

SPICES IN HUMAN DIET MANAGEMENT

Dr. Subi

B.Ed, M.A(Home Science), PhD.

Muzaffarpur, Bihar.

As and when some crops like coriander, cardamom, onion, garlic, ginger and many others began to be termed as grouped as spices, the story loses description in the remote antiquity. Some of our oldest of literature do mention about spices but they are not enough to ascertain the exact age or era when these crops, realize in what manner and purpose of discovery. In due course of time, spices began to be utilized to improve palatability of food, their acceptable smell etc. Later their utility in preparing food items for better health care was also realized. Their use as preservatives, aromatical importance and as raw materials in industries producing cosmetics followed, making many of the spices a costly item. There are various classifications of spices like Botanical classification based on characters of plant families, agronomical classifications based on the shapes forms and stage of plant in which they are concerned with only their nutritional and values. Hence spices on this basis, can be classified as follows:-

1. Pungent Spices: Pepper, ginger, chillies etc.
2. Aromatic Fruits: Cardamon, nutmeg, mace, fenugreek, celery, cumin, coriander etc.
3. Aromatic Barks: Cinnamon, cassia, white- pepper etc.
4. Phenolic Apices containing eugenol: Clove, pimento
5. Coloured Spices: Turmeric, saffron etc.
6. Anti-Oxidant Spices: Spices used in pickles, sauces etc.
7. Anti-Microbial Properties: Ginger, garlic etc.
8. Medicinal values: Seeds of fenugreek (against stones in Kidney), extract of garlic (against rheumatics), turmeric for softening human skin, mace and nut- meg(Jaipatri & rheumatics), clove-oil(against toothache) and many others.
9. Cosmetic values: Turmeric, clove etc.

Methodology adopted compilation of this scientific paper mainly revolved around unstructured studies which include general observation, participants and non-participant observations, review of literatures, opinions of dieticians and other officials and non- officials concerned with nutrition based on their experiences leaving out structured studies which was not felt necessary here.

As mentioned earlier, spices are accessory foods mainly used for flavouring food preparation to improve their palatability. These are used in small amounts and as such, their contribution to nutrient intake is very limited. However, there are no two opinions on the fact that they are rich nutrients that our body requires. Some of these spices are rich in iron, trace metals and potassium too.

Table1. Shows the availability of nutrients in various spices and is self explanatory to reveal the importance of spices in diet (Vitamin contents in spices per 100 grams in edible portion)

Name of Spices	Carotene	Thiamine mg	Riboflavin mg	Niacin mg	Total B6	Folic Acid		Vitamin C mg	Choline
						Free	Total		
Asofoetida	4	0	0.04	0.3				0	
Cardamom	0	0.22	0.17	0.8					1550
Chillies, dry	345	0.93	0.43	9.5				50	
Chillies, green	175	0.19	0.39	0.9		6.0	29.0	111	
Clove, dry	253	0.08	0.13	0				0	
Clove, green	72								
Coriander	942	0.22	0.35	1.1		27.4	32.0		1077
Cumin, seeds	522	0.55	0.36	2.6				3	1065
Fenugreek, seeds	96	0.34	0.29	1.1		14.5	84.0		1161
Garlic, dry	0	0.06	0.23	0.4				13	
Ginger, fresh	40	0.06	0.03	0.6				6	
Mace	3027	0.25	0.42	1.4				0	
Nutmeg	0	0.33	0.01	1.4				0	
Omum	71	0.21	0.28	2.1					
Pepper dry	1080	0.09	0.14	1.4					
Pepper, green	540	0.05	0.04	0.2				1	
Tamarind Pulp	60		0.07	0.7				3	
Turmeric	30	0.03	0	2.3		10.0	18.0	0	

(Absence of data for any nutrient in the Table above or later indicates only that authentic figures are not available. Therefore, it is not indicative of total absence of that particular nutrient from the spices concerned)

Iron which is an essential for the formation of haemoglobin of red cells of blood plays an important role in the transport of oxygen. The amount of iron to be absorbed from the daily diet is quite small. It is in the neighbourhood of 1-3 mg depending upon the sex and the physiological status. Since there is limited capacity to absorb dietary iron, diet should contain 10-25 fold iron required daily. Diet predominantly based in cereals permit only a low level of absorption in the range of 2-5%. Therefore intake of composite diet is more important because of profound interaction between foods in influencing iron absorption. Needless to mention, this composite food should also have iron-yielding spices to the extent it makes the food palatable in consumption. Coriander and green chillies are a good source of B-carotene and also vitamin 'C'. Most of the spices contain a high level of tannin (viz:- turmeric) which sometimes interfere with iron absorption. These spices also contain several biogenic amines, chlorine, etc. Some of them like asofoetida and garlic have anti-bacterial property and they inhibit growth of purifying bacteria.

