Health Series

Traditional Family Medicine

Seasoning Herbs

Mustard	– *Rai & Sarso*
Cumin	– *Jeeraka*
Coriander	– *Dhaniya*
Fennel Seeds	– *Saunf*
Lovage Seeds	– *Ajowan*
Asafoetida	– *Hing*
Dill	– *Sowa*
Anise	– *Saunf*

HEALTH SERIES :
TRADITIONAL FAMILY MEDICINE

Seasoning Herbs

Mustard	—	**Rai & Sarso**
Cumin	—	**Jeeraka**
Coriander	—	**Dhaniya**
Fennel Seeds	—	**Saunf**
Lovage Seeds	—	**Ajowan**
Asafoetida	—	**Hing**
Dill	—	**Sowa**
Anise	—	**Saunf**

K.H. KRISHNAMURTHY

BOOKS FOR ALL
Delhi-110052

HEALTH SERIES :
TRADITIONAL FAMILY MEDICINE

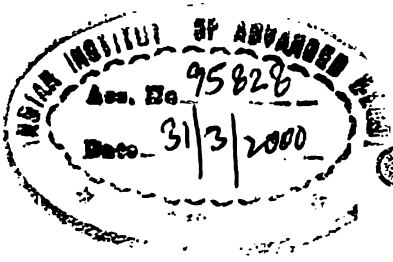
Seasoning Herbs

Mustard	—	**Rai & Sarso**
Cumin	—	**Jeeraka**
Coriander	—	**Dhaniya**
Fennel Seeds	—	**Saunf**
Lovage Seeds	—	**Ajowan**
Asafoetida	—	**Hing**
Dill	—	**Sowa**
Anise	—	**Saunf**

K.H. KRISHNAMURTHY

BOOKS FOR ALL
Delhi-110052

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



Published by
BOOKS FOR ALL,
C-2/9, 3rd floor, Ashok Vihar,
Phase-II, Community Centre,
Delhi-110052.

Typeset by
ABC *for* **DTP**
6, Rajdhani Enclave, Delhi-34.

Printed at
D.K.Fine Art Press,
Delhi-110052

PRINTED IN INDIA

INTRODUCTION

he art and skill of cooking specially of the savoury ishes depends to a great extent on the type and mount of the materials added at the final touch as it were. Such substances that are solely employed to heighten the flavour and taste of the food stuffs are called seasoning materials. In India, we have a large variety of herbs of this nature that have been in cherished use since times immemorial. And, it is these that constitute the speciality of Indian culinary practices that add a jest, an inviting appetite and a refreshing aroma to the preparations. More importantly, apart from being valuable flavouring agents, they also serve as medicative materials whose significance is also equally varied. A knowledge of both of these aspects moreover has in addition formed an important domestic knowhow among the mothers,

again, handed down by centuries of tradition and confirmed by actual practice for ages together. Modern study has largely ratified the manifold utilisability of these very common ingredients of an Indian kitchen store. Infact, it has itself employed and also sanctions the uses of many of them.

We shall try to offer an idea of the richness of this knowledge in the present work. The common notion that in many cases, our food itself can be used as a medicine is largely due to the medicative utilisability of the seasoning herbs. Ayurvedic authors never tire of their advise to employ such medicinal food stuffs in the common and routine preparations for our health as well as in curing many an important affliction.

The following are the seasoning herbs that will be discussed here.

Rai or mustard, both black and white; *jiraka* or cumin seeds, white, black and royal; *dhanya* or coriander, fresh herb as well as the dried seeds; *saunf* or fennel seeds; *ajowan* or Lovage seeds and *hing* or asafoetida. Among these, the first one, namely, mustard belongs to a family of plants called Cruciferae to which the familiar cabbage and radish also belong, though these latter two are culinary vegetables and not seasoning materials. All the rest of the plants belong to a family called Umbelliferae that characteristically bear umbrella like cluster of small flowers or umbels and uniquely structured scented fruits which in popular language are themselves known as seeds.

It is these seeds that are the specially useful seasoning agents in these plants excepting in hing, where it is the gum resin exuded from the plant which forms the condiment. Many other plants that are associated with these selected few are also discussed. All of them have one common feature; they contain essential, aromatic or volatile oils having an unique odour in each case, because of which reason they are used for seasoning.

A. MUSTARD

Mustard is one of the famous oil seeds of the Old World cultivated over 2000 years or even longer. The seeds of several species of the genus *Brassica*—the technical name for mustard, yield oils with similar characteristics-semi drying in nature and commercially called as rape or colza oil. The oil content is 30-45 per cent of the seed and is extracted by expression or solvents. The plants are extensively cultivated in India, China, Japan and Europe as well as North America. The crude oil is edible when cold pressed and is eaten as a cooking oil and also to grease bread before baking. It is also used in lamp burning, oiling woolen goods, to make soaps and rubber substitutes and for tempering steel plates. The refined oil, usually called as colza oil is also edible and in addition serves as a lubricant for delicate machinery. Besides being an oil yielder, mustard plants are also favourite pot herbs, their leaves and tops are being used as famous leafy vegetables and salads.

The plant was well known even in ancient times. It is frequently mentioned in Bible, and in Greek, Roman and Sanskrit writings. There is an extensive reference in classical works on Ayurveda for *rajika and sarshapa*—the mustards of Sanskrit.

Brown mustard or *Brassica juncea* is a medicinal drug recognised in Indian pharmacopoea or the authorised list.

The several species of *Brassica* that yield mustard are as follows. *B. campestris, Linn* the field mustard producing tuberous roots and seeds that are considered as antiscorbutic i.e. a remedy or preventive for scurvy. Seeds yield the oil of Colza which is an official drug in Sweden as Oleum rape. The plant is not a native of India but is now well naturalised in our country. *B.campestris var. rape* Hastm; *kali sarso* or the black mustard. This is cultivated through out India. *B.integrifolia* Schullz, *badshahi rai* or the royal mustard is much cultivated in India, specially in Punjab, Assam and North Bengal. *B.juncea* Linn. the brown or the red mustard and *B.nigra* Linn. also called black mustard are quite common. There is one more genus of the family Cruciferae called *Sinapis*; this contains two species *S.dichotoma* also called *sarso* in Hindi or *rakta sarshapa* (red mustard) in Sanskrit and *S.juncea*, also called black mustard. Equating the names of mustards used by Ayurvedic authors to botanical species unambiguously is not easy, though some attempt towards this is made below. However, what is

clear is that there are four varieties of mustards: brown or red, black white and royal; the "royal" variety differs from the others mainly by the size of the seeds which are decidedly a little bigger than the others, though there is some variation attributed to the colour of these "royal" seeds. Most mustards are no doubt rather similar in their properties.

1. **Brassica juncea** (having a rush like or a marshy grass like habit of growth) Linn. The common Indian or Brown mustard.

Names

Sanskrit calls this *rajika, raji* (the little royal), *asuri, tikshna gandha* (of very strong and acute smell).

This is known as *rai, sarso* or sometimes *raj rayi* in Hindi and Gujarati; *mohari* in Marathi, *raja sarish* (the royal mustard) in Bengali; *asur* in Kashmiri, *sasive* in Kannada; *khara dal* (with rough leaves) in Sindhi, *khardal, kubr* in Arabic, *sarshaf* in Persian, *avalu* in Telugu; *kadugu* in Tamil and *kaduka* in Malayalam.

Botanical Aspects

This is a common annual field crop, very familiar to all. It has an erect, tender, greenish stem that bears radish like large leaves that have a pungent smell. The size of the leaves is the biggest in the lower leaves, of a medium size in the middle ones and the smallest in the top ones. The plant grows

to a height of 2 to 4 feet in a rather rush like way, rush being a marshy grass with a clump like bunch of erect branches; that is why it is called *juncea* or a rush. Branches are short and quadrangular in section. The flowers are bright, lustrous yellow and occur in terminal racemes or elongated structures, with stalked flowers, the younger and the smaller ones nearer the top and the older and the bigger ones towards the base. Sepals and petals are four and free; petals are arranged like a cross, hence the family gets the name Cruciferae bearing cross shaped flowers. The whole field of mustard crop in bloom is a beautiful panorama. The flower gives rise to a characteristic enlongated fruit called siliqua; this has a single compartment but developes a false partition wall in the middle to which the small grain like seeds remain attached at maturity. All mustards have more or less similar botanical features. Their difference is mainly in the colour and size of the seeds, as noted above.

Parts used are seeds and oil and also the younger leaves and the tender tops of the herb as well as the green pods that are eaten as vegetables.

Mustard seeds contain the following characteristic ingredients; myrosin and sinigrin or potassium myronate 0.5 per cent, non volatile oil 25 per cent and sinapin. The nutritional value of mustard oil can be gauzed by the following values. It has 22.0 per cent protein, 39.7 per cent fat, 23.8 per cent carbohydrates and 4.2 per cent mineral

salts. Its caloric or energy producing value is 541- a little less than that of ground nut which is 561. The oil is somewhat yellow in colour, fully soluble in ether. It is of very strong odour and pungent in taste.

Medicinal and Other Importance

Ayurveda considers it as bitter in taste, pungent in virility, hot in quality and bitter in post assimilation. It destroys the aggravation of *vata* and *kapha* but causes *pitta*. Seeds of mustard are pungent, bitter and strong smelling, slightly dry in quality and promotive of digestive fire. They are useful in warding of itching, skin diseases and the diseases of the viscera and worm infection.

The leafy vegetable of mustard is also pungent in virility, hot in quality; it is tasty, appetising and strengthening. It causes *pitta*, destroys worms, cures the aggravations of *vata* and *kapha*. It wards of the diseases of throat.

Mustard oil is a regular cooking oil in North India and more prevalently so in Bengal. This is regarded as an ideal oil for massaging over the organs afflicted with *vatic* pains. The oil is stimulative, pungent, light for digestion, strong smelling and is destructive of *vata* and also causes impotency in male when used in excess. It is promotive of good hair growth and curative of the vitiation of the skin. It destroys *kapha* and removes excess of fat. The oil is used beneficially in the following diseases: piles, head-ache, ear-disease,

itching, worm infection and *sheeta pitta* or tumour caused by chill and attended with fever and sickness and compared to a swelling caused by a wasp sting. Another disadvantage in using much of mustard oil is that it causes difficult urination.

Modern medicine considers the seeds as hot, highly promotive of digestive power and capable of bringing about much sweating on the body. They have proved to be very useful in cases of convulsions, nervous disorders and rheumatism and also in some neural affections of the brain. There is a wide spread use of mustard poultice, during which procedure it is necessary to use equal amount of flour so as to lessen the severity of the mustard. This is particularly useful in hastening the maturation or the rupture of the boils and the abscesses and also in cases of hard and knotty swellings. Powdered mustard seeds mixed well with hot water will yield a plaster that is usefully applied on regions of swelling and pain. Within 10-15 minutes the regions becomes red and a sensation of burning is felt there. The plaster is to be removed out as soon as it proves intolerable. It is quite likely that small boils may appear in the region and these may also commence giving out a watery discharge for which vaseline (preferably mixed with camphor) is a good counteractant. For children and on vital parts the plaster is to be applied with a soft *mulmul* cloth; it can then be removed out also easily. Such a mustard plastering is very beneficial in cases of shooting pains and

swellings at the regions of chest, head, joints, uterus and the like.

Just munching 4-5 mustard seeds would improve digestive ability. But, if 5-6 *mashas** of mustard are gulped in along with hot water, there will be almost an immediate vomiting. This fact is utilised in cases of poisoning by opium and other narcotics and also in fever, and sever indigestion where much undigested food remains causing great distress (*amajirna*). However, excessive use of mustard should be avoided even here; for, this will lead to lesions in the stomach or an attack of plethora (*amla pitta*) or a bleeding at the nose.

The action of the mustard seeds on the body is very much like those of *hulhul* or the very common weed, rather mustard like in appearance in that it is also a short statured smelly herb having yellow flowers and long siliqua like fruits bearing mustard like seeds. This however is botanically an entirely different plant called *Cleome viscosa* Linn. though it is called Dog Mustard in English or *kadu sasive* in Kannada and *kadugu nayavelai* dog's mustard in Tamil and is regarded medicinally as a good substitute for real mustards. In small doses the seeds are stimulative, digestive, excitatory and

---

* The modern equivalents of the traditional units and measures indicated in the Text henceforth are as follows:

1 *ratti* = 1 *gunza* of the weight of one seed of *Abrus precatorius* of *gunza* plant; 8 *gunzas* = 1 *masha*; 10 *mashas* = 1 *tola*; 24 *tolas* = 1 *ser*; 1 *pav* = 1/4 *ser*; 1 *tola* = 10 grams

sweat producing, but cause vomiting in greater doses though this vomiting is useful and not fatal.

Mustard plastering as noted above is a famous external medication. The regions of its application also tend to become temporarily desensitised and if the plaster is kept long, skin itself is likely to peal of. Apart from the area where applied, even associated areas are also likely to get stimulated in their blood flow, so that the healing action is largely improved. It is a salutary habit to place some mustard seeds in hot water and take bath with that water. The blood vessels of the skin will get expanded thereby and the blood pressure in them will become lessened. This also leads to a reduction in swellings of burning inside. External application of mustard is resorted to in cases of swellings of lungs and lung cavities, treachea and the scrotal regions. These are some of the specific areas where mustard application proves beneficial. In cases of high fever where there is an amount of confusion in the brain, mustard application is carried out on the forehead. In cases of weakness of the heart, mustard oil is applied and massaged on the chest as well as on the legs and the hands. In cases of cholera, where there is too much of vomiting and motion as well as a cramping on the body and a great weakness of the limbs, application of mustard proves very beneficial.Vomiting and motion not associated with cholera and not stopping due to other medications - even they will stop because of a mustard application.

A good procedure for such a mustard application is as follows: grind mustard seeds with water to a fine degree, place this paste on a piece of soft cloth and apply, taking care that the cloth side faces the region directly and not the paste side so as to avoid the risk of creating boils by direct contact.

Yunani Opinion

Yunani Physicians cosider mustard as 4° hot and dry. By external application it causes a dissolution of the swellings and is also scarifying. The first reaction to its application is a burning sensation; this is followed by an alleviation. When taken in, it stimulates the stomach, promotes digestion and increases hunger. It is good for lessening splenic enlargement. Larger doses lead to vomiting.

Mustard alone is employed or utilised as an ingredient with other useful drugs for massaging in diseases connected with cold such as phlegmatic violence, paralysis, shooting pain at the ribs, and lung afflictions. This is also usefully employed in alleviating similar pain at the stomach, the splene and the liver. Ring worm, eczema and baldness respond well for a mustard treatment. So do cold swellings and goitre. In tooth-ache and tongue swellings gargling with its decoction is adopted.

There is nothing like mustard in giving taste to the food and also to aid in digestion. This is why its seasoning of all savoury food-stuff almost

invariably and in a routine way is a common practice in Indian cooking.

In splenic enlargements, its powder is taken in. Its use may give rise to too much of thirst. Counteracting agent then would be almond oil and vinegar.

Some Specific Uses

When mustard is used for medicinal purposes, it is desirable to remove the external coating of the seeds. For this purpose the seeds are soaked in some water and spread out to dry. They are then ground slightly by which procedure their coating would get removed and can then be winnowed out. The remaining grains may be ground further and the flour stored in bottles and used on the occasions.

1. In digestion and stomach pain: Give 1-2 *mashas* of mustard powder along with sugar and then follow this with a drink of 5-10 *tolas* of water.

2. Flatulence or swelling of the belly due to gas (*afara*). Give 2 *mashas* of the powder with sugar. Mix 6 to 8 *rattis* of lime in 5 *tolas* of water and give for drinking. Also apply mustard oil.

3. Poisoning: Grind 1 *tola* of the powder in cold water. Add 40-60 *tolas* of water and give this as a drink. There will be immediate vomiting and expulsion of the poisoning. This does not lead to fatigue as it happens with other emetic drugs.

In cases of opium poisoning, early stages of cholera, or at the commencement of coma or when there is an excess of phlegm in cold, vomiting by mustard is adopted.

Using mustard in all these cases is without any risk and is fully safe.

4. To expel dead foetus: 3 *mashas* of mustard and 4 *rattis* of fried *hing* are mixed with soury *conjee* or wine and given as a drink.

5. Phlegmatic fever (*kapha jvar*) : During this, there will be a white coating on the tounge, a loss of hunger and thirst as well as a mild fever. Adminster 4 *rattis* of mustard flour along with honey morning and evening. The distress will disappear.

6. Difficult breathing: Keep giving half a *masha* of mustard with ghee and honey morning and evening. The difficulty will disappear if this is due to *kapha*. If it is due to indigestion, giving mustard 3 times at an interval of 2 hours will reduce the violence.

