga vata*), paralysis of the whole (*sarvanga vata*), paralysis of the thigh, sciatica, pains at the loins, back-pain, bone pain, joint pains and also chronic fever and the debility of the limbs. This destroys *ama* - the undigested and unassimilated food which is itself causing the vitiation as a result. Some common attendants of the paralysis of thigh are: absence of sensation, contraction of the regions, tremors all over, tiredness, sensation of excessive burning, increase in the disease by massaging with oil, difficulties in mobility and so on.

This *yoga* or formulation of garlic will remove out all of these symptoms along with the disease itself. A caution to be noted is, in case during the continued use of garlic, there will arise an aggravation of *pitta*, administer a purge with a decoction of the smaller *harad* or chebulic myrobalan (*haritaki*).

12. In Ear Ache

An unfailing remedy for ear ache is a garlic oil preparation. Take a *tola* of mustard oil and burn in it (i.e. get them scalded in) three *mashas* of garlic bulbils and one *ratti* of opium. For this, place the oil in an iron or that brass pan on a burning live coal. When it starts cooking, drop the garlic bulbils in it. As soon as the latter get scalded, remove and mix opium on them when they are still warm. When the occasion arises, place a few drops (two or three) of this in the aching ear. The pain will be quietened down quickly.

A simpler recipe is to place two to three drops of garlic water slightly warmed up. This is particularly helpful in ear aches that are due to common cold.

In case there is a boil in the ear and a throbbing pain commences as if it is about to break out, take garlic, radish and ginger, grind them together, extract the juice and give a few drops of this mixture into the ear. After two to three days of application the boil will settle down or rupture out and the pain gets quietened down.

16. In Gouts

Take two *sers* of dehusked garlcs, cook them in two *sers* of cow's milk. When the milk becomes condensed more or less to the consistency of a gruel (*mava*), add two *sers* of sugar and make this into a *halwa*.

Dosage is to let the patient eat two *tolas* of the *halva* daily. Even a few days of eating would give full relief. This is a very beneficial and sure remedy for rheumatism. It also expels *kapha* and in addition gives strength to the kidneys.

17. In Thread Worms

Take garlic, *chitraka mul* (the root of *Phumbago zeylanica*) and mustard. Grind them together, make it into a poultice and tie at the region of the infestation. The worm will come out very soon. Do not let the poultice remain more than an hour. When the worm comes out or when the area becomes red, take away the poultice and apply ghee over the area. If a *chutney* of garlic is applied to a pure wound where inflammation is suspected, it will get subsided or will not arise at all. All worm infected ulcers and eruptions heal up by an application of garlic.

18. In Fractures and Injuries of the Bones

Garlic and lac are to be ground together to a consistency of a *chutney*. This is to be mixed with honey. The patient should lick this up twice a day.

Within about five to seven days of this measure the medicine will heal the injury.

In cases of actual fractures, this medicine is also applied externally over the region.

19. In a Dog Bite

If a non rabid dog bites, immediately grind garlic and apply. In addition, cook a *tola* of garlic *chutney*, prepare a decoction thereby, and give it as a drink or give a drachm of *rasona arka* (a garlic distillation) to drink. Or, let the patient consume a considerable quantity of garlic along with his meals for seven days.

20. In Scorpion Stings

Garlic and salt are to be ground together and applied over the region of the sting. The poison will soon lessen its violence.

An antidote (*agada*) for scorpion sting is: Three *tolas* of garlic juice and three *tolas* of pure honey are to be mixed together as an electuary (i.e. lickable) drug. This is to be licked up by the patient. The poison will quieten down.

Another recipe is to grind garlic along with *amchur* (the dried bits of mango) and apply.

21. A General Note

Garlic is employed externally either as a juice or in the form of its oil in many diseases : sciatica, paralysis, paraplegia and facial paralysis - in all

this, massaging with its oil is beneficial. It is the juice that is employed in ear ache, morbid swellings and oedema to get a relief from the pain. Freshly extracted juice is mixed with 3 - 4 parts of water in order to clean foul smelling ulcers. A thin film of it is applied in abscess, pimples and scabs. Garlic oil is efficacious in eczema, itching and many minor skin afflictions. It is a famous antiseptic drug.

Garlic is given internally in the form of a sugary syrup, along with honey or raw in all disorders of *vata* such as sciatica, paralysis and nervous debility. In weakness of vision, freshly extracted garlic juice is given as a drink before and after meals. 10 - 30 drops of juice are added with milk and given as a drink in germ infection. In the diseases due to *vata* garlic is given with ghee; in those of *pitta*, with sugar and those of *kapha*, along with honey.

Excessive use of garlic, however leads to vomiting, purging and headache. One should be careful while giving garlic as a medicine to children; an excessive dose may even become fatal for them.

In general, garlic is a house hold remedy since very ancient times, well known as a curative as well as preventive medicine. Garlic oil preparations exist, meant to protect from infection by bacteria at the times of epidemics. They also renew the blood, cleanse it of all impurities and in addition regulate digestion and render the intestines free from all injuries bacteria. They are recommended for lung diseases, arterio sclerosis (thickening of the walls of

the blood vessels thus affecting circulation of blood by narrowing the ulcers), high blood pressure, rheumatism, asthma and also loss of appetite, constipation and worms. The oil from the seeds is prescribed internally to prevent the onset of recurrent fevers. It is used in paralysis and rheumatism.

When eaten in cold season it wards off attacks of gout and neuralgia or the pains along the nerves. Mustard or coconut oil in which garlic cloves are fried is a very effective antiseptic remedy for scabies, maggot infested ulcers, wounds and ulcerated surfaces. Definite improvement is noticeable within 24 hours of their use; the discharge of pus is decreased and the pain also gets very much reduced. In this respect it is better than the traditional carbolic acid lotion even.

Garlic is also a useful veterinary medicine. Feeding dogs twice weekly with boiled onions will remove the parasites located in their body in regions other than the digestive tract even. A teaspoonful of garlic juice is an additive medicine for the same purpose in case the need arises. But the juice must be necessarily fresh. The medicinal substance from garlic may be isolated in the form of an oil or an essence. When the garlic plant is distilled in a steam current, the essential or the volatile oil consisting mostly of sulphur compounds distils over with steam and on condensation separates from water as oil. This essence contains all the components of the oil in a form in which they will

not deteriorate--all the sugar and acids etc of the juice have been eliminated at this stage. The essence is less potent than oil. But its merit is that it can be handled well. One ounce is to be diluted to about a pint; one teaspoonful is adequate for a dog of medium weight.

Oil from *hing* or asafoetida has been an age old remedy for all distempers. Smelling it will quieten one down and this smell is a reputed soothing agent. The characteristic smell and the medicinal value are almost solely due to the garlic's sulphur content. It is important to note that garlic oil is superior to *hing* in this respect. The smell of *hing* is also due to its sulphur content, which however is much better in garlic than in *hing*.

