

Health Series



Traditional Family Medicine



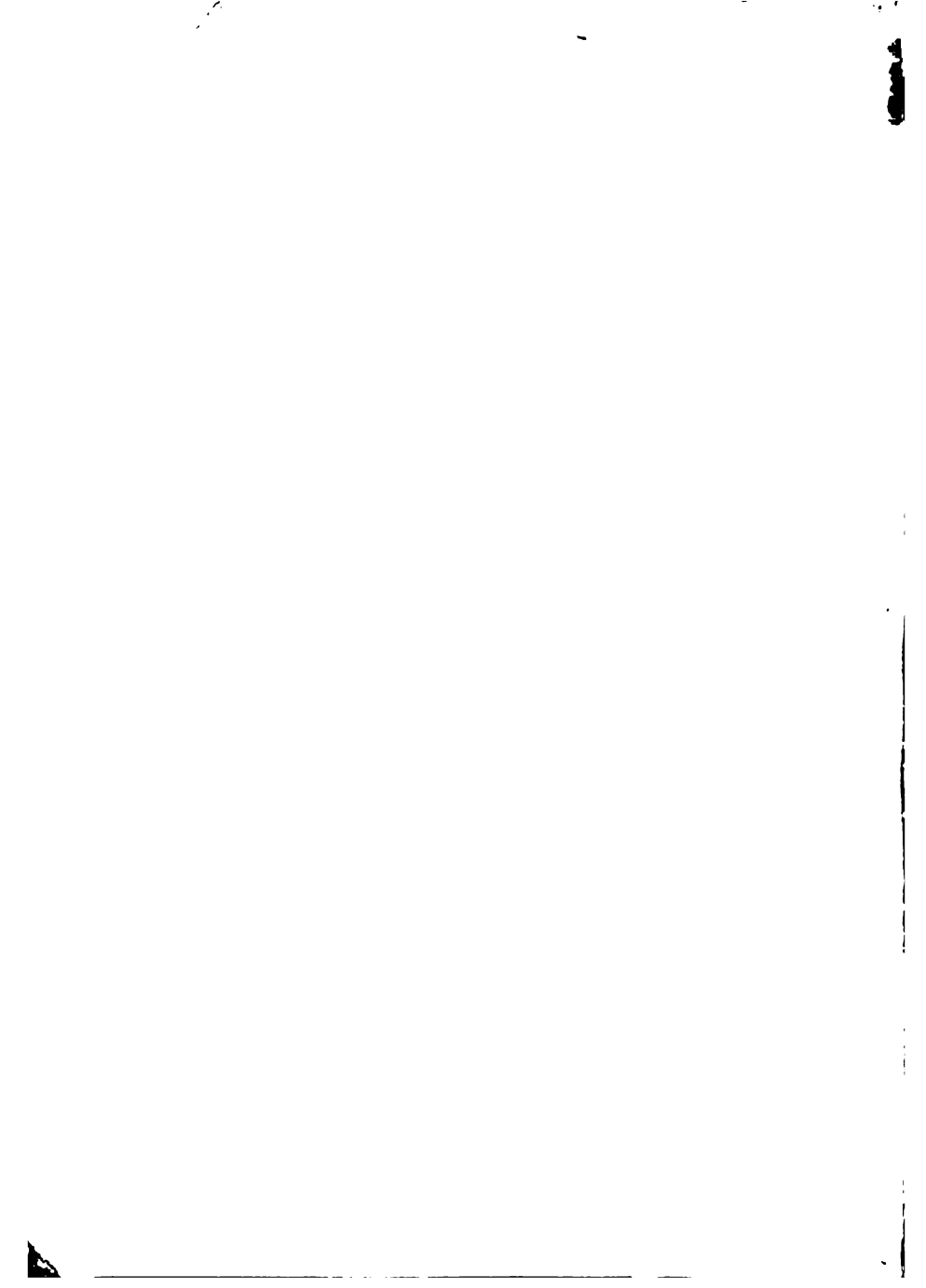
Ginger and Turmeric

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HEALTH SERIES :
TRADITIONAL FAMILY MEDICINE

Ginger and Turmeric

K.H. KRISHNAMURTHY

BOOKS FOR ALL

[A Division of D.K. Publishers Distributors (P) Ltd.]

Delhi-110052

14548

Sales Office:

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1, Ansari Road, Darya Ganj, New Delhi-110002

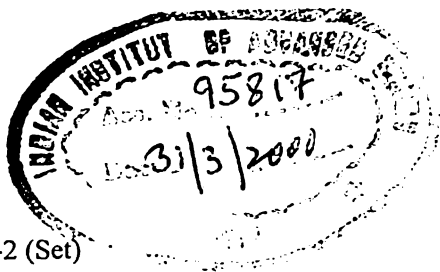
Phones: 3261465, 3278368

Fax: (011) 326 4368

© Publisher

First Edition 1992

Second Edition 1995



ISBN 81-7386-124-2 (Set)
81-7386-127-7 (Vol.10)

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Published by:

BOOKS FOR ALL [A Division of D.K. Publishers Distributors (P) Ltd.] at Regd. Office: A-6, NIMRI Community Centre, Ashok Vihar, Phase-IV, Delhi-110052.

Typeset by: ABC for DTP, Delhi-34.

Printed at: Santosh Offset, Delhi-110035

PRINTED IN INDIA

 Library

IIAS, Shimla

633.88 K 897 G



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INTRODUCTION

Ginger and turmeric constitute two of the most important spice and condiment materials for which India has been justly famous since very ancient times. Some of the other vegetable products of this type are the cloves, the cardamoms, the nutmeg and the *dalchini* or the cinnamon bark. It is in search for these materials and more so to capture the world trade in them during those times that the European colonisation of India and the Far East did come about, from the early nineteenth century onwards.

All authorities agree that ginger marketing commenced with India as its source. Its very name is Sanskritic. It is very interesting and educative to study as to how the reputed Chamber's Dictionary of English traces the origin of this term 'Ginger'.

This is traced at many distinct stages such as *gingivere* of Mid English, *gengibre* of old French, *gingiber* of Latin, *Zingiber* of German and *Zingiberis* which is perhaps, Sanskrit *shringavera*. A look into the Sanskrit terms of *shringa vera* to ginger is more interesting. Even for Sanskrit, this term is rather unusal. This is because it is made up of two distinct words *shringa*, which is horn, a Sanskrit word and *vera*, which has no meaning in Sanskrit, but means a root in Dravidian languages. The term is what grammarians call as an *arisamasa* viz. a combination of words of two different languages, Sanskrit and Dravidian. The term *shringa vera* however has a very apt application; it means "horn-root", clearly alluding to the horn like root or rather, the underground portion of the plant, the rhizome, which is what constitutes the ginger. One can easily surmise that the plant was a discovery of such early times as when the Aryan and Dravidian races first came together in India. From then onwards this little bit of history is ever locked up in the very name of this plant viz. ginger and its modifications in the several tongues of man.

Shringa vera pura is a famous city on the banks of Ganga well referred in Ramayana. It was here that Bharata was about to throw himself into flames if Sri Rama did not return in time. It was here therefore that Hanuman met him perfectly in time with the news of Sri Rama's impending return. It is quite likely that Shringa vera pura was so named because it was an important national trade centre of India for ginger. Some authorities

derive the term Zanzibar similarly from *shringa vera*, the ginger, as this happened to be an international trade centre of ginger in the early days of colonisation. It is necessary to note here that even now ginger is an important item of Seaborne Trade Returns of India.

A historical account of ginger is quite impressive. It has been undoubtedly used as a spice and a medicine from very early times in India and China, extensive references occurring in both the countries in their respective medicinal literature as well as folklore. The ancient Greeks and the Romans who were aware of these uses of ginger however had regarded the spice as being of Arabian origin, since they secured their supply by way of the Red sea. The use of ginger in medicine and as a spice is now well known all over the world. At one time, it was abundantly employed for spicing beer and the modern equivalent of this practice is the ginger-beer, an effervescent drink made with fermenting ginger. This is highly esteemed to-day as a beneficial beverage in cold weather. There are many other commercial ginger preparations of Europe such as gingerade or ginger-ale, (an aerated drink flavoured with ginger), ginger cordial (a cordial or a heart warming beverage, made of ginger, lemon peel, raisins, water and sometimes spirits), ginger-pop (a weak ginger beer), ginger snap (a ginger bread biscuit) and ginger wine (a liquor made with fermentation of sugar and water and flavoured with various spices, chiefly ginger).

Turmeric is one of the most important colouring materials of India. This natural dye is orange red or reddish brown and some-what golden. It is extensively used to impart a yellow colour to cloth and many other fabrics and also foods, including curries.

Another not much known use of turmeric is that it serves as a chemical indicator since it changes colour depending upon the presence of *alkalies* or acids.

Medicinally, both Ayurvedic and Yunani practitioners have been using turmeric from times immemorial—as a stomachic (i.e. drug good for stomach), a tonic and a blood purifier. It is also employed as an antiperiodic and an alterative (i.e. a drug that brings about desirable alterations in several vital functions of the body).

Turmeric is believed to have been evolved botanically in India and particularly the Himalayan regions of modern Bihar State.

The herb is also one of the very auspicious plants of India besides being a spice and a medicinal drug. Its powder along with *kumkum* is a must for all sacred and religious functions. On all important occasion the *haldi* powder is exchanged among the ladies and this powder is also indispensable for all worships. In Tamil Nadu specially, there is a practice among the ladies to exchange fresh turmeric tubers, often with the leaves on the arrival of an important lady guest or on the occasion of any auspicious functions.

Botanically, ginger is called *Zingiber officinale* while turmeric is known as *Curcuma longa*. Both of them come under the same family called Scitamineaceae, a family of giant monocotyledonous herbs to which quite a few other famous plants such as banana and cardamom belong. In addition, both the genera of *Zingiber* and *Curcuma* include a few more species each, other than ginger and turmeric. These other species do have their own recognised value in medicine and they are often called in popular languages as but "varieties" of ginger and turmeric. We shall therefore give an account of them also in the following pages. Apart from these, it becomes appropriate here, to consider one more plant called *daru haridra* or woody turmeric, if one would translate it in English. Though this plant is botanically totally different viz. *Berberis aristata* and belongs to a family called Berberidaceae, its inclusion here is justified as Sanskrit authors would call it as a "variety" of *haridra*, the turmeric.

Ginger is infact the most important of the spices obtained from "roots" which are however not roots at all, but underground, succulent storage stems. These also help in vegetative propagation i.e. reproduction by sprouting when 'bits' of this rhizome are cut off and planted separately. This is a native of South eastern Asia and has a long and interesting history. Its use is well recorded since very early times both in India and China as noted above. This happened to be among the first of the oriental species to become known in Europe; it was

prominent early in the Middle Ages. This was being brought by caravans to Asia Minor even before the times of Rome. It occupied an honoured place for many years as an important medicinal drug also. It was the principal ingredient for instance, of a remedy for plague that was much used in England during the reign of King Henry the Eighth. To-day, ginger is cultivated over much wider an area than most other spices. The reason is due to its great value as a condiment and a medicine and also because it can be easily preserved, transported and also propagated. Ginger also represents to be one of first Asiatic spices to be grown in the Western Hemisphere of the Americas. Ayurveda considers it as one of its most important medicinal plant and to such a degree that one of the names with which it calls ginger is "vishwa bhesaja", an universal medicine. We shall enquire why is this so called, later.

Turmeric is a famous spice and as equally, a dyestuff. It is presumed to be the native of Cochin China (the modern Vietnam) and the East Indies and is particularly popular in India, where more than 60,000 acres are devoted to its cultivation and enormous quantities of it are used in food and colouring. This has been so with us for centuries. Turmeric is very aromatic with a musky and highly pleasing odour and has a pungent, slightly bitter taste. It is used principally to flavour and simultaneously colour the cooked food stuffs and also butter, cheese, pickles and mustard. A great quantity of it is exported to Europe and America.

Turmeric is an important ingredient-an inevitable ingredient of an Indian curry. The principal reason for the delectable tastes of Indian curries, both vegetarian and the non-vegetarian, is the number and the varieties of the spices of the masala added during their preparation. One popular recipe for a meat curry includes thirteen of them viz. turmeric, coriander, cinnamon bark, cumin, ginger, cardamom, fenugreek or *methi*, chillies of two variety, black pepper, long pepper, cloves and nutmeg!

Pharmacopea of a country represent its officially recognised lists of valuable drug substances that enter into its pharmaceutical industry and clinical use on an officially sanctioned authority. The importance of ginger and turmeric in the medical world can be easily realised when we note that both of these Indian plants constitute such recognised drugs in Indian, British and American pharmacopea.

A. GINGER

Botanical Aspects

As stated above, both ginger and turmeric belong to the same family called Scitamineae, the family to which banana belongs. As such they share some common characteristics. The important feature is the nature of the plant itself. They are all herbs, often large (banana is the largest) and possess what is technically called a pseudo stem or a false stem. This is constituted by the overlapping

of the basal sheathing portions of the leaves only. The true stem lies only underground and is reduced, coming up as the central axis at the time of flowering, piercing through this pseudostem. Leaves are large, all found at the level of the root itself i.e. they are radical. They have a large sheathing base and a leaf blade or a lamina that has a strong central nerve on either side of which many parallel veins arise like feathers or pinnae. Flowers are hermaphrodite viz. both male and female structures appearing in the same flower. They have a very short or even no stalk. They are either solitary or they may occur in clusters called spikes - conical groups of stalkless flowers.

Ginger is one of the species of a genus called *Zingiber* belonging to this family. The genus *Zingiber* consists of herbs that have long leafy stems aerially and horizontal tuberous rootstocks or rhizomes underground. Leaves are large, oblong and lance like in shape. Flowers occur in the cluster of spikes. They are usually radical. Bracts or leafy structures in whose axil the flowers arise are persistent and they usually enclose only one flower. They produce fruits that are oblong capsules which are dry and dehiscent, breaking open at maturity to shed out large globose seeds that have an aril or an out growth at the base itself.

The genus is distributed in Indo Malayan area and consists of about 55 species, all of which are technically gingers. However, it is only three of

them that are of value. They are all considered as different "varieties" of ginger in layman's language. Their names are often mutually related and every one of them has medicinal and other values. It becomes relevant therefore to give some consideration to all of them. First we should know how to distinguish among them, botanically. The following artificial key of the crucial and easily recognisable identificatory features will be of assistance here.

A key for differentiating among the three species of the genus *Zingiber*:

A. Leaves are smooth and non-hairy on the underside.

1. Leaves are lance like. Spike or the inflorescence is of an oblong shape and cylindrical.

This is *Z.officinale*; the ginger proper.

2. Leaves are oblong and lance like. The spike is also oblong but very dense.

This is *Z.zerumbet* called in Kannada and Tulu as *Kallu shunti* or the Stone ginger.

B. Leaves are not smooth but more or less softly hairy on the underside.

This is *Z.casumunar*. Sanskrit calls it *vanaardraka* and Kannada names it as *kadu shunti*, both of these terms signify that it is a wild i.e. a forest ginger in contrast to the first ginger, which is a cultivated ginger.

We shall now consider every one of them in some detail.

INDIVIDUAL GINGERS

The Common Ginger

Names

Sanskrit gives a large number of very meaningful terms for this plant. Some of them are: *anupama* (uncomparable, concerning its medicinal efficacy), *anupaja* (growing near marshy areas), *gulma mula* (with a thicket like or a bushy root), *kandala* (tuberous), *vara* (the excellent), *sharnga*, *shringa vera* (the horny root), *mahija* (born underground), *saikateshta* (loving to grow in sandy soil), *aapaaka shaka* (a vegetable used in most culinary preparations?), *ardrakhya*, *ardraka* (the wet; referring to the ginger used in a fresh state and not dry which is *shunti*), *rahucchatra*, *sushakaka* (a good bit of a vegetable).

Shunthi, the dried ginger has its own set of names: *mahaushadha* (the great medicine), *vishwa bhesaja* (the universal medicine), *naagara* (the city form; i.e. as it is sold in city markets) and *katubhadra* (the bitter and the auspicious).

Its name in Arabic is *zangabil*; Assamese and Bengali, *ada*; in Chinese, *kiang*; in Hindi, *ada*, *adrak*, in Kannada, *alla*, *ardraka*, *hasi shunti* (the wet ginger), *shunti* (the dry ginger); in Marathi, *ale*; in Malayalam, *andrakam*, *chinchiver*, *chukku*, *trji shringaveram*; in Punjabi, *ada*, *adrak*; in Tamil,

aleam, in-ji, sukku, ver kombu (a term which is a literal translation of *shringa vera*, meaning root which is horn like); in Telugu, *mahaushadamu, allamu, shunti* and in Urdu, *adraka*.

Botanical Description

The principal or the officially useful part of the plant is its "root" which is called so, popularly but is correctly its underground rhizome or a modified storage stem. This rhizome is stout, tuberous, branched and has many nodes or joints at close intervals. It produces clumps of roots below and aerial leaves above which in turn form pseudostems by their overlapping leaf bases as noted above. The leaves are narrow and arranged in strict distichous viz. double rowed, manner. They have a short stalk on their sheathing leaf bases. The leaf blade is linear viz. with almost parallel edges and lance like in shape. They are 1-2 centimetres in width and glabrous or smooth and non-hairy. Flowers are greenish with a dark purple or purplish black lip and are nicely and attractively scented. They are arranged in spikes that rise up from the root level. The spikes are 3.8 to 7.5 centimetres in length and 2.5 centimetres in diameter.