7. Phlegmatic aggravation: If *kapha* has become thick and can be removed with great difficulty, take 4 *rattis* of mustard, 2 *rattis* of *saindhav* salt, and 2 *mashas* of sugar candy. Keep giving this mixture morning and evening. *Kapha* will thin down and can then be easily expelled.

8 Intestinal small worms: Take 1 *masha* of mustard flour, mix this in 5-10 *tolas* of cow's urine

and keep giving this for a few days. Worms will die and will not appear again.

9. Running nose: Administer 4-6 *rattis* of mustard mixed with 1 *masha* of sugar along with some water. Running will stop down.

10. Swellings at the ear base: As an after effect of typhoid there will sometimes ensue a swelling at the base of the earlobe. Such a swelling occurs even when there is pus formation in the ear. In both cases the flour of mustard is mixed with *sarso* oil or castor oil and applied.

11. Joint pains and partial paralysis: On joints that are painful due to any reasons and on regions that have become insensitive due to recent paralysis, massaging with camphor mixed mustard oil will promote good blood circulation and also ward off the vitiation. Massaging with mustard oil is beneficial even in cases of just physical fatigue due to too much walking or having excessive physical exercises and exertion. But this is not advised in case of joint swellings that are giving a watery discharge.

12. Painful lymph node swellings at the armpit: This is much distressing as it neither spreads out quickly nor subside and is often repetitive. To spread them or quickly mature, jaggery, *guggul* (*Commiphora wightii*) and mustard are ground fine in water and the paste is applied with a piece of cloth. After maturation and to rupture them, apply castor oil over them and tie a poultice of garlic and mustard.

12. Swellings: If there are painful swellings on hands or feet due to muscular twistings or for any other reason, apply mustard oil over a castor leaf. Or, mustard and salt are ground in water and applied.

14. Severe cold and tumors: Apply mustard powder mixed with honey on the soles of the feet and rub this out after half an hour. Cold and tremors will stop and the body will regain its vigour.

15. Pains of *vata*: Grind mustard and sugar in water and apply with cloth. Remove after half an hour when it is all dry, Clean the area with water and smear ghee or any oil. If the pain is mild and remains continously, grind mustard and drumstick bark in buttermilk and apply as a thin layer.

16. Wounds and ulcers: A good means to clean them well, when worm and maggot infested, is to apply mustard powder mixed with ghee and honey. The germs will die.

17. Growing abscesses: To stop them from growing further apply mustard powder mixed with ghee. Mustard is efficient in arresting the growth of glandular swellings (*rasauli*) as well as tumours.

18. Ozonea or *peenas:* Foul smelling and yellow discharge continues here to ooze out from the nose. Take one *tola* of mustard flour, 1-1/2 *mashas* of camphor and 10 *tola* of ghee. Prepare an ointment and apply. Sneezing will ensure, the yellow fluid gets expelled and the lesion will get

cleaned. Apply now another ointment made of camphor and white *katha*; this will fill up the lesion easily and well.

19. Oozing ear: Take 1 *tola* each of mustard and garlic, 1-1/2 *tola* of camphor and 10 *tolas* of *til* oil. Heat the oil and remove when it simmers. When steaming becomes reduced a little, place the ingredients in it and close the lid. When it becomes cooled down, strain the oil and store in a bottle. Use 3-4 drops in the ear for a few days. Pus will stop and the lesion would heal.

20. Piles: When the growths are itching, they are rather large looking and do not pain on touching, applying mustard oil over them would cause a shrinkage and also a falldown.

21. Leucoderma: Classical authors on Ayurveda consider mustard as *kusthaghna* and leucoderma is also called *sheveta kushta* or white leprosy. An useful remedy is made as follows: Keep applying over the regions mustard flour mixing it with 8 times of ghee. Soon this will increase blood circulation and a disappearance of the spot. Mustard ointment of this type is beneficial in freckles and spots on the skin and also *pama* - a cutaneous eruption or scab.

22. Thorns and glass pieces: When these sharp objects have entered rather deep in the skin and cannot be removed easily applying mustard oil mixed with honey would bring these foreign up and they would then become easily visible.

23. Internal burning and shooting pains: These arise in many regions of the body, for instance, around the lungs, along the wind pipes, round about the heart or the stomach or the liver. In all these cases mustard causes a counterirritant action when applied in their vicinities and thus brings about a medication and a healing. A rather related use is the beneficial application of mustard in hysteria, sciatica and the shooting pains of the lumbar region.

Sometimes during hysteria there will be a total failure of voice. To stimulate the voice box mustard oil is applied over it. Giving mustard powder as a snuff proves useful in an epileptic patient.

24. Baldness: A stoppage of hair growth or a local infection of lice and germs on the scalp would respond well if one keeps them washed with cold infusion of mustard. This is good for an out-break of small boils on the scalp also.

25. Menstrual flow: If the flow is too little or is accompanied with pain, heat water, mix mustard powder with it and place the patient in such a water upto the waist. Such a hip bath for an hour would render the flow to become normal and pain free.

26. Mustard bath: Soak 10-40 *tolas* of mustard in cold water. Knead them well to make a paste and then add it to the bathing water in the tub. Bathing in this water is highly stimulative and causes increased blood circulation. For carrying out a local bath of the feet or the hand or just upto

the waist, the water should be hot upto 100-105°. For hip bath use at least 10 *tolas* of mustard.

27. Mustard poultice: For an adult person take 3 parts of linseed (*atasi*) and 1 part of mustard, and for children, take *atasi* 10 to 15 times that of mustard. Poultice is best made in cold water or vinegar. This is to be kept upto 10-15 minutes till the skin becomes red.

28. Mustard ointment: Mix mustard with three times of rice or wheat flour in cold water to a porridge like consistency, make a thin film of it on a brown paper or a piece of cloth and then apply. Remove after 10, 20 or 30 minutes till the skin becomes red. Afterwards, rub out and remove all the mustard with an oil besmeared hand; if needed, wash with cold water. Then apply another thin coating of oil or ghee.

Mustard seed is almost an invariable component of all seasoning in Indian kitchen. There is a strong reason for it. Apart from promoting the relish in the food, it is a good promotive of hunger as well as an excellent digestive. Both mustard seeds and more so the mustard oil has a great preservative quality. Using mustard oil is therefore more prevalent in preparing pickles.

When there is a tooth-ache take a few mustard seeds, chew them well and spit out. This will quieten the pain.

Roast mustard seeds to such a degree only that they do not break out. Mix them now with water

and grind to a smooth consistency. Apply this paste all over the body and massage well. All the watery portion will get evaporated. After ten minutes wash in cold water. This measure will ensure that your skin does not crack during winter.

Mustard is a sure cure to ringworm infection. Wash the afflicted region well with hot water. Grind mustard seeds in water to a fine paste. Apply this to the washed region.

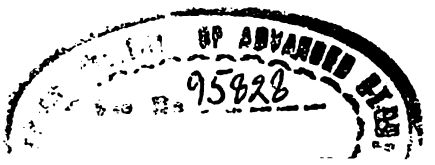
Taking a sun bath daily after applying mustard oil all over the body would prevent an occurence of the disease of rickets.

When one consumes poisonous fruits or any other vitiated food there will appear an irritation at the throat, as well as a pain there and a great distress in the stomach. Take then a spoonful of mustard powder, stir it well in luke warm water and drink. Immediately there will be a vomiting, the poisonous material will come out and there will be a great relief.

2. **Brassica Nigra** (the black) Linn. Black mustard:

Names and the Plant

Sanskrit calls this *sarshapa* from which *sarso* of Hindi is derived. The other names are *krishna rajka*, *krishnika* (the black); *jwalanti* (inflammatory); *kshudhabhi janana*, *kshujjanika* (causing hunger).



This is known as *kalirayi, banarasi rai, makra rai, tarmira, tira* in Hindi; *rayi sarish* in Bengali; *kalirai* in Gujarati; *sarshaf* in Persian; *khardal* in Arabic; *karisasive* in Kannada; *kadugu* in Tamil; *mohori* in Marathi; *kalisarson* in Hindi and Kumaon; *avalu* in Telugu.

This is also largely cultivated in India for the edible fixed oil it produces. The plant is similar to the brown mustard in its habit, leaves, flowers, fruit and the seed - which however is blacker. Its qualities are also similar but much stronger. The seed contains the alkaloid sinapine and also albumins, myroson, sinigrin and some colouring matter. The parts used are the seeds and the oil.

Myrosin is a glucoside while sinigrin is a potassium myronate which when acted upon by water yields sulphocyanide of allyl which is the volatile oil of mustard that causes its unique odour. The seed also contains 20 per cent sinapine, sulpha cyanide, lecithin, mucilage, protein and 4 per cent ash. The fixed oil obtained by expression contains glycerides of oleic, stearic and erucic or brassic acids. This is yellowish green, slightly odorous and of a bland and mild taste. It solidifies on cooling.

For medicinal purposes the finest flour is obtained from the black mustard. The larger and the rather yellowish seeds of *B. alba* yield an inferior quality.

Externally its oil is stimulant and a mild counter-irritant. Internally the seeds cause a vomiting. In moderate doses they are digestive and laxative. Mustard plasters are beneficial in gout, sciatica (*gridhrasi*) and urticaria *(rashes).* Its poultice is useful in inflammatory swellings, eg. parotitis. Expressed oil is used in cooking and is also applied externally in mild attack of sorethroat, internal congestion and chronic muscular rheumatism.

Medicinal and Other Importance

Ayurveda considers the leaves as hot in quality, strong and very tasty. It strengthens the body but augments *pitta.* It destroys worms and is useful in throat diseases. The seeds are hot, strong smelling and bitter in taste. They destroy *vata* aggravation and rectify enlarged spleen. They ward off fever and cause a sensation of burning in the body. They are beneficial in tumours due to *kapha,* destroy worms and promote hunger and are curative in skin diseases, eczema and itching.

Yunani physicians generally presume that the properties of the mustard as being mildly laxative and promotive of hunger. It results in clean belching and wards off cough as well as swellings in the body that include those of spleen and the joints. It is useful in the diseases of nose, ear and teeth. External parasites will get destroyed by it and fumigation from it would repel mosquitoes and flies.

Poultice of the black mustard seeds is a very useful medication; it causes skin burning and also results in blister formation. This is an unfailing and immediately useful measure in fever, diseases accompanied with painful swellings, convulsions, neurogenic pains, joint swellings and gland formations. Mixing the mustard flour with water and giving it as a drink is a safe, risk free, method of bringing about a vomiting.

When the seeds are munched even in a very small quantity, that will act as a good digestive *chutney*. This is very beneficially given in cases of digestive complaints and intestinal hardness.

Fresh and pure oil of the seeds is excitatory and rather burning to the skin. This has been however found to be very useful for application in minor throat lesions. In promoting internal blood circulation and loosening chronic muscular distresses this is a very profitable drug.

Some Specific Uses

1. Liver swellings: Mustard poultice is a very useful measure here but this should be removed as soon as the skin becomes red. Otherwise there will be a peeling of the skin.

2. Glandular swellings: Mustard plaster alleviates the pain immediately. Massaging with mustard oil mixed with camphor will also prove useful.

3. Vomiting: As noted above giving a drink of mustard flour mixed with water is a quick acting and safe measure of inducing vomiting. Simultaneously, it is useful to note that an application of mustard plaster on stomach and the heart region will stop even terrible and obstinate vomiting.

4. Feeble digestion: A pinch of mustard will cure indigestion due to constipation.

5. Lethargy: Massaging with pure and fresh oil will eradicate physical lethargy.

6. Light swellings at the throat: Mustard oil massage proves beneficial.

7. Cold and fever: Massaging with mustard oil on legs, the soles of the foot and the nose will miligate the headache as well as the cold and fever in a single night. Massaging on the nose will stop its running.

8. Cough in children: Massage the chest with mustard oil. This is quite beneficial.

9. Scorpion sting: Grind cotton leaves and mustard and apply. The violence of the poison will cool down. Even for snake bite, giving mustard in large dose will induce vomiting and may prove beneficial.

10. Baldness: Take half mature and half roasted mustard, grind and apply on the scalp through the medium of a bitter oil. Baldness comes under control.

3. **Brassica alba** (white) Rabenh. White mustard

Names and the Plant

Sanskrit calls this *shveta sarshapa, siddhartha.*

This is known as *safed rai* in Hindi and Gujarati; *sipandane safaid* in Persian; *dhop rai* in Bengali; *pandri mohori* in Marathi; *bili sasive* in Kannada; *kadugu* in Tamil; *vella kadugu* in Malayalam; *avalu* in Telugu.

This is also similar to other mustards in all features except that the seeds are rather white. It is a native of Western Asia but is now extensively cultivated in India.

Seeds, powder and the oil are the useful parts. Seeds contain 23-25 per cent of a bland fixed oil, a crystaline substance called sinalbin, sinapin, sulphocyanide, lecithin, mucilage in the seed coat, myrosin, proteids and 4 per cent ash consisting of phosphates of potassium, magnesium and calcium.

Medicinal Importance

Mustard flour is a nervine stimulant, emetic (causes vomiting) and diuretic (that provokes profuse urination). In small doses it promotes digestion and removes gas collection. In large doses it is a stimulant, emetic and even a narcotic (sleep inducing) poison, when given with water. The volatile oil of mustard stimulates, causes a reddening of the skin and results in an outbreak of blisters, when in direct contact.

This is used in the form of poultice, plasters and liniment. A proprietory preparation or *yoga* occurs called *sidhartha ghrita* which is a medicated oil used internally.

Seeds are used like other mustards. Flour of this mustard is also made into a paste but with cold water always and as a stimulant poultice or plaster to the epigastrium or the pits of the abdomen between the sternum and the navel in preventing obstinate vomiting. This is also applied on chest in whooping cough, associated with difficult breathing and to the calf of the leg in cases of delirium and apoplexy. But the poultice should not be kept more than 20 minutes at any time; it is better to remove it as soon as the skin starts getting red. In women and children a layer of muslin cloth should be present between the skin and the paste.

Mustard seeds are added to the foot bath that is generally employed in high fever and also for hip baths in cases of absence of or disturbed menstrual flow. Such a local bath is given in cases of headache, cerebral congestion as well as cardiac and chest pains also. A thin application of mustard ointment is applied to swollen and painful joints.

This is a well cherished salad vegetable for the Europeans, along with Cress. It is eaten only when the leaves and the tops are young and tender. Seeds are used in an European condiment called the "mustard", which is actually a paste of it.

Oil from the white mustard is a good edible oil. Seeds are given internally with benefit in nervous diseases such as epilepsy, hysteria and are recommended to be given along with *brahmi ghrita*. The medicated oil of *siddhartha ghrita* is beneficial in epilepsy and hysteria. This is then given in a dosage of half a drachm.

The Three Mustards

The mustard is a freely branching annual herb growing to a height of 26 feet. It has hairy, radish like, lobed leaves and yellow flowers and a bristly long fruit with a beak at the end. The small round seeds are yellow outside and white within. They contain mucilage, proteins, a fixed oil, and sinalbin, a glucoside. When the ground seeds are treated with water, this glucoside breaks down enzymatically to yield a non-volatile sulphur compound which gives the characteristic sharp taste and the pungency. While mustard is a medicine and also a condiment, the fixed oil is a counter irritant and is also much used as a lubricant and to light the lamps.

Black mustard is also a native of Eurasia like the above but is grown now in almost all countries. The plant is smaller than the white one and has smooth pods and dark brown seeds, that are yellow inside. Its glucoside, sinigrin, however yields on decomposition an volatile oil containing sulphur; this is responsible for the pungent, aromatic odour and flavour. The essential oil is very powerful and risky for handling as it causes

skin blisters readily. It also affects the delicate membranes of the nose and the eyes. When well diluted, it is used as a counter irritant in medicine and to some extent in condiments. The expressed fixed oil has a mild taste and is used in soap making and medicine.

This mustard is ground and much used as a condiment and for preparing pickles, sardines, *chutneys*, salad dressings and the like. This stimulates salivation and also increases the preistaltic movements of the stomach. The "mustard", an European condiment is prepared by treating ground mustard (with the mild white and the strong black kind) with salt, vinegar and other aromatics.

The Brown or the Indian mustard is used in India and parts of Europe as spice and in cooking. It is similar to the black mustard in its properties. The expressed fixed oil is used in cooking and anointing the body for bathing or massaging.