Nutrient availability in leaves of different spices as well as their capacity to improve the look and flavour of the food should deservedly be accepted as part of and as well as flavour accelerator of our normal diet. Leaves of coriander, garlic, etc are cheaper and in great demand by commons as well as high-ups during winter.

Table2. Nutritional components of important spices

S. N.	Name of the spices	Moisture gram	Protein(N6 25)	Fat gram	Minerals gram	Fibre gram	Carbohydrate gram	Energy K-cal	Calcium mg	Phosphorus mg	Iron mg
1	Asofoetida	16.0	4.00	1.1	7.0	4.1	67.8	297	690	50	39.4
2	Cardamom	20.0	10.2	2.2	5.4	20.1	42.1	229	130	160	4.6
3	Chillies, dry	10.0	15.9	6.2	6.1	30.2	31.6	29	30	80	4.4
4	Chillies, green	85.7	2.9	0.6	1.0	6.8	3.0	29	30	80	4.4
5	Clove,dry	25.2	5.2	8.9	5.2	9.5	46.0	286	740	100	11.7
6	Clove,green	65.5	2.3	5.9	2.2		42.1	159	310	40	2.1
7	Coriander	11.2	14.1	16.1	4.4	32.6	21.6	288	630	393	7.1
8	Cumin,seeds	11.9	18.7	15.0	5.8	12.0	36.6	356	1080	511	11.7
9	Fenugreek,seeds	13.7	26.2	5.8	3.0	7.2	44.1	333	160	370	6.5
10	Garlic,dry	62.0	6.3	0.1	1.0	0.8	29.8	145	30	310	1.2
11	Ginger,fresh	80.9	2.3	0.9	1.2	2.4	12.3	67	20	60	3.5
12	Ajwain(Omum)	7.4	17.1	21.8	7.9	21.2	24.6	363	1525	443	12.5
13	Pepper dry(Black)	18.2	11.5	6.8	4.4	14.9	49.2	304	460	198	12.4
14	Pepper green	70.6	4.8	2.7	1.8	6.4	13.7	98	270	70	2.4
15	Turmeric	13.1	6.3	5.1	3.5	2.6	69.4	349	150	282	67.8

Coriander is a cheap source of Phytin p 296 mg per 100 grams and Oxalic acid in chillies- 67 mg/100 grams. Other spices too contain large quantity of Phytin P like Omum-296mg, Cumin seeds – 153 mg, Fenugreek seeds – 151 mg and Turmeric- 97mg per 100 grams.

From the data appearing in Table 1&2, it is clear that spices though used in very small quantity for our diet, mostly cooked, have necessary vitamins and minerals required for human body. But the availability of these nutrients in form of and solubility is such that consumption of spices in greater quantity specially when dried after maturity has some side effects of negative nature. Besides, many of the spices are grown in particular portion of the country/ world. This makes them costly in other parts of the country/ globe and confines them to middle and upper economy class. India which is also known as ‘land of spices’ produces and exports to other countries, a large number of varieties of good quality spices.

From time immemorial, people of our country have been using spices for various other purposes too. One such purpose is its intake in raw, cooked or modified form to cure various ailments in order to improve nutritional status and thereby better health conditions.

Before going to specific details, we discuss some generalized properties of a few spices helpful in improving health conditions by fulfilling different nutritional requirements:

Garlic:- It emits a special odour not liked by many and its excessive continuous use makes urine and excreta to emit more nasty odours. But it increases blood and vitality and very useful for clarity of voice and eyes. Its use is deterrent to heart and lung ailments, jaundice, gas and aches on joints. Scientists at Indian veterinary institute say garlic reduces lead toxicity. Scientists speculate that eating garlic regularly could help traffic policemen and industrial workers who are particularly exposed to lead poisoning.

Turmeric:- It is bitter, pungent, warm and light. Its use in diet improves digestibility, detaches phlegm(cough), phthisis (T.B), jaundice, inflammation and swellings. Very useful for all kinds of wounds and injury, binds even fractured bones, cures wounds, cleans colour of the skin, removes worms, causing gas- problem in stomach.

Red Chillies:- It is deterrent to phlegm formations, increase pulse- beat. It increases inside temperature of stomach. It is dangerous for eyes and sperm formation, adversely affects blood and urine.

Clove:- If one is to step into any spice shop, chances are that one will smell the dominant fragrance of clove, which is considered world's most aromatic healing herbs.