Yunani Opinion

Garlics usually have eight to ten cloves in their bulbs. However there is one variety which has only one clove. This plant is very similar to a small sized onion plant. This is called one cloved garlic, shallot or Eschallot in English and botanically it is a separate species of the genus and called *Allium ascalonicum* linn. In Hindi it is known as *ekpothiya lahsun*. Some consider this to be more efficacious than onion and garlic.

The parts of garlic that are used in Yunani medicine are its bulbs and leaves. The entire drug is considered here as hot and dry of the third degree. Applied externally garlic is scarifying (*lekhana*) and

Irritative. Employed internally it causes heat, spreads wide and quickly in the body, ruptures through condensed vitiations and expels out the phlegmatic collections. This dessicates or dries up the contents of the stomach, strengthens the stomach and removes out the gases collected within. It promotes urination and menstruation, brings about perspiration in the body and is a reputed aphrodisiac.

Garlics are particularly useful in all diseases that are caused by the aggravations of *kapha* or phlegm and *vata*. It is best used as a condiment or a *masala* in food. Ground in a fine manner, it is used to heal eruptions, boils and ulcers. If the pus has not become formed there as yet, it will dissolve and subside. If the pus has become already formed it will rupture out and heal. In addition to such a use, garlics alone or along with other useful drugs are cooked with gingiley oil as the medium and employed as a massaging oil in all pains that are due to *amavata* (constipation or torpor of the bowels accompanied with fatulence) or for the effect of the cold. Garlics are advised to be eaten in all disorders of *vata* and *kapha* such as paralysis, facial paralysis, nervous tremors (*kampa vata*), nervous debility, sciatica, shooting pains at the loins and also cough, breathing difficulties and chronic fever. It also counteracts poison. It is because of this reason it is advised to be kept and used frequently by travellers to overcome the ill effect of frequent changes in weather and water.

Relatives Of Onion & Garlic

The genus *Allium* consists of a few more species besides the famous onions and the garlics. These are not very common, nor are they well known like these two. Still however, they do have their own value and uses. It is time now that we should have a brief glance of a few of these aspects. The species are as follows:

1. *Allium Porrum* Linn

This is Leek in English, quite a well known and famous salad vegetable of the Mediterranean regions and most parts of Europe and America. However in India it is grown only in select gardens and found only in the markets of some metropolitan cities and hill stations. This was brought and familiarised in India by the Britishers during their stay here.

This is also believed to be a native of Central Asia and Iran but it is now spread out from there to the many corners of the world. It often grows as an accompaniment of wheat cultivation or of the Bengal gram. *Allium porrum* is said to contain arsenic and may give rise to toxic symptoms in man and animals, consequently.

The plant is a small sized annual herb much like onion. Leaves are just like those of onion but much more slender, acutely and obnoxiously smelling. When the plant is fully grown, from the centre of its clump of leaves an upright stalk or the scape springs forth at the summit of which occurs the

dome of its many small flowers, white, again like those of the onion but much smaller. Seeds are also like those of onion, black, foul smelling, pungent in taste and bitter. At the base of the plant there also occurs a bulb, like onion.

There is a wild form of this plant as well, which is botanically *Allium schoenoprasum* linn. This is found in India ranging from the Western Himalayas of Kashmir upto Kumaon Hills in the West at an altitude of 8,000 to 11,000 feet. This is also cultivated sometimes in the gardens of these high altitudes. This species is a reputed antitubercular plant. In addition to this species there is another Indian counterpart of it known as Indian Leek and botanically called *Allium tuberosum*. Its habitat ranges all over the Himalayas from the Western end to the Khasiya Hills of Assam and the Eastern Himalayan extensions. It is also cultivated in Bengal.

The entire plant is used medicinally but specially the leaves and the seeds. Besides the typical active substance of all onions viz. allyl di sulphide (responsible for its violent smell as well as the medicative action), this herb also contains an essential oil.

Yunani physicians consider this plant as second degree hot and dry.

Medicinal importance and use of the herb are traced to its following well recognised actions: It dissolves morbid swellings and oedema

(*shyawathu*). It is that palliative and soothing drug (*samshamana*), sacrificing (*lekhana*) i.e. slimming down in effect and promotes much of perspiration and is also an aphrodisiac. The leaves of leek are eaten raw as salad vegetable or they are also cooked and eaten. They induce too much of perspiration and are often likely to cause headache and a considerable nervous upset even. The seeds of leek are useful in blind as well as bleeding piles. Pills are made out of its powders alongwith other medicinal ingredients as curatives for piles. These pills are kneaded with the fresh juice of the leaves of leek. It is also a practice, sometimes adopted, when the haemorrhoid growths of the piles are subjected to a fumigation from the seeds of leek. The herb is also useful in setting right the disorders of urination and the menstrual cycle. As it is a sacrificing drug, a thin film of leek juice is applied in many skin diseases.

The general dosage is one to two grams.

The use of leek is contra indicated and harmful to persons of hot constitution. The agents that would counteract the ill effect of leek are coriander and green *kasani* or the Garden Enclave or *Cichorium intybus* Linn, another salad plant of the gardens.

2. Allium Ascalonicum Linn

This is called one-clove garlic, Shallot or Eschallot in English. In Sanskrit it is *kshudra lashun*, Hindi, *ek kali lahsun*; Bengali, *gandhun*; and Gujarati, *ek kalio lasan*.

This is like a smaller garlic plant. But the bulb has only one clove in it and more importantly the bulbs are not underground but aerial occurring at the tips of the branches. In all other respects it is very much like garlic.

The bulbs are elongated and foul smelling. The outer skin is brown and yellow. Leaves are yellowish and tubular. The central scape is of one to two feet in length and bears a dense umbel of white flowers resembling rather a globe. The scape is tender. The part used is the bulb. The advised dosage is three to six *mashas*. The herb is a very excellent aphrodisiac plant. For this purpose the bulbs are roasted in ghee and eaten mixed with pure honey. This is also beneficial in ear diseases.

The plant is cultivated all over India specially in the gardens where "English vegetables" are grown. Its use is mainly as a medicine; however, the entire out-put of India is presumed to be purchased out rather secretly by the foreigners and rarely do they come out in the open market in India. The bulb does not have the typical property of the ordinary garlic, of creating a burning sensation and the violent pungency.

Its use slowly reduces high blood pressure, and confers a sense of strength and vigour all over the body. In a medical text called *Navanitakam*, there are many *yogas* or compound formulatives with this as their principal ingredient. This is one of the rare remedies and drugs that enter into the practices of *kayakalpa* or elixirisation and *rasayana*. German

scientists are presumed to be investigating much upon this plant having secured their knowledge from Indian Yogis.