B. CUMIN - JEERAKA

Cumin "seeds" and all the rest in this book belong to a single family of all small scented herbs and known as Umbelliferae. Leaves are alternate, simple or compound and have a sheathing leaf base below. Flowers are small and characteristically borne in umbels or umbrella like clusters, where a large number of flowers with stalks of equal length spring from a common point so that all of them would bloom at the same level. Flowers

have both male and female structures together and have an inferior ovary that develops into a very characteristic fruit called cremocarp. This is dry, capsular and invariably breaks at maturity into 2 one seeded bits, having a ribbed wall that has a number of longitudinal oil canals. These latter give the characteristic odour, the specific flavour and the very value to the fruit itself. Though these grain like fruits are themselves called the seeds, the true seeds are within them and come out only during germination by the disintegration of the fruit wall. The family contains many other famous medicinal plants besides those we discuss below. Two of these other plants are carrot (*Daucus carota*) and *brahmi* or *mandukaparni* (*Centella asiatica*).

There are two "varieties" of *jeeraka* which however actually belong to two separate genera altogether, white or *shweta jeeraka (Cuminum cyminum)* and the black or *krishna jeeraka (Carum carvi)*. The term *jeeraka* refers to the digestive efficiency of the grains - their chief value in medicine.

Cumin has been cultivated by mankind since times immemorial. Like many others of the family it is probably a native of the Mediterranean region but is now cultivated in many parts of the world specially in Southern Europe and India. The plant is an attractive little annual herb that bears small pretty pinkish flowers. The seeds are elongated, oval and characteristically ribbed, light brown in colour and hot as well as aromatic. This has been

much prized by the ancients and is frequently mentioned in the Bible and extensively referred in Sanskrit literature, general as well as Ayurvedic. The fruits are now used in many ways in the kitchen for seasoning, for making soup and curries, cake, bread, cheese, pickles and are also often candied. The oil is used in perfumery and in flavouring beverages.

Caraway is a term related to *karavi* of Sanskrit, meaning jet black like the raven bird. It is the most important of the Umbelliferae, specially in Europe and America though its use is much prevalent even in India. This is a native of Europe and Western Asia but is now widely cultivated in temperate regions of both the old and the new Worlds and in addition, it also occurs as a weed. In Europe there is a record of its being cultivated before the times of the Lake Dwellers of Switzerland. This is a perennial, rather large sized herb having a thick rootstock and compound leaves with narrow linear leaves and small white flowers. The fruits are used in baking industry, perfumery, medicine and in some beverages.

Cumin seeds resemble caraway but are larger and paler in colour.

1. **Cuminum** (a Greek word cognate with the *Hebrew* word *kammon* for *jeeraka* plant) *cyminum* Linn. The cumin seed. Jeeraka (the white).

Names and the Plant

Sanskrit calls it *jeerakam, shukla ajaji, jarana.* This is known as *safed jeera, jira, shai jira* in Hindi and Bengali; *zero* in Sindhi; *zeera, zira* in Persian; safed *jiraun, zera* in Gujarati; *jeeraka* in Telugu, *jeerige* in Kannada; *shiragam* in Tamil; *jeera* in Konkani and Marathi; *kamun, kammon* in Arabic.

The plant is extensively cultivated as a cold season crop on the plains and as a summer crop in the hills of North India and Himalayas; some amount is also imported from Persia and Eastern Europe. It is a native of Egypt and Syria.

This contains a fatty oil, resin, mucilage, gum protein compounds-malates, and an essential, volatile oil which gives the characteristic odour and the taste. A valuable essential oil thymene rich in carvone obtained from the seeds contains cuminol 56 per cent, a mixture of hydrocarbons, cymol, terpenes etc. Thymol occurs greatly in *ajwan* also. The oil is colourless or pale yellow with a strong odour and a flavour characteristic of the fruit.

Medicinal and Other Importance

"Seeds" are the best carminatives i.e. digestive and capable of expelling gases in the stomach. They are aromatic, stomachic (i.e. good for the stomach), stimulant and astringent (i.e. contractive in muscles and hence healing). They are also cooling.

Ayurveda and Siddha regard this as of bitter taste, hot property, and capable of removing *vata* and *kapha doshas* but causing *pitta*. It is dry, light for digestion astringent, appetising, digestive, strengthening, good for the eyes and is also aphrodisiac or sex stimulating. It is employed in indigestion, dysentery, enlarged spleen, flatulence, (bloating due to gas collection) and in vomiting.

Yunani regards it as hot 2°, carminative, digestive and astringent. It is employed in *kapha* diseases, menstrual disturbances and hiccup.

Cumin seeds are largely used as a spice or a condiment in curries, soups and pickles. Their nutritional value is as follows: 18.7 (percentage value) protein, 15.0 fat, 36.6 carbohydrates, 5.8 mineral salt, the caloric or energy value is 356.

They are medicinally employed in a dosage of 10-30 grains in hoarseness of voice, dyspepsia and chronic diarrhoea. External application as a poultice is meant for allaying pain and irritation of worms in the abdomen. Seeds are powdered, mixed with honey, salt and ghee and applied to scorpion stings. For pregnant women, seeds are ground and mixed with lime juice and given in cases of bilious nausea. Intake of cumin seeds soon after child birth will increase milk secretion. For hiccup, some seeds are kept in the *chilam* and smoked.

The seeds of *ajwan* (to be discussed later) and cumin are rich sources of thymol - a good

antiseptic (phenol) in India. Though many aromatic herbs like Tulasi, Origanum and so on also contain thymol in their essential oils, these two are the best. Cumin water, commonly used as a carminative and believed to be useful in flatulence and griping specially in children is the water left over after the essential oil and thymol have been removed by steam distillation. The exhausted fruits after the water is thus extracted can be used as a good cattle feed as is done in Germany. Cumin contains large amounts of cumin oil whose chief ingredient is cumic aldehyde that can be readily converted into thymol. Commercial value of thymol has increased recently as it is very effective against hook worm besides being a good antiseptic lotion. Cumin oil is employed more advantageously than the seeds in flavouring, specially curries and oriental savouries. Cumin was actually one of the commonest spices of the Middle Ages.. It is used to some extent in perfumery, soaps, and flavouring beverages. India consumes and also exports large quantities of cumin.

The classical importance of *jeeraka* in Ayurveda can be guazed by their references in few selected authors, as below:

Chakradatta: Eating mustard powder and jaggery will destroy typhoid fever. This also eliminates feeble digestive power and gas troubles.

Powder the cumin seeds very fine, add just a little ghee and *saindhav* salt and then again grind

very fine, warm it up a little and apply for scorpion stings. Pain will cool down.

Shodala: In fever due *to vata* and *kapha*, give for eating, powdered cumin seeds along with honey or jaggery. Then make the patient drink buttermilk and sit in sun till he sweats. The fever will subside.

Vrinda Madhava: Prepare a ghee from a paste of cumin and coriander seeds. Administering this daily as required will rectify plethora or *amlapitta*, feeble digestion, tastelessness in food, vomiting as well as various *kapha* and *pitta* disorders.

A few other uses of cumin are as follows: Giving decoction mixed with vinegar or by itself as a nasal drop will stop bleeding at the nose (Yunani). Mixing cumin decoction with vinegar and water and then drinking it will ward off body pain, cold and running nose and also insanity. A drink of cumin powder improves digestive ability very well and destroys flatulence and gas troubles. Using cumin seeds after slightly roasting them will always improve their medicative value.

2. **Carum** (from the Greek term *karon* cognate with Arabic *karwiya* and the Sanskrit *karavi* - all meaning raven, a black crow) *carvi* Linn. The caraway seed.

Krishnajiraka or *kalajira* (Hindi) meaning the dark cumin.

Names and the Botanical Aspects

Its names in Sanskrit are: *Krishnajiraka, jarana, karavi, kashmira jeeraka.*

It is known as *syahajeera, kalajeera* in Hindi; *shah jeera* in Gujarati; *shaha jire* in Marathi; *shajeera* in Bengali; *syahjeera, jire kirmani* in Persian; *kamum, kirmani* in Arabic; *seema sompu* in Kannada; *shimai shombu* in Tamil; *shima jeerakam* in Malayalam and *sima julakara* in Telugu.

The plant grows wild in north Himalayan regions but is cultivated in the plains as a cold season crop and as a summer crop in the hills of Kashmir, Kumaon, Garhwal and Chamba at an attitude of 3,000-4,000 metres.

Actually however what is available in India as commercial samples of *kalajeera* consists of the fruits of three separate species of (Carum that do differ in the minute detailed features of the fruit, though not much superficially. They are *C.carvi* (fruit largest and laterally compressed; but lighter than *C.bulbocastanum*), *C. gracile* (fruits are smaller and dorsally subcompressed) and *C.bulbocastanum* (fruits are smaller and darker).

Medicinal and Other Importance

Ayurveda regards it as appetising, stimulating, digestive, astringent, strengthening and good for brain and eye and promotive of milk formation. It is used beneficially in heart diseases, swellings,

tastelessness, vomiting, feeble digestion and chronic fever.

The taste is bitter, qualities are light and dry, potency is hot and post assimilation effect is bitter.

The fruits are carminative, stomachic and lactagoguic (i.e. augments milk production).

Carum carvi is widely present in the temperate regions of both the hemispheres. It grows well in North and Central Europe extending to Caucasus, Persia, Tibet and Siberia. A valuable essential oil rich in carvone is obtained from the seeds-colourless or pale yellow and with the strong odour and flavour of the fruit. These also contain 8-20 per cent of fixed oil, protein, calcium, oxalate, colouring matter and resin.

Caraway oil is used chiefly for flavouring wines, scenting soaps and in purfumery and less so in medicine where it is employed as a carminative.

Cumin as a Household Remedy

Take cumin seeds, old jaggery and tamarind fruit pulp all in equal quantity and pound them well all together. Prepare small balls out of this mixture now, keep one such ball in the mouth and keep sucking in the juice slowly. This will ward off vomiting that appears due to liver complaints, upsettings in the stomach and dizziness of the head.

Another simple but very useful recipe is to prepare a decoction of a tea-spoonful of cumin

seeds boiling them well in a cup of water. Add to this a teaspoonful of fresh juice of coriander leaves and a pinch of eating salt. Taking this twice after the meals proves beneficial in dizziness of the head, watering in the mouth due to biliary complaints, upsettings of the stomach, flatulence, dysentery and the like. One more recipe for mitigating all kinds of aggravations of *pitta* is to consume half a tea-spoonful of cumin powder within a teaspoonful of tamarind gruel along with honey. This medication is beneficial in jaundice as well, which is a premier failure in liver functioning.

To get rid of the irritating and distressful prickly heat commonly prevalent in summer, powder cumin seeds to a fine degree, mix this powder thoroughly in coconut oil and apply over the affected parts specially. Take a bath after a lapse of some time. Continue this practice for a few days then onwards. After this, take a head bath once a week. Keep consuming during this time such cooling dishes like *kochimbir*, salads, coconut water, fresh fruits, cucumber and the like to a greater extent than normal. Lessen your consumption of sugar quantity. This will render your whole constitution cool and remove all the distress born of heat.

Here is one more interesting measure to pacify the aggravated *pitta*. This is also beneficial in jaundice. Take a fruit of *Citrus* var. *limonum* (lemon, *jambira or pahadinimbu* in Hindi or *herale* in Kannada). Cut it into two halves. Fill them well

with cumin seed powder. Stuff this well within the fruit pulp by piercing it through a broken broom stick.

Keep the halves in the warm ash, for some time. Afterwards squeeze out the juice and drink it directly on an empty stomach. All diseases born out of excess of biliary aggavation will get removed by this treatment. If one keeps taking this daily for a fortnight, even jaundice will disappear. Infact cumin is such a medicine for pacifying pitta *dosha*. A simple measure to derive benefit out of the cumin for this purpose is to add cumin powder and salt to butter milk and drink. Taking a cupful of such a buttermilk daily is undoubtedly healthy. It is curative as well as preventive.

Chewing a few grains of cumin before meals, particularly heavy meals is always advisable. It increases hunger. Chewing them after meals helps in digesting the food taken in. Eating them after chewing them well is doubly useful; this removes dental caries. It will also avoid the fears of constipation.

Cumin is specially beneficial to pregnant ladies-taking cumin decoction mixed with milk and honey daily will assure a good development of the child within the womb. It renders the child birth easy. In addition, this also promotes abundant milk secretion. The same decoction acts as a nourishing tonic to developing children, all anaemic persons and patients of nervous debility.

A solution of caraway oil, alcohol and castor is recommended for scabies. Oil from wh carvone is removed is sold in India as a lig caraway oil much used in scenting cheap soaps.

Wild caraway is available in abundance i India, though it is not in a commercially dependable source. Cultivation on a large scale is a better and a highly valuable proposition as the oil can find a ready market in the growing soap, cosmetic and perfumery industry of our country.

C. CORIANDER

Coriander is a very ancient seasoning herb extensively mentioned in old Egyptian, Sanskrit, Herbrew and Roman literature. Its Sanskrit name *kustumbur* from which its name in Hindi *kothmere* and many other regional languages is derived is actually an Assyrian term, meaning a small little plant. During the Middle Ages in Europe it was used for some unusual purposes. For instance, it was considered an effective love potion and also a very desirable incense. The plant is a native of the Mediterranean region but is now extensively cultivated as a spicy herb in Europe, Moscow, India and South America. It is a rather offensively strong scented perennial herb, about 3 feet in height when well grown and bearing small white, sometimes pinkish flowers in umbels. The whole plant, specially when tender, as well as its dried fruits form the favourite seasoning material. The lower leaves have broader segments while the

upper ones are very narrow. The globular greenish or yellow brown fruits have an unpleasant odour when fresh. The dried fruits on the contrary - the *dana*, or the grain, are pleasantly aromatic and form a common, much liked and often invariable seasoning and flavouring substance both for sweet and savoury dishes, both in European and Indian cooking. In Europe and the West, the fruits are often candied in a sugar solution and sold as "sugar plums". Coriander oil is much used in medicine and also in flavouring beverages like gin, whisky and other liquors. Actually, the extract or the essence of the fruit is a better flavouring material than either the dried fruit or the oil.

Names and the Plant

Sanskrit calls this *kustumburu*, *dhanyakam* (the grain like seeds), *vitunnakam* (highly dissected or cut up leaves), *chatra* (the umbel of the flowers) and *dhana*.

It is known as *kottmir*, *dhaniya* in Hindi; *kusbara* in Arabic; *dhane* in Bengali; *dhano* in Sindhi; *dhana*, *dhaniya* in Gujarati; *kottimbir* (green leaves), *dhane* (dried fruit) in Marathi; *kottambari*, *haveeza* in Kannada; *kottamalli* in Tamil; *kottampalari* in Malayalam; *kotimiri* in Telugu.

Parts used are the whole plant and the dried fruits.

The green herb contains 84.00 per cent moisture and the dried material consists of ether extract

A solution of caraway oil, alcohol and castor oil is recommended for scabies. Oil from which carvone is removed is sold in India as a light caraway oil much used in scenting cheap soaps.

Wild caraway is available in abundance in India, though it is not in a commercially dependable source. Cultivation on a large scale is a better and a highly valuable proposition as the oil can find a ready market in the growing soap, cosmetic and perfumery industry of our country.

C. CORIANDER

Coriander is a very ancient seasoning herb extensively mentioned in old Egyptian, Sanskrit, Herbrew and Roman literature. Its Sanskrit name *kustumbur* from which its name in Hindi *kothmere* and many other regional languages is derived is actually an Assyrian term, meaning a small little plant. During the Middle Ages in Europe it was used for some unusual purposes. For instance, it was considered an effective love potion and also a very desirable incense. The plant is a native of the Mediterranean region but is now extensively cultivated as a spicy herb in Europe, Moscow, India and South America. It is a rather offensively strong scented perennial herb, about 3 feet in height when well grown and bearing small white, sometimes pinkish flowers in umbels. The whole plant, specially when tender, as well as its dried fruits form the favourite seasoning material. The lower leaves have broader segments while the

upper ones are very narrow. The globular greenish or yellow brown fruits have an unpleasant odour when fresh. The dried fruits on the contrary - the *dana*, or the grain, are pleasantly aromatic and form a common, much liked and often invariable seasoning and flavouring substance both for sweet and savoury dishes, both in European and Indian cooking. In Europe and the West, the fruits are often candied in a sugar solution and sold as "sugar plums". Coriander oil is much used in medicine and also in flavouring beverages like gin, whisky and other liquors. Actually, the extract or the essence of the fruit is a better flavouring material than either the dried fruit or the oil.

Names and the Plant

Sanskrit calls this *kustumburu, dhanyakam* (the grain like seeds), *vitunnakam* (highly dissected or cut up leaves), *chatra* (the umbel of the flowers) and *dhana*.