The plant is now well cultivated in the whole of tropical Asia. Its nativity is believed to be India.

This is a perennial herb living for many seasons, producing leafy shoots reaching upto a height of about one to three feet. After the flowers fall down

and the aerial stems are also withered, the underground ginger is ripe and ready for harvesting. The rhizomes are now dug up and prepared in many ways for marketing.

There are many varieties in the world market now, called by the names from where they chiefly come for trade. Of all these the Jamaican ginger is the most highly esteemed and secures the maximum price. Indian ginger also has a considerable market abroad and with more attention to its cultivation, preparation for marketing as well as actual marketing will easily secure a wider recognition. For instance, Jamaican ginger is grown in sandy loam where very good irrigation is possible in case the rains prove unsatisfactory. Their yield per acre is said to be 1,000 to 1,500 pounds going up to 2,000 pounds sometimes. The comparative yield in Bengal is from 1000 to 1,500 pounds, in Punjab 2,100 pounds and in Kerala 2,500 pounds. Quantitatively also therefore Indian ginger is equal to the Jamaican ginger and with better cultural practices can easily supercede it.

Preparing ginger for marketing needs an adequate care. When the rhizomes are dug, they are peeled or decorticated with a knife specially made for the purpose—a skilled job needing experienced workers. Immediately, they are thrown into water, the cleaner the water and the more freely it is used, the whiter would be the product. They are kept soaked overnight. After such a wash, they are spread out in the early morning next day

for drying, during which time, they are turned over and also kept protected in cloudy weather and rain. This is done for five to six days, then they are bleached by washing and again dried. Then they are ready for shipping.

Some commercial "varieties" of ginger are as follows: African ginger (odour, strongly aromatic, taste aromatic and strongly pungent), Cochin ginger (similar in odour and taste), Calcutta ginger (odour aromatic; taste, starchy and pungent), Calicut ginger (also called lemon ginger; odour lemon like, taste aromatic and pungent) and Japanese ginger (from a different species altogether viz. *Z. mioga* Rose; odour and taste, aromatic and pungent). In commercial centres they are all very well distinguishable by their external appearance itself.

The United Kingdom was the best market for Indian ginger for a long time. Quite easily Indian ginger can occupy much greater a role than it does now in the World Market.

Medicinal and other Importance

Parts of the plant that are used in several ways are constituted by the fresh rhizomes (*adruk*) as well as the scraped, dried and sometimes limed rhizome (*shunti*).

Constituents

Ginger contains an aromatic or an essential volatile oil responsible for its characteristic smell

and 1 to 5 per cent of a substance that is of a light yellow colour. There are many alkaloids and other characteristic chemical substances such as camphene, phillandrene, zingiberine, cineol and borneol; and, gingerol - the yellow pungent body and in addition, an oleo resin called gingerin which is the active principle. There occur other resins as well as some starch and potassium oxalate. The essential oil because of which reason ginger has its pungent flavours occurs just beneath the skin or the epidermis. The pungent principles of ginger however are not volatile in steam to any appreciable degree and are consequently not present in the volatile oil. It is this that has been isolated and also given a technical name called gingerol, though its true chemical nature remains still to be finally settled.

Pharmacological action

The chief importance of ginger comes from the fact that it is a very efficient carminative drug capable of expelling gases from the stomach and thus remove the possibility of flatulence - a bloating of the abdomen due to morbid gas collection. Ginger is also aromatic and stimulative to the gastro intestinal tract thereby increasing the secretion of the valuable digestive juices in the region. It is this that makes it an efficient digestive agent. It also happens to be a commendable sialogogue or, a drug which stimulates the formation of abundant saliva on the tongue.

Ginger applied externally on the skin acts as a local stimulant and simultaneously, a good rubifacient i.e. an agent that causes a reddening of the skin.

The traditional systems of Ayurveda and Siddha attribute a large number of properties and uses to ginger. They consider its taste, as sweet and also *katu* or pungent; virility, as *ushnarn* hot; and post assimilative effect or *vipaka* as *katu* or pungent. For digestion it is light *laghu* and unctuous or oily or *snigdha*; It is very stimulative of digestion or *pachana* and very tasty; in itself and in fact, it also increases the taste to the tongue. *Ruchya* it is an efficient appetiser.

Its many, often uniquely useful effects are all very clearly recognised. It is virilifying i.e. increasing the manly vigour, *vrishya*; good for the voice *swarya*; and, overcomes any obstruction within the body, *vibandha hara* and is laxative. It finds an useful application in many diseases. Some of these diseases are: dysentery or sprue (*grahanī*), weak or feeble digestive power (*agnimandhya*), torpor of the bowels with flatulence (*amla vata*), vomiting, difficulties of breathing and also asthma and bronchitis, shooting pains (*shoola*), piles, constipation (*anaha*) and the diseases of stomach or the abdomen in general. It has some useful action in the diseases of the heart (*hrit roga*). It is applied externally in cases of *kapha* or phlegmatic blockings, swellings in general anywhere and also in securing a relief from headache.

Besides this, ginger is also recommended in elephantiasis, scorpion sting and snake bite. The use of ginger is however contraindicated (i.e. it should not be given) in the following cases: leucoderma, anaemia, strangury or painful retention of the urine, leprosy, ulcers, fevers, burning sensations and also in all diseases of the blood. Using ginger under these circumstances is likely to lead to many undesirable consequences and therefore better avoided.

Use of Ginger in Food

Because of its aromatic nature and pleasantly pungent taste, ginger finds great many uses in its fresh state or as *adrak* in condiments, curries, pickles, bread preparations (as in ginger breads), buns production and also in conserves or preserves in sugar solution or sugar enriched *murabbas* (such as ginger *murabbas* specially from the fresher and the younger rhizomes). Ginger enters into syrups and innumerable modifications of refreshing beverages, cool drinks and in addition wines and beers. It is a very common, highly popular as well as beneficial and medicated seasoning material, for many savoury dishes. In summer days specially it is used for characteristic flavouring of butter milks and chutneys. Ginger constitutes a favoured material alone by itself in these choice articles of food or in combination with other substances such as mango, young bamboo shoots and the like particularly for pickling purposes. The whole rhizomes or its suitably cut pieces are pickled.

In all these cases it is the fresh, wet ginger that is employed. Dry ginger is mainly used in medicine. The ginger is of two types: peeled and unpeeled. In the former case, the outer skin of the rhizome is scraped, while the later is just the merely cleaned rhizomes dried thoroughly in the sun. When the fresh drug is used in order to extract the juice, the supernatant fluid should alone be used and the sediment or the *chunnam* as it is called should be totally discarded. Dry ginger is much used as a carminative agent along with *black pepper* and long pepper, the three together forming the famous trio of the pungents or the *trikatu* drugs.

Some times the rhizomes are par-boiled i.e. partially boiled before drying, this process being called, bleaching. However this is actually unnecessary and infact may seriously affect the useful active principles in ginger, if carried out in excess. The peeling referred above adopted during converting fresh ginger into *shunthi* is an important step. For, the essential oil because of which ginger gets its aromatic value resides in the epidermal or the outer skin of the rhizome; excessive scraping is therefore likely to impoverish the quality of the spice.

Dried ginger powder is sometimes used in condiments and syrups.

Use in Medicine

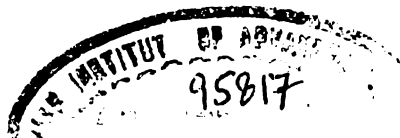
Ginger is extremely valuable in dyspepsia or indigestion, flatulence, colic or twisting pains of the

stomach, vomiting and spasmodic or violent involuntary and recurrent muscular contractions of the stomach and the bowels or gripings when they are not accompanied with fever.

It is also an esteemed remedy for cold, cough and asthma. In these three affections as well as for dyspepsia, a highly recommended preparation of ginger is *allaepauke* or ginger-jam or ginger-serve. This consists of ginger juice, water and sugar boiled together down to the consistency of a syrup. To this is added during the later stages of the preparation itself saffron or *keshar* cardamoms and cloves—all in a powdered form. This is then preserved in a moisture free state and in a well stoppered bottle, chinaware or earthenware. It is a delicious as well as a highly medicative preparation that comes very handy for the occasion.

In cases of indigestion accompanied with a want of the appetite itself, equal parts of ginger juice, lemon juice and rock salt are all well mixed together and taken. Or a mixture of equal parts of ginger and rock salt is recommended before the meals itself. When ginger and rock salt are taken together in this way before the meals, it will clean the tongue and the throat and also produce an increase in the appetite coupled with an agreeable sensation in the mouth.

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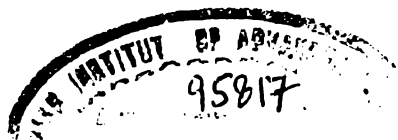
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For biliousness or *pitta* aggravation and also delirium tremens—a state of wild excitement accompanied with irrelevant speech and sometimes convulsive or trembling symptoms, that



is caused by billiousness, two *tolas** of ginger juice mixed well with seven *tolas* of cow's milk and boiled down to half of its initial volume and added with adequate powder of sugar candy is recommended. The dose is according to the severity of the affection and this is to be taken once at bed time in the night.

Another recipe for the same purpose is the following, Take two *tolas* each of ginger juice and mango juice, fine sugar and cow's ghee. Mix them all well and cook to half the quantity. This is to be taken morning and evening and every day.

Take a bit of fresh ginger, place it in the mouth and go on chewing it for some time. This produces a copious flow of saliva and would thus prove of considerable benefit in the complaints of sore throat, hoarseness of voice as well as total but temporary loss of voice.

Ginger juice when rubbed on and all round the navel is presumed to cure all kinds of diarrhoea.

* The modern equivalents of the measurements henceforth used in the text are: 1 *ratti* = 1 *gunza* (seed of *Abrus precatorius*), 8 *gunzas* = 1 *masha*, 10 *masha* = 1 *tola*, 24 *tolas* = 1 *ser*, 1 *tola* = 10 grams. *Ser* is also the name of measurement by volume; *pav* = 1/4 of *ser*, *chatak* = 1/2 a *pav*.

1 drachm (dram) = 1/12 of an ounce; 1 ounce = 1/2 of a pound troy = 480 grains.

Take a *tola* each of the juice of ginger and also onion. Mix them together well and administer. This is given to obtain relief in cases of nausea, vomiting and retching.

Ginger juice mixed with sugar candy and given twice a day is a good remedy for the patients of diabetes - of both the types, diabetes mellitus and diabetes insipidus.

All of these medications make use of fresh i.e. wet ginger or *adrak*. The following however utilise only the dry ginger or *shunthi*.

Dry ginger is usually given as a corrective and additional drug to purgatives. Its role is to prevent nausea and griping or severe spasmodic pain in the intestines-which are the two side effects that often accompany the administration of a purgative, particularly if the latter happens to be of a rather stronger variety.

The ginger or *shunthi* is best given in the form of powder and in doses of ten to thirty grains. It is also advised to be taken along with five grains of sodium carbonate or potash for a better effect. Such a medication is very effective in gout and chronic rheumatism. This is also however given for the same purpose in the form of an infusion (1 in 20) and in doses of one to two ounces every hour.

Ginger powder mixed with ghee and hot water acts as a nice remedy for many troubles of indigestion and loss of appetite or tastelessness or anorexia, which is common in many ailments.

In painful affection of the bowels and the stomach, prepare an infusion of dry ginger and administer it with one or two teaspoonfuls of castor oil. It will act as a good remedy. Dry ginger with *sajjikhara* along with a pinch of *hing* or asafoetida added to it constitutes quite a common and well known home remedy for the same purpose. One more recipe for this affliction is as follows. Prepare a mixture of dry ginger and anised (*Pimpinella anisum* or *sounf* in Hindi) in a proportion of four to one parts, fry this in half the quantity of ghee and powder the whole together. This is to be taken in suitable doses and mixed with jaggery.

In chronic rheumatism, an infusion of dry ginger is prepared (1 part in 24 parts of water). This is taken warm just before going to bed and the whole body is covered with warm blanket so as to facilitate the production of copious perspiration. Quite often this leads to the best of all the possible results. A similar treatment works equally well in cases of common cold and catarrhal attacks or running nose and also during the cold, shivering stages of intermittent fever.

Ayurvedic physicians of Malabar in Kerala used to administer the juice expressed from fresh ginger in gradually increasing doses to serve as a strong diuretic so as to produce abundant urination. This was specially practised in cases of dropsy or morbid collection of water, whatever may be the cause operating here. Such a method has been well tried recently as well and found to be really very

effective. The patients did pass gradually *increasing* quantities of urine almost daily. However this did not prove effective as one would expect in dropsy of chronic Bright's disease, a disease of the kidneys along with the presence of albumen in the urine as it happens in a diabetic patient or in cases of chronic heart disease. Instead, this lead to a worsening condition of the patient. Similarly, long standing cirrhosis of the liver (that characterises specially the confirmed consumers of alcoholic liquors) also did not secure the slightest benefit from this measure.

There is no doubt however that fresh ginger juice, causes desirable urination when given in early stages of cirrhoses of the liver associated with ascites (*jalodara* - or abdominal collection of water) and dropsy of the lower limbs and when it is administered properly. The procedure recommended is the following. Fresh juice of ginger taken from five *tolas* of the weight of the drug is to be mixed with an equal quantity of sugar and given on the first day in the morning. This is to be increased by two and half *tolas* of ginger daily until the juice from twenty five *tolas* is administered finally. The quantity is to be then administered in the reverse order every day till it comes back to the juice from five *tolas* by weight. If any dropsy is still left, another course can be gone through of progressive increase and decrease. The patient should be sustained during this regimen on a diet of milk and boiled rice viz. *conjee* or gruel.

For curing headache, a ginger paint or plaster made by rubbing the dry ginger with a little water is applied to the forehead. There is another paste specially recommended for neuralgic headache i.e. headache due to nervous troubles. For this, a paste is made of dry ginger, cinnamon or *dalchini*, castor root and clove-all taken together and in equal parts. This is applied to the forehead and the temples. Even tooth-ache and face ache are often getting relieved by an application of this same paste.

Ginger helps in a dramatic way in cases of cholera. Powdered ginger is rubbed in at the extremities of the limbs so as to check the cold perspiration, improve the local circulation and also to get a much needed relief for the agonising cramps that are often associated with this terrible disease in its advanced stage of causing a collapse as it were.

Almost similar is the way in which ginger acts in cases of fainting and epileptic fits. Here, ginger is rubbed to the consistency of a thin paste with water and then applied as an *anjana* or colyrium to the eyelids. Or, a powder of ginger, a powder of black pepper and a powder of long pepper - all of these are mixed and sniffed up the nostrils in small pinches just as one takes snuff. This measure proves very successful in cases of fainting, stupor, delirium and senselessness due to brain fever and the like. To cure vaginismus or spasmodic contractions of the vagina, powdered

dry ginger is well mixed with castor oil or castor root powder or paste and then applied to the painful parts concerned.

Ginger contains poisonous principle in the nature of oxalic acid, and is reputed be used in snake bites and scorpion stings.

Here are a few home remedies that most mothers are probably aware of already.

Take ginger 1 gram, soda bicarb 1 gram and rhubarb or the leaf stalks of *Rheum* plant 2 grams. This is useful as a digestive for children.

Collect and mix 10 grams of ginger powder, 2 grams of ferric sulphate, and 2 gram of rhubarb. This is to be administered in 1 gram twice a day after food. This also ensures efficient digestion.

Mix a *tola* each of dried ginger powder and sugar. This is to be taken in a small quantity when a stomach ache has just arisen.

Take one *tola* of fresh ginger juice and one *tola* of *madar* or *Calotropis* roots. Pound this mixture well and prepare small pills of the size of pepper. This is to be administered in luke warm water in cases of a cholera epidemic.

Among the Munda tribes of Chota Nagpur the fresh ginger root is mixed either with honey or ghee and kept over a fire and cooked till it becomes pasty. It is then made into pills which are used as a remedy in cough. The dose is about four pills a day.

In Cambodia the rhizome is given internally as an aromatic tonic. Externally, it serves as a remedial agent for treating boils and enlarged glands.

In China and Malaya, ginger is predominantly used as a condiment and also in domestic, household treatment of diseases. It is prescribed as an additional supportive to many tonic and stimulating remedies. The skin of the root is used as a carminative and is also said to be a remedy for the opacity of the cornea, or the glassy cover of our eyes through which we can see; this opacity being a cause of preventing vision by the eyes.

Yunani Opinion

In old Persian literature there occur two names for ginger "shinghar" and "adrak". Yunani physicians probably came to know of this medicine at the earliest through Iranian sources. Even Arabs are likely to have known this drug through Iranians. But the final source of all of these name is the Sanskrit term "shringa vera" as stated above.

Ginger occupies an honoured position in the materia medica of the yunani physicians also. They consider the wet or fresh ginger as of third degree hot and first degree dry.

The activities of the drug are as follows according to them. It regulates *vata*, improves intellect as well as memory power, acts as an aphrodisiac, stimulating the urge of sex, as a good

digestive of food and a dissolutive of *vata*. The drug is particularly of great benefit to persons of phlegmatic or *kapha* constitution. It is used in cases of gastric diseases such as constipation, pain in the stomach and the intestines, and also in cases of tastelessness and loss of appetite. As it is an aphrodisiac drug it is used in preparing many sweatmeats or *murabbas* for that purpose or *majun* as they call it.

