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## INDIAN SPICES: HIDDEN TREASURE TO MANAGE AILMENTS

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### ABSTRACT

Indian food is famous worldwide due to its unique properties and characteristics. The different methods of cooking are used in Indian Traditional Kitchen and they have nutritional importance since ancient times. A huge diversity is found all over India as prevalent in form of various cultures and locations. India is a rich land in terms of distribution of foods according to seasons, cultures and religions. Spices are main ingredient of every Indian dish. The Indian dishes have nutritional and medicinal properties. India has been called as "Spice Bowl of the World". Indian dishes have a distinct flavor and aroma which imparts them a different taste. In ancient Hindu scriptures Vedas defines the use of spices in food. Around 6000 BC the rig veda contains references of different spices used in food. The Yajurveda, Samaveda and the Atharveda also contributes to the knowledge of spices and food benefits for population. In this article we will be discussing the therapeutic value of spices with different combinations and recipes.

**KEYWORDS:** Indian food, Kitchen, spices, Vegetables and Fruits, human consumption

### INTRODUCTION

In the beginning eras the spice trade was controlled by the Arabs until the Europe world discovered sea route to India. They searched for cheap availability of spices and Vasco da Gama was first person to make voyage to India through Africa in 1498. He returned back with huge cargo of Nutmeg, Ginger, Cloves, Cinnamon and peppercorns. Then we know very well that the fierce competition lead to colonization of India. The spices

have medicinal properties and can heal many diseases with mere consumption. The major areas as spices growing are Kerela, Punjab, Gujarat, and north east states. The function of spices is not limited to just providing aroma and flavour to food but also have healing and magical qualities. They are used to perform religious rites, preserve the corpse, addition to perfumes and as aphrodisiacs.

The food groups are divided into Cereals, Pulses, Milk and milk products, Vegetables and

Fruits. To prepare the recipes from the above food groups spices are main ingredient as without adding them no recipe is complete. All food groups have nutritional importance and this is a well known fact but addition of spices cause them more beneficial for human consumption.

The modern science may ask for the proof of the benefits of the combinations but since thousands of years we are benefitted with these combinations and healing power of spices with food group combinations. This is known to each and every Indian family and we apply it in our daily lives knowingly or sometimes unknowingly. The nutritional, medicinal and therapeutic uses of the amazing fusion of the spices with the food groups will be discussed.

The different spices are combined with the foods to enhance their absorption and increase their nutritional value.

**Ferula Asafoetida (Hing)** – Ferula is a type of oleo gum resin which is obtained from rhizome and root of plant. Since ancient times Hing is used to manage the Gastro-intestinal disorders and has anti flatulence property. This oleo-gum-resin has been known to possess antifungal, anti-diabetic, anti-inflammatory, anti-mutagenic and antiviral activities . It has a pungent smell and is used in the preparations of Pulses and Vegetables.

**Asafoetida in Pulses and Vegetables** : Due to the medicinal properties of **Hing such anti spasmodic, carminative, laxative** , it is used in the food preparations. It is also beneficial for the treatment of conditions such as respiratory disorders and nervous system disorders.

**Turmeric (Haldi)** – The origin of Turmeric is from the root of *Curcuma Longa*. It is a solid yellow coloured root which imparts colour to the vegetables and pulses. It has medicinal properties which comes from compounds called Curcuminoids present in it. Curcumin is the most important compound present in the haldi. Curcumin has powerful antioxidant and anti-inflammatory properties. Curcumin blocks the NF-kB (nuclear factor kappa – a light chain enhancer of activated B cells ) molecule which causes inflammation in the cells. Therefore Turmeric is said to have functions to cure the pains such as arthritis, internal cell injuries, Depression and improves functions of Brain. Curcumin increases the Brain-Derived Neurotrophic Factor (BDNF), which is a type of growth hormone that functions in the brain and hence treats diseases as Depression and other neurological disorders. A study done on patients suffering from depression showed that Curcumin was as effective as Prozac in treatment of such patients. A Research carried out in 2008 has proved that