It is known as *kottmir, dhaniya* in Hindi; *kusbara* in Arabic; *dhane* in Bengali; *dhano* in Sindhi; *dhana, dhaniya* in Gujarati; *kottimbir* (green leaves), *dhane* (dried fruit) in Marathi; *kottambari, haveeza* in Kannada; *kottamalli* in Tamil; *kottampalari* in Malayalam; *kotimiri* in Telugu.

Parts used are the whole plant and the dried fruits.

The green herb contains 84.00 per cent moisture and the dried material consists of ether extract

3.12, albuminoids 24.46, soluable carbohydrates 43.30, woody fibre 9.75 and ash 19.37 per cent respectively. Fruits yield 1 per cent volatile oil, 13 per cent each of fixed oil and fatty matter and 5 per cent of mucilage, tannin, malic acid and ash. Oil of coriander has coriandrol, an alcohol, geraniol and baborinol as the active ingredients.

The percentage nutritive value of the coriander plant is 3.3 protein, 0.6 fat, 6.5 carbohydrates, 1.7 mineral salts; the caloric value is 45. Similar values for the dried fruit are 14.1 protein, 16.1 fat, 21.6 carbohydrates and 4.4 mineral salts; the caloric value is 288.

Medicinal and Other Importance

The plant is bitter and sweet in taste, cold in virility and sweet in post assimilation.

It destroys *pitta* and *kapha* vitiations.

The fresh plant is agreeable, aromatic and charming. The dried fruit is oleaginous and destroys thirst and burning sensations.

The fruit is aromatic, stimulant, carminative, stomachic (good for stomach), antibilious, refrigerant (i.e. cooling and soothing), a tonic, a diuretic (promoting much urination) and also an aphrodisiac. Fresh leaves are pungent and aromatic.

The dried fruits are almost universally used as a condiment. Some use it along with betel leaves or pan chewing. Medicinally this is best used to

flavour purgatives and to prevent griping and to effectively mask the taste and smell of rhubarb and senna, better than any other drugs. It is used similarly in England to mask undesirable flavours of medicines and to prevent griping.

Coriander oil is very useful in flatulence, colicy or twisting pains of the stomach, rheumatism and neuralgia or nervine pain. Fruits are also used similarly. A more common use of the latter is to prepare a decoction that is useful for sore throat, flatulence, indigestion, vomiting and other intestinal disorders and also common cold, running nose and bilious complaints. Combined with cardamom and caraway, it is an excellent carminative.

Hakims prepare an eye-wash from its decoction, said to protect eyesight in small pox infection. This is also beneficial in chronic conjuctivitis of the eye.

Seeds are chewed to remove foul smell of the mouth. But the chief use of the grains is as an almost invariable ingredient of culinary *masala* powder, for curries as well as many other savouries. Roasted seeds are very good for indigestion and are given in a dosage of 1/2 to 1 drachm. They are also made into a paste and applied to relieve pain in headache and inveterant coughs. As a gargle they are useful in thrush and as a poultice with barley meal in chronic ulcers and carbuncles. Juice of the fresh plant is useful in erythema or redness of the skin. For treating

bleeding piles, a strong decoction in milk (1 in 40) with sugar according to taste is much recommended. This is also given in dyspepsia or indigestion and flatulence. Cold infusion of seeds or powder of the fried seeds with a little sugar is much beneficial in colicy pains of the children; this also relieves internal heat of the body and thirst. Coriander is much reputed as to be lessening the intoxicating effects of alcoholic liquor; this is also a good carminative for convalescing patients after diarrhoea. Coriander water is a pleasant, graceful mixture for indigestion and many bowel complaints.

Coriander fresh leaves are the best dressing material for all sauces, salads and savories.

A few more simple but much recommended medications are the following :

1. Excessive Thirst: Grind dried grains with water, add more water and keep aside for 1-2 hours. Add now a little sugar candy and honey and give this as a drink to be sipped and taken.

2. Burning Sensation in Fever: Grind the grains fine. Mix with water and let it soak overnight. Strain in the morning through a piece of cloth, add sugar candy and give for drinking. This will lessen burning and also dessication.

3. Fever Due to Kapha and Pitta: A decoction of coriander and *patola* (bitter snake gourd) should be given as a drink.

4. Indigestion With Much Undigested Residium or Amajirna : A drinking of the decoction of coriander and dry ginger is advised. This also removes the shooting pains.

5. Children's Cough and Breathing Difficulty: Give a pinch of fine coriander powder with sugar candy and in rice water.

Green leaves of coriander are very rich in Vitamin A. The best method of consuming this is to prepare coriander *chutney* and eat. Adding green leaves in all savories and also buttermilk is a very salutary culinary procedure. This is also very common in Indian cooking. Cleaning the eyes with coriander water will cleanse them well.

Charaka includes dry fruits of coriander among the ten famous drugs for controlling excess thirst and those meant for a cooling amelioration. Fresh juice of leaves constitutes excellent eye drops when the eyes are red or there is heat in the eyes. Or, make the balls of a paste of leaves and place them on the eyes.

Coriander as a House Remedy

Consuming green coriander leaves daily along with our meals or breakfast will ensure a freedom from diseases that are born of deficiencies of Vitamins A, B_1, B_2 and C or, of iron. The leaves are so rich in all of these great valuable ingredients of our food. It is not for nothing therefore that most seasonings mean the use of the coriander leaves in

great profusion. It is necessary therefore that every household should make good provision for their supply by trying to grow these herbs in their own kitchen garden.

Crush a few coriander leaves to secure a tea spoonful of their juice. Add an equal quantity of honey and keep consuming this daily at night before going to bed. This is a good measure to increase your mental strength and alertness. This also promotes the acuity of your other sense organs such as the eyes and ears and also the vital organs of your heart and the lungs. You will not suffer from dyspnea (or breathlessness) and consumption.

Chewing the green coriander leaves will obviate dental caries. This will also remove foul smell from the mouth.

Coriander grains or *dana* have appreciable digestive powers. A decoction of them mixed with sugar is salutary and effective in dizziness born of nervous weakness, liver complaints, acidic belching, and tendency to vomiting. Medicinally this decoction is equal to the use of fresh coriander juice. The herb is well known as a pacifier of *pitta* troubles, a quencher of thirst, a digestive and a remover of phlegm or *kapha*. It enters into many medicative preparations therefore that are meant to mitigate biliary complaints, remove thirst and promote digestion as well as to reduce constant coughing and the distress of asthmatic attacks. A good drink to quench excessive thirst is as follows.

Take coriander and cumin 'seeds' in equal quantity, mix and powder. Soak this powder for four to five hours in water; squeeze them and filter. Add sugar and drink. Thirst will disappear. This will also remove burning sensation felt at the soles of the feet and the palms and promote digestion. Incidentally this will bring back the normal consistency in watery stools and also remove their bad smell.

A decoction of coriander along with dry ginger is beneficial in flatulence of the stomach, indigestion and stomach pain.

A simple measure to get rid of the apthae or the white circular sores in the mucous membrane of the buccal or mouth cavity is to keep licking a powder of coriander added with honey and placed on the tongue. Soak such a powder in water for a considerable time, squeeze out the grains and filter. Add milk and sugar to this cold infusion. This will stop vomiting tendencies and will also give a good relief for pain in the chest.

Take a fistful of coriander seeds, powder them well and soak this powder in water for sometimes. Squeeze it well then and filter. Add milk and sugar to this cold decoction of coriander and drink. This proves quite beneficial in stopping repeated vomitings.

A little modification of this decoction would render it very valuable to pregnant ladies who commonly develop bouts of vomiting. Take a

teaspoonful of coriander seeds, powder, grind it smoothly in water, mix this paste homogeneously in water in which rice has been washed, add sugar and administer. This measure can be continued twice a day till, the vomiting tendency comes under full control.

Or, take broken old rice, soak it in water, squeeze and then decant out the water. Add one teaspoonful of coriander seed powder and a little amount of sugar candy to one cup of this decanted water, filter and administer. This procedure can also be continued till the cure is affected.

D. FENNEL SEEDS - SAUNF

Fennel is also an ancient seasoning herb, a native of the Mediterranean region but now found in many parts of the world, cultivated in fields or as an escape. This was well known to the ancient Egyptians, Romans, Indians and Chinese. Romans grew it for the aromatic seeds and the edible fleshy shoots-a still very common vegetable in Southern Italy. Emperor Charlemagne is known to have encouraged its cultivation in Central Europe. It is indispensable in modern French and Italian cooking. All parts of the plant are aromatic and can be utilised in many ways. This is a tall, perennial herb with finely divided leaves and yellow flowers. The fruits are oval, greenish or yellowish brown. These are used in cooking, pickle and candy making and flavouring liquors. The oil is used in perfumes, soaps and medicine. The

thickened leaf stalks of one variety - Florence variety or var. *dulce* are blanched and used as a vegetable delicacy.

The cultivated fennels differ so much mutually and from the wild fennels that they are presumed to be subspecies or different races of *Foeniculum vulgare* Mill; they differ in the size of the fruit and the odour, taste and contents of the essential oil. They are however hardly distinguishable botanically. Foreign fennel is usually bigger than the Indian fennel; hence it is called *bade saunf*.

At present, fennel is one of the commonest culinary spice of the world. It is also a well recognised medicinal plant and has entered in the pharmacopea or the official list of the medicinals in all countries because of its volatile oil that is a stimulant, an aromatic, and, a carminative. Mixed with sodium bicarbonate and syrup it is also given to infants and in flatulence. It is also a well liked masticatory, chewed all over India to remove foul smell of the mouth.

It is much used to Europe to manufacture cordials (or the drugs meant for heart) and is also an ingredient of fennel water employed mostly as a medium for other medicines and as a flavouring agent in itself. Indigenous medicine in India always has a great demand for fennel. Its hot infusion is commonly given to increase milk secretion and to produce profuse sweating.

Names and the Plant

Sanskrit calls this *madurika, maadhuri* (the sweet), *mishreya, mishri* (the Egyptian).

In Hindi it is known as *saunf, badi saunf, saunp;* in Bengali, as *mauri, pan muhori;* in Marathi as *badi shep;* in Gujarati as *hariyale, variyali;* in Kannada, as *dodda sopu, dodda jirige, badi sopu;* in Sindhi, as *saunf;* in Telugu, as *sopu, pedda jilakura;* in Tamil, as *shombu, sobhikire.*

The herb grows to a height of 2-3 feet with a green, sleek and slippery stem with upright stiff branches and much divided leaves with leniar segments. The fruits are elongated and have strong ribs. They are greenish yellow - the colour of hay which is what the term *foennel* means.

Saunf is grown in India as a cold weather crop. India has been exporting nearly 500,000 kilograms of fruits annually. But without really extensive potential resources there is a great chance of improving this export market much more that now and specially to several European countries and the French in particular. Indian fennel oil compares favourably with that of the foreign countries and industrialists can concentrate more on exporting the oil rather than the fruits. This oil is an aromatic carminative much preferred in treating colicy pains in children. In Europe this is greatly used in cooking and in manufacturing cordials and liquors. It is not much used in perfumery excepting in scenting soaps sometimes.

The fruits after distillation of the essential oil is a valuable cattle feed as it contains 14-22 per cent of proteins and 12-20 per cent of fat.

Nutritional (percentage) value of fennel used as a pot herb is as follows: 4.9 protein, 0.9 fat, 9.8 carbohydrates and 1.6 mineral salts; caloric or energy value is 67.

The seeds contain 3-5 per cent essential, aromatic oil of light yellow colour. The active principles are anethol and fenchone.

Medicinal and Other Importance

Ayurveda considers it as sweet, bitter and pungent in taste, light, oily and acute in quality, hot in virility and sweet in post assimilation. It is simulating, milk augmenting, taste promoting and destructive of wound and ulcers, fever, eye sores and eye diseases, splenic troubles, and is useful in shooting pains, thirst and vomiting and also dysentery.

The dried ripe-fruits and their essential oil are used as stimulant, aromatic, carminative, diuretic, emmenagogic (regulating menstrual flow) and purgative. Root is one of the five famous purgatives of Europe the others are parsley, wild clelery, asparagus and butcher's broom *(Ruscus aculatus)*. Leaves are much used as a vegetable, they promote ample urination and perspiration. Juice of the fennel improves eye sight. A paste of the seeds forms a cooling drink in fever and is preferred when urination is accompanied with a

burning sensation. Arabic and Persian physicians often combine fennel and anise.

Yunani physicians consider saunf as 2° hot and 1° dry. Its root is 2° hot and dry. It breaks obstruction in the stomach, destroys gas and produces much belching. It corrects undigested residue and is very good for stomach. It forms a very good vehicle for any medicine. Its seeds are advised to be eaten to improve eyesight and the colyrium for eye is advised to be dipped in their decoction or fresh juice and then applied. It is best for dissolving phlegm, promoting urination and regulating menstrual flow.

Some specific and simple uses of saunf are as follows :

From very ancient times *saunf* is an ingredient for removing foul smell of the mouth. Distilled *saunf* water is a popular remedy for vomitings during fever as well as distress and gripings at the stomach. It is advised that every household should always be having *saunf* in the store because of its innumerable uses, some of which are enumerated below. Bruise the fruits, take a handful of them, grind with water. This enlivens the brain, wards off constipation and strengthens the stomach.

1. *Headache:* Take 1 *tola* of *saunf*, in 40 *tolas* of water and cook on mild fire, stirring all the while till only 10 *tolas* of water remain. This is very beneficial in headache.

2. *Dizziness of the head:* This will stop very soon after taking 6 *mashas* each of *saunf* powder and sugar.

3. *Sleeplessness:* Take 6 *mashas* of fennel, 40 *tolas* of water, prepare a decoction by boiling till the water is reduced to one fourth. Add cow's ghee and milk and keep taking this.

4. *Insanity:* Cook 1 *tola* of fennel in 12 *chatak* of water till the latter is reduced to half and add sugar candy and give as a drink. This elminates insanity due to *vayu* and *pitta*. Cook 1 *tola* of fennel in 4 *chatak* (20 *tolas*) of water; add country sugar and give. This eliminates insanity due to *pitta*.

5. *Cold and fever:* Prepare a decoction of 1 *tola* of pounded fennel and 2 *tolas* of country sugar in half a *ser* of water till the latter is reduced to one fourth, strain and administer repeatedly.

6. *Foul smell in the mouth :* Keep chewing 3 *mashas* of fennel for a few days.

7. *Chest trouble and hoarse voice:* One *tola* of pounded fennel is to be cooked in half a *ser* of water till reduced to one fourth, strain, add sugar candy and give while warm. This is particularly good for loss of voice.

8. *Heaviness of stomach:* Pound a handful of fennel and take it morning and evening in water. Or, keep 5 *tolas* of fennel powder in 15 *tolas* of *gulkund* (a confection of rose petals). Give 5 *tolas*

morning and evening. This eliminates heaviness and is also beneficial in constipation.

9. *Flatulence:* Take 2 *tolas* of fennel in one *ser* of water, cook till reduced to a quarter, strain, add *saindhav* salt and black salt, each 2 *mashas* and give for a few days.

10. *Digestive trouble in children:* Take one *tola* of fennel, cook in half a *ser* of water till reduced to half. Add 3 *mashas* of fried borax *(suhag)* and one *pav* of country sugar and make a *sherbet.* This is tasty and salutary. Dosage is 1-2 *mashas.*

E. AJOWAN, OR LOVAGE, BISHOP'S WEED

1. **Botanically ajowan** is much related to *krishna jeeraka* the Black Cumin of *Carum carvi.* In fact, this is but a different species of the same genus *Carum* and is technically known as *Carum copticum* Benth and Hook, previously called *Trachyspermum ammi* sprague.

Names and the Plant

Sanskrit calls this *bhutika* (auspicious); *deepyaka* (stimulative); *yavanika, yavani* (coming from the Greek).

This is known as *ajowan, ajwain* in Hindi, *ajma* in Gujarati; *ova* in Marathi; *oma* in Kannada; *omum* in Tamil.

The parts used are the seed, the seed oil and the distillation or *arka.*

The plant is much cultivated in many parts of India, the large seeded variety being much preferred for home consumption and this grows richly in Andhra Pradesh. It is common in Afghanistan, Iran and Egypt.

The fruits are quite famous, similar to *saunf* but much smaller, yellowish brown, strong in smell and taste and pungent like it. The plant is similar to *soya* but much finer and white. Flowers are like-wise in umbels. Every part of the plant gives a strong aroma. Parts used are fruit, leaf, essence and distillation (*arka*). Seeds when well stored can retain their virility till four years.