It is a mild anesthetic, it makes the blood vessels near the skin dilate and bring more blood to the surface thereby making one feel warm, it is a carminative and it helps get rid of intestine gas. In addition to these medicinal uses, cloves are surrounded by lot of superstition and folklore. Woman in West Indies once distilled an alcoholic beverage from the immature buds and drunk it to heal a broken heart. In Indonesia cloves were woven in to special necklaces for children to protect them from any temptation to mischief. Some adults stuffed their nostrils with cloves so that evil spirits could not get into their brain via that route. In Germany people with cold feet would sprinkle ground cloves on top of their head, which would warm their whole body.

Aniseeds :- It is generally used after eating, quick in action plays up our appetite. It is deterrent to bloody nausea, gas, phlegm, fever, inflammations, pain and useful for eyes. It also checks acidity in stomach.

Dry Ginger: Its use in human diet improves appetite and warms up the body. It is deterrent to fever, phlegm, cough and other ailments related to heart, gas, worms etc.

Onions:- It is very palatable and used both raw and cooked with other food items. Very nutritive and raw onion has slightly warmer effect. It does not taste pungent but fast suppresses gas and have an all- round good affect on health. Friend onion is also useful and more palatable.

Cinnamon:- It improves taste of the cooked food. It has warmer and active effect, plays down headache, thirst, clears urine and warms up body and desire for sex. It checks ailments caused by gas problem.

Coriander:- It improves palatability when cooked with vegetables or meat alike, deters phlegm and purifies blood. It controls thirst, deters vomiting, amoebiosis and worms. Green leaves of coriander are widely used in salad, sauce and curries in order to improve look and palatability of the eatables in our meals. It is comparatively cheaper, hence widely accepted.

Bay Leaves:- It is also known as cassia at many places. Comparatively warmer, fast and not pungent. It improves palatability of any cooked food and effective to keep in check ailments like diabetes, gas and simple heart problems. It is also deterrent to gas and nose problems to some extent and stops fluid- secretion out of mouth.

Omum:- It is use in diets warms up body is fast and checks gas.

Cumin:- Cumin is one of the spices of antiquity. It is a trouble free plants that grown anywhere in a temperature region. Egyptians used it in the mix of spices, they used to mummify Kings and Queens. Greek physician – Hippocrates wrote about cumin. This proves that it was used medically as far back as the fourth century BC. Roman used cumin in cosmetics. It is supposed to be one of the best appetizer. Since the days of Hippocrates cumin has been used in healing jaundice, indigestion and headache. It is also a carminative. Cumin has its own taste and it does not blend in easily with any flavour.

Black- Pepper:- It is fast, pungent but very palatable. It increases appetite greatly, checks asthma, pains and worms. It is comparatively warmer and helpful in clarity of voice.

Cardamom:- It is pungent but very acceptable and palatable. It has some cooling effect, removes bad smelling of mouth, checks gas formation, phlegm, asthma, frequent urination and many other ailments, besides slightly pushing up body temperature.

King- Cumin:- It is warm, fast but light. Useful against phlegm, pain jaundice and worms.

Saffron:- It improves look, palatability and smell of the food. It keeps within check-phlegm gas and worms. It boost up vigour of male-character. Thus from the descriptions in fore- going we see that spices though primarily used to improve palatability, but have nutritive value too for improving our health-status as they (spices) keep in check many body-ailments which would otherwise have caused various health hazards. Realizing the above said properties of spices our Ayurvedic and Greeco-Ayurvedic mixed spices with other materials to use it as a corrective medicines against many diseases.

With considerations of time and space a brief description of some of the common practices are discussed below:-

Caution: Never use these prescriptions without consulting a physician or vaidh

Night-Falls:- Dried and powdered coriander 10 to 15 grams mixed with Khaand to be consumed daily before going to bed at night.

Syphilis:

- (a) Powdered black pepper and camphor in equal proportion to be mixed and a quarter tea-spoonful of it should be administered daily along with butter or cream.
- (b) 15 to 20 grams of the roots of satya- nashi, well powdered or minced with three grains of black pepper should be dissolved in water and taken daily at night.

Lack of Appetite:

- (a) Add Lemon- juice in king- cumin to the extent that it is well covered by the juice and dry in shade. Now add radish-juice to it and again dry. Add a little black salt. Take 5 to 10 grams daily to increase appetite, cure gas, belch, motion and other digestive disorders.
- (b) Black pepper, dried coriander and cardamom in equal proportion to be minced and taken three times a day (a) 5 to 5 grams each time.