One of the highly recommended and very promising method of using this plant is as follows:

Remove the outer skin from the bulbs and cut them into small pieces. Take a *chatak* or half a *pav* of these pieces, mix them in five *pavs* of cow's milk, cook on a low fire into a consistency of a homogenous flour or *mava*. Mix with this flour an equal quantity of sugar and prepare *phedas*, about twenty of them and store them safe in a bronze vessel. Administer this in a dosage of one or two *phedas* to the patient on an empty stomach early in the morning along with milk. By this measure, the blood vessels become supple, the digestive power increases, the beating of the heart becomes even more propitious and the high blood pressure gets slowly rectified. Mahatma Gandhi had employed this drug on the advice of Dr. Ansari. Many other experts have also experienced the great advantage of utilising this drug.

This is one of the very promising ancient medicinal plants of India that needs to be better appreciated and utilised.

3. *Urginea Indica* Kunth

This is called Indian Squill in English, *vana palandu* in Sanskrit and *jangli pyaz* in Hindi, *nari vengayam* (the Fox's onion) in Tamil. Though

popular conceptions regard it as a variety of onion, it does not belong to the same genus *Allium* of onion at all. Instead it is in an altogether different genus but comes under the same family of Liliaceae.

The plant grows richly along the sea-coasts and was once named botanically as *Scilla maritima*, as being of the east coast. It is a native of Mediterranean coast though it is quite frequent in the coastal areas of south India. From the sea-coast its spread ranges upto the jungles; hence only it is often called *Jangli palandu*, the jungle onion. There are two other plants *Urginea scilla*, the European squill and *Scilla indica* Baker, the smaller or the *chotti jungli pyaz* in Hindi and *kadu bellulli* (wild garlic) in Kannada.

This is one of the very ancient medicines of the world. Yunani physicians praise this drug very much and recommend its efficacy for many diseases. The Roman historians knew even the two varieties of this drug, the white and the red. The ancient botanist Dioscorides had indicated a proprietary formulation of this plant which continued to be an officially recognised drug of the British Pharmacopoeia till recently. The old Yunani physicians have prescribed this for many diseases such as urinogenital disorders, respiratory difficulties, oedema and others. Infact this had been a favourite drug of the Arabian, the Greek and the Yunani physicians.

The plant occurs wild specially in the Coromandal coast and other coastal areas

throughout India and also all along the Mediterranean region. It also occurs in the drier parts of the Himalayas and in the salt ranges of Punjab. The bulbs are underground and the leaves are similar to those of onion but of much larger dimensions. Biting a fresh bulb is irritative to the tongue. Its taste is very bitter and pungent.

The drug as it comes to markets consists mainly of the bulbs-whole and unsliced like onions in dimensions. The outer scales of this bulb that are membranous are removed, cut into slices and dried; the central portions are rejected. Young buds only should be used as the older ones lose their medicinal properties. For medicinal purposes, a bulb of the size of a lemon is selected.

Yunani physicians consider it as hot in potency. Its medicinal properties are listed as follows: It dissolves oedematous formations, delinques vitiations (*dosha pachana*); causes a wound, excites blood; counteracts poison, expels phlegm or *kapha*; promotes urination and menstruation and destroys worm infections of the stomach. It is most importantly effective in jaundice and in propitiating the vision (*drishti prasada*). The wild onion is in general more potent than onion; only it is not eaten like an onion, but medicinally it is utilised for all purposes to which an onion is utilised. It is particularly efficacious in promoting urination and in expelling the hardened and the collected phlegm or *kapha*. That is why it is one of the best and much used medicines in ascitis (*jalodara* dropsical

collection of water in the belly resulting in bloating). It is much reputed in destroying abdominal worms.

The use of this plant is contraindicated in persons of hot constitution and nervous temperaments. In case of wild reactions due to the drug, the counter acting agencies are the using of sugar candy or lemon sherbet sweetened with sugar; the dosage is 3 grams to 5 grams. Ayurved also regards it as hot in potency and bitter in taste, agitative and vomit inducing but good to heart as well as in warding off phlegm, worm infestation of the stomach, cough and difficulties in breathing.

There are a few household remedies utilising the bulb. An interesting and an useful example treating the inveterate corns that do not respond well to most medications. Corns are hardened, swollen, dark growths on the soles of the feet, rather disfiguring in their appearance. The bulbs are roasted, crushed and used to check the growth of these corns. Or, the sole of the foot with the corn is forcibly pressed on a crushed squill when it is hot as hot as it can be tolerated. Bulb is also rubbed on the soles of the feet to relieve burning sensations. In small doses it acts like the imported, foreign squill as an expectorant (causing forceful cough and the expulsion of phlegm), cardiac (good for heart condition) stimulant, diuretic and emmenagogic (i.e. regulating menstrual flow). In larger doses, it causes vomiting and purging.

Mixed with *anjir* (fig), anise and grapes, it is good in bronchitis where the phlegm is very tenacious and also in chronic bronchitis which is associated with emphysema (a chronic obstructive lung disease) and in spasmodic croup.

Its chief action in the body is that it slows down the heart beat and increases the flow of urine. When the dose given is excessive, this acts as an acrid (bitingly punget) and narcotic (inducing sleep and torpor) drug, causes nausea, presence of blood in urine or often suppression of urine, gastro-enteritis (burnings at the stomach and the intestine) followed by convulsion, paralysis of heart and even death.

The constituents are: an inactive glucoside, scillian and toxic amorphous glucosides and the characteristic bitter principles of scillipicrin and scillitoxin, mucilage, sugar and ash (5 per cent).

The drug is used in many forms as pills, powders, tinctures and so on and in many diseases such as asthma, rheumatism, urinary stones, paralysis, cardiac and renal dropsy, ascitis, Bright's disease, leprosy and skin diseases.

A powder of the dried bulb is employed as an application to remove warts.

4. Scilla Indica Baker

This is called Indian Squill or Small wild squill or the White Squill in English; *chotti pahadi pyaz* (the Smaller Hill onion), *pahadi kand* (the hill bulb) in

Hindi, *siru narivengayam* (the smaller *urginea indica*) in Tamil; *kadu bellulli* (the wild garlic) in Kannada. The plant occurs quite commonly in the coastal plains of the peninsular India and also in Punjab. The bulb is slightly whitish brown, layered or scaly and some what like the shape of nut-meg (*jayphal*). It is much mucilaginous or slimy, usually spherical in shape, sometimes rather pressed down at the two sides.

This contains all the principles of *Urginea maritima* of the American Pharmacopea and *Urginea scilla* of the British pharmacopea, both of whose drugs are costly and imported to India from there or the Mediterranean region.