Ginger is often used as a beneficial ingredient of such drugs that often lead to contortions or sprains; the result is, ginger prevents such an untoward effect of these drugs. Externally this is used in preparing medical oils for massaging. Ginger is having adverse effects on throat; this untoward effect is to be counteracted by the use of almond oil.

Using of ginger would render digestive actively excellent. There will be no scope for collection of morbid gases in the belly thereby. Dry ginger is an effective medicine for mitigating all kinds of pain anywhere. In chronic rheumatism, drinking a *tola* of ginger *phanta* (cold infusion) would give sound sleep. Because of bloated belly, a chest pain often arises. Giving ginger would remove the gas and consequently the chest pain also. The gas gets expelled and the relief sets in.

Ginger is also considered as a good anthelmintic i.e. a killer of worms. It is good in curing all pains and particularly lumbago or the rheumatic affection of the muscles or the fibrous tissue in the

Some Details of a Few Home-remedies

We shall consider in this section how to recognise some common ailments for which ginger offers an effective cure and also the details of the ginger based medication for them. A reason for doing so in some detail in this way is that it would bring home to us in an impressive way as to how this common, every day material is actually a boon that we should be stimulated to use more and more profitably. All the measures described here have been actually tried and found fruitful.

1. *In Cases of Loose, Watery Motion* : If a person is passing water- like motion in profusion and almost uncontrollably, make him lie down on the back, place around his navel a ring of bengal gram or *udad* flour and fill this ring with the juice of fresh ginger or *adrak*. In an hour the loose motion will stop. Simultaneously, take six *mashas* of ginger juice filtered through cloth and mix it in two *tolas* of boiling water. After five minutes, give this like tea when it is still rather hot. Keep on giving this drink two or three times a day after an interval of every hour. This will stop loose motion as well as many other disorders connected with it.

2. *In Cases of Hoarseness of Voice and a Total Temporary Loss of Voice* : If one eats too sour substances and immediately drink cold water, or is suffering from severe cold or one uses too much of ice, the voice is likely to become hoarse or it may altogether abruptly stop occasionally for the time being. Such a condition is also accompanied with

pain. A simple remedy for this situation is to gargle with hot water in which some salt is added or to keep in mouth for some time ginger juice in which honey is mixed. A salutary diet in this condition is the taking of *halva* made up of ginger and sugar, or *alepauk*.

3. In *Chronic Disorder of Bowels and Sprue* : Sprue is a tropical disease affecting mouth, throat and digestion; this is directly due to mal absorption or defective absorption of the food at the intestine. In such a condition as well as the quite chronic disorder of bowels due to many reasons, ginger acts as a useful remedy. Patients suffer from many distresses during these affections. They are: immediate decline in hunger, great weakness, digestion after a very long time even if the food eaten is very little, throbbings at the heart and the like.

In such a condition, *adrak ghrta* or a ghee like preparation made of ginger proves ideal. This is prepared as follows: Take a *ser** of cow's ghee, two sers of dehusked and ground wet ginger or *adark* and four sers of water. Cook them all together in an iron vessel. When ghee alone seems to be remaining, remove from the fire and cool it down. The cooking should be done on low fire and the ghee should be removed from the fire when it has just acquired a granular appearance. Take six *mashas* of this ghee, mix it with half a *pav* of goat's luke warm milk and administer this drink to the patient in the morning. Let him drink like this again in the evening.

This will remove all digestive disorders. Simultaneously this will remove persistent, low fever, continued coughing, reduced percentage of blood, feeble digestive power and also the tastelessness or insipidity of the mouth.

4. *In Cases of Amavai or Torpor of the Bowels :* Here the bowels become numb and inactive. This is a severe result of indigestion. It is usually accompanied with pains in the joints, swellings and a flatulence or bloating of the belly because of a collection of morbid gases at the abdomen. If the patient attempts to lift any substance the joints of his fingers and the feet may not work properly. His stools are red and small in quantity and he feels very weak, throughout.

This is also a fit condition for the administration of *shunthi ghrita*. This is how it is to be prepared. Take one *ser* of cow's ghee, one *pau* of dry ginger, powder nicely, strain through a piece of thin cloth and add four *sers* of water. Cook them all together in an iron vessel and on a medium fire. When the water is fully evaporated out and the ghee alone has been retained, remove the mixture from the fire, cool, strain and store. Give this ghee morning and evening to the patient in goat's milk.

This will remove the aberrations of gas and phlegm caused by indigestion, augment the digestive fire, and eradicate the distressful pain at the loins that characterise this affliction.

5. *In Cases of Ear-ache :* Ear ache arises for many reasons. This may be due to aberrations of phlegm

or *vata* or due to excessive cold, or due to collection of too much wax in the ear or because of breaking out of boils within.

In all these circumstances, ginger can be usefully employed. Grind wet ginger or *adrak* in water, extract its fresh juice by squeezing it through a piece of soft cloth and make it lukewarm. Give four to five drops of this warm juice to the paining ear. The pain will disappear immediately. If however some pain seems to be still persisting, add a few more drops after sometime. Some fomentation with ginger juice may also be attempted at the ear on the outside as well as in the nearby areas.

6. *In Cases of Biliary Eruptions* : Sometimes there will arise all over the body reddish eruptions, an amount of burning sensation everywhere and a generalised itching all over. The whole skin of the patient becomes hot as it were and there may also occur nausea or even vomiting. The eruptions are red and swollen in the centre and appear as if they have been the results of ant bites. To get rid of this condition, a *halva* or a sugar confection of ginger constitutes a good remedy.

To prepare this *halva* take half a *ser* of dehusked ginger, grind it fine, mix 2 *sers* of cow's ghee and cook till it becomes semi solid like *khova*. Simultaneously prepare a sugar syrup to a consistency in which you can draw it out as a single wire, as it were. Mix this syrup with the *khova*, cook further and thicken. When the *halva*

starts leaving the ghee, remove from the fire, cool and store. This is to be taken in a dosage of one to two *tolas*, morning and evening along with half a *pav* of milk.

This will soon get rid of the eruptions, nausea, mild fever as well as the burning sensation. This is also beneficial in the afflictions of feeble digestion, indigestion, cough and asthma, constant catarrh as well as the cramps of the hands and the feet due to cold.

7. *In Cases of Stomach Pain* : If the stomach is paining, or it feels heavy and filled with gas, a good procedure is to mix a little bit of *java khar* in boiling water and add two *tolas* of the juice of wet ginger or *adrak*. When the water is about to spill out, remove from the fire. This is to be given as a drink like tea, when it is still rather hot.

The pain as well as the heaviness will disappear by this measure.

If they do not, administer another drink after two hours. That will take care of the pain, the heaviness as well as the gas collection.

A good diet for this patient is hot barley water cooked with ginger.

8. *In Cases of New Coughing* : When one catches cold, because of using too cold substances, there will be difficulties at the throat, the nose gets blocked and there will also be a difficulty in taking breath even. In this situation one simple remedy can be tried with good results.

This is to take a *tola* of ginger juice, mix with it an equal quantity of honey and let the patient lick it up. The relief will come the same day. The throat will get cleared, the nose block will disappear and the breathing will become easy. It is advisable to continue the treatment for two to three days, morning and evening, even if the cure has been effected.

A salutary diet here is to keep taking cow's or goats' milk cooked with ginger.

9. *In Cases of Fresh Injury* : If there is a cut in any region of the body or a bruise by a hit injury or so, a simple measure is to take a large peice of wet ginger or *adrak*, grind it well and prepare a paste of it. Apply this over the region of the injury as quickly as possible; one inch thick layer of this paste is to be placed. Over this, tie a tight bandage on the region concerned. Remove the bandage of cloth after two hours and sprinkle mustard oil and give a fomentation. Adopt this procedure two or three times. The distress will disappear completely.

10. *In Cases of Dryness of Hands and Feet* : It sometimes happens that hands and feet particularly become excessively dry, almost dried up as it were following some diseases or in circumstances when there had been too much of blood flow or haemorrhage.

In such cases, prepare an oil of wet ginger, apply this over the regions concerned and carry out a gentle massaging. Along with this, take a piece of

cloth, dip it in the oil and tie it as a bandage over the region. This is to be tied once within the day and another time in the night. This procedure is to be continued for about twenty to thirty days. Such a measure will open out the blood vessels that had become closed as it were, the circulation of blood will become normal and the dried up regions would become properly nourished again as before.

This is how the oil of ginger for this purpose is prepared. Take a *pav* of gingiley oil, one *pav* of well ground mass of wet ginger or *adrak*, a *ser* of buffalo milk and half a *chatak* of *saindhav* salt. First heat up the oil on an iron vessel. When it starts steaming smoke, drop two to three lemon leaves in it. These will turn around and finally settle at a place. Remove them and see if they have become crisp like *papad*. This is the time to remove the vessel from the fire. Cool it down, for an hour, keep it back on the fire, place the ginger mass and the buffalo milk in it and cook. When it is cooking, drop the *saindhav* salt within. When the oil alone seems to remain, remove from the fire; cool and strain the oil through a thick cloth.

Diseases of *vata* aggravation often cause such drying up of the hands and the feet. *Lakva* or paralysis of the limbs is also a case of this *vata* aggravation, traced to nervous affection. *Vishvachit* is a disease recognised by Ayurveda where there is a paralysis of the arms and the back. Here also the hands and the feet get dried. Whatever organ starts drying up this way its blood vessels also start

drying up and shrinking with the result, blood flow will not reach past them to the tissues beyond. Ginger oil is presumed to be helpful here.

11. *In Cases of Round Worm Infection* : If small round worms are visible in the stools and because of this reason, there is nausea, loss or decline in hunger, heaviness and tension in stomach and a dripping of saliva at the mouth, the remedy to be tried is as below.

Take a *pav* of dehusked and ground, wet ginger or *adrak*, add a *chatak* of old vinegar of sugar cane juice, one *tola* of black salt and one *tola* of garlic juice. Store this mixture in a bottle. Take about one to one and half a *tola* of this *chutney* along with meals daily. Within a month, the affection of these small worms as well as the feeble digestion, nausea and the tension at the stomach—all, associated with this basic cause, will disappear.

Ayurveda would assert that this disease commonly affects those persons who consume too much of sweet and sour substances, too much of jaggery and *basen* or gram flour preparations, who are persistently suffering from indigestion and who eat before their previous food is digested or indulge in what Ayurvedic authors call as *adhyashana*—a case of over eating. Two other causes that the latter would advance as causes for this distress are interesting. They are: sleeping by day and a habit of spending one's life without doing any labour.

Why is Ginger Called an Universal Medicine?

we have so far seen mainly the medicinal application of wet ginger or *adrak*. What is however more preferred medicinally is the dry ginger or *shunthi*. It is this that is fondly called by Ayurvedic physicians and scholars as *vishva bhesaja*, and *mahaushadhi* or the Universal medicine and the Great medicine. We shall examine here the reasons for this great fame.

The reasons for this reputation are best given when we notice that this single drug has a variety of medicinal applications when administered in combination with different other drug materials. Here below we give a list of such combinations indicating in each case the special ailments over which the combination is therapeutically active and therefore clinically applied. They are all reputed recipes selected from famous Ayurvedic works like Bhava Prakasha nightantu and others.

1. Shunthi and jaggery: This combination is destructive of *ama* or undigested and unassimilated food of the body. This is beneficial in *shita pitta* (or a tumour caused by chill accompanied with fever and sickness and compared to a swelling caused by a wasp sting) and an increase of bile or phlegm caused by cold. It is effective in *agnimandya* or feebleness of digestive power and also constitutes an errhine or a nasal drug or *nasya* to cure the diseases of the head.

2. Shunthi and *saindhava* salt: This is called *lavanardraka yoga* by Chakra datta. It acts as a

promotive of digestive strength, an actual digestive and an appetising recipe. This is destructive of swellings and oedema, cleansing to throat and also destructive of *vata* and *kapha* aggravations.

3. Shunthi and ordinary or sea salt: This is useful in curing indigestion (for this, the dry ginger is fried and used) and also acts as a wholesome appetiser before the commencement of the meals.

4. Shunthi and *pade lavana*: This is effective in rectifying regurgitation, belching as well as in splenic enlargement and in fevers due to any vitiated water.

5. Shunthi and *java khar*. The combination is given in ghee or warm water in cases of fever due to indigestion-in the dosage of a quarter kilo.

6. Shunthi, pomegranate juice, cumin seeds or *jeera* and sugar: This forms an effective electuary for the aggravation of any or all the three *doshas* or vitiations.

7. Shunthi, lemon and *saindhava* salt: This is an effective combination taken as an appetiser one hour before taking the meals.

8. Shunthi sun dried and stored bits of *amalaka* (*Emblica officinalis*) fruits, *ghamasa* or *dhamasa* (*dharuvayasa* in Sanskrit or *Fagonia arabica* Linn.) and sugar. This is useful in cases of *amla pitta* or *plethora*.

9. Shunthi, *hirda* (or *haritaki* in Sanskrit or myrobalan, *Terminalia chebula*) and *pippali* (or

Piper longum): A decoction is prepared out of this combine and administered in cases of vomiting to secure its stoppage and regulation.

10. Shunthi, *hirda* (myrobalan) and jaggery: This is useful in regulating three varied kinds of distresses, vomiting, asthmatic coughing and incompletely carried out assimilation of *am*.

11. Shunthi, *hirda* (myrobalan), lime juice and jaggery: This is a remedy acting efficiently in cases of copper coloured slimy stools.

12. Shunthi, *hirda* (myrobalan), *nagarmotha* (*mustaka* in Sanskrit, or nut grass or (*Cyperus rotundus* L) given along with jaggery: This is to be kept in the mouth in a bit of cotton soaked in it. Such a measure is advised for effecting a cure of inflation of stomach and dysentery.

13. Shunthi, *baheda* (*bibhitaki* or beleric myrobalan, *Terminalia belerica*) and *pippali* (long pepper or *Piper longum*): This is prepared as an electuary or *lehya* in honey to be licked and taken in, to get a relief from coughing.

14. Shunthi and *baheda* (or beleric myrobalan): A decoction is prepared from these two drugs and administered for persons suffering from white urine, *shveta mutra* or albuminuria, where an abundance of albumen is discharged along with urine.

15. Shunthi and the powder of *amchur* (sun dried pieces of mango fried and then powdered):

This is to be taken in butter milk in a dosage of half a *tola* in cases of dysentery due to indigestion.

16. Shunthi and *mocha ras* (exudation of *Salmalia malabarica*, red silk cotton tree): An electuary or *lehya* is prepared from these two in combination with jaggery and ghee. This is also given in the affliction of dysentery.

17. Shunthi and butter milk: This is given in dysentery that is accompanied with blood.

18. Shunthi, *kuda* (*kutaja* or *Holarrhena antydysenterica*) and bael fruit (*bilva* or *Aegle marmelos*): This is given in ordinary dysentery.

19. Shunthi, *kuda* (or *kurchi bark* or *Holarrhena antydysenterica*) and black pepper: This combination is powdered and given in cases of chronic disorder of the bowels and sprue or malabsorption in the intestine.

20. Shunthi, *indrajava* (*Wrightia tinctoria*) and *nagara motha* (*Cyperus rotundus* or nut grass): This is effective in the dysentery caused by *vata*.

21. Shunthi and nutmeg: Both are powdered and mixed well with melted ghee and taken in, as an electuary. This is a specific medicine for diarrhoea.

22. Shunthi, *valavel* and *saunf* (a *badi shep* or fennel, *Foeniculum vulgare*): A decoction is prepared and given in cases of *rakta pitta* or plethora where a bleeding occurs in nose, with excellent results.

23. Shunthi, nutmeg and *dalchini* or cinnamon bark: A powder is to be prepared out of them and given as an electuary or a *lehya* in diarrhoea.

24. Shunthi and a distillation of *pudina* (or mint leaves): This is to be taken in ghee in cases of feeble digestive power, piles and dysentery due to indigestion.

25. Shunthi and *saunf* (or fennel): The two are powdered and administered in jaggery in cases of *amavata* or numbness or insensitivity due to indigestion.

26. Shunthi and *pippali* (long pepper): A *kalka* or a paste is prepared out of them and administered in hot water in cases of indigestion.

27. Shunthi, *pippali* (long pepper or *Piper longum*) and the seeds of bael (or *bilva*, *Aegle marmelos*): This is to be given in old jaggery in a dosage of pills of two *mashas* each, one pill per day. It acts as a specific remedy for the affliction of *pinas* or foetid smell in nose or ozonea.

28. Shunthi, *saunf* (foennel seeds) and *jeera* (cumin seeds): All the three are to be powdered together well and prescribed in cases of indigestion in a dosage of ten grams and to be taken after meals.

29. Shunthi and black pepper: This is to be mixed with double the quantity of jaggery and in a dosage of *pau tola*. This is meant for aiding in the digestion of the food taken in and in cases of shooting pains due to indigestion.

30. Shunthi and *dalchini* or cinnamon bark: A paste is to be prepared from these two together as an external application over too much of uncontrollable sleep.

31. Shunthi, *dalchini* or cinnamon bark and *lavang* or cloves: A decoction is to be prepared from these and administered in cases of gas troubles and also as an aid in indigestion and to the defects of *kapha* or phlegm.