Curcumin increases the levels of neurotransmitters such as Dopamine and Serotonin. ( Kulkarni, 2008)

**Cardamom ( Elaichi)** –Botanically it belongs to the family of "*Zingiberaceae*" and consists of two genera; *Elettaria* and *Amomum*. Cardamom is a good source of minerals like **potassium**, calcium, and magnesium. 100 g pods contain 1119 mg of this electrolyte. Potassium is an important component of cell and body fluids that helps control heart rate and blood pressure. Copper is required in the production of red blood cells. Cardamom is also known to have good source of Iron and Manganese for example- 100 g pods contain 13.97 mg or 175% of daily-required levels of iron. Iron is required for red blood cell formation and cellular metabolism. Manganese is a co-factor for the enzyme, superoxide dismutase, a very powerful free-radical scavenger. So damaging effects of free radicals can be fought with use of cardamom in our daily food preparations. Further, these aromatic pods are rich in many vital vitamins, including riboflavin, niacin, vitamin-C that is essential for optimum health.

It has a pungent and long lasting aroma. It is used in preparation of pulses, vegetables, icecreams, sweets such as burfi , fondants and fudges. Cardamom too have medicinal properties in curing ailments such as Kidney stones, keep digestive system healthy and aromatherapy can relax mind and body.

**Black cardamom (*Amomum subulatum*)** also known as *Nepal cardamom (bari or kali elaichi in India and Nepal)* is a relatively bigger sized pod of same *Zingiberaceae* family. Egyptians chewed cardamoms to whiten their teeth and simultaneously sweeten their breath. The seeds are aromatic, sweet cooling, carminative (cures flatulence), digestive, stimulant and tonic. Cardamom finds usage in indigestion, anorexia, burning sensation, debility, asthma.

**Bay leaves** - these fragrant leaves with pointed ends are used in their dried form. These are used in curries and rice preparations.

**Cayenne pepper (Lal Mirch)**- Chili peppers are the fruits of *Capsicum* pepper plants, noted for their hot flavor. Capsaicin is the main bioactive plant compound in chilli peppers. - it is the hottest flavor on earth. As a general rule, dark green chilies tend to be hotter than red chilies. Small, pointed chilies are usually hotter than larger, more rounded varieties. Whole chilies can be seeded to make them a little less hot. Chilies and chili powder should be used with extreme care. The hot vindaloo curries are made from the hottest chilies.

The main bioactive plant compounds in chilli peppers are as follows :

- **Capsanthin:** Chillies have pigment called carotenoid and the name of that carotenoid is

Capsanthin. The fifty percent of carotenoid is Capsanthin and it is responsible for their red colour. It is a powerful antioxidant and is helpful to **fight against cancer**.

- **Violaxanthin:** This is another major carotenoid antioxidant in yellow chili peppers which accounts for 37-68% of the **total carotenoid content**.
- **Lutein:** Most abundant in green (immature) chili peppers, the levels of lutein decrease with maturation. High consumption of lutein has been linked with **improved eye health**
- **Capsaicin:** One of the most studied plant compounds in chili peppers. It is responsible for their pungent (hot) flavor and many of their health effects.
- **Sinapic acid:** An antioxidant, also known as sinapinic acid. It has a variety of potential health benefits .
- **Ferulic acid:** Similarly to sinapic acid, ferulic acid is an antioxidant that may help protect against various chronic diseases.

Cayenne peppers' bright red color signals its high content of beta-carotene or pro-vitamin A. It includes both the ground seeds as well as the dried flesh. It should not be as hot as chili powder, but it is pretty hot and should therefore be used with care. Cayenne pepper is used to provide the heat for many spicy dishes. **Chili powder is of Red color, fine powder.** It is very hot because it is made from the dried, ground seeds of the chili, its hottest part.