The herb is famous as an expeller of phlegm, a stimulator of heart and as an unfailing diuretic.

Since quite a few years attempts are made to replace the foreign imports of urgineas with this common Indian bulb which is quite cheap but in no way inferior to them. Actually if these Indian drug plants are better cultivated, conserved and also better collected and processed they can not only fill the whole need of our country but can also very well be exported abroad. In some pharmaceutical concerns of India tinctures of a mixture of these two Indian bulbs (*Scilla indica* and *Urginea indica*) have been prepared, marketed on a large scale and have also proved very satisfactory and in no way inferior either in chemical constitution or pharmacological action to what is imported from abroad.

Scilla indica grows well also in the sandy coastal areas of the Mediterranean regions of Spain, France, Italy, Sicily, Greece as well as Algiers and Morocco of North Africa. The outer dry scales of the bulbs are removed after harvesting them in August-September, the rest of them are sliced transeversely and dried in the sun or stove heat, till they lose about 80 per cent of their water content. These are then packed and exported. This has been a very old drug of commerce in Europe. Both the Greek and the Egyptian physicians had employed them regularly. Dioscorides, the ancient herbalist of Greece records much about this drug, its trade as well as its use. An oxymel or a medicine made up of a mixture of vinegar and honey along with scilla was a favourite medicine of the Arabic physicians.

Apart from this *Scilla indica* itself, there are other species for example, *Scilla hohenackeri* Fisch etc. closely allied to it that grow abundantly in India. Their properties are identical with the official squills of the International Drug market. It is these bulbs that are whitish brown, scaly and about the size of a nutmeg and made up of very smooth and fleshy scales that give the name White squill.

The squill sold in the bazars of India are a mixture of these two as well as *Urginea indica*. All have the same actions and are used similarly. These bulbs are smaller than the imported material but are similarly nauseous and bitter. While the material is to be prepared for marketing, careful attention should be given to its thorough drying as otherwise it is likely to be spoiled by fungal attack.

The useful properties of the squill are its action as an expectorant, cardiac stimulant and diuretic drug material. But a draw-back in its use is its irritable action in the gastro intestinal tract. Attempts are therefore made to find out whether it is possible to separate these two pharmacological activities of this very useful drug.

Two types of substances have been identified during the course of these investigations. One is an apparently crystalline glycoside named scillaren A and the other is an amorphous complex constituent--a mixture of two glycosides named scillarin B. The former substance is insoluble while the latter is easily soluble in water.

The action of scillarin closely resembles that of another famous drug strophanthin derived from *Strophanthes kombe*, an arrow poison of East and West Africa which however does not occur in India though there are several other allied species of it that do occur here and are equally effective. Still however, India again imports a large quantities of strophanthis seeds and its preparations paying a high cost just as it does for the squills.

Both strophanthin and scillarin suffer from a disadvantage in that they cannot be given by the mouth. Another crystalline glycoside named scillaroside has been obtained from the red variety of *Scilla maritima* which has been extensively used as a rat poison.

Both of these Indian bulbs viz of *Urginea* and of *Scilla* are worthy of greater attention by our pharmaceutical concerns. For, their efficacy has been proved, a ready market for them already exists in world trade and in India we have a host of species of these two genera that are in way inferior to what we import. Infact besides stopping such an import, we are actually in a position of active export ourselves.

Yogas or Propreitory Formulations

In view of the numerous and invaluable benefits that both onion and garlic are capable of providing, many yogas or traditionally settled combines are available in the literature and quite a few of them are in actual use as well. We shall consider some of them now. They are all taken from several famous texts of Ayurveda. Their administration is often accompanied with dietary and other regulations.

Yogas of Onion

1. *Palandu kalpa*: *Kalpa* is a special type of preparation guaranteed to keep well for a long time, without any deterioration to its medicinal value. The significant advantage of *kalpas* is the small dosage in which they can be administered.

This is prepared in the same manner as that of garlic (as described there) and given also in the same manner. The onion juice is rendered fragrant by an addition of lemon juice or the juices of other fruits. Honey is also given along with it. The diet

advised is also rich, such as milk, rice, good wheat, green and black gram as well as dates, pomegranates and figs.

A regular intake of this as per the prescribed way is assured to remove the weakness due to dysentery and diarrhoea as well as the deafness thereof. There will be an augmentation in strength and lustre of the body, a gracefulness of mood and also a sweetness of voice.

2. *Palandu asava*: *Asava* is a medicated spirituous liquor. It is a weak alcoholic preparation obtained by infusing the drug in cold water and allowing it to undergo fermentation with the help of raw sugar and honey. An onion *asava* is prepared as follows. Take one *ser* of onion juice, strain it well and keep in an earthenware vessel. Mix with it 20 *tolas* of pure liquor or brandy, close the lid and keep the vessel safe for seven to fifteen days. Open then, strain well again and store in a bottle.

This is advised for children's diseases; 10, 30 or 60 drops (depending upon the age of the child) of it are given in mother's milk or the milk of cow or goat.

This is useful in cholera and dessication. Given to adults in a dose of 60 drops in milk or water it is useful in cholera; it is also an aphrodisiac.

3. *Onion pickle*: Cut onion to small pieces and place them in a porcelain vessel. Add then the following, in requisite quantities; vinegar, salt, chilly, cumin seeds and the like.

Besides being quite tasty and a welcome adjunct to meals, this pickle destroys the shooting pains of the stomach. It is also a very useful digestive, a good promoter of hunger and an efficient strengthener of stomach. It is useful in splenic enlargements, anaemia and tendency to vomiting.

4. *Palandu Paka*: *Pakas* are of two kinds, liquids or jelly like soft preparations to be taken in or solids. They are made with sugar, milk or honey to give them a pleasing taste as well as to preserve them. A typical *paka* is a semi solid mass. We shall give two such *pakas* of onion.

(1) Take white onions, remove their outer papery cover and place them in a deep vessel. Pour over them fresh milk of cow or buffalo in such a quantity that it will stand four inches above the onions. Place the vessel now on a low fire and cook. When the onions are fully cooked, remove them, cool and then add an equal quantity of cow's ghee, place again on fire and fry them well in this ghee. Remove from the fire and add to it a syrup of honey equal to the quantity of ghee you have used.

This can be rendered into ball like structures or *modaks* and if this is not possible it can be utilised as an *avalehas* or thickened lickable extracts.

This is to be taken morning and evening in a dosage of five to ten *tolas*.

It is a very virilifying drug and is said to destroy impotency.

(ii) Take twenty *tolas* of onion juice and also forty *tolas* of good quality and pure honey. Mix them well keep on low fire and cook for a long time to the consistency of a thick syrup (*chashani*). When this has become sufficiently thick, add the following in requisite quantitie. Cinnamon bark (*dalchini*), *kulinjan*, *salamishri*, *ashwa gandha* (*Withania somnifera*), *white musali* and *akarkara*. All of these are to be in a quantity of 1-1/2 *tola* each and to be powdered together and then added. Finally add six *mashas* of *keshar* or saffron.