32. Shunthi, *dalchini* and cardamom: A powder is to be prepared from all of them together and given in a dosage of ten grains in curing feebleness of digestive ability.

33. Shunthi, cardamom, cloves or *lavang* and cumin seeds or *jeera*: This is also powdered and given in the dosage of eight grains for rectifying defective digestion.

34. Shunthi and *nagar motha* (or *Cyperus rotundus* or nut grass): This is advised in cases of thin watery motion due to chronic weakness of bowels.

35. Shunthi and *jyeshta madhu* or *mulethi* (liquorice root, *Glycyrrhiza glabra*): The two are to be utilised in preparing a decoction to which jaggery is to be added at the time of administration. This is given in case of hoarseness of voice when a sound of gurgling gets emitted as it were at the throat.

36. Shunthi and *guduchi* (*Tinospora cordifolia*): This is an ideal combination effective in the afflictions of gout and rheumatism or *sandhi vata*.

37. Shunthi, *kachora* and *punarnava* (*Boerhaavia diffusa*, the red variety): A decoction is to be prepared from these and employed in the cases of chronic troubles of indigestion coupled with gas troubles.

38. Shunthi and *gokshura* (or *Tribulus terrestris*): A decoction is prepared from them and employed with good results in cases of shooting pains at the loins, chronic troubles of indigestion accompanied with gas troubles and also in overcoming shooting pains during indigestion.

39. Shunthi and the root of castor: This is also used in rectifying the shooting pains associated with chronic weakness of the bowels and indigestion associated with gas troubles. The preparation is carried out in the form of a *puta paka*.

40. Shunthi and castor root: A decoction is prepared out of the two as a specific cure for the shooting pains of gas troubles.

41. Shunthi and castor oil: This is an excellent external application for glandular enlargement.

42. Shunthi and juice of castor leaves and twigs: This is employed for diarrhoea.

43. Shunthi and coriander: A decoction is prepared and then employed to cure gas troubles

specially the shooting pains associated with it. It has also many other utilities, eg. as a digestive, a stimulative and also in destroying fevers specially those caused by digestive upsets.

44. Shunthi, coriander, *deodar*, *ringani* (*Solanum indicum*) and *dorali* (*S.xanthocarpum*): A decoction is to be prepared from them. This is effective over all types of fever.

45. Shunthi and *gantha halad* (turmeric nodes): This is to be mixed with old jaggery and employed. It is effective in setting right feeble digestive power and asthmatic coughing as well.

46. Shunthi and *kanchanar* (probably, a *Bauhinia* species). This is a specific application for goitre.

47. Shunthi and *daru halad* or *Berberis aristata*: The juices are to be taken in both. A decoction is prepared from them to be given orally. Both are used as a remedy for indigestion.

All of these are quite simple preparations that can be tried easily as home remedies. Some of them are actually being employed even now and every one of them is much extolled as very effective by several esteemed authors on Ayurveda.

It may be noted that the principle field of action of ginger is one the digestive system, as a commencer in the form of an appetiser, a stimulator, a sustainer, an effective accomplisher and also as a rectifier in any disorder. Ginger is a

beautiful remedy for many of the deleterious consequences of upset or wrongful digestion - an important and infact, a vital activity of human metabolism. These consequences may range from simple weak digestion to utter numbness of the bowels in extreme cases of indigestion and the shooting intolerable pains thereof.

The list given above will give an idea to the discerning readers as to the way in which physicians have employed this ginger to yield numerous remedial agents for most nuances of digestive upset. It is not an exaggeration to assert that for every nuance of an upset, there does occur a corresponding and equally specific nuance of preparation based on ginger.

One can easily agree now as to why ginger should be called a great medicine and an Universal Medicine. With much commendation, this discovery of the old Ayurvedic physicians of India, the discovery that ginger is rather very specific in correcting digestive disorders, has been accepted the world over now.

And, that is the reason why, ginger continues to serve mankind in almost all countries still.

Some Household Tips for An Effective Use of Ginger

The list of several combination of ginger given above and the diverse medicative effects for which they are all famous represent however a piece of

knowledge meant mainly for the physicians though every-body is welcome to utilise them and many are actually being employed already.

But, here below we give a number of useful tips that many house wives are actually employing nowadays with excellent results. Others can usefully take advantage of this domestic know how. Readers are invited to add any other recipe they would come to know of, for, a knowledge about the use of ginger is so well spread that there are many local nuances of its use.

Ginger is an excellent digestive, quite homely and ever available. In this respect, fresh succulent ginger is more efficacious than the dried ginger. It is because of this reason, wet ginger is a common ingredient of many preparations of the Indian kitchen; such as chutney, pickles, *koshimber*, salad preparation, *kadi*, flavoured butter milk and so on.

Consuming wet ginger stimulates and augments all gastric activity and the secretions therein. It is this profusion of secretion that is responsible for the promoted digestivity that invariably follows an intake of ginger. In fact, it is a desirable practice to make it a habit of biting and sucking in a bit of wet ginger after every meal. This will obliterate the risks of indigestion, gastric ulcers, flatulence and the bloating of the abdomen due to gas collection and many such disorders of the digestive system.

Regular use of ginger also pacifies the aggravation of *pitta*.

As ginger is an effective antiseptic agent as well, this habit will not afford any scope for parasitic germs to take shelter either in the stomach or the intestine.

A sure cure for getting rid of anorexia or tastelessness in food that one frequently suffers from, in any affliction of fever, is to take a bit of wet ginger, four to five cumin seeds and a little quantity of sugar candy together in the mouth, continue to chew them well and go on sucking in the juice. This increases the ability of the taste buds so much that one would very much like to take a meal, almost immediately.

Take a teaspoonful of the juice of wet ginger, two teaspoonfuls of lime juice and an equal quantity of the juice of *pudina* or mint leaves and six teaspoonfuls of honey. Mix them all together and take in three times a day. This measure proves beneficial to patients of many diseases such as rheumatism, persistent vomiting, indigestion, constipation, sore throat, hoarseness of voice and bronchitis or the inflammation of the bronchi.

A simple cure for headache is to take a bit of wet ginger, grind it in water, apply this paste to the forehead. Cover yourself in a warm sheet of cloth or a rug, lie down and sleep. This will result in profuse perspiration and the headache will disappear.

If you are feeling uneasy everywhere and the whole body looks fatigued due to taking a bath in

cold water or you get drenched in rains or you are affected with cold storms or hall storms, prepare a decoction of wet ginger. Add sugar to it and take this decoction thrice a day. Your uneasiness and distress will vanish away.

The same decoction is an ideal medicine for running nose as well.

Take a teaspoonful of this decoction, mix it with a decoction of the *methi* leaves and take this mixture along with honey. This is a beneficial drug to remove phlegm or *kapha*. As such it proves very useful for persons suffering from consumption, cough, asthma and whooping cough. They all have a highly distressful phlegmatic collection which can be successfully relieved by this measure.

In cases of hoarseness of voice and the consequent disability to speak, place a bit of wet ginger, one clove and a crystal of salt in the mouth. Continue to chew this mixture well with your teeth and go on sucking in the juice. Such a measure proves beneficial.

Administering seven to eight drops of fresh juice extracted from wet ginger mixed with honey or milk to young children would cure the afflictions of stomach and the intestines.

When one consumes cooked green leafy vegetables and other vegetables as well, plenty of gas formation takes place in the intestines. This may lead to an unhealthy state of affairs that needs to be rectified early. Taking wet ginger along

with one's meals will eminently accomplish this objective.

Take a piece of dry ginger. Burn it and powder. Add salt to this powder and rub your teeth with this as if with the tooth powder. This will calm down tooth ache.

Take an inch length piece of dry ginger and also a teaspoonful of cumin seeds. Crush them together and powder. Drop this powder in about four cups of boiling water. Let it boil for five minutes. Filter it afterwards. Take this decoction in a luke warm state instead of water. This will get rid of any indigestion.

Another recipe for the similar purpose of getting relief from indigestion is as follows. Take about hundred grams of corinader seeds and twenty five grams of dry ginger. Roast them together to a red colour. Pound the two together, sieve and store the powder in a bottle. When you feel the distress of digestion add two spoonfuls of this powder and one teaspoonful of powdered jaggery to a cup of boiling water and let it simmer for two minutes. Filter the decoction after this and take in along with milk.

Take an inch length of wet ginger. Grind it well in water. Mix it thoroughly in a cup of water and then filter. Add then honey to taste and lemon juice. Taking this is one more measure to get rid of indigestion.

If you adopt the procedure of chewing well and eating a bit of wet ginger along with a few crystals

of salt, you will avoid the very possibility of having an indigestion.

Mix a teaspoonful of freshly prepared powder of dry ginger in a cup of milk, just then milked from the cow. Taking this daily in the morning for a week altogether would cure jaundice.

Take a teaspoonful each of salt, dry ginger, cumin seeds and sugar. Mix them and grind them all together to a smooth consistency. Add this powder to ordinary hot water, squeeze a quarter lemon into it and drink. This will stop stomach ache.

One more recipe to mitigate the stomach ache is as follows: Prepare a decoction to coriander seeds and dry ginger and then drink it fresh. This also brings down the bloated belly caused by indigestion and the consequent collection of gases.

The number of the tips for an effective use for ginger, both fresh and dry is no by means exhausted by the account given here. By still more diligent search, many more uses of ginger both in food and in medicine can be picked up. The list given is just believed to be adequately impressive.

Some Special Yogas Based on Ginger

Yogas are specific combinations of more than one drugs, prepared in a manner that has been almost standardised over years by experience and tradition. The advantage of these *yogas* or proprietary medicines is that their use and

manner of employment as well as dosage are all clearly stipulated and most of them can be stored or purchased from the druggists as such. Hence, it is convenient to use them. They all have specific technical names.

In view of the many and the proven medicinal efficacies of ginger, there occurs naturally a large number of ginger based yogas in this manner.

Some details of only two of them are given below by way of just an illustration.

1. *Samasharkara Churna*: A powder with equal quantity of sugar.

For preparing this, take cardamom one part, cinnamon bark 2 parts, flowers of *naga keshar* (*Mesua ferrea*) 3 parts, black pepper 4 parts, long pepper 5 parts and dried ginger 6 parts. Sugar is to be taken in quantity equal to all of these other ingredients. They are all to be well powdered and mixed.

The dose advised is one drachm, which is one sixteenth of an ounce.

This *churna* is recommended in cases of dyspepsia or indigestion, loss of appetite and also the affliction of piles. This is a recommendation of Bhavamishra, a famous Ayurvedic author of the medieval times. It is quite popular even now.

2. *Saubhagya Shunti Lehya* : An auspicious electuary of dry ginger.

To prepare this, take clarified butter 16 *tolas*, milk 4 *sers*, sugar 6 1/2 *sers* and dry ginger 1 *ser*. Boil them all together till the combination assumes the consistency of a confection i.e. a semiviscous *lehya*. When it is about to become ready, add the following: coriander 24 *tolas*, fennel seeds 40 *tolas* and also 8 *tolas* each of well powdered *vayavidanga* seeds (*Embelia ribes*), cumin seeds, *nigella* seeds (*krishnajeeraka* or *kalajira* in Hindi), long pepper, black pepper, ginger, tubers of *musta* (or *Cyperus rotundus*) grass, *tejpat*, flowers of *naga keshar*, cinnamon bark and cardamoms.

Remove from the fire, stir with a laddle till cold.

This is a famous medicine much used as a carminative (i.e. gas expelling) tonic in dyspepsia and in disorders of the alimentary canal specially in women after confinement.

RELATIVES OF GINGER

As seen above, there are two more species of the genus *Zingiber* which are considered in popular language as but varieties of ginger. It is time to look at them now. They are *Zingiber zerumbet* Smith and *Zingiber cassumunar* Roxb. They have been well recognised by Sanskrit authors and they also have their uses in medicine.

1. *Zingiber Zerumbet*. Smith

Names

Sanskrit authors call this by quite a few names. They are: *ahava*, *avanti*, *karpura haridra* (a

turmeric that smells like camphor), *kolarjana*, *kumbhika* and *sthula granthi* (rhizome that has stout nodes or joints).

This is called *mahabarivach* or *narkachur* in Bengali and Hindi; *kattirji* (the forest ginger) in Malayalam; *kachur* and *narkachur* in Punjabi; *kallu shunthi* (stone ginger) in Kannada and Tulu; *karallamu*, *karupasupu* and *santapasupu* in Telugu; and *bonooda* or *gondhasunthi* (Fragrant ginger) in Oriya.

Botanical Description

This is a biennial herb and looks much like ginger but with characteristic differences. Its rhizome is large, the nodes are much larger than in ginger; it is yellow inside, strongly pungent, aromatic and ginger like in taste but with some distinct bitterness in it. The root fibres are long and worm like. The plant grows to a height of two and a half feet. Leafing stem is about 13 milimeter in diameter, cylindrical, smooth and non-hairy and annual i.e. dying down at the end of of one season. The leaf blade is stalkless, oblong and lance like in shape, the tip is rather drawn out and pointed, or acuminate and the blade is completely smooth and non-hairy. The flowering stem that comes pierching through the radical clump of the leaves is 30-45 centimetres long, stout, usually flexuous or bending and clothed throughout with long appressed and obtuse-tipped sheaths. The flowers are pale sulphur yellow in colour and they are

arranged in conical spikes. The fruits are capsules viz. dry and dehiscent, breaking open at maturity to release the seeds. The seeds are oblong and black.

The plant occurs throughout India. It is a wild plant but cultivated in many places and particularly so in Konkan areas of West Coasts in South India. The herb is also found in Sri Lanka and Malaysia.

Medicinal Importance

The rhizome is employed much like the ordinary or the official ginger described earlier.

It is particularly utilised as a hot remedy for coughs, asthma and also worm infection and leprosy as well as many other skin diseases.

Ayurveda considers this herb as an aromatic substance particularly useful in warding off the complaints of cough and phlegm or *kapha*. It is well advised in improving and rectifying voice. Another importance is that this wild ginger is good augmentative of taste in food, it is also pleasing and good to heart and purifies throat and mouth.

In cases of lung disorders the rhizome is boiled and simmered and given with beneficial results.

The plant is alleged to have antiseptic properties. It is used in fresh form or watery extract in cleaning and dressing of the wounds and the boils.

2. *Zingiber cassumunar* Roxb.

Names

Sanskrit calls it *vanaadraka* (the wet ginger from the forests). Most regional languages also name this plant by corresponding terms.

It is called *banada* in Bengali; *kadushunti* in Kannada; *banada* in Hindi; - all of these terms mean "a wild ginger from the forests". In Marathi it is called *nishana*, and *penlekosht* while in Uriya it is again *banada* and *vanaadraka*.

Botanical Description

The rhizome here is perennial i.e. living for many years and not for just two seasons as in the above. It is yellow inside and has an aromatic, warm and some what camphor like taste, but without any bitterness whatsoever unlike as in *Z.zerumbet*. Leafing stem is 1.2-1.8 metres high. Leaves have a very short stalk, 23-35 by 2.3-2 centimetres in dimensions. In shape they are oblong and lance like. The tip is acute and not acuminate while the leaf blade is smooth above but hairy below and the base of the leaf is rather rounded. Flowers occur in dense fish shaped or ellipsoidal spikes and are yellow in colour and not spotted. Fruits are capsules but of a rather globose shape and somewhat membranous. Seeds are many, very small and purple in colour.

This plant is also found throughout India and also in Sri Lanka and Malaysia. It is infact widely cultivated in all tropical Asia.

Medicinal Importance

The herb has a similar reputation as that of the official ginger.

In Konkan area it is used in a considerable degree as a carminative (gas expelling) stimulant in cases of diarrhoea and colic pains or twisting pains of the stomach.

The rhizome has a pungent odour similar to a mixture of camphor and nutmeg. It is found to contain more mucilage and sugar than that of *Curcuma aromatica* (see below). The drug yielded on analysis the following substances: essential oil, fat and soft resin, sugar, gum, acids, starch, crude fibres, albuminoids and modifications of an useful substance called arabin and so on.

This is seen to be good for stomach. It is also carminative and a stimulant. It is useful in diarrhoea and colic. Other uses of the plant are similar to those of *Z. officinale* Rose.

It may be noted therefore that both of these other species of ginger have more or less the same properties as those of the official ginger. They can be very well regarded as substitutes. In order to distinguish them readily it will not be wrong to consider *Zingiber zerumber* as Stone Ginger and *Zingiber cassumunar* as Camphor Ginger. The former has some bitterness in taste, while the latter has no trace of it at all.

Both are worth being more popularised and more widely cultivated even in kitchen gardens.

B. TURMERIC

Botanical Aspects

Turmeric is one of the species of genus *Curcuma* and called botanically *Curcuma longa* Linn.

The genus *curcuma* is comprised of "stemless" herbs with tuberous root stocks, the tubers being long and stalk like. Leaves are usually oblong in shape and they are often very large. Flowers are borne in dense, compound i.e. branched, spikes as the inflorescence. The latter are crowned by a cluster of enlarged coloured bracts and bracteoles or leafy structures in whose axils the flowers arise and these flowers open out in succession. Corolla tube is funnel shaped, its upper lobes are longer and somewhat concave. The fruit is a slowly breaking out capsule which is globose in shape and rather membranous. Seeds are ovoid or oblong and usually have an aril or an out-growth at its base.