**Cilantro (Hara Dhaniya)** – Coriander is a rigid, strong-smelling annual with pronounced taproot, and slender branching stems up to 60 cm. The pleasing flavour of the coriander fruit is not thoroughly developed until it is completely dry. The whole plant may be tied in bundles or spread on screens to dry. As soon as dry, the fruits should be separated by threshing and winnowing. The clean seed should be stored in bags or closed containers. Coriander seeds, available whole or ground or as extracts, are used primarily as a flavouring agent in the food industry or as spice in the home kitchen for breads, cheeses, curry, fish, meats, sauces, soups, pastries, and confections. Coriander is essential in Indian cooking and is a major ingredient in curry powders and other Indian spice mixes such as garam masalas. Whole coriander is used in pickling spices, for meats and pickles. The seeds are also used to flavor alcoholic beverages, such as gin, and in liqueurs. As a medicinal plant, coriander has been used as an antispasmodic, carminative, stimulant, and stomachic. Coriander has also exhibited hypoglycemic activity. At one time, coriander was used in love potions and considered to be an aphrodisiac.

**Cinnamon (Dalchini)** – It is a famous spice that is a bark of a tree which belongs to

the *cinnamomun* family. This spice has a particular taste of sweet and woody as it is derived from a tree. The smell of Cinnamon is pleasant and it calms the nerves. The more thin is the bark and the more is the good quality of cinnamon. Its used in drinks , bakery products, sweet dishes and soups. Cinnamon is a known **bronchodilator** and is useful for people having breathing problems.

**Cloves ( Laung )** – The next category used in the foods is cloves , laung in hindi language. It is a small vertical spice and it has a strong , pungent aroma and have a powerful aftertaste. In cooking cloves give flavor to various dishes such as Biryani, Curries and soups. The cloves are used in Indian cooking and relieve the cough , skin disorders and pain of tooth.

**Fennel ( Saunf )** – It is greenish brown small seed which is from *Pimpinella Anisum*. *Saunf is used in cooking certain* sweet dishes. It is very important therapeutically as well. Fennel is used to treat High Blood pressure, cure indigestion and prevents GI tract disorders.

**Fenugreek seeds ( Methi )** - The fenugreek leaves and seeds are used as powders and extracts for medicine use. A steroid sapogenin and Diosgenin is found in fenugreek. The other names of the Sapogenins found in fenugreek seed include yamogenin, gitogenin, tigogenin, and neotigogens. The uses of fenugreek are numerous such as including labor induction, supporting digestion, and improving metabolism of the body. Fenugreek has hypoglycemic and also lower down the lipid levels.

**Garam Masala** - Garam masala is a well known Indian spice and is made by a mixing of certain spices. The spices are black or white pepper, mace , nutmeg, dried ginger , caraway , white cumin, cloves, small/ large cardamon, cinnamon, Chinese cassia and saffron. The exclusions of garam masala are salt, chillies , turmeric , poppy , aye , mustard seeds and added starch and colorings. The therapeutic uses of Garam Masala are fast gastricking emptying and it raises body temperature so fastens the metabolism as well. A study published in the the journal Nutrition and Cancer, concluded that in just ten days the effect of garam masala on animals was really significant. It was found that the intake of this spice resulted in a change in the levels of detoxification system enzymes. It was very much clear from the study that Garam masala has anti-cancerous effects.

**Nutmeg ( Jaiphal )** – It is a seed with botanical name as *Myristica fragrans*. It is a hard nut of light brown colour. Nutmeg is widely used in many dishes such as cakes ,Puddings, vegetable curries and some beverages. It's a regular feature of any Indian Kitchen. Many studies have proved that Nutmeg has



certain chemical composition which acts as antidepressant, antifungal, reduces high lipid levels, anti-thrombotic effect and is known to be protective of liver. One of the study by Chung et al. shows that Maceligan, an active compound which is derived from the seeds of *Myristica fragrans* shows strong antibacterial activity against *Streptococcus mutans*. The antibacterial activities of the extracts against both Gram-positive cariogenic and Gram-negative periodontopathic bacteria have confirmed its broad-spectrum antibacterial activity. Thus, *Myristica fragrans* should be considered having beneficially potential in dentistry field as oral care products such as toothpaste and mouthwash.