The dosage advised is six *mashas*.

This is assured to be a good tonic for the brain and to set right its weakness. In the literature, there exist many more formulations of onion, much more complicated through well reputed.

Yogas of Garlic

1. Rasona Kalka: *Kalka* is a pounded mass or a paste prepared by grinding the whole vegetable material moistened with water on a flat stone or slab with a muller into then paste or a viscous lump. Take well matured garlicks, cut them open and remove away any fibres and sprouts. In order to get rid of the very pungent smell, soak them overnight in buttermilk and grind next day morning. Add to this the following in a total quantity that is one fifth of this mass: powders of black salt, *ajwan*, roasted *hing*, ginger, pepper, peepal and cumin. All should be of equal quantities

and all of them are to be powdered very fine. The final medicament can be stored safe.

This is to be taken in a dosage of 1-1/2 *tolas* or a little more or less depending on the season, the constitution and the like. Following this it is desirable to drink a decoction of castor root.

The medicine is powerfully effective in the following diseases: *vatic* troubles all over the body, partial paralysis, insanity, paralysis of the thigh, sciatica, chest pain, back pain, pains of the loins as well as the sides and at the ribs.

During this medication, the patient should be guarded against indigestion. He should also avoid excessive drinking of water, milk and jaggery. He should also avoid anger.

2. *Rasona saptakam*: Take equal quantities of the powders of *hing* (asafoetida) fried in ghee, cumin seeds, *saindhav* salt, black salt, dry ginger, black pepper and peepal. Mix them all well. Slice now five or two and a half *tolas* of garlic, pound them well and mix with it about 1 *masha* of the above powder.

Taking this in a dosage that is dependent upon the digestive strength and for a period of one month will destroy the diseases of partial paralysis, convulsive tendency, paraplegia or one sided paralysis, *vatic* trouble all over, paralysis of the thigh, sciatica as well as worm infection and stomach diseases due to *vata*.

3. Rasonadi Kala: Mix equal proportions of garlic, lac and sugar candy: powder them well, add a similar amount of honey and store.

This is a good medicine for joining broken pieces of bones and to set right the fractures.

4. Lashuna Kalpa: This is a *rasayana* or an elixir prepared from the garlicks. Take half an *adhak* or two *prasthas* of cow's ghee. Mix with it double the quantity of cleaned garlic. Place the two together in a vessel whose inner surface is anointed with ghee. Let this be placed years together within the heap of stores of cereals.

This is to be taken in small quantities for four, six or even eight months.

The *rasayana* would destroy all diseases.

A person who takes this regularly will not loose vigour in any of his organs, teeth, flesh, colour, strength and even in his hairs and nails. Women will keep up their beauty and youthfulness.

Women will not suffer from their usual complaints of back pain, pain at the loins, the body pains and so on. They will never be barren. Men who consume it will have sharp intelligency, they will also have beautiful progeny and they tend to live long.

5. Rasona paka: Take one *prastha* of good dehusked garlicks. Soak them overnight in buttermilk and take them out the next day morning.

wash and grind. Mix the product in eight *ser*s of milk, cook on low fire continuously till it thickens. When it has thickened well, add forty *tolas* of ghee in it. When the *paka* is getting almost fully ready, add the following: *rasna*, *deva daru*, *giloy*, dry ginger, *ajwain*, peepal and *vayavidanga*, all one *tola* each; powder them before adding. When you have taken down the *paka*, add forty *tolas* of honey on its full cooling down and then store safely.

Add a little amount of sugar candy in it when you take it in.

Taking this medicine in the prescribed manner will destroy convulsions, paralysis of the loins, paralysis of the thighs, *vatic* troubles all over the body and in fact eighty different types of *vatic* diseases. The person would become well nourished, his colour becomes effulgent and the span of life, prolonged.

6. Lashunadya ghritam: A garlic ghee. Take one hundred cloves of good garlic, thirty fruits of *haritaki* with their seeds removed and five *tolas* of equal amount of the following powdered together: dry ginger, pepper and peepal. Cook them all in ghee and milk to a consistency of a ghee. When cooled add five *tolas* of *hing* powder and one *ser* of honey. Store in a safe place.

This is a good medicine for insanity, epilepsy as well as paralysis.

Modern Work

As mentioned earlier onions and garlicks are the two plants whose multifarious medicinal usages of Ayurveda and Folklore have been largely justified by the studies and investigations of modern scientists. We shall examine this statement in some detail with garlic as an illustration.

The bulbs of garlic contain an acrid (pungently bitter), volatile oil which is the active principle, starch, mucilage, albumen and sugar. This volatile, essential oil (0.25 per cent of the bulb) obtained by distillation of the bruised bulbs contain allyl propyl disulphide and other organic sulphides or sulphide compounds which are responsible for the characteristic smell as well as the specific medicative actions. This is a clean, limpid liquid which is of dark brown or yellow colour and of very repulsive, intense garlic odour and repugnant to taste. When purified, this becomes colourless and it can be distilled without any decomposition. In some samples, even at ordinary winter temperatures the oil becomes semi solid through deposition of fine crystals.

On further analysis this yielded four factors.

Fraction I (6 per cent): This consists of allyl propyl disulphide which has the characteristic odour of onion and gives a voluminous precipitate with mercuric chloride.

Fraction II (60 per cent): This consists of diallyl disulphide which has the characteristic odour of

garlic. With a little potassium, it can be rendered colourless.

Fraction III (20 per cent): This boils between 122°C at 16 mm pressure.

Fraction IV (10.5 per cent): This boils above 122°C at 16 mm pressure and decomposes on further distillation. It is mainly of polysulphides.

Garlic does not therefore contain allyl sulphide as believed earlier. But the presence of sulphur as such is very rich; it is this that is responsible for the unique smell and the special medicative actions.

The seeds of garlic yield an aromatic oil.

The freshly extracted juice is rich in the oil and consists of abundant amount of bound sulphur (i.e. organic sulphides), iodine and salic acid combinations, apart from important nutrient and complementary substances containing vitamins.

Garlic is used in Medical practices in many forms oils, liniments (or thin ointments), poultice, compound decoctions, powders and pills.