Turmeric or *halad* is the most famous member of this genus no doubt. But the genus contains nearly thirty five species distributed in the tropical regions of the Old World. Of these, there are six species available in India and in popular parlance they are all likely to be regarded as but "varieties" of the turmeric. All of them in addition, do have their own value in medicine and many other ways and as such need to be considered in some detail. We should therefore be in a position to recognise them as well, on some easily distinguishable criteria. For this purpose, an artificial is given as below:

A key for distinguishing among the six species of the genus *Curcuma*.

A. Flower spikes are borne in vernal or the spring season. They are distinct from the leaves and are usually developed before they appear.

1. Leaves with petiole or the leaf stalk is 30-45 centimetres long. *C.angustifolia*

2. Leaves are 80-120 centimetres long. *C.aromatica*

3. Leaves are 50-60 centimetres long. *C.zedoaria*

4. Leaves are large, oblong in shape and provided with a broad purple brown cloud of colour down the middle. *C.caesia*

B. Flower spikes are borne in autumnal or the winter season and they appear within the centre of the tuft of the leaves.

The bracts are not recurved at the tip.

1. The leafy tuft is 60-90 centimetres long *C.amada*

2. The leafy tuft is 120-150 centimetres long. *C.longa*

We shall consider now in some detail every one of these 'turmeric' beginning from the most famous amongst them all viz. *C.longa*.

THE COMMON TURMERIC OR CURCUMA LONGA

Names

This famous plant of turmeric has a very large number of names in Sanskrit. They often have significant meanings. A selected list of these names is as follows: *bhadra* (auspicious), *dirgharaga* (of a long standing colouration), *gandha palashaka* (with fragrant, large leaves), *gauri* (the yellowish white in colour), *gharshani* (to be rubbed in order to secure the colour); *haladi*, *haridra*, *harita*, *hema ragi* (all meaning yellow, golden yellow); *hriddvilasini* (delightfully heartening); *jayanti*; *jvarantika* (destroyer of fever), *krimighni* (destroying germs), *kshanada*; *mangalaprada*, *mangalya* (auspicious), *nisha*; *nishahwa*; *pavitra* (holy); *pita*, *pitika* (yellow); *uma*; *Varna datri* (dye yielding); *vishaghni* (destroying poison); *mehaghni* (destroying urinary disorders); *yoshita priya* (liked by the ladies) and *yuvati* (an young lady).

It is called *haldi*, *pitras* in Bengali; *klang houang* in Chinese; *halada* in Gujarati, *haldi* in Hindi; *haldar*, *halja* in Punjabi, *arishana* in Kannada; *manjal* in Tamil and *haladi* in Oriya.

Botanical Description

This is a tall annual herb developing a large, ovoid root stock that bears stalkless cylindrical tubers that have a distinct and lustrous orange colour on the inside. The leaves are also very large and borne in tufts upto 1.2 metres or even longer

including the stalk which in turn is actually as long as the blade. The leaf blade is slippery, oblong and lance like and it tapers towards the base. Leaves are scented like mango. Flowers are clustered in spike or conical inflorescences that have stalkless flowers all along. These spikes come out during the winter season and they are 10-15 centimetres long. Flowering bracts-the leaf like structures at the inflorescence, are pale green in colour while the bracts at the head cluster above are tinged with pink. Flowers are turmeric yellow in colour.

This herb is now cultivated throughout the tropical region of the world. But it is believed to be indigenous in Bihar at the altitude of 4,000 to 5,000 feet in the Himalayas. It grows luxuriously in Bihar even now. The first leaves of the herb in this region are 14 inches long and 6 inches broad. While the leaves that appear subsequently are 20-25 inches long and 5 inches broad—in all ways decisively larger than elsewhere.

Cultivation of turmeric in India is very extensive and is carried out almost all over country. This is particularly so in West Bengal, Bihar, Tāmil Nadu and Kerala.

In Maharashtra, there are two varieties of turmeric. One has hard, rich coloured and oval rhizomes and is called *lokhandi halad*, The Iron-hard turmeric. This is chiefly used in dyeing. The other bears softer, larger and lighter coloured long rhizomes; this is usually used for eating purposes.

The parts of the plant that are used are tubers and rhizomes.

In medicine, turmeric is utilised in many pharmaceutical forms such as powder, paste, ointment, oil, lotion and also as a fumigatory material inhaled in and in the form of confection or sweet preserves.

Chemical Constitution

Turmeric contains an essential or a volatile oil, 1 per cent resin, an alkaloid called curcumin, the yellow colouring matter and turmeric oil or turmerol. The curry powder has its characteristic aromatic taste and odour because of this oil. This turmeric oil is a yellow, thick and viscid oil.

An analysis of the Indian turmeric revealed the following components: moisture 3.1, protein 6.3, fat 5.1, mineral matter 3.5, fibre 2.6, carbohydrates 69.4 per cent and caroten calculated as vitamin A, 50 International Units in 100 gram. The essential oil contains a substance called tolymethyl carbinol which is believed to be responsible for the choleretic action (i.e. beneficial action on liver) it possesses. The antioxidant properties of the turmeric powder is probably because of the phenolic character of curcumin. The dyestuff or the colouring matter acts as a cholagogue stimulating the contraction of the gall bladder causing an evacuation of the bile. Good turmeric should have a reddish orange appearance when the dried rhizome is broken or cut into two and should also have a moist feeling.

Medicinal and Other Importance

The rhizomes alone are taken from the herb when well mature and these are boiled, dried and made into powder, the *haldi* powder that gives the yellow colour. This is employed largely as a colouring agent and as a condiment-an almost indispensable ingredient of the Indian kitchen. Turmeric is useful on three accounts, as a dyestuff, as a spice and as a medicinal drug, for which both the fresh and the dried rhizomes are employed. Its uses in medicine are also quite varied as in ginger, or even more.

The medicinal properties stipulated for turmeric by Ayurveda are as follows: it is pungent and bitter in taste, dry and light in quality, hot in virility and bitter in post assimilation effect. As it is hot in virility, it pacifies the aggravation of *kapha* and *vata* and because of its pungency it is pacificatory to the aggravation of *pitta*.

Besides such generalisations, ayurvedic authors do offer much further specifications concerning its differential action in the different organ systems of the body. A little peep into this knowledge would be quite illuminative.

The external application on the skin has many desirable effects. It removes oedemas or swellings, stabilises or stops painful sensations, helps in colouration of the skin and is rather scarifying or *lekhana* in its activity. It helps in cleaning and healing of the wounds.

It is useful in many skin diseases including leprosy. The smoke of turmeric sniffed in, under fumigation, stops hiccup and breathing difficulties.

Taken inside, in any form, turmeric acts as a pain stabiliser, *vedana sthapana* acting on the nervous system.

On the digestive system, turmeric acts as an appetiser, regulative of digestive functioning by purging out the wasteful matter (*anulomana*) and also as a destroyer of the internal worms.

On the blood vascular system, it acts as a purifier of blood, a promoter of blood formation and an inhibitor of excessive blood flow (*rakta stambhaka*.)

In respiratory system, its most beneficial action is that it helps in the expulsion of the phelgm.

In urinary system, it promotes profuse urination or, it is a good diuretic drug.

In the genital system it purifies the uterus, milk formation at the breasts and also the semen content.

It helps in reducing the fevers of the body.

Turmeric is bitter in taste and its accompanying or *anu rasa* is pungent. It is usefully employed in urinary disorders, disorders of the blood, anaemia, ozonea, indigestion, loss of taste, oedema and the like.

The use of turmeric has been prevalent since very ancient times in eating, home remedies and ayurvedic medications. It is extensively referred in our classical works on Ayurveda. Charaka samhita regards it as scarifying and destructive of itching and skin diseases including leprosy. This great work includes turmeric in its ten famous drugs (*dashemani*) of anti poisonous drugs and in the class of the internal as well as the external cleansers of the body. There is much mention of its being employed in urinary diseases, jaundice, insanity, cough, ozonea (or *pinasa*), disorders of breasts and milk production and the like. Sushruta, the other famous classical author, includes its reference in treating plethora-bleeding nose for example, eye diseases, urinary disorders and also epilepsy.

Some Specific Medicinal Uses of Turmeric

Turmeric (powder) mixed with warm milk is a very popular and household remedy for common cold and cough.

The fresh juice from the rhizome is applied to recent wounds, bruises and teeth bites with commendable results. This itself is administered internally as an effective anthelmintic i.e. killer of parasitic worms. This juice is said to have antiseptic properties and is so employed in many afflictions of the skin.

Such a fresh juice from the rhizome or a paste prepared from it or decoction is often used as a

local application as well as internally in the treatment of leprosy, snake bite, vomitings associated with pregnancy and the afflictions of the liver. It is also recommended to be used in troublesome diarrhoea. Besides these, it has been found to be efficacious in controlling intermittent fevers and also in cases of dropsy or morbid watery collections in various parts of the body.

Externally, this juice is applied in treating indolent ulcers i.e. those that show very tardy response to drugs and medication.

A decoction made from the rhizome is much reputed to relieve pain in eye diseases, especially the purulent or the pus oozing ophthalmia. It is a very common practice in India to use a piece of cloth soaked in turmeric solution to wipe away the discharges of acute conjunctivitis and ophthalmia or the eye diseases.

Finely powdered turmeric mixed with alum or *fitkari* constitutes a common home remedy for ear disease in which a discharge is oozing out from the ear.

A paste of turmeric and the leaves of *Justicia adhatoda* along with cow's urine is rubbed on the skin in prurigo which is an eruption on the skin that causes great itching. There are many other combinations of turmeric such as, turmeric with neem leaves, turmeric with ashes of the banana tree and so on that are employed for the same purpose.

Turmeric paste is mixed with a little lime and salt-petre. This is applied externally in a rather hot state for curing sprains, bruises, wounds and inflammatory troubles of the joints. In case of small pox and chicken pox turmeric is applied as a powder or as a paste to facilitate the process of scabing. A decoction of turmeric (1 ounce of the bruised root to 20 ounces of water) forms a lotion useful to secure relief from the burning in catarrhal and purulent eye diseases or the "eye sore". Turmeric soaked piece of cloth is constantly kept pressed against the eye to reduce the burning and lessen the violence of the affliction.

A paste of turmeric alone or combined with the neem leaves ground into a pulp is used with beneficial results in cases of ringworm, obstinate itching, eczema and many parasitic diseases of the skin.

Turmeric is also given internally with cow's urine in prurigo and eczema. In the afflictions of pemphigus (where watery vesicles erupt on the surface) and shingles or the disease of Herpes Zoster, a very painful eruption on the skin that usually runs along an intercostal (i.e. between the ribs) nerve, the affected part is first smeared with a thick coating of mustard oil and then dusted on with turmeric powder. They will get cured within four to five days.

An ointment of turmeric is prepared along with crushed leaves of hemp, onion and warm mustard or linseed oil. This gives a great relief when applied

over the growths of piles which are particularly painful and protruding. This ointment is effective in eczema, itches and many other skin ailments.

In catarrh (common cold associated with running nose) and coryza (cold in the head), inhaling the fumes of the burning turmeric powder causes a copious mucous discharge and offers an instant relief. This inhalation is taken at night and one should take no fluid for some hours after this.

Smoke produced by sprinkling turmeric powder on live burning charcoals will relieve scorpion sting when the affected part is exposed to this smoke for a few minutes.

Turmeric powder and alum (*fitkari*) powder are mixed in a proportion of 1 to 20 and this is blown into the ear which is having a chronic discharge or otorrhoea.

In a Few Specific Diseases; Some Details

A general clue in understanding the action of turmeric is as follows: In all cases where occurs an excessive discharge of mucus or *kapha* and the like, turmeric acts effectively. Examples are: effusion of *kapha* or phlegm through throats, discharge of mucus from the nose, the outflow in cases of leucorrhoea or the whites. Turmeric acts well in all these circumstances. It brings about a dryness of the slimy surface and also prevents further formation of the mucus. Specially in cases of common cold and running nose it confers its

benefit much as does the employment of *vacha* or *Acorus calamus* bring about. As soon as the symptoms of the cold are noticed it is better to carry out an inhalation of turmeric smoke through the nose. Simultaneously, drinking of milk in which turmeric is boiled and thickened and also mixed with jaggery should be commenced. This will make the mucus run down the nose and not get blocked so as to cause head ache and sinusites (or blocking of the sinus spaces) as it usually does. Such a measure is curative as well as prophylactic i.e. preventive of further aggravation.

In cases of gonorrhoea (*sujak*) the urine discharged is thick, accompanied with pain and occurs repeatedly but in very small quantities. For this condition a decoction of turmeric and *amalak* (*Embllica officinalis*) proves highly beneficial. By taking in of this decoction, motion takes place cleanly and efficiently, the reduced and the intermittent discharge of urine becomes rectified and the accompanying burning will also stop. In the disease of leucorrhoea, turmeric is given along with *guggul* (*Commiphora wighti*) or *daru haladi* or *rasaut* (*Berberis aristata*). Application of turmeric in eye disease also follows the same principle; it cleanses the area and dries down the discharge. Same is the case with the discharging ear.

Turmeric contains a certain capacity to destroy the aggravation of *vata* also. This is why it acts as a pain killer to some extent. This action is markedly well seen in the use of turmeric in

common cold. This affliction is usually accompanied with headache, tension in the brain as well as pains at the joints. All of these get mitigated by the use of turmeric eaten or applied. In cases of insanity, smoke of turmeric is advised to be sniffed in.

In skin diseases turmeric has been seen to be a very beneficial drug. For treating skin diseases this way it is always advantageous to incorporate *amalaka* along with turmeric. Mixed with butter and applied over the skin, turmeric renders the skin soft, and silky; simultaneously it will destroy many diseases of the skin. Smearing of turmeric as an unguent or an ointment, over the skin would render the beauty of the body and its complexion lustrous. It is quite likely that the ritualistic practice of smearing *haldi* paste specially in marriage ceremony has this principle at its background. Applied over the wounds, turmeric acts as an astringent agent bringing about a contraction in the live tissues and thus aids their healing.

In case there is a fresh cut injury either by an instrument or by a physical impact, or the wound has become rather deep and the blood has clotted in the region, giving turmeric (mixed with granular sugar) would sputter out this clot and then the circulation of blood would regain its normal rhythm and the process of healing hastened up. Application of turmeric is advisable in all cases of injury and haemorrhage. Most poultices in India

have a component of turmeric as an essential ingredient.

Turmeric has an astringent activity as noted above. And, it is also a stimulant. Because of these reasons, its use proves beneficial in chronic malabsorption of intestines (*sangrahani*), dysentery and the like.

When one feels dizzy, applying a turmeric paste over the head, the forehead and the temples proves helpful.

During labour and as long as the child is young and breast feeding, it is advised for the ladies that they should be regularly taking turmeric-for example in milk. This is an excellent practice as this will stimulate the uterus and will also purify milk secretion.

Turmeric is believed to be very beneficial in cases of intermittent fever such as malaria as well as ascites or *jalodara* (collection of water resulting in a bloated abdomen).

Turmeric contains considerable quantities of essential oil and starch. Because of this reason the tubers of turmeric always prove excitatory, stimulative, aromatic and also nourishing.

The nodes of turmeric are taken, roasted, powdered and given in cases of bronchitis or the inflammation of bronchi or the wind pipes.

And, the smoke of turmeric is administered in, as a fumigation in cases of swooning and loss of

consciousness during hysteria, with commendable results.

Even the flowers of turmeric have an useful application. They are made into an ointment which is applied in shingles or herpes zoster and ringworm, quite successfully. These flowers are also used in treating patients of gonorrhoea.

From very olden days turmeric has been employed in treating all kinds of urinary disorders specially those that are due to the aggravation of *kapha*. It is because of this reason, one of the names given to this herb is *mehaghni*, a destroyer of *meha* or urinary diseases. The current practice in Ayurveda is to administer turmeric powder along with the juice of *amalaka* for this purpose.

Turmeric and Cancer?

Here is an interesting incident mentioned in some recent writings on Ayurveda.

Take dried nodes of the rhizome of turmeric, place them on live charcoal and reduce to ashes. This ash is to be stored in a strong bottle with a tight cork. When an occasion arises take a small quantity of this ash, mix it with water, render it thick like a paste and apply it at the middle of the tumour to a dimension of a *paisa*. When this practice is carried out for three to four days and three to four times every day, the flesh in the area concerned will get destroyed, and a wound for about an inch depth will develop there. When this

would have got formed in this manner, press down the remaining circle of the tumour in such a way that its pus and the like get removed through this central depression. This will result in a subsidence of the tumour itself. Keep this wound as such. In case the tumour starts getting formed again, start the treatment again. The ointment is presumed to render the remaining vitiation within the tumour into pus and get it expelled thereby. Or, is this a case of resorption of the tissues in a way? When the vitiation is completely removed in this way, mix the ash in gingiley oil and keep applying it twice a day.

This procedure is a good method of removing carbuncles and other fleshy formations without involving any surgery. This may not work in cases of cancer as such but is presumed to be efficient in carbuncles and the fleshy non-cancerous formations.

Cough with much Phelgm: A distillation or *arka* of turmeric is prescribed in this condition. Or, take a 'horn' i.e. a horn like bit of turmeric, heat it well at the flame of a lamp, powder and take it along with ghee or honey. In chronic phlegmatic affections, when phlegmatic outflow is excessive and the patient is much frightened, mix turmeric in milk, boil and as it cools, add two drops of *bhilava* or *bhallataka* (*Semercarpus anacardium*) oil and a little bit of jaggery. The patient should keep taking this medicine. This is an acclaimed home remedy in Maharashtra.