**Oreango (Ajwain)** – *Oreango vulgare* is a subspecies *hirtum* has a pungent odor and a spicy flavor with a strong aftertaste. The Mexican oregano is same as *O. Vulgare* in their properties but they belong to a different plant, *Lippia graveolens* Kunth. Ajwain is used in various Indian curries and vegetable dishes. Ajwain is well known for its healing effects in stomach ache and acts as strong antispasmodic. It's a strong Antioxidant, antimicrobial (Mitchell, 2016). The oil is extracted and is used in many disorders. Listerine mouth wash is using Thymol as an active ingredient so that the growth of microorganisms can be hindered.

**Peppercorns (Black Pepper)** – *Kali mirchi* is common name in Hindi and it comes from Sanskrit word *Pippali Nigrum*. This means black spice. It is very spicy, hot and strong spice and only few seeds are sufficient to be used in the dishes. The physiologic effects of *Kali mirchi* is due to its ingredient piperine which is responsible to enhance the working capacity of digestive enzymes of pancreas. It reduces the transit time taken by food in the intestines. Piperine is used to protect against the oxidative damage by hindering the action of free radicals. This makes black pepper as anticarcinogenic compound and a protective agent. (Srinivasan, 2007).

**Tamarind (Amla)** – Tamarind is used in many dishes in form of chutney and its extract is most useful. Tamarind is sticky, dry and have to be soaked in warm water before use. Tamarind (*Tamarindus indica*) is used in Indian spices as a souring agent to provide the desired acidity in the various food recipes. Due to their antimicrobial, antifungal and antiseptic effects; tamarind leaves have an extensive ethnobotanical use (EscalonaArranz et al., 2010; Lans, 2007). Tamarind has been used for centuries as a medicinal plant; its fruits are the most valuable part which has often been reported as curative in several pharmacopoeias.

**Saffron (Zaffran)** – Saffron is considered as one of the most expensive spice and is of orange color.

Its flavor is the main cause for its usage in many Indian dishes such as sweets, kheer, or ice creams, rice dishes, sweets, puddings, sauces and soups to bright yellow. Since olden days its said to be a healthy spice with benefits.

## CONCLUSION

India has been recognized all over the world for spices and medicinal plants. Both exhibit a wide range of physiological and pharmacological properties. Current biomedical efforts are focused on their scientific merits, to provide science-based evidence for the traditional uses and to develop either functional foods or nutraceuticals. The Indian traditional medical systems use turmeric for wound healing, rheumatic disorders, gastrointestinal symptoms, deworming, rhinitis and as a cosmetic. Studies in India have explored its anti-inflammatory, cholekinetic and anti-oxidant potentials with the recent investigations focusing on its preventive effect on precarcinogenic, anti-inflammatory and anti atherosclerotic effects in biological systems both under in vitro and in vivo conditions in animals and humans. Both turmeric and cumin were found to effect increase detoxifying enzymes, prevent DNA damage, improve DNA repair, decrease mutations and tumour formation and exhibit antioxidant potential in animals. Fenugreek seeds, a rich source of soluble fibre used in Indian cuisine reduces blood glucose and lipids and can be used as a food adjuvant in diabetes. Similarly Nutmeg, Peppercorns, and Ajwain have been found to modulate favourably the process of carcinogenesis. Common herbs and spices may help protect against certain chronic conditions, such as cancer, diabetes, and heart disease. Herbs, including Garam masala and parsley, are from plants and plant parts. Spices often come from the seeds, berries, bark, or roots of plants. Microbial and fungal infections one of major causes of epidemics and communicable diseases which is affected clinical burden on social, health and economical growth of many developing and underdeveloped country. It is needed discover novel herbal or naturally occurring anti bactericidal and fungicidal products.

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