Pharmacological Action and the Medicinal Use

Garlic acts as a stimulant, carminative (expelling; collected gases within and reducing the flatulence or the bloatedness they cause), emmenagogue (regulating the menstrual rhythm in women), antirheumatic (countering rheumatism), anthelmintic (destroying worm infestation) and alterative (or, a drug capable of bringing about many desirable

changes in the vital functions of the body). Seed is a stimulant. Its medicinal property is mainly due to its oil; its recommended dose is 1/2 to 2 minim (a minim is one sixtieth of a *drachm*). Externally the bulb is utilised as a resolvent (that which breaks up or melts). Garlic is widely used as a vermifuge i.e. to expel worms, specially the round worms and also as an antiseptic drug destroying bacteria.

It has come to the notice of every one who use garlicks specially as a juice continuously that in course of time the breath becomes foul smelling and even the skin is likely to emit a bad smelling effluvium. However, there are now *Alliocaps* (oil maceration of finest garlicks in capsule forms) that are free from either the taste or the odour. As such, even a long use of these capsules would reduce the unpleasant emission from the skin. Given internally, garlic is a very useful drug in many forms of dyspepsia or indigestion. The juice of garlic, medically known as *succuss ali* is given in 20 to 30 minims in many cases of flatulence and also colic (twisting pains in the stomach) with very good results. The essential oil of garlic is absorbed into the circulation and is then excreted through the lungs and bronchial mucosa (the slimy membranous cover on the inside of the bronchii or the branches of the wind pipe) acting as a good antiseptic as well as antispasmodic (counteracting spasms or involuntary contractions and expansions as it takes place for example, in a hiccup). Remember that Ayurveda describes garlic as an excellent *sar* or *saraka* viz a well spreading drug:

this is but an illustration of this *sara* property. Garlic thus proves to be an excellent drug in bronchial and asthmatic complaints.

It is also regarded as a prophylactic (*viz* a preventive) drug in the diseases of diphtheria, typhus and typhoid. In the latter two cases one drachm of *succus allivi salivi* (i.e. garlic juice) every four to six hours is given with a syrup. Just half a drachm of syrup is adequate for a child, under twelve years of age. If it is given early in typhoid fever, the disease may not come about at all. As an intestinal antiseptic, garlic is effective in any stage of the disease. In the case of diphtheria, a painful disease of the children, continuous application of the juice to the affected region which can be achieved by going on chewing a clove or garlic and sucking in the juice removes the thickened membranes, reduces the temperature and offers a great relief from pain. One to two ounces of garliсs may be used up in this way within three or four hours. Even after the membrane disappears one to two ounces of garlic should be chewed daily. As already mentioned earlier, a patient of diphtheria neither smells or tastes garlic; these senses do not exist for him. He merely finds them hot. Used as an inhaler - like smelling salts for instance, for three to four hours, the juice of garlic rapidly relieves the distress of whooping cough in a child. For infants and very young children, 20 to 30 minims of the juice in the syrup given every four hours would give great relief in early stages.

Garlic has been thought to be an invaluable medicine in treating pneumonia. It has been used in a large number of cases for this purpose and invariably it has brought down temperature, pulse and also breathing rate to normal levels in about 48 hours. "In no case, was the crisis deferred beyond the 5th day of the disease. Garlic was used here as a tincture (strength was 1 to 5) and the dose given was half a drachm of the drug in water every four hours. Many other diseases of the bronchial region (such as bronchitis, bronchiectasis, foetid or foul smelling bronchitis and influenza) also responded quite favourably to this drug.

In pulmonary phthisis or consumption of the lungs (the *kshaya* or *raja yakshma*) garlic has been used extensively and with very good results. Infant there are several proprietary preparations manufactured by pharmaceutical concerns meant for this purpose and containing either the juice of garlic or its other constituents. In tubercular affections of the lungs, garlic juice when administered internally and in a suitable form has always been seen to diminish obstinate and oppressive cough as well as expectoration, the typical and the constant distressful complaints of a T.B. patient. This also increases the appetite of the patient and in some persons the usual sweating at the nights also gets subsided completely. Many authorities therefore recommend the use of garlic in all tubercular afflictions. To treat the lesions caused by tuberculosis using allyl sulphide is much preferred. Tuberculosis of the larynx responds well to half to

one drachm dose of the garlic juice 2 to 3 times a day.

Garlic contains three essential mineral substances. They are calcium, potassium and phosphorous and these occur in considerably large quantities. Along with them are found iodine, sulphur, iron and chlorine. There are vitamins B1, C and Riboflavin, there is 4.4 per cent, protein, 20 per cent oily matter, 1.18 per cent mineral alkali and 20.0 per cent carbohydrate. But the characteristic smell is due to the great percentage of sulphur. In this respect garlcs are similar to onion, cabbage and radish which also have a considerable amount of sulphur and give out the characteristic smell, similarly. But the essential oil content in garlic is much more than in these other vegetables; it is this that makes its smell more violent and also confers its greater medicinal significance. However, because of this repulsive smell there are many who do not like to use garlic in any way; for, their breath becomes foul smelling and even the skin is likely to smell like garlic. Deodourised garlic produces - capsules for instance (the *rasona* pills are another example) have nowadays overcome this draw back in the use of garlic.

It has been seen by laboratory tests that a special substance called "allicin" found in garlic prevents the very breathing of the microorganisms and destroys them. Just as the famous drug penicilin kills the many disease causing microorganisms, allicin also brings about their destruction. In fact,

allicin is known to have this highly desirable effect even on some pathogenic microorganisms on which penicillin itself is not active. Like penicillin, this allicin brings about its effect by obstructing the very growth of the disease causing bacteria as they interfere with their oxygen intake. No organisms can live if they are deprived of their oxygen supply.

There are quite a few pathogenic microorganisms over which penicillin has no influence. Allicin can confront them successfully. One such group of organisms is *Bacillus paratyphoid* found in typhoid patients and responsible for that disease. This group is responsible for many other grave diseases such as severe diarrhoea, rheumatism and the diseases of the kidney.

Russians have used successfully the medicative action of the very smell of garlic. This is what the Italian peasants are known to include in their normal practices; they compulsorily keep some garlic bulbs tied to their children, so that they are made to smell garlic by force. This is particularly useful in cold seasons when such children are known not to suffer from the attacks of cold and fever common to children of other families. Recall that in India, among the rural folk there is a practice of placing a garland of garlies on the necks of the children. For the locally highly prevalent bronchitis, peasants of Ireland are known to have used garlic successfully.

Another important area in which garlic is remarkably and unfailingly effective is its beneficial

action in overcoming the ill effects of undigestible intestinal food, by which reason itself there develop a large number of harmful bacteria within. Russians are so convinced of the usefulness of this activity of garlic that their government had decreed that the public should necessarily consume a certain percentage of garlic along with their food so that they are prevented from succumbing to these possible diseases. Garlic is infact regarded as a complete and unfailing medicinal substance for destroying harmful microorganisms anywhere within the body.