Urinary Disorders Associated with Kapha:

There are three types of urinary disorders associated with phlegmatic component. They are *sandra meha*, where the urine is dense and thick, *pishta meha*, where the urine is coloured as if it is mixed with flour and also foul smelling and *shukrameha* where the discharge of urine is accompanied with semen.

In all of these cases, a decoction of turmeric and *amalka* is given. Both the stools and the urine get purified by this and the disease will disappear.

Turmeric, *daru haladi* (*Berberis asiatica*), the two myrobalans or *harad* and *bañeda*, and *amalaka* - all of these are taken in equal proportions. One *tola* of the mixture is kept soaking over night in water, Crush them next morning and strain. Add to it six *mashas* of honey and administer. If there is no stomach pain or gas collection or watery motion, administer this even in the night as well.

The urinary disorders will get rectified in a few days by this procedure.

There is one more disorder called *udaka meha* or watery urination where the amount of discharge is excessive and it is also some what foul smelling. For this purpose, take one *masha* each of turmeric and sesame and two *mashas* of jaggery. This is to be taken morning and evening in boiled and cooled water for a few days. The disorder will get rectified. If thirst is excessive during this regimen, keep taking two *mashas* each of turmeric and *amalaka*

mixed with four *mashas* of sugar three times a day.

Itching and Scabies: During these skin diseases the patient should be first administered a purgative constituted by a decoction of two to four *tolas* of *amalaka* and three to six *mashas* of turmeric. This will take away the major portion of the toxic elements. Then take one *masha* each of the bitter neem leaves and turmeric, grind them together with water and administer twice a day. Simultaneously carry out a massaging with a mixture of butter and turmeric powder.

This will remove the affliction within a week and the skin will become healthy as well as lustrous.

Wet or Weeping Eczema and Itching: Some times, there will arise yellow boils on the body and specially the joints of the fingers and the toes, purulent matter keeps getting discharged from them and there will be a persistent itching or scratching sensation and the whole body starts getting dried as it were. There will also be a persistent constipation.

In such a condition, taking a *halwa* or sugary confection prepared from turmeric is prescribed.

This is prepared as follows: Take twenty *tolas* of cloth strained turmeric powder, two *ser*s of cow's milk and one and quarter a *ser* of sugar. In addition, keep half a *pav* of cow's ghee separately. First mix turmeric powder in milk, stir well and

cook in an iron vessel, keep stirring so that the milk will not get charred. When a *khova* gets formed eventually, mix ghee with it, roast till it gets dried. Prepare a syrup from the sugar to a consistency of a 'single wire' and add this and cook. Remove the vessel from fire when the *halva* starts leaving ghee, cool it down and store.

This is to be taken in a dosage of one to two *tolas*. Along with this, one *pav* of boiled and cooled down cow's milk is also be taken. If this measure is continued for a week all types of dry and wet afflictions of the skin will disappear.

There is one more recipe for the same purpose. This is to employ an oil of turmeric, prepared as follows. Take a *pav* of any bitter oil, half a *ser* of the fresh juice of *durva* grass and half a *pav* of turmeric ground down with water. Cook them all in an iron vessel and cool. Strain the oil with a piece of cloth.

This is to be applied on the wet as well as the dry affections. The wet ones will get dried and both will fall down. While treating the wet ones, first clean them and their pus with neem water (i.e. water in which neem leaves are kept soaked overnight), dry the areas by rubbing with a clean piece of dry cloth and then apply the oil by sprinkling over with a swab of cotton. Adopt this procedure of daily cleaning, drying and then applying oil for four to five days.

Benefit is well assured.

During this period, it is better that constipation is avoided, drugs are taken to purify blood and a consumption of astringent and dry food stuffs is carried out. Jaggery, red chillies, curds and ripe bananas are to be avoided in the food.

Dark Colouration and Freckles on the Face

In case the facial skin develops dark colouration, black spots or freckles and the whole face looks disfigured as it were, the following remedy will prove beneficial.

Take one *tola* of dry turmeric, prepare its powder and strain well through a piece of cloth. Soak this in the milk of *Calotropis* or *madar* and then dry and store in a bottle. Before you take bath, apply this powder over the face after mixing it with water and rub. When it dries, take bath. This is to be done only once in a day in the morning.

Along with this take one or two Peshawar almonds, break the shell, soak the seeds in water over night. Grind them the next day morning, mix this with two *tolas* or rose water and add a few drops of sandal wood oil over it. Keep it stored in a bottle. Apply four times a day at regular intervals, taking the oil after shaking it well. Place the oil somewhat more in the regions of the affliction and rub in.

The disfigurement will disappear within a week.

The wholesome or *pathya* habits during this regimen is to take cow's milk, turmeric, coriander

and sugar. One should also keep the mind calm and carry out a physical labour.

Unwholesome or *apathya* habits are: to get angry, become lazy and take too much of *vata* substances and also to eat too much of *masala* preparations.

Old, Chronic Coughing

For a patient suffering from old and chronic coughing, it becomes difficult to get sleep even at night. He becomes excessively tired and the distress also soon becomes inevitable and persisting.

In such cases he would find it beneficial to place one *masha* of roasted turmeric powder within the betel leaf of *pan* and two *rattis* of *javakhar*, keep this in his mouth and go on sucking the betel juice within. This is to be done twice a day once in the morning and another time at night following the meals.

Simultaneously he should also keep drinking at intervals one *pav* of goat's milk in which turmeric powder is added and then boiled and cooled down.

Wholesome (*pathya*) diets for this patient are black dried grapes (*munakka*), date fruits, or *khajur*, raw papaya fruit, fresh wet ginger and old wheat flour. The unwholesome substances to be avoided are red chillies, new jaggery, black gram and a stomachful eating.

Asthmatic Bouts

This is a very distressing situation which recurrently affects a patient of asthma and renders him completely down spirited.

In treating him, take three *mashas* of turmeric powder and the powder of seven grains of black pepper Mix the two in pure mustard oil and let the patient lick it up in the morning. Along with this, take ten *tolas* of any bitter oil, add to it a *chutney* prepared by grinding in water, the juice of ten *tolas* of *madar* (*Calatropis*) leaves and five *tolas* of turmeric. The oil is to be cooked now till the oil alone seems to be remaining in the vessel, and the watery portion completely evaporates. Remove the vessel from the fire after this stage is reached, let it cool down on its own, then strain the oil through a piece of clean cloth and store.

Apply this oil on the chest, the back and the belly as well as at the throat, by sprinkling and give a fomentation as well, in all of these places.

Carry out these measures for a period of one week and also see to it that during this period, the patient keeps up the requisite *pathya* or wholesome habits and diets. The distressful bouts of asthma would vanish away.

If the patient is strong, administer some purgatives so that he becomes internally clean also during this time. For, it is very necessary that a patient of asthma should not suffer from any digestive distress as well or constipation or gas

troubles. At night, when he goes to sleep, apply mustard oil on his belly and chest and carry out a massaging.

Wholesome diets for this patient are black dried grapes or *munakka*, sweet pomegranate, raw banana, *bathua* green leafy vegetable, *amalaka*, ginger, turmeric, coriander, *saindhav* salt, old rice and wheat, hot water and light food. It is advisable that he adds turmeric powder along with the *dal* he takes or the curry or any savoury preparations he takes meanwhile.

The following is a list of what he should not do:

He should avoid consuming substances that promote *kapha* and *vata* such as black gram or *udad*, ripened banana fruits, curds and jaggery.

He is best advised to avoid dusty and smoky places, taking bath in cold water or drinking cold water. He should also avoid seating himself very near the fire or in direct sun.

It is best if he gives up taking meals at night and also avoids eating stale food.

Some Household Tips for An Effective Use of Turmeric

Like ginger, turmeric is also a very easily available drug that is always ready at hand. To know its varied uses will come very handy for a housewife when suddenly faced with an emergency. Many of the recipes and the simple medications we have stated above also fall under

this category. For, they are also easily and very usefully applied. Both time and tradition have sanctioned such measures of effecting a sure cure. Here below however we include a few special household tips that will be of great value if one is aware of them. Moreover, all of these are being actively employed in many houses and many regions in India. As such, this list would serve merely as a ready reckoner of what all one can accomplish by employing this homely gift which is always available at our service.

Turmeric has an ability to cure a large variety of diseases. But to secure the full profit of this plant, it is not advisable to make use of the turmeric powder purchased from the market. For, adulteration is quite prevalent in this turmeric; what you secure thereby may be yellow in colour alright, but quite often it is not the dried powder of the rhizomes of the plant but merely some flour heavily mixed with artificial dyes. That is why it is best under all circumstances to purchase the dried and the horned rhizomes of turmeric as available from the market, powder them nicely at home and store. This has a very aromatic and pleasant smell and also a rich, fast colour.

It is quite common to use turmeric powder in Indian kitchen; almost every preparation that is not sweet contains a pinch or two of this powder. There are many advantages one secures thereby. The preparation becomes pleasantly aromatic in this way. It adds to the taste and delicacy of the

food stuff. It also gives a charmingly attractive colour to the dishes. Besides all this, it promotes easy digestion. Turmeric has many desirable properties: it is digestive, antiseptic, antiphlegmatic and also a good purifier of blood.

In case you are having a pain in the throat because of common cold, grind a little bit of turmeric powder and jaggery in milk and smear this paste on the outside of the throat. Beneficial results are soon noticeable.

Take ten grams of soft turmeric powder, stir it well in cupful of curds and take this everyday in the morning. If this procedure is adopted for seven to eight days, the infection of jaundice will get cured.

Take an inch length of the dried turmeric rhizome. Grind this to a fine degree. Mix this paste thoroughly within a cupful of curds or butter, butter milk and drink. This measure continued for a week has a curative effect on many afflictions such as jaundice, piles, constipation, and pains following the passing of stools, dysentery in which there is a bleeding as well, rheumatism and also old, chronic, incurable skin diseases.

One is best advised to make it a habit of taking bath after applying all over the body a freshly prepared mixture of turmeric powder and castor oil or coconut oil and it follow with a gentle massaging. This is a very effective and prophylactic measure to maintain good skin health, avoid or

cure skin diseases and also to increase the lustre and brightness of the skin. If the whole body cannot be smeared this way, it is useful to do so at least for the face. This is infact an age old but very effective cosmetic facial cure of the Indian ladies.

Pour a spoonful of turmeric powder on burning, live coals. You will secure an abundant aromatic smoke. Sniff it in through your nose. This will quieten down the common cold and the irritating running nose. One should not drink any water for several hours after an intake of this fumigation. The cure secured with this precaution is excellent.

Another procedure for more or less the same effect and purpose is as follows. Prepare a mixture of the flour of blackgram, the flour of bengal gram, tea leaves or dust and turmeric powder. Place one or two spoonfuls of this mixture similarly on burning live coals. By sniffing in the equally abundant smoke one can secure a stop in the running nose. This is also a sure cure for getting rid of the headache caused by cold. Such a fumigation and its intake offers a noticeable relief to patients of breathlessness and even asthma.

Make an electuary or a lickable paste by mixing well ground smooth turmeric powder and honey. Lick up a small quantity and smear the remaining part to portions of the skin affected by disease. Many skin diseases get cured in this manner.

Prepare the sandal wood paste by grinding a piece of sandal wood with water on the stone

meant for that purpose. On the same stone prepare another paste by grinding the rhizome of tumeric. Mix the two pastes well and add this mixture in the cream of milk homogenously. An application of this preparation to the face will see to it that the disfiguring pimples will vanish away. The skin of the face becomes soft and also increased in lustre and health. This measure is particularly advised during the chilly winter weather as it will then prevent crackling of the skin of the face or the limbs, specially the palms and the soles of the feet.

Select a rather big sized 'horn' of the turmeric rhizome. Burn it by placing it on live coals. It will soon catch flames. Hold this with a pair of tongs and place it while still aflame on a piece of cleaned country tiles. The horn will burn out fully and live a rich residue of ash. Such an ash is best applied for wounds and ulcers. Any type of incurable and highly vitiated ulcer would respond to this treatment very satisfactorily. This constitutes infact an ideal medication for all chronic non-healing wounds and ulcers.

Take a few small horns of turmeric and also a few well grown leaves of *durva* grass or *Cynodon dactylon*. Grind them to a smooth paste in cow's urine. Apply this paste to the affected parts of the skin. This is an excellent medication for scabies, itching, pains and many other afflictions of the skin.

Burn a horn of turmeric to ashes. Mix salt to this ash. Rub your teeth with this ash as the tooth

powder. It will stop tooth ache and prevent the dental caries.

Add a pinch or two of turmeric powder and a little amount of pepper powder to hot milk and drink. This will pacify cough, common cold and pain as well as irritation of the throat.

Take about ten grams of very finely powdered turmeric. Add this to a cupful of curds, stir well and drink every day. This is a beneficial measure for dysentery as well as diarrhoea. However, this measure has to be continued for at least seven to eight days to secure excellent results.

Take equal quantities of turmeric powder and *ajawan* or *omum*. Mix and sprinkle on live burning coals. Sniff in the abundant smoke that results thereby for about two minutes. Doing so for two to three times a day would cure common cold and running nose.

Grind turmeric and guava leaves into a smooth paste. Apply this to the head before you go to bed at night, covering it with a cloth. Next morning wash with water in which a spoonful of dettol is added. This will remove head lice.

Yunani Opinion

Turmeric is widely used by Yunani physicians also. They consider it as hot and dry in the third degree. The rhizome is considered by them as bitter, carminative (capable of expelling gases), maturant (aiding in maturation and thereby the

healing of the abscesses and the pustules) and diuretic (inducing urination). It is good for the affection of liver and specially jaundice, urinary discharge and also scabies and bruises.

It is used by them to expel phlegm or *kapha*, opening out the blood vessels so as to improve blood circulation, scarifying and healing of the wound as well as in causing a dissolution of the oedema and the abscess. It is pacificatory, purifier of blood, slimming and propitiatory to the development of colouration in the body.

Because of its antiphlegmatic nature, it is amply employed in all difficulties and disorders of respiratory system that are caused because of the aggravation of *kapha*. It is applied externally in cases of cut, bruised and other fresh injuries. In view of its scarifying capacity as well as the propitiatory nature to skin and colouration, turmeric is employed extensively in the rectification of various types of skin diseases. For healing the wound, turmeric powder is mostly sprinkled on the regions of the injury. It will then clean as well as heal. In cases of bruised injuries, a horn of turmeric is taken, half roasted and powdered. This is then applied externally and also given internally in milk. As it is scarifying (*lekhaṇa*) it is employed beneficially in the afflictions of the eye (such as *netra shukla*—development of a white patch in the cornea) in the form of a colyrium. Turmeric is also employed with success in jaundice and ascitis (water collection at the belly or

jalodara). Another area where turmeric finds a useful role is in haemoptysis (or spitting of blood) and in chronic fever.

Excessive use of turmeric is regarded as rather harmful to heart. The antidote counteracting its deleterious effect is the juice of ordinary as well as *bijaura* lemon.

The generally advised dosage of turmeric is one gram to three grams or one *masha* to three *mashas*.

Some Yogas of Haridra

As in ginger and many other famous medicinal plants there occur a large number of proprietary preparations with turmeric as their principal ingredient and a large number of other crude drugs. They occur in several standardised pharmaceutical forms with stipulated dosages and well attested efficacies. Quite a few of them have been prepared on commercial scale and are available among the dealers in Ayurvedic drugs.

A small list of some of these *yogas* is presented below along with the methods of their preparations as well as the several uses.

External Applications or Lepas

1. *Haridradi lepa*. A turmeric based ointment.

Take turmeric, *lodhra* (*Symplocos racemosa*), *patanga* (*Caesalpinia sappan*, *bakam* in Hindi), the

smoke from the kitchen i.e. carbon deposit there and *mainshil* (red arsenic) - all in equal quantity. Powder them together to a fine degree and prepare an ointment from this powder with honey as the medium.

This is a specific application to reduce glandular swellings (*rasauli*).

2. *Nishadi lepa*. Another turmeric ointment.

Take equal amounts of turmeric, *daru haldi* (*Berberis aristata*), *khas* (*Vettiveria zizanioides*), the bark of *shirish* (*Albizia lebbeck*), *nagar motha* (*Cyperus rotundus*), *lodhra*, sandal wood and *naga keshar* (*Mesua ferrua*). Grind them together in water and prepare an ointment.

This is to be applied two to three times a day.

This is a good medicine for the lesions or boils and small pox, erysepelas (*visarpa*), sensation of burning, excessive perspiration, foul smell emanating from the body and skin diseases.

3. *Dvinishadi lepa*. Double turmeric ointment.

Take the following eleven ingredients: turmeric, *daruhaldi*, sandal wood, red sandal wood, *harad* (*Terminalia chebula*), root of *durva* grass, root of *punarnava* (*Boerhavia diffusa*), *padma kashtha* (*Prunus cerasoides*), *lodhra* and *sona geru*. Grind them together in water and make a paste.

Application of this paste will get rid of the swellings brought about due to any injury and the swellings due to blood disorders.

In some cases of intestinal swellings and inflammations, pain will increase if pressed from above, there will be vomiting, stomach pain, a feeling of a hard stomach, and an obstruction of stools which will not get relieved even if purgatives or enemas are administered.