Medicinal and Other Importance

Ajowan or omum is a very commonly used medicine from very old times in India for diarrhoea, atonic (i.e. where muscles do not act because of weakness) dyspepsia, colicy pain, flatulence, indigestion and also cholera. It is a well acclaimed carminative, antispasmodic drug and is also a stimulant and a tonic. It is a recognised pharmacopeal drug in India as well as Great Britain. It is also much used as a masticatory, chewed alone or with betel leaf and nut for giving a good smell to the mouth. The dried fruits yield 2-4 per cent of a colourless or brownish essential oil in which thymol (a very important antiseptic much used in lotion) occurs to the tune of 35-60 per cent. This thymol crystallises easily from the oil and is then sold in India as *ajowan ka phul* or flowers of *ajowan*. The rest of the oil consists of p-cymene, a-

pinene, dipentene, a-terpenine and cavacrol. The whole mixture is known commercially as thymene as it is similar to the corresponding portion of the thyme oil. Ajowan oil both pure and deprived of the thymol, is employed in India as a well known antiseptic and aromatic carminative. It is similar in action and use to thymol, a powerful antiseptic much used in nasal catarrh (cold and running nose), skin diseases and also as a mouth wash and as an antihelmenthic or against worms. It is used occasionally in making soaps or in perfumery.

Ajowan oil was an important source of thymol and large quantities of the fruits were exported from India to the Western countries before World War-I. During World War-II and after, large scale distillation was carried out in India itself. However this extraction was considered as unremunerative in competition with synthetic oil or similar oil from other plants. It is now considered however that better cultivation measures would restore the great commercial relevance of the plant and active steps are being undertaken in this direction.

Ayurveda regards the taste of *ajowan* as bitter and pungent, quality as light, virility as hot and post assimilation effect as bitter. It is stimulative of digestive fire, digestive, appetising and destructive of splenic enlargements, swellings, hiccup, tastelesness, shooting pains, flatulence, constipation, worms, piles and also removes vomiting.

Yunani considers it as 3^0 hot and dry.

This is extensively employed in chronic fever. There is a specific form of its cold infusion for this purpose known as *ashta prahari* or of eight *prahara's* duration. For persons of cold constitution this is given to confer heat on liver and stomach. Its thin ointment is employed in many skin diseases such as freckles, black spots and pimples. Such an ointment is soothing and also reduces swelling. Because of its specific effect it is much praised for cases of ascites. Because of its diuretic effect it is much used in urinary stones and difficulties.

This is an excellent medicine for expelling hook worms. The seeds are beneficially employed in convulsive diseases such as whooping cough. A thin ointment of it is found to be usefully employed in cases of wasp bites and scorpion stings.

A very important use of great relevance of the modern times is that its regular use is known to destroy addiction to opium and it can therefore be employed as substitute for opium in the rehabilitation of the latter's addicts. It also wards off the disorders due to opium consumption.

A deleterious effect is that it is likely to cause headache and in great doses to destroy milk secretion in the ladies and semen production in man. *Turmus (Lupinus albus)* or white lupine, coriander and *unnab (Zizyphus saliva)* are counter active to its such deleterious effects. Black *jeeraka* and *kalaunji (Nigella sativa)* seeds can be used as its substitutes.

The general dosage advised is 3 grams to 5 grams and 120 milligrams of the essence or thymol.

Thymol is effective for expelling the intestinal worms, even in a dosage of a few drops. This is best used as an emulsion for that purpose. In the initial stages of cholera this oil and also the seeds of *ajowan* are very beneficial in preventing vomiting and the purge. Employed with other aromatic drugs such as eucalyptis, mentha, pepper mint, it is an excellent carminative. Both the flowers of *ajowan* and the *ajowan* oil are mixed with soda and drunk; this gives a great relief in flatulence, indigestion and *amla pitta*. Eating a few seeds of *ajowan* along with jaggery proves beneficial in vomiting due to *pitta*. In cases of running nose or attacks of insanity, the seeds are powdered very fine and smoked in small puffs at repeated intervals. This measure has been found to be effective in many cases.

A few of the references from the classical Ayurvedic authors are as follows :

Charaka: Consuming cumin and a ajowan seeds along with ripened sugar cane juice (*seedhu*) is beneficial in piles.

Chakra datta: Along with salutary diets, the powder of *ajowan* seeds is given along with jaggery for seven days. This will destroy *sheeta pitta* spread over the whole body.

Harita: Keep *ajowan* seeds on the mouth night and day in cases of tonsilitis (*galashundika*).

For tooth ache keep ajowan seeds and *vacha (Acorus calamus)* at the root of the affected tooth and sleep.

Keep seeds soaked for a day in water. The cold infusion secured thereby constitutes *ajwain arka* or omum water much sold in India. This is much employed in cholera, stomach pain and indigestion. Indian medicine considers *ajowan* as a very prized drug for its antispasmodic, heat producing, stimulant, tonic and digestive properties. There is nothing like *ajowan* to mask the undesirable smell of many drugs and also for the efficacy in overcoming nausea. "Ajowain flower" is much produced and sold in Ujjain and Madhya Pradesh. This is recommended like thymol for hysteria (because of its antispasmodic nature) and also for stomach disorders. This is a much better detergent than even high class carbolic acid. In all medications meant for arhritic complaints, *ajowain* is an indispensable ingredient.

A very good evaluation of *ajowan* is as follows. In its properties, *ajowan* combines the pungency of mustard and red chilly, the bitterness of *chirayata (Swertia cherayata)* and the anticonvulsive or the antispasmodic excellence of *hing (Ferula asafoetida)*. This is excellent for cholera, uncomparable for vitiated ulcers and their foul smell and well acclaimed for the expulsion of worms.

Ajowan as a Household Remedy

Ajowan or *omum* has a commendable digestive property. Chewing a few grains of it after meals will stimulate the secretion of digestive juices. For the best effect the grains should be chewed well and then eaten. The food taken in will then get well digested. The oil inside these grains will not only destroy harmful germs that might be harboured in stomach and the intestines; it will also prevent decaying of the food matter within the intestines. To the patient of indigestion, bloated stomach, diarrhoea and dysentery particularly, consuming a few grains like this daily is curative as well as preventive. One can consume omum with jaggery also.

Prepare a decoction from out of a few grains of *ajowan*. If a child is suffering from an inflated belly because of indigestion, giving it a dose of a teaspoonful of this decoction along with a pinch of eating soda proves quite beneficial.

Chewing these grains well and for a long time and then eating in, will destroy dental caries. This measure will simultaneously remove foul smell from the mouth. In days of affection from cold, it is very common to suffer from an obstruction in the throat, a cracking or just hoarseness in voice or even inflammations and sores at the throat. In all such cases, keep gargling at intervals with a decoction of *ajavan* to which eating soda is added. This will give a considerable amount of relief.

During the affection of consumption, cough, asthma and chronic brochitis, taking in a decoction of *ajowan* and *methi* along with honey will destroy phlegmatic distress. This is to be taken thrice a day.

Ajowan is a useful drug for skin diseases. Keep eating the grains of *ajowan* along with jaggery. This is a useful remedy to destroy the infections of scabis, itching, psoriasis, skin sores and such other maladies of the skin. Grind *ajowan* and turmeric powder in equal proportions and to a fine degree. Applying this as a paste will remove skin sores and psoriasis.

Oedemas or swellings anywhere in the body resulting from an injury and paining all the while, respond well to a treatment of ground down *ajowan* along with lemon juice. Swelling will subside and the pain will disappear.

Boil *ajowan* grains well in coconut oil. Use this oil to massage the parts suffering from sprains and pain. This is particularly beneficial in cases of blind pain where there is a severe pain for an unknown but a physical cause and injury. One gets a great relief in aching ear by placing a few drops of this oil slightly warmed up.

Take a few seeds of *omum*. Boil them in water and prepare a decoction. Take a teaspoonful of this decoction, add a pinch of eating soda and administer to the child suffering from bloated abdomen due to indigestion. This will subside, the

child will get relieved and would start playing about.

Ayurvedic authors recognise four "varieties" of *yavani: yavani or ajowan* discussed so far; *parasika yavani* or *khurasani yavani* (from Khorasan—an altogether different plant *Hyosciamus albus* of the family Solanaceaer or the Henbane seeds), *ajamoda* which is *Apium graveolens* or celery seeds of the same family Ulmbelliferae and Kirmani *ajwain* which is also a totally different plant, *Artimisea maritima* or Worm seed or the Santonica of Composite family. Among these we shall consider now only *Apium graveolens* belonging to the same family of Umberlliferae to which *ajowan, jiraka* and the other aromatic seeds discussed here belong.

2. Apium Graveolens L. Celery, Ajamoda: Celery is a native of temperate Europe from England to Asia minor, but grows well in the foot of the North Western Himalayas and the outlying hills in Punjab and Uttar Pradesh.

Elsewhere also it is cultivated in the gardens in cool climates. In a wild state, the plant is tough and rank with an acrid and poisonous juice. It is a famous vegetable specially of the European cooking and is also a well acclaimed medicinal drug in its very small spicy seeds i.e. the dry fruits. As a wild plant it grows in marshes, ditches and other watery places. Under cultivation (when it is usually considered to form a variety called *dulce* or sweet)

it is a biennial herb forming a fleshy root and a clump of compound leaves with long leaf stalks, which constitute the vegetable and also the article celery of commerce. These are large and succulent and their quality is much improved by blanching which is secured by placing boards or papers around them to shut of light and so prevent chlorophyll formation. For good cultivation, celery needs a rich sandy loam and much water. Commercial growing of celery is an important industry in the West. The foliage is used for flavouring and as a garnishing and also as a spice. The roots are also sometimes boiled and used as a vegetable. The outer stalks which are too long to eat are used as a basis for a cream of celery soup, much liked and refreshing. Celery seeds are the famed *ajmoda* spice, much valued as a savoury and a medicine. The large turnip like roots of a European variety called *celeriac* or var. *rapaccum* are also often used in Europe in making soups and also for flavouring. Cultivation of celery has been carried on since last 2,000 years, if not more. The small seeds are dark brown and have a very pronounced celery flavour. The oil has some medicinal value but is mainly used for flavouring in the form of an extract. In European cooking, salt flavoured with celery seed oil or the ground seeds is in a great demand.

Names and the Plant

Sanskrit calls it *ajmoda*, *bastamoda* (delightful to goats), *kharatiya* (the mule like), *kharashwa* (the mule of the horse), *karavi deepya* (stimulative).

It is known as *ajmod* in Hindi, Gujarati; *chanu, randhani, vanjoyan* in Bengali; *bhutghata* in Punjabi; *ran dhani, jungli dhania* in Marathi, *celerina, gudda sonpu* (hill *saunf*) in Kannada.

The parts used are the dried fruits and the roots as far as medicine is concerned; roots are more virile of the two and these retain their virility for three years while the seeds can do so for two years.

This contains sulphur, an essential oil, a glucoside apiin, albumin, mucilage and salt and also a type of camphor called apiol which is particularly abundant in the hill variety; this apiol is a poisonous principle also.

Medicinal and Other Importance

Celery is a much acclaimed preventive of rheumatism and gout. Hakims regard it as deobstruent (a remover of obstruction) and a resolvent drug that dissolves the obstructions. It is used internally as a pectoral drug viz. that which is good for chest. It is a carminative, a tonic, a diuretic and an emmenagogue (regulating menstruation). The root is prescribed in anasarca (diffuse dropsy or collection of morbid water in skin and below), it is a diuretic and an efficient alternative, capable of bringing about desirable changes in the vital functions of the body. Seeds are stimulant and beneficial to heart. As antispasmodic they are used in bronchitis, asthma and to some extent in the diseases of liver and spleen.

The root is cooked as a diet and in a variety of preparations such as stew, soup, and gravy; this is nutritive and also highly medicative. It is used in stomach upsets. Celery coffee is considered a good beverage to strengthen the brain and the nerves.

A few remedies based on celery are the following: take 2 parts of celery, 1-1/2 each of anise seeds and *musta* or *Cyperus rotunda* and 1 of *Valeriana wallichi or tagar*. Mix and powder; dose is 1-1/2 - 1 drachm. Or, take 2 parts of celery, 1 of anise seeds and 1 of sugar. Mix and powder. Dosage is 1/2 - 1 drachm. Both are used in flatulence and colicy pains. Take 1 part of wild celery, 1 of *ajown* and 20 of water. Make a distillation. This is a good adjunct for antispasmodic and carminative medicines.

Ayurveda considers celery as bitter, pungent, hot in virility, dry, appetising and stimulative. It alleviates shooting pains, and is beneficial in gas troubles, phlegmatic complaints, flatulence, worm infection, tastelessness and stomach disorders in general. It alleviates *vata* and *kapha* aggravations but it promotes *pitta*.

Celery is aromatic and an uterine stimulant. Its uses are mostly similar to *ajowan*. It promotes salivation greatly. It is best administered in incorrect digestion, vomiting and pains of the urinary bladder. Other significant uses are in cough, pains at the sides, sciatica, back pain and the diseases due to *kapha*. It removes the obstruction in ascitis (*jalodara*) and also in urinary as well as menstrual flows. It strengthens heart.

The use of celery is prohibited for pregnant ladies, persons of hot constitutions, and those who are prone to epileptic attacks.

Ajowan and celery are mutually substitutable drugs.

3. Apium petroselinum or Parsley: This is another quite a useful and well known aromatic herb closely related to celery, being but a different species of the same genus *Apium*, though it is often considered to from a different genus and species, known as *Petroselinum sativim* Linn. In English it is a well acclaimed pot herb of the kitchen, called parsley. It has finely divided and strongly scented leaves that form an excellent seasoning herb greatly used in European cookery. In India it is well found in Kashmir at an altitude of 6000 to 11000 feet and also in the hills of Western India and in Iran.

Parsley has been cultivated by man for less than 2000 years as the famous Botanist de Candolle opines. This is now however one of the most familiar and widely cultivated of the garden herbs in the West but is often cultivated in India also but only in some parts. It is a native of the rocky shores of the Mediterranean regions but is quite commonly found as an escape from cultivation in all moist and cool climates. The plant is a biennial herb which produces during the first season a dense tuft of dark green finely divided leaves. It is

these that are used as a garnish and for flavouring soups, omelettes and also stuffings. They are an excellent mine of Vitamin-C. In some parts of Europe, the tops are used as pot herbs for kitchen and the roots are boiled as vegetables.

Parsley contains sugar, starch, an essential oil known as apiol and a glucoside called apiin or aphin and an alkaloid. Apiol is a green liquid distilled from the root; this also refers to a crystaline stearoptene found within the oil distilled from the seed. This is an excellent diuretic.

The plant is rather similar to *ajmoda*, the seeds are small, somewhat longish, dark and *ajowan* like. They have a characteristic and unique taste. They yield a camphor like exudate, the apiol, which is yellow, of unique smell and tastes pungent and unpleasant.

Medicinal and Other Importance

Apiol is much recommended in abscent or disturbed menstural flow; it is given then in doses of 2-3 minims given in sugar or in capsules. In cases of arrested menstruation accompanied with fever and malaria, pills made of 2 grains of quinine sulphate, 1/3rd grain of apiol, 1/2 a grain permanganate of potash are given beneficially. When the leaves are applied several times a day to the breasts, it will arrest milk secretion. Bruised leaves form a good poultice for the eyes.

In minute doses apiol is curative of epilepsy and its fits.

Root is beneficial in kidney and its dysfunctions.

The herb is used for its aromatic flavour in soups and other dishes.

This is a strong remover of phlegm or *kapha* and regulative of *vata*. This is beneficial in pain at the sides, shooting pains and colicy pains.

Deleterious effect is that it is likely to cause urination accompanied with blood. Counteracting agents are pure honey and anise seeds.

F. HING OR ASAFOETIDA

The source of *hing* or asafoetida is *Ferula asafoetida* Linn or *F.foetida* Regal and other allied species of the family Umbelieferae. These are stout perennial herbs of Afghanistan and Iran. The cortex of the thick fleshy roots exudes a milky juice during the rainy season. The crown of the roots is cut off and guarded against the sun. The gum resin which is *hing* collects on the surface in the form of tears or masses of tears of varying colours and imbedded in a thick, gummy, greyish or reddish matrix. *Hing* has a powerful and foul odour and a bitter acrid taste due to the sulphur compounds of its essential oil. This has been used throughout the East in flavouring sauces, curries, soups, savouries and so on. For Indian cooking it is almost an invariant spice, determining the very taste of the dish. In Europe and America however; this is used in perfumes and for flavouring only when extremely dilute and also after the removal of

certain impurities. *Hing* is however a very valuable medicine used in both West and East in coughs, asthma and other nervous afflictions and as an aid to digestion and metabolism.

Galbanum is another gum resin excreted from the lower parts of the stems of another species *Ferula galbaniflua* Boiss and Buhse, a stout perennial herb of North Western Asia. It occurs in the form of separate tears or brownish and yellowish irregular masses that have a powerful, tenacious and aromatic odour, used in medicine for centuries.