Yet another invaluable area where garlic functions most usefully is in improving the power of digestion. This comes about as follows. The presence of the excitatory juice of garlic within the stomach necessitates an adequate secretion of digestive juices to act upon. In order to facilitate this action within the intenstine, the gases collected within the stomach get vacated. From then onwards the presence of garlic juice continues to lend intermittent signals for the cerebral centres in the brain to send orders for further and further secretion of the digestive juices. This was the observation in Philadelphia and Jefferson Hospitals of United States of America. The investigators finally came out with the observation that in all cases where serious and chronic intestinal obstructions prevail and similarly in the cases of chest oppressions, prescribing regular use of garlic as a medicine always proved beneficial. Giving this medicine for about a month conferred a great

improvement in the health of the patients. All of them regained their original routine and normal health. Many other investigations and trials have now convincingly proved the highly digestive nature of garlic as well as its ability to remove out the gases collected within the stomach and the intestine. Apart from this is the boon that the garlic confers because of its vitamin content, organic minerals and mineral alkalies. It is quite understandable therefore as to why garlic had been considered as a nourishing food as well.

Getting a recurrent sneezing is after all not a very serious ailment. However if it persists days together? An immediate relief *has* to be found. This is exactly what happened once to an young man in Clarksville in Arkansas of U.S.A. For four days continuously he went on sneezing. When this did not stop at all, advertisements were given in the News Papers requesting some help from any quarters. Many of these suggestions were also acted upon. Finally one doctor advised him to use enough quantity of garlic. Immediately after this was carried out, sneezing stopped and the patient got relieved of his long distress. It was finally found out that this episode of sneezing commenced in this person by smelling garlicks which were stored in the hospital where the person happened to go. Finally it was this garlic alone that liberated him from what it had itself brought about! It quite often happens that for many persons taking garlic is intolerable; their constitution just cannot stand the smell. They are likely to get such sneezing. It is for such people,

deodorised garlic is a boon. Taking onion and garlic results in a bad smell and this also spoils the taste of the mouth immediately in some. There also one would find deodorised garlic useful.

Irregular and incompatible food creates a state of the body in which it becomes liable for a disease affliction. Since the very process of digestion is interfered with in such persons, they are also likely to suffer from incomplete or imperfect digestion leading to a collection of *ama* or the undigested and the unassimilated food - the chief cause of most diseases. By helping in their digestion, garlic would act as a tonic to them.

High blood pressure is a very common affliction of the modern days of tension and psychological pressure almost everywhere. Any person who is past forty years of age is likely to become a patient of high blood pressure. Men are likely to be more prone than women in general to this disease which very soon tends to become chronic and almost a life time companion henceforth. It is estimated that this highblood pressure is one of the important causes of premature death, specially in the developed countries like America.

Many practitioners of modern medicine have now accepted that garlic is a sure, dependable and effective medicine to the patients of highblood pressure. They actively prescribe garlic preparations, specially the *rasona* tablets or capsules towards this purpose. By the use of this drug, there will be an appreciable coming down of tension and

mental pressure. The high blood pressure in the blood vessels comes down noticeably. The irregular throbbings of the heart become regulated. The tendency towards dizziness of the head, sudden weakness in the limbs, the upsettings in breathing and the styptic action in the digestive tract due to gas collection- all of these usual accompaniments also become greatly reduced in their violence and intermittency if any. Many further trials in this direction have now amply confirmed these beneficial effects of garlic. As such its use in the form of both pills and capsules has been extensively adapted in allopathic practices. An ancient and a very common place drug plant like garlic has thus become now a sure cure or at least the mitigative of the sophisticated disease of high blood pressure of the modern age. However it should be remembered that garlic is not actually the cure for high blood pressure; that lies elsewhere and is essentially an adoption of a tension free attitude towards life. Nonetheless the beneficial action that garlic exercises symptomatically in this condition by mitigating or palliating the attendant adversities - both physical and psychological, is undoubtable and definitely welcome.

In view of the multifaceted use of this familiar bulb of garlic as hinted above, it is a good practise to use it daily either in the form of *chutney* or as an adjunct to other dishes and along with other vegetables. In any form in the food, as soup, or in the salads or the *kuchembers* (a dish of mixed salads), garlic needs to be consumed.

The chief and the active principle in garlic is a volatile oil easily obtained by crushing its bulbs and distilling from them. This oil is a clear limpid liquid, dark brown or yellowish in colour. By purification it can become completely colourless and it can also be distilled without any decomposition whatsoever. In some cases, even at winter temperature, the oil becomes semi solid through the deposition of crystals.

Allacin is another active substance extracted from garlic. This has been now tested against various disease causing microorganisms. This is about equally effective against the two major types of bacteria referred to technically as the gram positive and the gram negative. The activity is seen to be about 1 per cent of penicillin. Garlic oil is seen to be active on gram positive and gram negative bacteria, acid past bacilli and also on fungi. We have seen earlier that garlic juice is employed as an antiseptic lotion in many ulcerated surfaces and wounds with quite satisfactory results; this stems from the antibacterial activity of garlic which has been now amply confirmed by modern science. Quite a number of allopathic doctors have successfully used allium preparations in treating even suppurating (pus oozing) wounds for years together and foul ulcers, and have always obtained very satisfactory results.

Garlic has been also proved now to be an excellent medicine for several forms of indigestion. In cases of excessive gastrointestinal catarrh, an

ointment of garlic is rubbed over the abdomen and a binder is applied afterwards.

Nowadays there exist several proprietary preparations of garlic alone or with other ingredients that are advised as very useful in pulmonary tuberculosis. In all tubercular affections, the use of garlic reduces many symptoms such as obstinate coughing and persistent expectoration. It also improves digestion, appetite and confers a sense of well being and comfort. Sleep is induced and the patient gains in weight.

Neither the fascinating story nor the listing of the merits of this humble bulb of the kitchen, namely, garlic and also onion is over. We shall however conclude this account by a rapid summarising of some very recent works in this line.

Even the cultivated varieties of garlic have become more in number in modern times. It was indicated earlier that there is a variety of onion almost solely meant for pickling and in America there is a flourishing industry of producing onion pickles on a large and commercial scale. Recently even in India a variety of small rose coloured onion has been introduced almost solely for this purpose. These are now well grown in Kolar and Bangalore of Karnataka State and also in Cuddapah of the neighbouring Andhra Pradesh. Characterised by their pungency and small bulbs they are almost wholly exported abroad and guarantee good profits to their growers.

Medical Scientists of modern times have continued to substantiate many of the reputed beliefs on garlic as above and also as a preserver and restorer of health and youth viz. a *rasayana* drug or an elixir as some Ayurvedic texts had already claimed. Early results in this direction have suggested that this ancient bulb can cure a host of modern ailments - such as heart diseases, several types of cancer and also cell damage brought about by pollutants, radiation and aging. Some of these studies suggest infact that this garlic that contains more than 200 different compounds can favourably influence the course of many diseases.