Application of this medicine in such a condition will mitigate the distress in a single day.

Collyriums or Anjanas

1. Nisharjana. A turmeric collyrium.

Take the following eight drugs in equal proportions: turmeric, *daru haldi*, *nagarmotha*, *harda*, *baheda* (*Terminalia bellerica*), *amalaka* (*Embellica officinalis*), *mulethi* (*Glycyrrhiza glabra* or liquorice root). Pound them together, powder and strain through a piece of fine cloth. Soak and thin this in goat's milk for 12 hours. Make the paste into small flat discs or *vartis*.

At the time of administration the *varti* is to be rubbed with water or breast milk and applied as a collyrium to the eyes.

This will ward off swellings, pains, redness and discharge of the eyes.

2. Haridradi varti: Turmeric based discs.

Take the following in equal proportions: neem leaves, smaller *peepal*, black pepper, *vaya vidanga* (*Embelia ribes*), *nagarmotha* and dry ginger or

shunthi. Pound them together, powder and strain through a fine cloth. Thin them by soaking in cow's urine for 12 hours and prepare *vartis* or discs on the same day.

This *varti* is to be rubbed in goat's milk or honey and applied. Goat's milk is useful to mitigate burning and pain while honey will aid clearance of the impurities.

When this is applied as a colyrium, burnings at the eye, formation of thin membrane over the eye, development of impurities in the eye, redness and itching at the eye - these distresses will disappear.

A Spirituous Product or Arka

Haridradi arka: A turmeric based distillation

Prepare coarse sized powder of turmeric. Take one part of it and six parts of wine (40 per cent). Mix and let it remain for seven days together in a bottle. Then strain this through a filter paper and store. The advisable dose is 1-2 drachms.

This is taken as an elixirising tonic (*rasayana*) and to purify blood, three times a day and along with water.

This *arka* is beneficial in many other conditions as well, such as: urinary disorder (*prameha*), urination accompanied with burning sensation, cold and running nose, phlegmatic cough and leucorrhoea or the whites.

A Confection or a Sweet Preserve or Avaleha

Take the following six crude drugs together in equal proportions: turmeric, black pepper, *munakka* (dried big black grapes) *pipal*; and *rasna* and *shathi* (*Hedychium spicatum*). Mix them all together and add jaggery to this mixture half its total quantity in weight.

Take one *tola* each time and mix it with any bitter oil and take it as an electuary i.e. by licking it. This is to be done three times a day.

By this procedure, one can get rid of phlegmatic aggravation and thereby the respiratory disease. This is also beneficial in hiccup.

A Nasal Drug - An Errhine or a Dhuma

Take turmeric, *daru haldi* and *mainsil* (red arsenic). Grind these together with water, prepare small sized discs or *vartis*. Dry them and keep.

Burn one *varti* and take the smoke in, as done for *beedi* or a *cigarette*. This will expel out the collected phlegm or *kapha* and the chest would feel light.

Powder or Churnas

1. Take turmeric, black pepper, *munakka*, jaggery, *rasna*, dry ginger or *shunthi* and *peepal*—all in equal proportions. Mix. Powder well and store.

If one takes this powder in mustard oil, even very terrible cough will stop.

2. Take 1.1/2 *tolas* of turmeric powder. Mix it with 5 *tolas* of curds and take. This specially wards off the disease of jaundice.

3. Prepare a fine ground turmeric powder. Take 3-4 *mashas* of this powder, mixing it with jaggery and along with cow's urine.

This will destroy elephantiasis of one year old even and also the ring worm and the *kushta*.

4. Prepare a fine powder of turmeric. Mix it with the juice of *amalaka* and honey.

A regular intake of this will destroy all types of *prameha* within a week.

Confection or Sugar Preserve

Haridradi khanda - turmeric based confection

Take 40 *tolas* of turmeric powder, 30 *tolas* of cow's ghee, 8 *sers* of cow's milk and coarse country sugar (*khand*). First roast turmeric in ghee. Add to this both milk and sugar. Cook on low fire.

When the syrup is about to become ready, add 5 *tolas* of the powders of each of the following: dry ginger, pepper, *peepal*, *dalchini*, cardamom, *tejpat* (nut mace), *vaya vidanga*, *nisoth* (*Operculina turpethum*), *harad*, *baheda*, *amalaka*, *nagakeshar*, *nagar motha* and *vanga bhasma* (oxide of tin).

The preparation should be carried out in an earthenware vessel.

The dosage advised is one *tola*.

This will destroy itching, boils, scabies, ringworm and all such other afflictions of the skin and will also render the skin itself lustrous and healthy.

This will also eradicate urticaria (*shita pitta*), erysipelas and scarlet fever within a week. For itchings and eruptions particularly, this is an excellent medicine.

Ghee or Ghritam

Take turmeric, *daruhaldi*, *harda*, *baheda*, *amalka*, *nishoth*, *vacha* (*Acorus calamus*), white mustard, *hing*, the bark of *shirisha* or *siras* (*Albezzia labbock*), *malkangani* (*Celastrus paniculatus*) *shveta aparajita* (*Daphne gnidium*), *majitha* (*Rubia cordifolia*), dry ginger or *shunthi*, pepper, *peepal* and *devadaru*—all in equal proportion, mix and powder. Take 10 *tolas* of this powder, 1 *ser* ghee and 4 *sers* of cow's urine. Cook them all together. When the watery portion evaporates out and the ghee alone is remaining, remove from the fire, cool and strain.

Taking this will destroy insanity. The dosage advised is one to two *tolas*.

RELATIVES OF TURMERIC

It is time to consider the several other species of the genus *Curcuma* enumerated earlier. They are altogether five in number and are being discussed now as below.

1. **Curcuma angustifolia**: Roxb. In English this is East Indian Arrowroot, Narrow-leaved Turmeric or wild Arrow root.

Names

Sanskrit offers quite a few names for this plant. They are: *gavayodbhava*, *godhumaja*, *paya kshira*, *pishtika* (starchy), *tala kshira*, *talodbhava*, *tavakshira*, *yavaja*.

This is called *tavakshara* in Gujarati; *tava khira*, *tikhur* in Hindi; *tava khira*, *tavakila* in Marathi; *kove gedde*, *kove hittu* in Kannada; *ararut kilangu* in Tamil; *ararut gaddulu* in Telugu and *tavashira* in Persian.

Botanical Description

This is a small sized herb looking like turmeric but with characteristic narrow leaves. The root stock is small but this develops long fleshy fibres which terminate in pale pendulous tubers which constitute the most important part-being the source of a very useful starch. Leaves along with the leaf stalk are 30-45 cm long; their blade is lance like, narrow and with a tip that is acute. Flowers are borne in conical spikes that bear numerous stalkless flowers. These spikes are borne laterally, and apart from and usually appearing earlier, than the leafy spikes which are crowned by several large empty (i.e. flowerless) pink bracts or leafy structures. The flowers are yellow and longer than the bracts, occurring 3 or 4 together in the axil of these bracts; they open out

in succession and quickly fade out. The fruits that they develop are ovoid, capsular, dry and dehiscent or opening at maturity by means of three valves to disperse the seeds, which are many and small.

The plant occurs richly in the outer ranges of the Central Himalayas and also in Western Bihar and Northern Bengal. Its distribution extends in some way to the west coast of the Peninsular India as well as South India. It is mostly collected from wild sources but is often cultivated.

This is a native of tropical Himalayas and Ayodhya area.

It is highly valued as an article of diet, the Indian Arrowroot and an excellent substitute for the original arrowroot. The latter comes from the starchy rhizomes of an altogether different plant called *Maranta arundinacea* or other species of the genus *Maranta*. This is a South American plant with its rhizome esteemed as an antidote to arrow poison and also yielding a valued nutritious starch. This is also known as Bermuda or West Indian Arrowroot. There are other species in India which also are the source of the Indian Arrowroot starch. These grow wild in jungles in various parts of India. They are: *Curcuma leucorrhiza*, *C. montana*, *C. aromatica*, *C. longa*, *C. rubescens* and *Hitchentia culina*.

Medicinal and other Uses

Parts used are tubers. These yield starch, sugar, gum and fat.

The value of the starch from the tubers from this plant is in great esteem. It is largely manufactured and exported from Malabar and Travancore regions of Kerala State. The tubers are dried and powdered and a flour prepared; this starch forms the principle source of the Indian arrowroot. In the form of a *conjee* or thin gruel, it is an excellent diet for the patients of dysentery, dysuria (i.e. urinary disorders), gonorrhoea and so on. This is also useful in typhoid fevers, ulceration of the bowels and bladder. If urination is difficult and painful, this is best administered in the form of a *conjee* prepared like barley water and added with milk and sugar. The arrowroot flour can also be made into a confection or a *halva* like sweet; cardamoms are added to this to render it cooling. This will then constitute an excellent stomachic (i.e. good for stomach) food useful in cases where a demulcent agent (i.e. one that soothes and allays down irritation) is also needed along with nourishment. This is also useful in all cases where barley is advised for the patients. It is particularly well suited to all infants and all convalescent patients, precisely because it is demulcent, non irritating and nutritive-all, simultaneously. In addition, it is digested very easily.

The tuberous roots are sweetish in taste, fragrant, cooling and oleagenous or oily and nourishing. They are tonic as well as aphrodisiac, promoting the urge of sex.

They are useful in several diseases. These are: consumption, billiousness, loss of taste, and

dyspepsia or indigestion, bronchitis and asthma, burning sensation and fever, difficulties of urination; stones in urine, kidney and bladder; thirst; jaundice; anaemia, ulcer and diseases of the blood.

The plant is also believed to have antiseptic and antitubercular properties.

The main stem of this plant is conical above and on being cut open, it is pale yellow in the centre and white on the outer side. The tubers are borne at the ends of the fleshy long roots spreading out from the underground rootstock. It is from this, *tavakshir* or *tikhur* is obtained; this has great similarity with the true *tavakshir*, which is bamboo manna. The broken bits of the tuber look like those of turmeric but when placed in the mouth become mucilaginous quickly (that is why it is called *paya kshira*). The taste is also somewhat like that of bamboo manna or *tavakshir*, that is why it is called *tavakshira* itself.

A good way of taking arrow root flour is to cook it in water, add sugar as your taste demands and a little bit of lemon juice or any other aromatic essence-again, as you would prefer.

Its employment is beneficial in cases of inflammations at the mouth and also the sores at the region of the tongue. It is well advised in cases of gonorrhoea, difficult urination, increased throbbings at the heart and burning at the chest region. In cases of gripings or painful contortions

at the bowels (*petchis* in Hindi) this constitutes an ideal gruel. It is believed to be effective in eradicating dental caries also.

2. **Curcuma aromatica.** Salisb. In English this is called Cochin turmeric or wild Turmeric or Yellow Zedoary.

Names

This is called in Sanskrit as *aranya haridra*, *vana haridra*, *vanarishita* (all meaning Forest turmeric) and *sholi* or *sholika*. Its names in most regional languages also mean the same.

In Gujarati, it is *kapur kachali*, *vanahaladara*; in Hindi *banhaldi*, *jangli haldi*; in Kannada *kasturi arishina* (the musk turmeric); in Marathi, *rana halada*; in Malayalam, *ana kuva* (the elephant sized Indian Arrow root) and *kattu manner*; in Tamil, *kasturi manjal*, *kattu mannal*.

The herb yields a famous tuber. The central portion of its tender leaves have brinjal - i.e. dark violet colour but this disappears when the leaves attain their adult size. Just before the rains, fresh leaves and flowers start appearing. Its central root stock or the rhizome is elongatedly spherical or rather conical and is more than two inches in diameter. On the outside it is dark brown and on it there occur circular scars and an abundant clump of stout sub-roots. Some of these are orange coloured tubers, which very much look like almonds with their shells in tact. Both the central



and the peripheral tubers are densely turmeric yellow on the inside. The fragrance is like that of turmeric but more mixed with that of camphor and ginger. The taste is pungent and very much like camphor. It is because of this reason, the herb is called a *karpura haridra*, camphor turmeric. When grown well the central tuber has the shape and size of a turnip.

Medicinal and other importance

The part of the plant that is used is its tuber or the rhizome. This contains an essential or the volatile oil, resin, starch, mucilage, sugar, gum, albuminoids and the characteristic substance curcumin, the yellow colouring matter.

The properties and actions are similar to those of *C. longa* or the turmeric. It means that this is also a tonic; a stimulative and a carminative expelling gases from the bowels.

The rhizomes have a pale yellow colour and also an agreeable aroma. The fresh roots have a camphorous odour.

The general use is very much like that of turmeric. Dried rhizome is employed as an aromatic adjunct to other medicines used in skin diseases and impurities of the blood. It is given in doses of 3 to 6 grains to promote eruptions accompanied with fever. This is the practice in Konkan areas. However, it is not used alone but is combined with astringent drugs when applied to

bruises and with bitter and aromatics to promote eruptions. Boiled in oil, it is an useful application to sprains and bruises. It has a reputation of being useful in snake bites. The rhizome has a bitter taste. It is useful however as an appetiser and has some beneficial application in leucoderma and the diseases of the blood. For scabies and the eruptions of small pox, it is used externally.

Rubbed into a paste with benzoin it forms a household remedy as an application on the forehead in getting rid of headache.

Some recent work has been carried out on the essential oils from *Curcuma aromatica* (*kasturi manjal*) and also another species (*C.zedoaria*) (*kachoor*) which grows wild in the forests of Malabar in Kerala State. The powders from these roots have been used as cosmetic substances and also for medicinal purposes in South India for a long time. The oil from these tubers is also found to be valuable in perfumery and pharmaceutical industry, as well as in flavouring beverages. As such, the plant represents one of the important aromatic plants of India that demands greater attention and better exploitation, than it has received so far.

Yunani physicans consider it as hot and dry of the second degree category. According to them the herb has three important properties: dissolution of the swellings; propitiation of blood and pacification. It is greatly used by them to treat injuries and bruises as well as boils and eruptions.

Some *hakims* employ it internally in cases of cough, fever and disorders of blood.

Its substitute is ordinary turmeric. In fact, it is used much like turmeric for curing itching, minor skin affections swellings and the like - all as an external application.

3. **Curcuma zedoaria** **Rose**. In English it is called Zedoary, a famous herb.

Names

Sanskrit calls it by many significant names. They are *duralabha* (not easily obtainable), *dravida* (from South India); *gandhasara*, *gandhamulaka* (with fragrant root); *jatala* (with braided roots); *kalpaka*, *karchura*, *karshya*; *mukhya* (important); *shati* and *vedhya*.

It is known as *zurambad* in Arabic; *ekangi*, *kachura*, *sati* in Bengali; *kachuri* in Gujarati; *kachura*, *kalihaladi* (the black turmeric) in Hindi; *kachora* in Kannada; *kacchotam*, *kacchurikizhagna* in Malayalam; *kichili kilangu* in Tamil; *kitchili gadda* in Telugu; *kachura* in Urdu.

Botanical Description

The term zedoary of English for this plant is derived from the Arabic Zedwar, a famous drug of the medieval times. This indicates certain species of *Curcuma* which are native of India and China, whose root stocks are aromatic, bitter and pungent.

The root stock here bears palmately branched stalkless; cylindrical, oblong and ring like tubers. These are pale yellow on the inside and have a camphor like smell and bitterish sticky taste. The root stock also bears long fleshy fibres that terminate in smaller, oblong and less fragrant tubers.

The leaves are four to six in numbers. They have long stalks, 30-60 centimetres long, oblong and lance like in shape. The tip is finely acuminate i.e. long drawn out like a tail. They are smooth and hairless on both the sides and clouded with purple, down the middle. The flowering stem is 20-25 centimetres long and it appears before the leaves. It is stout and clothed with sheaths. Flowers are yellow and arranged in conical clusters of sessile flowers or spikes which are 7.5. - 12.5 by 5-7 centimetres. The flowering bracts are boat shaped, green and tinged with red. Bracts of the tuft that do not bear flowers are crimson red or purple. Corolla tube is quite long, the limbs are deep yellow. The fruit is an ovoid capsule which is triangular and bursts at maturity irregularly to release ellipsoid seeds that have a dissected aril or out growth at the base.

The herb is an attractive garden plant as well.

The plant is said to be wild in the Eastern Himalayas, specially in Chittagong, and Tripura. It is however well cultivated, often in gardens, more or less throughout India.

The herb looks somewhat like turmeric. Yunani physicians recognise two varieties in it. One is called *khurd* (*kshurda*, the lesser variety) which is strongly aromatic. The whole tuber is boiled, dried and stored. This is called *kachur*. The other is called *kala* (the black); the tuber here is bigger and longer. After being uprooted from the ground, this is boiled, cut into pieces and then dried and stored. This is referred to as *nara kachur*. Actions and properties are the same in both the varieties.

Medicinal and other Importance

The parts used are the tubers. These are usually utilised in the form of powder or cold infusions (or *fanta*).

Kachur contains an active principle called zedoarin while *nara kachur* has an essential oil, resin and other substances. Zedoary in general contains an essential oil, a bitter soft resin, organic acids, gum, starch, sugars, albuminoids, crude fibres and ash as well as the special substance curcumin arabins.

The general medicinal properties are as follows. It is stimulant, carminative, expectorant (causing cough and thereby expelling phlegm), demulcent (soothing and cooling), diuretic and rubefacient (reddening to the skin). The tubers which have a pleasing camphor like smell is cooling, diuretic and aromatic.