Hing is an oelo gum resin obtained by incision from the rhizome and roots of *F.foetida* as above and also *F.narthex* Boiss and a few other species. *F.foetida* grows in Persia, Kandahar and Afghanistan while *F.narthex* grows abundantly in Kashmir, Baltistan, Astore and in Western Tibet and Afghanistan. Both of these are herbs growing to a height of about 3 metres. Other recognised *hing* yielding species are *F.alliacea* Boiss, and *F.rubricaulis* Boiss. There are also at least two types of *hing* - one turning red and brownish on exposure to air and the other, remaining pale buff or white. The commercial supply to Europe and America reach from the Gulf ports and Bombay.

Hing has been introduced to medicine from the East by Arab physicians. Its collection from Iran and Turkey takes place in the late spring. The head of the plant is cut with a saw for three times; the best grade *hing* is from the first cutting; next is

from the third cutting while the second cutting yields the poorest stuff. Import of *hing* into India is via Khyber and Bolan passes or from Gulf ports. Indian medicine employs *hing* extensively. It is a much reputed carminative and antispasmodic drug and widely used in hysteria and nervous disorders of women and children. As a flavouring agent it is also a common ingredient of many *masalas* all over India. It is much used as an expectorant (to bring about coughing) in chronic bronchitis (inflammation of the wind pipe) and to remove intestinal flatulence or gasses. Large quantities are used in veterinary practice. Indian import of *hing* is on a very huge scale. *F.narthex* abundant in the dry valleys of Kashmir yields a good amount and can easily form a good substitute of the imported *hing*.

Commercially *hing* occurs in two forms (i) Tears—round or flat, 5-30 milimeter in diameter, greyish white, dull yellow or reddish brown, some acquiring the latter colour with age while the other remaining the same. The fractured surface remains yellowish and translucent or gradually changes from an opaque milky white through pink and red to reddish brown. (ii) Mass—here, the tears are clumped into masses and are usually mixed with fruits, root pieces, mud and other impurities. This is the commonest commercial form. *Hing* is best powdered when it is first cooled. It has a strong onion like odour and a bitter acrid and onion like taste.

Hing consists of a volatile oil, resin, gum and impurities. Both the tears and mass have the same amount of the volatile oil that has a uniquely bad smell because of sulphur compounds. Contents are: volatile oil and resin 50.1 per cent, asaresinol ferulate 16.57 per cent, free ferulic acid 1.33 per cent, ether insoluble resin 1, gum and impurities 31.

All parts of the plant have the strong *hing* smell. This is not however collected regularly from Kashmir. Some Pathans of Afghanistan used to visit the area where the plant grows wild and collect the resin by tapping the stem and to less extent by chopping and boiling the roots with water and then evaporating, though this does not yield a good quality. One plant is estimated to yield a total of 0.04 ounce of *hing* for year.

Names

Sanskrit gives the following principal names: *hingu, ramatham, bahlikam* (from Asia Minor). Other names are: *atyugra* (very violent), *agoodha gandha* (explicity smelling), *bhoota nashani* (destructive of evil spirits; viz. insanity) and *soopa dhupana* (fumigatory to soup).

It is known as *hing* in Hindi, Gujarati and Punjabi, Marathi; *hingra* in Bengali; *yang* in Kashmir; *hingu* or *ingu* in Kannada and Malyalam; *inguva* in Telugu; *perungayam* in Tamil.

Botanical Aspects

Collection of *hing* is in spring. The hill-men first make a stone wall around the plant and dig around to make a shallow depression, the mud around the carrot like root is removed and the root becomes stouter as the plant also grows. An incision is made on the stem near the base, the gum like resin exudes out and collected. This is the best hing but is not available in market. Afterwards, 1/4 inch thick bark pieces are cut for 2-3 days as long as the resin is getting secreted; it is this that is collected together in a mass and sold. F.*jaeschkeana*, another *hing* yielder is a tall perennial herb with a bunch of radical leaves. The roots are thick and yield on slight wounding, a white sticky strong smelling resin. The stem is erect and thick and bears large shealths of leaves. The leaves are compound with 2-4 leaflets and heavy.

The plant of *F.narthex* is very similar to the above species in the stem structure, in that there is no difference between an outer cortex and an inner pith. Both of these species occur in Ladakh region upto 4,000 metres in altitude; their *hing* quality is also good.

F.narthex grows in North West Himalayas and its oleo resin is actually used as a substitute of *hing* and has the same properties. The roots are said to be good at reducing feverish heat while the stem is considered as a good tonic to brain and liver. The leaves have a diaphoretic (sweat inducing), and

carminative properties.

Hing plants grow to a height of 6 to 8 feet. Leaves are tender, hairy and with 2-4 leaflets. On either side of the stalk, 2 leaflets are found and there is one in the centre. Margin of the leaf blade is cut up. The stalk of the infloresence is also big and leafless.

Fruits are 1/3 inch long and 1/4 inch broad and they have soft hairs. The flowers and fruits come out in March/April. The fruits are called locally as *anju dan* while *hing* refers to the exudation. Two varieties of *hing* plants are recognised, white and black, as noted above. The white yields an exudation that is fragrant and pure like diamond or *hira* and crystalline; this is also called *hira hing.* This is used in medicine and not the black which is foul smelling and called *hingda.* However many types occur now in the market differing mutually on their source plant varieties, collection procedures and so on.

Collection is of two types. (a) A knife incision is made a little above the base in spring. Exudation is collected and another incision is made after 1-2 days leading to fresh exudation and collection. This is repeated many times and then left out. It is to protect the exudation from sun and dust, walls are built around. This is the procedure followed in Balkh, Bokhara and Iran, (b) Here the plant is cut off a little above the ground level. The exudation gets collected at the cut end of the root. This is removed and the plant is again cut a little down leading to fresh exudation and collection. This is

repeated many times till the entire exudation is exhausted. The cut ends are protected from sand and dust by heaping stones about. This is the procedure in Afghanistan, Kabul, Kashmir and the border area.

How to recognise an excellent *hing*.

A simple and a very reliable test is to drop the sample in water. If it is pure, it should slowly give out a white stream and completely dissolve in water, rendering it milky white. In addition, if set to a burning match stick, it should burn out fully. Its colour should be clean, smell, strong and taste, bitter. Adulteration in *hing* is rampant. Wheat flour, stone pieces and dirt are often added. When such a sample is dropped in water it settles down at the floor. It does not burn out fully when set to fire.

Medicinal and Other Importance

Ayurveda considers the taste of *hing* as bitter and pungent, quality as light and acute, virility as hot and post assimilative effect as bitter. It is digestive, stimulative, appetising, germicidal, strengthening, good for the heart, and destructive of poison, shooting pain and flatulence. It removes *vata* and *kapha* aggravations, stomach diseases, loss of consciousness or swooning, epilepsy, feeble digestion, cough and difficulties in breathing. The liquid gum cuts away the obstructions in the body, regulates specially the alimentary functions and stimulates.

Modern medicine considers it as stimulant, carminative, antispasmodic (countering involuntary muscular contractions and expansion) and mildly laxative. It is also anthelementic (killing flat worms of the intestines) diruetic, aphrodisiac (sex stimulating) and emmenagogue (regulating menstruation). It is stimulant of the nerves and the lungs. Its action on circulation and secretion is positively stimulating. If taken for a long time even in a mild dose, it leads to onion like belching, acrid irritation of the throat, flatulence, diarrhoea and burning during urination. However the volatile oil does not remain in the body for long; it is rapidly excreted through urine, milk and sweat, where it can be found out easily.

Hing contains organic sulphur compound, volatile oil 5 per cent, with the essential oil of garlic-ally, allyl persuphide (mainly responsible for the unique smell) and two turpenes, a resin 65 per cent, a ferulic acid ester of asaresino tannol, free ferulic acid, gum 25 per cent, and also malic, acetic, formic and valerianic acids. Resin on dry distillation yields umbelliferon that is not found in the Indian variety.

Yunani physicians consider *hing* as 4 degree hot and 2 degree dry. They acclaim it as regulative of gases, counteracting convulsions, useful in ulcers, expelling of phlegm and promotive of urination and mensturation. It wards off flatulence and also splenic and bladder diseases and is beneficial for paralytic patients and an excellent aphrodisiac. It

is much praised for cough and breathing difficulties. The dosage of *hing* is 1 *masha*.

Hakims employ the fruits *anjudana* also medicinally; they are 2 degree dry and hot. This fruit dissolves swellings, regulates alimentary canal, stimulates, brings about urination and menstruation and is aphrodisiac and diuretic. The fruits are much employed in nerve and brain afflictions such as partial paralysis, paralysis and amnesia or loss of memory. They are beneficial in digestive inability, gas expulsion and urine and mensus regulation and also in phlegmatic fever and ascitis (*jalodara*) and very importantly in treating impotency in man.

Modern medicine considers it as a strong stimulant of nerves and the uterus. Oral intake of *hing* thins down the phlegm collected in the wind pipe and its foul smell is destroyed and the germs are killed. This acts upon the central respiratory areas in the brain and thus reduces coughs that are developed without any reason. In states of nervous irritability, a person becomes over sensitive and is therefore likely to become depressed and commits many mistakes which he would not do under normal circumstances. Giving *hing* at such a stage is a corrective procedure. It is much strengthening to nerves and is an efficient antispasmodic. Since it stimulates the stomach walls there will be a clean bowel by its use. It is a well acclaimed drug in respiratory affections. There is a great practice of giving *hing* in chronic

inflammation of the wind pipe or bronchitis in an adult, asthma, whooping cough and the bronchitis and lung infection in children and particularly for the dry cough that follows lung diseases. Its administration leads to a lessening of agitatedness, decrease in phlegm formation as well as its thinning. For lung afflictions, *hing* is crushed in water and given.

For bloating of the stomach, shooting pains of the stomach, constipation, laxity of the stomach and the intestine, indigestion and worm infection, *hing* is extremely beneficial. For these diseases *hing* is given along with *ajowan or eluva* (*Aloe barbadens*). For intestinal diseases and worms; *hing* is given in an enema.

In nervous diseases such as facial paralysis, partial paralysis and convulsions, *hing* is highly beneficial. This is good in malaria also. A pill called *hingu karpura vati* is given in fevers that have reached a convulsion stage. In case the patient is unable to swallow the pill, crush the pill in ginger juice and apply over his tounge. By this, nervous activity improves, tremors of the hands and the feet stop, rambling talk will disappear and the patient also stops undesirable gesticulation and tearing of the clothes. Adding *kasturi* or musk with this pill is still more effective. *Hing* at the child birth stimulates uterine wall, render it clean and stops the terrible disease of *makkalla* characteristic of child birth in many women.

Thread worms (*naru*) die by an application of *hing*. It is said that this worm will not affect at all those who use *hing* regularly.

Another area where *hing* does wonders is in hysteria, a psychoneurotic disease where repressed complexes split of from the personality giving rise to hypnoidal states (e.g. sleepwalking and absence of memory) and manifested by many bodily symptoms such as tics, paralysis, blindness and deafness. Patient has an extreme emotional instability and an intense craving for affection. *Hing* rectifies many of the symptoms here. This has an equally wonderful effect on whooping cough and the highly painful heart trouble or angina pectoris and the convulsions that sometimes follow extremely distressing shooting pains. In what is known as Globe's hysteria, a spherical lump arises at the belly region and proceeds growing towards the chest. *Hing* is very effective here.

A general guidance is: for stomach diseases *hing* should be given after frying while for lung affliction it is best given raw, as the latter is stronger and more penetrative. *Hing* is excitatory in stomach troubles and is therefore better given fried.

Some Domestic and Common Uses

Hing is an almost invariable ingredient of the kitchen store. It has naturally been a very handy drug therefore for household and readymade remedies. Over a long period of time and countless personal experiences multifarious applications of

hing have entered the domestic lore of mothers. It is useful to list a few of them. A rather long list of them is given below, selecting rather the simpler formulations only.

1. *Indigestion and flatulence:* Repeated foul belches appear here of the vitiated food, there is little but repeated motion and the stomach is filled with gases. The patient should gulp a *ratti* of *hing* smeared with ghee. If there is too much pain in the stomach; a fomentation with hot castor leaf on the belly proves beneficial.

2 *Scorpion sting:* Apply *hing* rubbed in the milky juice of *Calotropis* leaves.

3. *Foul and maggot filled ulcers*: Take 2 *tolas* of fresh neem leaves, mix it with 3 *mashas* of *hing*, grind this mix with ghee and prepare a poultice. Tieing this would kill all the maggots, the decayed flesh is removed thereby and the area get cleaned. Sometimes it becomes necessary to use this poultice 4-6 times.

4. *Guinea worm infection:* (*Filaria medinensis*) - *naharua* in Hindi. To remove them out and destroy wherever present in the body, take 4 *mashas* of *hing* powder, mix in 20 *tolas* of curds and give this as a drink in the morning. In the afternoon, give only curds rice or just curds. Within three days the worms will die out.

5. *Tooth ache:* Give 2 *tolas* of *til* (sesame) or mustard oil to be moved about in the mouth for

5-7 times and to be then spit out. This should be followed by a gargling with *hing* in warm water.

6. *Hiccup:* This will stop by smoking or a fumigation with black gram and hing.

7. *Obstructed urine:* Give 2 *rattis* of *hing* and 1 *masha* of cardamom, both powdered and for 3-4 times at an interval of an hour each time. Urine will flow out. This is excellently effective.

8. *Unbearable stomach pain:* Take 3 *mashas* each of *hing, kushtha* (Costos) and *vidanga* (*Embelia ribes*), powder together and give in hot water. Three dosages of this type are to be given three times a day. If the pain is excessive this may be given every hour.

9. *Aconite (vatsanabha) poisoning:* Take 4 *rattis* of *hing* and give this repeatedly in cow's milk. The poison will not have any effect.

10. *Germs in the teeth:* Grind together equal quantities of opium and *hing*, place this in a swab of cotton at the affected teeth, much pressed in. This will give a good relief.

11. *Cough due to vata:* In whooping cough, when it is rather advanced and is also accompanied with convulsions, give 1/2 *rattis* of *hing* along with ghee at an interval of every 2-3 hours for a few times. During this affection, an enema of *hing* is also advised.

12. *Gas trouble:* To get rid of the highly distressing and quite often painful gas trouble in

the belly, administer 2 *rattis* of *hing* in hot water. This is a highly digestive drug which simultaneously provokes lungs.

13. *An attack of cholera:* Take one *masha* of opium, 1/2 a *masha* of pure *hing*, 1 *masha* of red chilley powder strained well with cloth, 1 *masha of katha*—all of these are to be crushed together in a mortar in *pudina* juice. Pills of 2 *rattis* each should be prepared. Each pill is to be given at an interval of 2 hours when the choleratic motion commences.

14. *Sound in the ear and deafness:* Prepare an oil by mixing *hing* and dry ginger in 8 times the quantity of mustard oil; add to this a fresh extract of all the 5 organs (root, stem. leaf, flower and seed) of *apamarga* (*Achyranther aspera*). Store this oil in a safe place. Using this as an ear drop will give relief in sound in the ear, deafness and many other diseases of the ear.

15. *Opium poisoning:* Grind *hing* in butter milk and give this as a drink.

16. *Hysteria and allied complaints:* Pills made of 1-1/2 grains each of *hing* and aloes given with honey are very beneficial. *Hing* is good in nervous palpitation and hyopchondriasis which is a nervous malady often due to indigestion and torments the patient with imaginary fears and an imaginary illness or a morbid anxiety about health.

Hing is fried before use; unfried *hing* causes vomiting. It may be given as 1-2 grain pill or as a thick and milky emulsion (dose: 1/2 to 1 ounce) prepared by rubbing down in mortar five drachm of

hing in a pint of hot water and straining and then cooling. To relieve fits of asthma, a fumigation of *hing and urad* placed on a smokeless fire, is employed, the fumigation being inhaled through a pipe.

17. *Flatulence:* A very beneficial medicine is a powder of 1 grain each of *hing*, cardamom, ginger and rock salt. This proves effective in convulsions of pale and weakly children.

18. *Colicy Pains (twisting pains of the stomach)*: Prepare a powder of equal part of *hing, ajowan*, chebulic myrobalan or *harad*, and rock salt; dosage is 10 grains.

For *one sided headache* (hemi crania), prepare an emulsion of 15 grains of the gum to one drachm of water, use this as a drop in the nostril to relieve the pain.