Swelling of stomach:

- (a) Dried ginger, black-pepper and kings- cumin in equal proportion to be grinded. Accordingly to need add salt and take 3 to 5 grams with warm water thrice daily.
- (b) Few lobes of garlic to chewed or roll garlic in water, cool it and take it daily.
- (c) Turmeric and sendha namak- in equal proportion to be grinded and 5 to 10 grams of it to be taken daily along with warm water to control swelling of stomach and gas formation.

Pain in Stomach: King-cumin, black salt and fried asafoetida to be consumed daily along with whey to check pain and gas in stomach.

Loose Motion: Dried ginger and nutmeg to be rubbed in water in equal proportions. Take 3 to 5 grams of this preparation along with water thrice a day.

Worms in Stomach:

- (a) 20 grams juice of raw turmeric with 10 grams of honey should be licked daily for about a week.
- (b) Administer 3 grams of powdered king- cumin along with collustrum obtained from cattle daily.
- (c) 20 grams of king-cumin boiled in water till it is thick, coll it and take it daily to remove worms.

Headache:

- (a) Crystals of Nitre and black-pepper in equal proportion to be powdered and filtered. 5 grams of it with warm water thrice a day will ease will ease out headache.
- (b) Well powdered dried- ginger when added to cow milk and suck through nose is helpful in controlling all kinds of headaches.
- (c) Dried coriander rubbed in water and pasted on forehead not only removes headache but also mental weakness.

Malaria: Administer onion along with black-pepper twice daily.

Mental Weakness: Grinded Brahmini herb lined with almond oil mixed with powdered 5 grams of caedmom-seeds and black-pepper is useful in restoration of memory.

Belch: Three part of dried coriander and one part of clove to be grinded and 3 to 5 grams of it to be administered daily to get rid of headache, belch and indigestion.

Epilepsy: Garlic 2 to 3 grams, black linum 6 to 9grams or 3 to 6 grams black linum oil should be mixed and taken twice daily for three weeks to get some relief from epilepsy.

Paralysis:

- (a) Grind 5 lobes of garlic and add 2 to 3 grams of honey and lick it twice daily at dusk and down.
- (b) Cook garlic in linum-oil and feed it to patient about 5 grams daily.

Bad Smelling of Mouth: It is cured by chewing cloves. It also keeps digestion normal.

Loosening of Teeth: Sendha salt and turmeric to be grinded finely and mixed with a little mustard oil. It is a good tooth paste to strength teeth and cure toothache.

Pain in Ears:

- (a) Onion juice cooked in linum-oil and its application to ears when cooled, relieves pain in ears.
- (b) Cook garlic in oil and few drops of it into the ears to cure smaller pimples within the ears.

Influenza: Few leaves of Basil plus 1 or 2 grinded cloves and boiled with water well. Cooled solution should be taken four hours to get relief. Likewise there are various other preparations of spices which are very helpful in curing many ailments.

Cosmetic Value: Ladies in village still add mace in hair-oil for luster and growth. Many companies use turmeric in production of facial cream. Many families irrespective of their socio-economic status apply turmeric and other spices mixed with flour, all over the body of designated brides and bridegrooms before actual marriage ceremony to make their skin soft and for better look. Clove oil forms part of many cosmetics. Ground cloves is used to make face with mint leaves, peppermint oil and multani mitti. Even in Allopathic doctors still prescribe use of kulthi for treatment against stone in Kidney.

Preservatives: In the paper published in "The Quarterly Review of Biology" Jennifer Billing and Paul Sherman argue that spice plants contain powerful antibiotic chemicals capable of killing or suppressing the bacteria and fungi that commonly contaminate foods and poison those who eat them.

In hot climates many of the spices that appear most often and abundantly in recipes are garlic, onion and hot peppers or capsicum can inhibit 75 to 100 percent bacteria species, according to studies by food microbiologists. Spices not only enhance the palatability but also help to remove pathogens of food and thereby contribute to the health. Dr. Sherman believes the contribution of spices all of which came from plants had previously been explored or appreciated. He points out that many spice plants are rich in compounds that have anti-microbial actions. These compounds evolved in the plants are protection against pathogens. Some insect's scrapes resin the leaves of camphor weed and spread it on her eggs to protect them from pathogens. This way it is not only human invention. In hot climate spices like onion and garlic inhibit 30 percent micro-organism growth. Capsicum (hot spices) inhibit the growth of 80 percent micro-organism. It is better to eat spicy food, it's good for us. Besides, there are numerous stabilized uses of spices in the field of perfumes, textile industry, distillery, bakery, confectionery etc. In one form or another which cannot be ignored. However there is need to train our rural and urban community about the practical use for the betterment.

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