The root is useful in flatulence (bloating of the stomach due to gas collection) and dyspepsia (or,

indigestion). It is generally chewed by Indians to correct a sticky taste in the mouth and by singers specially to clear the throat. It is also employed in cases of irritation of the fauces (i.e. the upper part of the throat from the root of the tongue to the entrance of the gullet) and also the upper part of the wind pipe (or the trachea).

In cases of cold and fever it is given in the form of a decoction prepared together with long pepper, cinnamon, liquorice root (*Glycyrrhiza*) and honey or sugar candy. This same decoction serves the purpose of effecting cure in cough and bronchitis. The powdered root is made into a paste used for external application and combined with alum or *fitkar* to cure bruises.

The drug forms an aromatic ingredient for cosmetic purposes and also to cure chronic skin diseases caused by impure blood.

Fresh root checks the discharges in leucorrhoea or *pradara* and gonorrhoea. The dried roots are powdered and mixed with powdered wood of *Caesalpinia sapan* (*bakkom* or *bakam* in Hindi) to prepare the red powder called *abhir* which is mixed with water and thrown all over the body during the Holi festival.

The starch of the tuber is a nourishing food. In fact, an useful flour called *Shati Food* in Bengal is being prepared by many commercial concerns meant for infants and invalids as well as the convalescents by powdering the roots. This is a

good substitute for many foreign made Baby Foods and needs to be better popularised. For a complaint of the worms, the juice from the tubers is administered to children. It is generally used in combination with other medicines to prepare a medicated oil. Juice of the leaves is advised in dropsy or collection of morbid waters in the body and swelling.

Yunani physicans regard this as hot and dry to the third degree. Ayurveda regards it as of hot virility.

Ayurveda recognises many useful properties in this drug. It is bitter, pungent, hot, agreeable, stimulative, good for heart, piles and splenic enlargements. It regulates *vatic* aggravations, clears obstructions and creates a sense of well being and good disposition (*saumanasya*). It is strengthening to liver and stomach, strongly scarifying and slimming, removing the foul smell of the mouth by creating a fragrance there as well, and expelling to *kapha* or phlegm. It promotes discharge of urine, menstrual flow and dissolves oedemas or swellings.

Because of these reasons it is employed in several diseases beneficially. A few illustrations are: diseases of the liver and stomach, and also heart, itching and others skin troubles, cough and difficulties in breathing caused by *kapha*.

A deleterious effect associated with excessive use of this drug is that this is likely to cause headache.

The antidote for counteracting this untoward effect is rose petals and the *gulkhand* prepared out of the rose petals. The rhizome is also useful in tuberculous glands of the neck, enlargement of the spleen and also epileptic seizure, significantly. Yunani physicians recommend it for cases of griping or painful involuntary contractions of the bowels, pains in general, inflammations and toothache. The root is an ingredient in some of the strengthening conserves taken by women so as to remove weakness after childbirth. In Cambodia, the root is used as a stimulant, tonic and also as a depurative or a purifier. It is administered in cases of dizziness in head and malaria or a feeling of uneasiness or sickness and distress. For this purpose, it is given in the form of a tincture. This is given three times a day to women during the first two weeks following child birth. The tubers are chewed by Cambodian mothers who then apply the paste with the saliva to the head and body of children suffering from convulsions. The leaves are used as beneficial plasters in lymphangitis (inflammation of lymph glands), furunculosis (an eruption of boils) and adenitis.

4. **Curcuma caesia Roxb.** In English this is called Black zedoary.

Names

There does not seem to be any name for this in Sanskrit. Quite likely, this is a later addition to Ayurveda.

It is called *nīlkanth*, *kala haldi* in Bengali; *kali haldi*, *nar kachura* in Hindi and Gujarati; *kari arishina* (black turmeric) in Kannada; *kali halad* in Marathi; *manu pasupu* in Telugu.

Botanical Description

This herb grows to a height of about 1.2 metres. Leaves are 30-60 by 12.5-15 centimetres. They are broadly lanceolate or oblong in shape and smooth and non-hairy. They have an attractive, deep ferruginous or rusty purple cloud of colouration down the middle and penetrating to the lower surface. The leaf stalk and the sheath are as long as the blade. Flowers are arranged in spikes that appear rather before the leaves. Flowering bracts are green and provided with a ferruginous (i.e. rust coloured) tinge. The tuff of flowerless bracts is deep bright red tending to crimson. Flowers are pale yellow, reddish at the border and rather shorter than the bracts or the leaf like structures in whose axils they arise.

This is an attractive garden plant as well, besides being medicinal. It is found cultivated in the gardens of West Bengal. The plant is so attractive that it needs a better consideration by the horticulturists and is worth being cultivated in many parts of India.

Medicinal and Other Importance

This is one of the two Zerumbats of Persian authors on *Materia Medica*. It is chiefly used as a

cosmetic material. Its general properties are considered to be nearly the same as those of *C.zerumbet*. As a domestic remedy it is very much similar to ordinary turmeric or *C.longa*. It is so used specially in Bengal in a fresh state. Its paste is used in curing bruises, contusions and also rheumatic pains at the joints of the body. Turkish people employ these roots as a rubifacient viz. to redden their skin, to rub their bodies down after taking a Turkish bath.

5. **Curcuma amada Roxb.** In English this is called Mango ginger.

Names

Sanskrit gives quite a few significant names for this herb. They are *amra gandha* (smelling like mango), *daru* (woody), *darvi meda*, *karpura*, *karpura haridra* (camphor turmeric), *padmapatra* (with lotus like leaves), *surabhi daru* (fragrant and woody), *sura naiyika*.

Arabic calls this *daru haladi*, which in Ayurveda is quite a different plant which we shall see presently. It is called *amada* in Bengali (from where the technical term 'amada' is taken up by botanists); *amba halada* in Gujarati, Marathi and Kannada; *amhaldi*, *karpura haldi* in Hindi, *mamidi*, *arukamlika* in Tamil; *shad grandika* (with six nodes) in Telugu.

Botanical Description

Here the central root stock is large. The peripheral stalkless tubers are thick, cylindrical or

ellipsoid and pale yellow on the inside. Leaves have long stalks and they arise in tufts. The blade is 30-45 by 7-12 centimetres, oblong and lance like; the tip is acute or acuminate or long drawn out like a tail. The blade is narrowed towards the base; it is smooth, non-hairy and green on both the sides. Flowers spring up in winter in the form of spikes that are 7.5-15 by 3-8.5 centimetres and they come out in the centre of the tuft of the leaves. Flowering bracts are greenish white. Bracts of the coma or the head like tuft are longer and narrower and these are tinged with pink or red colours. Corolla is white or very pale yellow.

The herb is found in Bengal, Malaysia and Western Peninsular India, specially in the hills of the West Coast.

Medicinal and other importance

The parts used are the rhizome and tubers. Infusions and pastes are prepared from them.

These consist of essential oil, resin, sugar, gum, starch, albuminoids, crude fibres, organic salts and ash.

The medicinal action is carminative, cooling and aromatic. It is bitter, a stomachic (good for the stomach) and also astringent (exercising a contraction of the living tissues and thus aiding in healing). The rhizome is sweet, bitter, cooling and appetising. It destroys the rise in temperature during fever (antipyretic), laxative and also an aphrodisiac stimulating the urge of sex. It causes

vata but is useful in biliousness and particularly in all kinds of itching and skin diseases. This has a helpful effect in asthma, bronchitis and hiccup. It is useful to cure injuries and bruises as an external application.

Yunani physicians regard it as having a sharp, bitter taste. It is diuretic and maturant (hastening the ripening of abscess and thus healing them). It is useful in inflammations, troubles of the mouth and the ear, gleet, ulcers of penis, scabis, lumbago and stomatitis or inflammation in the mucous membrane of the mouth. The roots are expectorant and astringent. They are also much used in gleet and diarrhoea. The rhizomes are cooling and useful in prurigo or painful scratching. They are beneficially applied externally over contusions and sprains. They are recognised carminatives and stomachics i.e. salutary to stomach.

Fresh roots are used as a perfume and also as an ingredient in *chutneys* like ginger. Besides, it is well used in medicine in a fresh state as well as when dried, just like ginger.

The tubers have an agreeable and pleasant fragrance and an aromatic taste. They are useful in prurigo or an eruption on skin causing great itching. These tubers are rubbed with the leaf juice of *Caesalpinia bonduc* or the physic nut (*kat karari* in Hindi) and given for destroying and expelling the worms. Rubbed with the juice of the leaves of *Jasmin* plant (*Jasmina grandiflora*) into thin paste, it is applied externally on the skin of the children.

when small blebs appear into which hairs grow soon after i.e. in 10 or 12 days, after birth. An infusion of the root is added to confectionaries to give them a smell of mango, artificially.

Rhizomes are also used externally in the form of a paste and applied to head bruises as well as cure skin diseases. In the latter case specially, it is given generally along with other medications meant for improving the quality of blood and purifying it.

6. **Berberis aristata DC.** In English this called Indian or Nepal Barberry or Tree Turmeric.

Names

While discussing the turmeric of India, it becomes necessary to consider this plant also in addition to the six plants seen so far which are all but different species of the single genus *Curcuma*. This plant is totally different from all of them botanically. It is not even a monocotyledonous plant, the large class to which *Curcuma* belongs. Instead, it comes under the class of the dicotyledonous plants under the family Berberidaceae. The reason is that it is one of the famous ayurvedic plants called *daru haridra*, the woody turmeric whose wood and root have a rich yellow turmeric alkaloid called berberine. The genus *Berberis* contains five species of medicinal importance. They are *B. aristata* DC (*daru haridra* in Sanskrit *rasaut* in Hindi), *B. asiatica* Roxb (*kilmora* in Hindi), *B. lycium* Royle (*kashmal* and *chitra* in

Hindi), *B.nepalensis* sprung (*chatri* in Nepal and *B.vulgaris* Linn (the true Barbery; *kashmal* and *chachar* in Punjabi). All of them share rather similar medicinal properties and some of them do get called *daru halad* for example *B.lycium* in Maharashtra.

Medicinal and other importance

The parts used are extract, fruit, root bark and wood. Root and wood are rich in the yellow alkaloid "berberine" a bitter substance that dissolves in acids and forms salts of the alkaloid. This is very valuable in intermittent fever when it acts better than quinine as it is not attended by any undesirable side effects as in the latter and also, the weakness that follows such a fever. Its product *rasaut* is also much used beneficially in various types of fevers. Its dried fruit is so important and forms a famous drug could *jareshak* (or *jarisk*) The Barbery berries.

This is the dried fruit of *daru haldi* and forms a valuable medicine on its own. The fruit is rather long and round. It is green when unripe, red when ripe and black on drying. The fruits are abundant in the Himalayas. Still however great quantities of them are imported from varied places such as Iran, Kurasan, Shiraz and Isphazan of the Middle East. Iranian *jareshak* is considered the best.

Yunani physicians employ this medicine widely for many aggravations of bile and blood.

MODERN WORK

It is quite understandable that modern scientific workers have given considerable attention to study these two ancient drugs of ginger and turmeric whose value in medicine as well as in adding taste to food as spices were probably discovered for the first time in India in remote times itself. Their age old reputation is now largely confirmed by the rigours of modern research. Some details of this nature are given below as regards turmeric.

The important colouring matter of turmeric is known as curcumin of the methane group. The rhizome also yields an essential aromatic oil, the turmeric oil or termerol responsible for its characteristic smell.

The volatile oil obtained from the turmeric rhizome was given through mouth and in a dosage of 0.01 millilitre per kilogram. This was compared with what cortisone acetate (10 mg/kg), a known drug, does in adjuvant arthritis in rats. This drug was then found out to be significantly suppressing the primary swelling on the third day of the injection of the adjuvant and also the secondary swelling that appeared on the thirteenth day. Such a protective effect of the volatile oil in early inflammatory lesions has been attributed to the antihistamine effect. The antiinflammatory effect of the volatile oil has been found to be in fact greater than that of hydrocortisone in the cases of experimentally induced oedema (swelling) and arthritis.

A very impressive modern study with turmeric is as follows. A clinical trial with turmeric was carried out in 114 patient of respiratory diseases. Here, 71 persons were patients of bronchitis (inflammation of the bronchil), 13 of bronchiectasis (who had abnormal, irreversible dilatation of the bronchii), 18 of bronchial asthma and 12, of tropical oesinophilia. The drug was administered in gradually increasing doses from 4 to 32 grams daily for a period of 15 to 45 days. Significant improvement in signs and symptoms and relief in airway resistance was observed in 11 cases of bronchitis, one case of bronchiectasis, 5 cases of bronchial asthma and, 6 cases of tropical oeosinophilia.

The effect of the alcoholic and other extracts of the rhizomes of *C.longa* and *C.amada* on the cholesterol level in rabbits was studied. It revealed that only the ether extract of *C.amada* in a dose of 1 gm. given orally in the form of suspension in water could lower the blood cholesterol level.

Turmeric powder has been found to increase appreciably the mucin content of gastric juice in rabbits. It has been surmised that the beneficial effect of *curcuma* powders as a medicative substance in gastric disorders is possible due to its such mucus stimulatory effect.

A substance called sodium curcumiolate was isolated from *C.longa*. This has been found to be an active cholertic i.e. that which induces the development of bile salts in the liver.

Curcumin, the main active principle of the turmeric plant seems to combine in itself the choloretic and the hydrocholagogic action stimulating the bile system along with antiseptic property or destroying the harmful disease causing microorganisms. It would thus be an ideal medicative agent in rectifying the conditions of biliary systems and gall bladder due to suspected staphylococcus infection. The drug also had low toxicity. It should also be noted here that sodium curcuminat has been shown to influence the several individual constituents of the bile, differently. For instance, though the concentration of solids *decreased* in the bile after the drug was administered an *increase* in the volume of the bile secreted was observed. Absolute values for the entire period of choleresis or bile stimulation, indicated an increase in total excretion of bile salts, bilirubin and cholesterol. The fatty acid content however remained almost constant.

The antibacterial activity of *C.longa* or turmeric was compared with that of the famous antibiotic substance penicillin on gram positive organisms and that of streptomycin on gram negative organisms. It was found that the activity against both gram positive and the gram negative organisms was lesser in degree as compared to penicillin and streptomycin, but it does exist undoubtedly.

The alcoholic extracts of the rhizomes of *C.longa* was found to have an antiprotozoal activity against

the protozoan amoebic called *Entamoeba histolytica* the organism that causes amoebic dysentery.

The extracts of the rhizomes of some of the relatives of turmeric viz. *Curcuma caesia*, *C. amada* and *C. aromatica* were found to have depressant activity on the Central nervous system in mice.

PROSPECTIVE SUGGESTIONS

1. The first remarkable fact one would like to assert is that the great value attributed by both the lay public, housewives as well as the physicians of traditional systems of medicines, both Ayurvedic and Yunani has been largely confirmed by recent studies. There exist innumerable nuances of advantageous applications of both of these drugs that the needs and the ingenuities of man have devised over years and years of experience.

It is our duty not to neglect these common place assertions but to derive the maximum advantages that we can from them. They are healthy, homely, cheap and most serviceable.

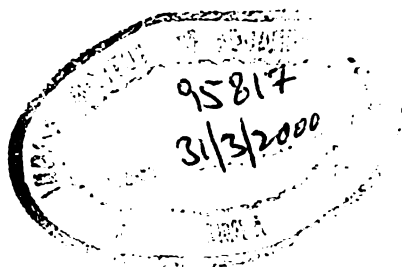
2. The second aspect worth noting is the rich number of both the ginger and the turmeric relatives that occur abundantly in India. All of there several "gingers" and the "turmeric" have their own use and value, as spices, medicines and perfumes. Quite a few of them are pretty looking garden plants like *Zingiber zerumbat*, or the *karpura haridra* (the Camphor turmeric), *Curcuma*

aromatica (the *kasturi manjal* or the musk turmeric) *Curcuma zedoaria* (Zarambad of the Arabic authors or *gandha mulaka*, the fragrant root of the Sanskrit writers) and *C.caesia* (Black zedoari or *kala haldi*). Many of these are no doubt abundant in the Himalayas but can very well be grown in gardens elsewhere. It is necessary that attempts should be made to popularise cultivation of these plants in home gardens. For, that is one way of conservation of so many such rare species of plants and prevent them from being destroyed by senseless deforestations of even the Himalayan areas that are rampant now.

3. As in many other cases, we do not utilise the wealth that lies at our doors to the extent that it deserves and run after foreign imports unnecessarily. This is best seen in the case of *daru haldi*; specially its valuable fruits. Our Himalayas are particularly rich in the species of *Berberis*; there are nearly six species of them growing abundantly. They also yield ample crop of the dried fruits viz. *jareshka*. Still we prefer to import a large quantity of them from several centre of the Middle East!

4. A successful use of Indian material for modern use is illustrated by the Indian Arrow root or *Curcuma angustifolia*. For a long time *Maranta arundinacea* or the Bermuda or the West Indian Arrow root has been considered as offering the most ideal nourishing food for the convalescent

and the invalid. The Indian Arrow root is in no way inferior to it. This is being well used for this purpose now and with great acclaim as well. It is time that we should exploit our natural and rich plant wealth like this more widely. If we make conscious efforts in this direction we are sure to meet with success.



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