19. *To prevent abortion:* Habitual abortion is treated in the following manner. Six grammes of *hing* are made into 60 pills (each, of $1^{1/2}$ grain). Directly the pregnancy is suspected one such pill is given twice a day. The dose is then slowly increased to ten pills a day and then gradually reduced til confinement. Such a procedure has proved successful in cases having three to five abortions, or complications of premetritis (the inflammation of the outer layers of the uterus) or catarrhal endometritis (discharge from the inner walls of the uterus) and also in cases in which abortion at sixth month was threatning.

20. *Ring worm:* Apply *hing* as a paste. This is good for scorpion sting also.

Hing as Home Remedy

Using hing with food will promote digestive ability. This will also avoid collection of gas in the stomach.

Adding *hing* to specially those preparations that are made out of vegetables and green leafy vegetables is very salutory. For, both of these promote gas collection within the stomach and the use of *hing* will counteract this possibility.

Taking a teaspoonful of the decoction of clove to which a little bit of *hing* is added and doing so thrice a day is beneficial to feeding mothers. For, this will ensure greater milk production.

If the patients of hysteria keep sniffing *hing*, it will not become uncontrollable and violent.

As *hing* is an aphrodisiac, impotent persons may find its employment beneficial.

Take a teaspoonful of betel leaf juice, quarter teaspoonful of white onion juice and two teaspoonfuls of honey alll together, add a bit of *hing* ground down and drink this thrice a day. This measure will prove beneficial to patients of whooping cough, breathlessness as well as inflammations of lung and bronchi or bronchitis.

Grind a piece of *hing* with coconut oil and apply this to regions suffering from rheumatic pains and

massage. This will reduce the swelling and subside the pain.

A piece of *hing* ground similarly but with the milk of *Calotropis* leaves is to be applied to the region of scorpion sting. Simultaneously throw some turmeric powder on live coals and take in the smoke released thereby. The distress of the pain will calm down.

Keeping a bit of *hing* enclosed within a piece of cotton in the ears will ensure freedom from catching cold after child birth.

Pound down wet ginger, garlic and hing and soak this mass in gingiley oil. Heat this oil well and filter. Applying such an oil and massaging the affected parts would result in recognisable relief for rheumatism and joint pains.

Grind a piece of *hing* in water. Smear this paste to the affected area. This will remove the pimples and eradicate the eruptions on the skin.

Some Allies of Hing

We shall now consider a few other plants that also yield *hing* like oleoresins that are of considerable importance in medicine.

1. *Galbanum or Gaushir*

This represents *hing* like secretion exuded by another species of *Ferula* viz *F. galbaniflua* Boiss. This is known as *gaushir, javshir* in Hindi; *birizh* in Persian; *bazad* in Arabic.

When this is mixed with water, it becomes milky white; that is why it is called *gau kshira* or cow's milk. The Greek term *galbanum* is presumed to be derived through the Yunani term *khalbani* related to this *gaukshir* finally. The exudation is greenish yellow or orange from outside and yellowish white inside. Taste is pungent and unpleasant. When mixed with water it becomes milk white if it is pure; if the colouration is otherwise it should be regarded as adulterated.

This contains an essential oil (6-9 per cent) similar to turpene, sulphurous resin (60-75 per cent), other exudates (19-22 per cent) and another principle umbelliferon.

Galbanum melts by heat; at 100° it becomes fluidy.

Medicinal and other Importance

This is stimulative and removes the provocations of *kapha* and *vata*. It cures abscesses and convulsions. It is employed to strengthen the uterus. On abscesses and swellings its ointment is applied.

If there is too much of phlegm, pill of *gaushir* and *bole* (myrrh) are given. A very efficient ointment is prepared thus: 4 parts of *gaushir*, 1 of sulphur, 1/2 of mercury, 2 of neem oil and 4 of wax are taken. First a colyrium of sulphur and mercury is made. The rest of the ingredients is then added to it. This is an excellent ointment for

joint pains, advanced arthritis and the like. Bandaging with this ointment will give great relief.

Gaushir is employed extensively for neurogenic afflictions such as facial paralysis, partial paralysis, nervous tremors, epileptic attacks, fits in children (*bala graha)* and coma or *sanyas.* The other set of the diseases where also its efficacy is commendable is constituted by cold and running nose, ascitis (jalodara-abdominal water collection), feeble digestion, stomach pain due to *kapha (kulanj* of the Yunani physicians). It is effective in cough, difficult breathing. It is an excellent healing drug for the wounds and the ulcers. It is used alone or with other drugs for the vitiated ulcers. Hard abscesses get dissolved by its application.

This *hing* however has deleterious effect on the testicles.

2. *Sagapenum*

This is also a *hing* like oleoresin gum that comes to India from Arabia and Iran. It is a hardened exudation of another species of *Ferula,* viz. *F. persica* willd or *F. szowitziana* D.C. This is sold in the form of broken fragments in the Bazars of Bombay by name *sagbijajh.* It is almost like small bits of gum. But it becomes softened by the very heat when placed on the hand. It gives a taste that is not at all likeable but the fragrance is fine and the smell is never strong like hing. This contains 50-54 per cent resin, 31-32 per cent gum and 3-11 per cent essential oil.

Use is somewhat like *hing*.

3. *Sambal*

This is the product of yet another species of *Ferula* viz. *F. sumbul*. Under this name of *sambal*, bits of small or big tuber like structures come to Indian market from Iran. These bits are light in weight, rather dark coloured on the outside and yellowish white on the inside. They are somewhat fibrous and pungent in taste. It emits an odour which is somewhat like musk or *kasturi*. This is why it is called Musk root in English. However what is actually sold in the market as *sambal* is often adulterated with the roots *jatamamsi (Nardostachys* sp.) or of *tagar* or *Valleriana celtica* which in India is incidentally known by the name of *sambal*.

4. *Ushak*

This is a *hing* like oleogum resin from an altogether different plant known as *Doremia ammoniacum* Don. or *D.aureum* Stocks but of the same family viz. Umbelliferae. This is sold as ammoniacum or gum ammoniac in the market. "Ammons" was a god of the ancient Rome, Egypt and Greece. This particular plant was available in abundance in all those places where there was a temple of this God. That is why the famous Dioscorides, the Greek herbalist who first described this plant scientifically called it by name "ammoniacoon". The present botanical name is in reflection of this tradition.

This is known as *ushak* in Indian bazaars. This is its name in Persian and Hindi and Arabic which also calls it *ushah*, and *lazak at zahab*. In Afghanistan it is known as *kandal*.

Its places of origin are Europe, Iran and Afghanistan. It is much available in some bazars of India, specially Bombay, where it reaches from Iran but gets sold often by the name as Bombay Sambal.

This is a gum resin which is found available on the flowering and fruiting branches of this rather shrubby plant. It may form spherical tear like structures or many such tears may join together to form big sized fragments. In size, this may range from coriander fruits, to the size of gram (*chana*) or even jungle *ber* or *jujube* fruit. As it remains long on the plant it tends to be dark coloured outside but on the interior it remains rather unclear, milky white and of light yellow hue. When it becomes cold, it hardens and breaks easily. Even for light warmth it becomes soft and flexible. The fragrance is mild but of a unique type. Taste is pungent and upsetting. Mixed with water it forms a milky emulsion.

Hakims prescribe the following criteria for settling the purity of its samples. The best quality *ushak* should be white, soft, clean, free from stones and dirt, quickly dissolving in water and should have a tinge of blue. It should be pungent in taste and also have a fragrance like that of frankincense or Indian olibanum viz. *Boswelia serrata* called *kunduru* gum in Hindi.

Ushak is aromatic like *javashir* or *gaushir* discussed above, *loban* or gum benzoin and *hing*. But its specific aroma is different from everyone of them and in all ways. It is best and most easily detected by this unique smell.

This contains 20 per cent exudation, 70 per cent resin, 4 per cent essential oil and also moisture and ash.

Medicinal and other Importance

This is much used in Yunani medicine.

General actions of the exudation are: it dissolves abscesses and swellings, spreads well in the body, purgative, promotive of menstruation, destructive of worm infection and highly healing to the wounds.

Hakims employ this much as an external application in goitre, swellings at the joints and hard abscesses to dissolve them. This is also beneficially employed in curing the hard growth of the piles and also in skin afflictions like black spots, freckles and disfigurements. In such cases this resin is first dissolved in vinegar and then applied. It is an important ingredient of ointments for curing wounds, lesions and ulcers.

This is given as an electuary i.e. a *lehya* to be licked and taken in cases of chronic cough and asthma. It is then given along with honey.

In order to remove the foul smell of the phlegm and also to expel it out, this *hing* is much preferred.

This is given for eating along with other suitable ingredients in the following afflictions: inflammation of throat due to *kapha* and many neurogenic diseases of facial paralysis, paralysis, epilepsy, convulsions, and tremors. This is particularly so by the hakims of Delhi.

But this acts as a purgative if given in doses that are greater than needed.

Another area where this is well used is in expulsion of live or dead foetus.

It is particularly advantageous in reducing the hardness of the swellings.

Its deleterious effect is that it causes urination accompanied with blood. Anise and vinegar are the counteracting agents.

Modern medicine has ascertained that this gets expelled from the body through kidney and skin and it stimulates these organs as it gets so expelled. Other observations are: it removes obstructions in the body, expels phlegm, promotes sweat formation, and also much urination and dissolves swellings. This reduces the sliminess of phlegm, and the phlegm itself gets expelled quickly and without much difficulty. It kills germs in phlegm and also removes the latter's foul smell. This is particularly beneficial in chronic swellings of the joints, collection of water at the joints and in goitre. The usual dosage advised is 0.4 gramme to 1 gram in the form of pills or as dissolved in water.

The areas of its actions are: in nervous disorders, hysteria, antispasmodic effect and general strengthening or as a tonic.

Ushak is particularly beneficial to the aged persons—for their habitual distresses of coughing, phlegm and breathing difficulties.

It is useful to prepare gram (*chana*) sized pills by adding *ushak*, *sambal*, *guggulu* and *bole* (myrrh) in equal quantities. These are useful in foul smelling, slimy and chronic *kapha* or phlegm.

A very useful ointment of *ushak* is prepared as follows: Take 12 ounce of *ushak*, 3 ounces of mercury, 8 ounces of sulphur and 56 grains of neem oil. First mix sulphur and the oil in a hot mortar and heat till they become homogenous, add mercury and at the end, warmed up *ushak*, pound well in the mortar and prepare the ointment and store. This is specially useful in reducing the hard abscesses and is also well employed in cases of swollen joints, painful joints and goitre.

G. A FEW MORE SEASONING HERBS

Apart from what have been described above, there are a few more seasoning herbs of the same family Umbelliferae that need to be considered now. We shall do so below.

1. Dill-European and Indian

Dill, an English name is botanically known as *Anethum graveolens* yielding dill seeds, the

condiment material used like the cuminum and the coriander discussed above. This is a native of Eurasia, mostly cultivated but still occurring in a wild state in many places. This was grown even in ancient times in Greece, Rome, and in Palestine where it was much reputed. It is now cultivated in Europe, India and the United States. This is a small annual or biennial herb bearing light green leaves and yellow flowers. The "seeds" viz. the dried fruits are oval, light brown and much compressed.

In the United States of America, dill is used chiefly for flavouring pickles. In France, India and many other countries however it is much used in cooking, in soups, sauces, stews and garnishings. Dill oil often takes the role of the seeds. Both the seeds and the oil are also used in medicine. In India and USSR the leaves are also utilised.

Indian dill is another species viz. *Anethum sowa* kurz now mostly called *Peucedanum graveolens* Linn. This is known as *sowa* in Hindi and Bengali; *soi* in Kashmiri; *saya* in Punjabi; *saya* in Kumaon; *shepul* in Marathi; *soya* in Urdu; *surva* in Gujarati; *sabbasige* in Kannada; *sata kuppi* in Tamil; *sompa* in Telugu. This is *shata pushpa* of Sanskrit, also called *mishreya* (from Egypt).

Dill oil, dill water and other preparations are well known. There is a great demand for it as a medicine. It is in equal demand as a condiment and the oil is largely used in manufacturing soaps. The plant is found throughout India and often

forms a cold weather crop. It is again a native of the Mediterranean regions but is now extensively cultivated in many places even in Europe, apart from India, and much so in Southern France, Saxony and Russia. This herb differs from the true Europoean dill in having longer fruits (twice as long as broad) that are more strongly convex. They also have a paler colour of the dorsal edges that make them more conspicuous than the true dill. The essential oils of the two also differ.

As such, Indian dill cannot be used as a substitute for the Euopean dill. Japanese dill is said to be identical with the Indian dill or *sowa*. The dried exhausted fruits have 16.8 per cent of fat and 15.1 per cent of proteins and form a good cattlefeed. The *sowa* herb yields 0.06 per cent of an essential oil, while the fruits yield 3-3.5 per cent essential oil. *Sowa* is a profitable export material.

Medicinal and Other Importance

The *sowa* herb is a very low sized plant, well cultivated in gardens of cooler places and the whole plant has a characteristic and strong and pleasant smell. The stem is tender and the leaves are highly dissected with narrow leaves. The entire plant forms a fragrant vegetable for making curries or *pakodas*, besides being medicinal, chiefly carminative.

Principally dill seeds are: carminative, stomachic (good for stomach), aromatic, stimulant, diuretic, resolvent (dissolving obstructions) and regulative of

menstrual flow and promotive of milk secretion. Dill water prepared from the seeds is carminative, stimulant and aromatic and like anise, it is popularly regarded to be promotive of milk secretion.

Essential oil of the fruit as well as its distilled water are greatly used in flatulence, hiccup, colicy pains, abdominal pains both in children and adults. For flatulence and hiccup it is better combined with a pinch of sodium bicarbonate or a little lime water. An effective administration of it is to diminish gripings that often accompany the use of purgatives and also the twisting pains of dysentery. For this purpose, an infusion of the bruised fuits is also useful. It is given to infants after straining and cooling and in a dose of 2 drachms or more along with sugar. This is also given beneficially to women after confinement.

These fruits are fried with butter along with *methi* seeds and given to check diarrhoea.

The fruits are bruised and boiled in water and mixed with the crushed roots and applied externally as a paste in rheumatic and other swellings of the joints.

The fruits are also a remedy for the worms and also for colic or the twisting bowel pains of the horses, in particular.

Leaves are moistened with a little oil, warmed and applied to the boils and abscesses to hasten suppuration or pus formation.

Sowa or the Indian Dill is a herb of rich green foliage. This is an excellent as well as aromatic green leafy vegetable. Curries and soups can be made out of it and they are both delectably tasty and also efficiently digestive. Their use eradicates constipation.

The herb is particularly invaluable for women after child birth. Consuming its preparations regularly will promote rich secretion of milk and more importantly it also acts a good family planning measure. For, by this procedure, the interval between child birth and the next menses period gets greatly prolonged so that both the mother and the child can secure ample time for healthy and proper nourishment.

However as this stimulates abortion, it is better that the pregnant ladies should totally avoid eating it during the first three months.

Dry this greens in sun. Mix it with some quantity of *methi* seeds and fry in ghee. One can also mix some dry coriander and sweet neem leaves for such a frying. Add then dry chillies, mustard and salt according to taste, powder them all together and store. Using this *chutney* powder with meals will increase the taste of the food and also prevents indigestion, constipation and flatulence.

Grind these leaves mixed with turmeric into a smooth paste and apply for wounds and abscesses. Pus formation would be prevented and the process of healing gets quickened.

The herb is a strong smelling material. Sniffing it for long induce sleep and, one can actually secure a long and sound sleep thereby.

A decoction of the herb is prepared and a teaspoonful of it is mixed with milk and given to a child. This will enable the child to sleep well and will also help in its digestion of the milk. Such a measure can be frequently adopted after feeding.

There is much mention of *sowa* as *shatapushpa* in ancient Ayurvedic classics. Its taste is considered bitter and pungent, virility is hot and post assimilation effect bitter. This can over come the aggravations of the two *doshas* of *kapha* and *vata*. A few specific mentions are as follows:

Charaka: For dry and painful piles, first sudate (i.e. induce sweat formation) the area. Then tie a rather hot poultice of *sowa* and *vacha* (*Acorus calamus*). This will greatly reduce the pain.

For *vatic* pains, grind *sowa* in milk and apply.

Vangasena: For wasp bite, powder *sowa* and *saindhav* salt to a fine degree, apply with ghee on the affected part.

This is advised to be taken without any fear by women at child birth. This will obviate the possibility of any *vata* based troubles and hunger is much promoted.