For example, garlic preparations have been shown in laboratory studies and in some cases in patients "to suppress the formation and growth of cancer cells and to counter blood conditions that foster atherosclerosis (a thickening of the blood vessels—an important cause of high blood pressure), heart attacks and strokes". In fact, such a prestigious research centre as the National Cancer Institute of America is now planning a study of the possible role of garlic as a Cancer preventive agent. It should be noted that this study was proposed after a survey and a surprise finding that among people of China and Italy who eat a lot of garlic, it seems that it is this garlic that prevents them from getting stomach cancer. However, much more extensive and definitive studies are needed before one can put forward the contention that garlic or its extracts or preparations can be rationally and clinically used as other proven anti

cancer measures such as surgery or a few other drugs.

It has also come to the notice of modern investigations that some forms of garlic result in serious toxic consequences when taken in large quantities purported to have health benefits. The adverse effects include anemia, stomach ulcers, severe allergic reactions and very surprisingly, a suppression of testicular functions. That is why, though a First World Congress on the Health significance of Garlic and Garlic Constituents was held in Washington recently by the garlic enthusiasts, the experts themselves of the conference have warned against the use of garlic or garlic supplements to treat disease until the "safety and efficacy of the use have been well established". These experts believe that garlic research is now in *adolescent* but not a mature stage.

However, a few facts seem to have become quite clear. It is not necessary to consume garlic in a raw state to derive its maximum effect. In fact, raw garlic is more likely than cooked garlic or preserved forms of it to cause adverse reactions. More importantly, it seems that the characteristic odour or its freshness is not critically important to its health benefits. Actually, aged or deodourised forms seem to work as well or even better than the pure, unadulterated and fresh cloves.

A lot remains to be done as regards the crucial problem of settling as to which components or forms of garlic are most effective against the several

health problems as reputed and how exactly these components carry out their work in the body and how they all can be used safely and with maximum benefit. A number of sulphur containing compounds, a few of which get formed when garlic is treated in various ways are believed to be responsible for much of the garlic's beneficial biological activity.

In some form or the other either as a nutritional supplement or a medicine, garlic has been used for centuries all over Asia and a few European countries. Even now it has been observed that most German adults take garlic pills daily to promote health much as the Americans take Vitamin supplements. In some part of China, people eat an average of five cooked cloves of garlic every day as part of their meals.

Other highly attractive laboratory results of garlic research are listed below. Garlics are now shown to do the following:

1. Suppress cholesterol synthesis by the liver, lowering total serum cholesterol by reducing only the harmful LDL cholesterol and leaving the protective HDL cholesterol at normal levels.

2. Lower the levels of triglycerides, another blood fat that has been linked to increase the risk of heart attacks.

3. Reduce the tendency of the blood to clot, more effectively than even aspirin, the famed drug in this respect, and help the body in dissolving the existing

clots. These are important effects that may ward off heart attacks and the incidence of strokes.

4. Promote regression of fatty deposits in blood vessels (which itself lessens the chance of the thickening of the walls of the blood vessels or atherosclerosis) and also reverse arterial blockages caused by atherosclerosis.

5. Block the ability of chemical carcinogens (i.e. cancer generating agents) to transform normal cells into cancer cells and in some cases to actually inhibit outright the early growth of the transformed cells in cancerous structures.

6. Stimulate various immunological (i.e. disease resistant) factors that may help the body combat cancer as well as stubborn chronic fungal infections such as *Candida* that causes a nauseating disease among millions of people.

7. Protect cells against damage by oxidising agents and heavy metals that are wide spread in modern industrial environment, plagued as it is with pollution of variegated causes and diverse severities.

It is quite justifiable why our Ayurvedic Scholars probably invented the story that this little garlic grew up in exact spot where a few drops of the heavenly *amrita* or the nectar accidentally fell down on earth.

The important clue which started serious search for anticancerous properties of garlic was, as just mentioned, the observation that the Italians and the

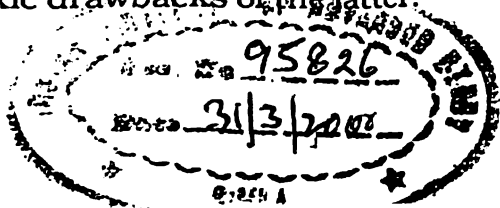
Chinese who consume a lot of garlic habitually have a very low rate of stomach cancer. The other vegetables which they were also eating were the onions and the leek or the shallot. People living in areas of high consumption of garlic had less than half the risk of developing stomach cancer as compared to people who lived where little or no garlic type of foods are eaten. Though frequent consumption of other fresh vegetables and fruits were also linked with a reduced cancer risk, garlic "seems to multiply the benefit, providing even more protection than would be expected from simply adding on its separate benefits".

One reason advanced is that garlic probably blocks the formation of nitrosamines, a class of protein carcinogens (cancer producing agents) in the digestive tract. Garlic extract was reported to be much more effective than vitamin C in such a blocking as observed in the laboratory as well as on people. An intensive study is now envisaged to cover 3,000 adults to see if allium vegetables suppress precancerous stomach lesions, that are the harbingers of full fledged cancers quite soon. Does such a prevention occur in the cancers of esophagus (gullet), mouth, larynx and colon, the other common regions of cancer attack? Laboratory animal experimentations have shown that such a prevention does occur in the cancer of the breasts, esophagus, colon and rectum.

More interesting than these results was a three year study conducted in India itself among 432 coronary (viz heart) patients who had already

suffered from one heart attack. These patients were randomly divided into two groups - one group receiving daily supplement of garlic juice in milk. It was seen that those who took such a garlic supplement in their food suffered fewer heart attacks subsequently and also had lower blood pressure and serum cholesterol levels, the two indications of proneness to heart attack. After three years nearly twice as many patients had died in the group that did not take garlic.

Benefits of garlic taking became increasingly apparent with time. The suggestion made was that garlic worked by dissolving the atherosclerosis blockages in coronary arteries. It was further seen that the patients who drank the garlic supplement were more likely to report such subjective benefits as an increase in vigour, energy and sexual desire, improvements in exercise tolerance and a decrease in joint pains and asthmatic tendencies. However, some of these patients did complain of a few points of distresses, such as smelling bad, a feeling of heat in the body, a burning sensation when urinating, heart burn, flatulence and belching. These however can be eliminated by substituting processed garlic supplement, like aged garlic extract in place of the raw garlic juice. In fact using aged garlic extract is a very welcome alternative to those who cannot stand raw garlic or who desire to avoid the foul smell of it. For, this extract has been shown to contain the same benefits as shown in the fresh garlic but few of the toxic drawbacks of the latter.



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