Two interesting recipes are worth being mentioned :

Take fresh fruits of *sowa*, powder and keep in a fresh and greased vessel. One should get up in the early morning at Brahmi muhurta (3.30 A.M.) and lick up 1,2 or 4 *tolas* of the powder along with ghee. Or, one can determine the quantity as per one's own digestive ability and take that amount every day. After this is fully digested one should take a meal of milk and rice as much as desired. A person who thus consumes 400 *tolas* of *shatapushpa* can get a progeny of whatever quality he desires. Even a barren woman can become fertile by this procedure. Aged persons can secure youthfulness. There will be a flourishing in strength, complexion, intellect and *ojas* or vitality and enthusiasm. Intellect will prosper, folds and wrinkles of the skin will disappear, fortitude and offsprings will ensure. If a person takes one *tola* of *sowa* powder along with honey daily for a month's duration, he will become brilliant. This is what Kashyapa samhita declares.

Peucedanum grandis is a plant related to *sowa* and it is known as *bashpika* in Sanskrit. This is called *bbaphal* in Hindi, Gujarati and Marathi.

This is a small herb producing elongated, flattened, small fruits. If one keeps them in the mouth, there will be an immediate feeling of acuteness and fragrance as well as a freshness. If there is pain in the stomach, gas is not passing out easily and the digestion is not properly carried out, these fruits are to be ground and mixed with one fourth or half a *tola* of water and taken in. The pain will disappear quickly.

2. Anise

Anise is technically known as *Pimpinella anisum*, yet an another aromatic herb of the same family Umbelliferae. This is one of the earliest aromatic and seasoning herbs, well known to the Hebrews, the Greeks and the Romans. It was very highly valued for its real and fancied medicinal importance. Discorides, the Greek herbalist and Pliny the Roman Historian both mention it. This is an annual herb of about two feet in height and bears simple or three lobed basal leaves and once or twice pinnate (feather like) leaves high up on the stem, which is tender. The small fruits are greyish brown and are clothed in short hairs. Anise is again a native of the Mediterranean region specially in Egypt and Levant but is now extensively cultivated in Europe, Asia Minor, India and parts of South America.

In Russia it is an important commercial crop. This is used for flavouring cakes, curries, pastry, biscuits and candy. The distilled oil is used in medicine, perfumery, soap making and other toilet articles and also in flavouring the beverages. The liquors anisette is one of the well known drinks. Though India produces this plant in large quantities, the need is so much that a considerable amount is imported from outside. The fruit is also in demand for preparing food stuffs for cattle. In medicine this is esteemed for its carminative (gas expelling) and expectorant (cough inducing) properties; both of these are due to the presence of the essential oil. Distillation water of anise is sold

in the Indian bazaars under the name *araq badian, araq saunf* for its medicinal value.

The oil contains 80-90 per cent or even more or anethole or anise camphor to which it owes its characteristic odour and the sweet aromatic taste. Anise oil is employed as an aromatic carminative to relieve bloating due to gases. Its use in perfumery is limited but it is a popular flavour for dental preparations and mouth washes. Anise oil is often adulterated with cheaper oil of star anise (from a totally different plant *Illicium verum).* But the former is definitely superior. The aniseed oil deteriorate with age specially if care is not take to exclude air and light. However, anise oil should be used only when fresh.

Medicinal and Other Importance

The dried fruits are stimulant, carminative, diuretic and mildly expectorant. The best fame of the fruits is as regards their stomachic (good for stomach) and carminative efficiency. Anise water is used by Hakims also as an antispasmodic.

Anise seeds are chewed with betel nut and are employed in confection and as a condiment.

They are useful in bowel complaints and also in bronchial catarrh or discharge, specially for children and after the acute stage has passed away.

Half a drachm of the seed with one drachm of *harad* and one drachm of sugar is a good laxative.

Aniseed and caraway in equal quantities and parched form is a good digestive to be taken in teaspoonfuls after meals. Dose of the powdered seeds is 10-30 grains; of the infusion or the distilled water (1 in 80) is 1-2 ounces and of the essential oil, it is 4-20 drops on sugar.

Leaves are used with great relish for garnishing and flavouring many dishes. The seeds are good for dyspepsia, flatulence, indigestion, colicy pains of children and also in reducing the gripings that often accompany the administration of purgatives.

The plant is a native of the eastern Mediterranean region specially of the Egyptian Plains (which is why one of its names in Sanskrit is *madhura misri*—the sweet (jiraka) from Egypt which is Mishra Desha). Its cultivation in India is on a small scale and whenever it is cultivated it is only grown as a culinary or a kitchen herb and not much on a commercial scale though the plant has a great potentiality as a commercial crop for its oil. This plant is however often confused with an altogether different a plant botanically called *Foeniculum vulgare* Garertn but belonging to the same family Umbelliferae. This is because the common Indian term *saunf* is applied to both of them. It is desirable to know both the plants. A common commodity available in Indian bazaars goes by the name *Lucknow saunf;* this seems to be wholly a produce of *Foeniculum vulgare* referred in English as the Indian aniseed. There is a flourishing trade in anised on the international level. A large quantity of aniseed is exported from

India, mainly to Pakistan and Afghanistan. This is mostly the Lucknow *saunf* or *Foeniculum vulgare*. There is a considerable amount of import of aniseed also. But these imports, which come from Malaysia, Vietnam and Taiwan are from altogether a different plant botanically called *Illicium verum* Hook fil and coming from a totally different family Magnoleaceae. This is termed star Anise, Siberian Cardamom in English and Chinese *saunf* in some Indian languages, for e.g. Kannada. Therefore in our study of *saunf* it becomes incumbent to consider three different plants: *Pimpinella anisum* the True Anise, *Foeniculum vulgare* the Indian aniseed and *Illicium verum* the star Anise or the Chinese *saunf*.

True anise is quite cultivable in India and has a good international market for its oil.

Aniseed contains a sweet, strongly aromatic taste and emits a characteristically pleasant odour when bruised or crushed. This is used for flavouring food stuff and also in confectionary or sweat-meat making and bakery products, beverages, as well as in anisette (a cordial or a heart refreshing drink prepared from its "seeds") or other liquors which are alcoholic preparations flavoured or perfumed and sweetened as in cherry, brandy, curacao, benedictine etc.

On steam distilation, aniseed yields an essential oil known as Oil of Anise. It is this oil that is used nowadays rather than the fresh fruits in all medicinal and flavouring purposes. This is a

colourless or a pale yellow liquid having the characteristic fragrance and taste of the fresh fruit. This oil resembles very closely the one obtained from Star Anise but its flavour is decidedly finer and more delicate. The oils from both the sources viz. Aniseed and the Star Anise are recognised official drugs in British pharmacopoea (official list of medicinal substances) as well as United States pharmacopea.

Anise oil is employed in perfumery, soap manufacturing as well as in other toilet articles and also in flavouring culinary preparations, confectionary, beverages, squashes and liqueur anisetts as noted above: It is also utilised in perfuming satchels or school bags, dental preparations and mouth washes. It finds an important application in the preparation of lacquers or varnishes.

Medicinal Importance

The fruits of this plant are considered to be mild expectorants (reagents which would induce coughing so as to expel out the unwanted phlegm), stimulants, carminative (dispelling the morbid gas collections from the bowels), diuretics (provoking urination) and diaphoretics (capable of inducing profuse sweating and thus relieving the heat and the distress of fevers).

They are employed in flatulent colics (where there is swelling of the abdominal region because of a morbid collection of gases and accompanied

with a twisting pain of the region) and also in the preparation of powders for asthma and in a few verterinary medicine. An alchoholic extract of aniseeds kills fungi and is thus useful in skin diseases due to fungi.

Oil of anise is utilised to prepare aromatic carminatives, to relieve flatuelence in general and as an ingredient of cough lozenges on a commercial scale and in combination with liquorice or *mulethi (Glycyrrhiza glabra L).* This is a mild expectorant and is used as an antiseptic also and for the treatment of cholera. This oil is used externally as an insecticide to kill small insects like head lice, mites and other vermin.

Its distillation water is sold in Indian markets by the name *Arq badian or Araq saunf* and is itself said to be used medicinally. The residue (or the oil cake) left after the oil extraction may be used as a high grade cattle feed as it contains 17-19 per cent of protein and 16-22 per cent fat.

Since true aniseed is costly and not in good supply it is adulterated variously, for instance with exhausted and already utilised fruits, other small similar looking fruits and seeds or just fine earth. Ground aniseed viz. its powders are sometimes adulterated with the ground fennel which resembles it in aroma and flavour and is cheap. Anise oil is often adulterated wilth the cheaper oil from the star anise. Oil of fennel is infact sold in the bazaar as a substitute for the true anise oil. Other adulterants in practice are : turpentine oil,

colourless or a pale yellow liquid having the characteristic fragrance and taste of the fresh fruit. This oil resembles very closely the one obtained from Star Anise but its flavour is decidedly finer and more delicate. The oils from both the sources viz. Aniseed and the Star Anise are recognised official drugs in British pharmacopoea (official list of medicinal substances) as well as United States pharmacopea.

Anise oil is employed in perfumery, soap manufacturing as well as in other toilet articles and also in flavouring culinary preparations, confectionary, beverages, squashes and liqueur anisetts as noted above: It is also utilised in perfuming satchels or school bags, dental preparations and mouth washes. It finds an important application in the preparation of lacquers or varnishes.

Medicinal Importance

The fruits of this plant are considered to be mild expectorants (reagents which would induce coughing so as to expel out the unwanted phlegm), stimulants, carminative (dispelling the morbid gas collections from the bowels), diuretics (provoking urination) and diaphoretics (capable of inducing profuse sweating and thus relieving the heat and the distress of fevers).

They are employed in flatulent colics (where there is swelling of the abdominal region because of a morbid collection of gases and accompanied

with a twisting pain of the region) and also in the preparation of powders for asthma and in a few verterinary medicine. An alchoholic extract of aniseeds kills fungi and is thus useful in skin diseases due to fungi.

Oil of anise is utilised to prepare aromatic carminatives, to relieve flatuelence in general and as an ingredient of cough lozenges on a commercial scale and in combination with liquorice or *mulethi (Glycyrrhiza glabra L)*. This is a mild expectorant and is used as an antiseptic also and for the treatment of cholera. This oil is used externally as an insecticide to kill small insects like head lice, mites and other vermin.

Its distillation water is sold in Indian markets by the name *Arq badian or Araq saunf* and is itself said to be used medicinally. The residue (or the oil cake) left after the oil extraction may be used as a high grade cattle feed as it contains 17-19 per cent of protein and 16-22 per cent fat.

Since true aniseed is costly and not in good supply it is adulterated variously, for instance with exhausted and already utilised fruits, other small similar looking fruits and seeds or just fine earth. Ground aniseed viz. its powders are sometimes adulterated with the ground fennel which resembles it in aroma and flavour and is cheap. Anise oil is often adulterated with the cheaper oil from the star anise. Oil of fennel is infact sold in the bazaar as a substitute for the true anise oil. Other adulterants in practice are : turpentine oil,

cedar wood oil, copaiba and quarjun balsam oil or even the synthetic oil made from fine oil.

Fresh leaves of aniseed are used as a garnish and for preparing salads. They are eaten as a pot herb like lettuce in the raw state or after slight frying and seasoning. They contain vitamin C (8.7 mg/100 g) and an essential oil.

In India we have a few other species of *Pimpinella*, worthy of further exploration by our entrepreneurs. We notice a few as below.

P.diversifolia DC: This is a hairy herb which is perennial - living for many seasons as are the true anise as well as the Foennel. Its leaves are compound and flowers white. It grows to a height of 60-150 cm.

This is found throughout the Himalayas and Khasi hills at an altitude of 900-3000 metres.

This herb is also considered to be carminative like the Aniseed.

P. heyneana Wall. ex kurz: This is a slender erect and annual herb growing to a height of 30 - 90 cm. Its root is fusiform or like radish and the leaves are compound. The flowers are white.

The plant grows wild in Chota Nagpur, Kalahandi in Orissa, Deccan Plateau, Western Ghats and Konkan.

The root of the plant is used in fever.

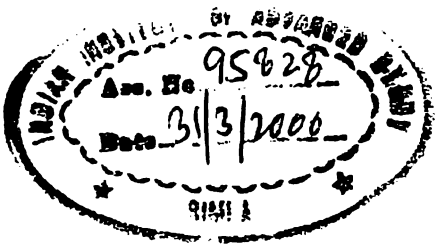
P. saxifraga Linn: This is a small sized biennial or a prennial herb. It has a slender rootstock. The leaves are pinnate viz. leaflets are arranged like feathers on either side of a central stalk. They are all radical viz. arise from the root level. Flowers are pink or purplish.

This is a Kashmiri herb growing at an altitude of 3,900 metres. The Indian plant is however actually considered to be a distinct variety called *P. saxifraga* var. *dissectifolia* C.B. clarke. Its root is employed in liquor industry and spice extraction.

The drug pimpernel is the dried root of *P. saxifraga*. This is acrid or pungent in taste and possesses diuretic and diaphoretic properties. Its main use is as a lithotriptic viz. as a crusher of the urinary stones. It contains a pungent resin, a volatile oil responsible for the smell and a tasteless principle called pimpinellin.

Ayurvedic physicians recommend the root as a curative for wounds, bleeding of nose and headache. A tincture made from this is found beneficial in diarrhoea. An infusion of the leaves is used in flatulent indigestion viz. where indigestion has resulted in gas collection and the consequent swelling of the abdominal region.

The root is employed in liquor *industry* and the extraction of spices.



Handbook of Epidemiology : For Personnel of Primary Health Centres/*L. Ramachandran* **Rs. 75**

The book is specifically meant for the primary health staff. It seeks to equip them with necessary knowledge to understand diseases and take preventive action.

DISEASES: CURED BY YOGA
100% safe way to perfect health

- Asthma (*Damaa*) • Obesity (*Motaapa*) • Diabetes (*Madhumeh*) • Tuberculosis (*T.B.*) (*Tapedik*)
- Piles, Fissure, Fistula (*Bawaseer, Bhagandar, Nasur*)
- Improving Height • Blood Pressure Heart Diseases
- Rheumatic Arthritis (*Jodon ka Dard*) • Indigestion (*Badhasmi*) • Backache (*Peeth ka Dard*) and Spondylitis
- Urinary & Seminal Diseases (*Mootra Aur Virya Vikaar*) and Hernia • Constipation (*Kabz*) • Sweat Control (*Paseena Niyantran*) • Flatulence (*Pet Ki Gais*) • Skin Diseases (*Charam Rog*) • Worms (*Pet Ke Keede*) • Navel and Jaundice (*Naabhi Aur Peeliya*) • Women Diseases
- Hair • Throat Diseases • Eyes • Concentration (*Ekaagrata*) • Common Cold, Cough and Catarrh (*Zukaam, Khaansi Aur Nazla*) **Rs. 8/- Each**

Health Series : Diet to Cure

- Diabetes • Obesity (Motappa) • Peptic Ulcer
- Heart diseases • Kidney Stone (Gurde Ki Pathari)
- Respiratory Diseases (Saans Ki Beemariyan)
- Anaemia (Bloodlessness) (Khoon Ki Kami)
- Food Allergy **Rs. 20 Each**

- **All the Secrets Of Palmistry for Profession and Popularity**
  Prof. Dayanand **Rs. 75**

* **How to be Happy, Healthy & Rich**
  S.N. Bose **Rs.40**

* **A Meaningful Life**
  M.P. Lakhani **Rs. 40**

- **Predict Through Handwriting**
  Syed Jafar Mahmud **Rs. 30**

- **Chandrakanta (A Hindi Classic)**
  Babu Devkinandan Khatri
  (Tr.) Pankaj Bhan **Rs. 75**

- **Vegetarian or Non-Vegetarian Choose yourself/** *Gopinath Aggarwal* **Rs. 10**

- **Fasts of the Hindus Around the Year**
  (Background stories, way of Performance and their Importance)/ *J.N. Kaushik* **Rs. 40**

- **Fasts of the Hindus Around the Week**
  (Background stories, way of Performance and their Importance)/*J.N. Kaushik* **Rs. 20**

GREAT EPICS OF INDIA—VEDA

- Rig Veda
- Sama Veda
- Yajur Veda
- Atharva Veda

Rs. 20 each

Rs. 25 Each

- Harad and Baheda
- Gourds and Pumpkins
- Amalaka and Bhumi Amalaka
- Onion and Garlic
- Neem and its Relatives
- Banyan and Peepul
- Khas, Kesar, Nagakesar and Khaskhas
- Coconut, Supari, Kikar and Catha
- Bael, Wood Apple, Lemons and Castor
- Ginger and Turmeric
- Salts, Sugar, Jaggery and Honey
- Spices
- Isabgol, Gokhru and Brahmi
- Seasoning Herbs
- Fragrant Herbs
- Milk and Milk Products
- Leafy Vegetables
- Vegetables
- F
- Karkatashi
  Nausadar

BOOKS FOR ALL