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Review Article

Herbs & Spices: To Embellish Therapeutically For Healthcare

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ABSTRACT

Throughout many periods of history, spices have claimed attention for their mystical properties, either through ingesting or inhaling. What mankind has done throughout time to creatively enhance or elevate the perception of his existence is a fascinating subject. Historically spices have enjoyed a rich tradition of use for their flavor-enhancement characteristics and for their medicinal properties. The rising prevalence of chronic diseases world-wide and the corresponding rise in health care costs is propelling interest among researchers and the public for these food related items for multiple health benefits, including a reduction in cancer risk and modification of tumor behavior.

Since time immemorial, spices have played a vital role in world trade, due to their varied properties and applications. We primarily depend on spices for flavor and fragrance as well as color, preservative and inherent medicinal qualities. Spices are botanically classified as fruits and vegetables. And since they no longer contain the water that makes up a significant part of the fresh produce, spices offer an even higher level of antioxidants. In addition, spices also are rich in phytonutrients, such as carotenoids, flavonoids and other phenolics, all of which possess health-promoting properties. In this article, therapeutic significance of exotic herbs and spices, due to antioxidants and various other phytochemicals occurring in them, is delineated precisely.

Keywords: Antioxidants; ORAC; Immunomodulating actions; Chemopreventive potential; Phytonutrients; Epidemiologic data; Free radical damage; Lipid peroxidation; Anticarcinogen; Polyphenol polymers

INTRODUCTION

Spices have been important to mankind since the beginning of history. They are mentioned in the Epic of Gilgamaesh, the Bagavad Gita, and the Old Testament. Archeologists discovered spices in Egyptian tombs as early as 3000 BC. The strong preservative quality of many spices made them ideal for embalming. Many of the spices had strong connections or affiliations with different Gods. Therefore in addition to the embalming qualities of the spices, their fragrance was also thought to curry (no pun intended) the favor of the Gods, offering one a better chance of celestial help in travels into the afterlife. Spices are used and imported from India since ages. Many of these spices like cardamom, clove, nutmeg, ginger etc., are inseparable ingredients of the Indian 'Masala Chai'. [1,2,3]

This shows that spices form the basis of not only food in India but also for making a good cup of tea. India, with its favorable climatic and soil conditions for growing spices and other semi – tropical herbs, is in the fore-

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front among the spice-producing countries. The spices that India can offer in abundant quantities are Pepper, Ginger [2], Turmeric, Chilli, Cardamom, Celery, Fenugreek, Fennel, Cumin, Dill, Coriander, Cinnamon, Ajowan, Cassia, Cloves, Nutmeg and Mace. [13,22]

Recent research continues to show the power of these natural medicines. Spices have more antioxidant power, measure for measure, than fruits and vegetables. Antioxidants help prevent cancer, Alzheimer's disease, heart disease, and premature aging [7-12]. In a study reported in the *British Journal of Nutrition*, fifteen aromatic herbs and spices consumed in Central Italy as part of the Mediterranean diet were studied to reveal total phenolic, flavonoid and flavanol content as well as their antioxidant potential as measured by ORAC (oxygen radical absorbance capacity). Comparison was made between salads to which aromatic herbs had been added. The addition of lemon balm and marjoram increased by 150% and 200% respectively the antioxidant capacity of a salad portion, corresponding to an intake of 200 mg. of phenolics and 4000 ORAC units. [14] Among other spices tested, cumin and fresh ginger made the most significant contribution to antioxidant capacity.

Another study reported in the *Journal of Medicine and Food* examined the effects of a spice mixture on oxidative stress markers and antioxidant potential in tissues of insulin-resistant rats. Addition of the spice mixture reduced the levels of lipid peroxidation (break down of fats resulting in free radical formation) markers in tissues and improved glucose metabolism and antioxidant status of the rats even though they continued to be fed their fructose diet. [15]

A study in *Prostaglandins Leukotrienes and Essential Fatty Acids* reported that spices possess antioxidant activity that can preserve the integrity of lipids and reduce lipid peroxidation. Researchers investigated the antioxidant activities of selected spice extracts on peroxidation. The spices tested were garlic, ginger, onion, mint, cloves, cinnamon and pepper. Cloves exhibited the highest and onion showed the least antioxidant activity. The relative antioxidant activities decreased in the order of cloves, cinnamon, pepper, ginger, garlic, mint and onion. Spices mixes of ginger, onion and garlic; onion and ginger; and ginger and garlic showed cumulative inhibition of lipid peroxidation, exhibiting synergistic antioxidant activity. The antioxidant activity of the spice extracts was retained even after boiling for 30 minutes, indicating that the spice constituents were resistant to thermal denaturing.

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The *Journal of Medicine and Food* also reported an investigation in which researchers bought 24 herbs and spices at a local supermarket. After testing them they found that many appeared to have the power to inhibit tissue damage and inflammation brought on by high blood-sugar levels in the body. They inhibited the glycation process which has been linked to inflammation and tissue damage in diabetics. The spices with the greatest effects were cloves, cinnamon, allspice, apple pie spice, and pumpkin pie spice. Top herbs included marjoram, sage and thyme. [16]

Another study from the *Journal of Medicine and Food* investigated the effects of red chili, cumin, and black pepper on colon cancer induced in rats. They found that cumin and black pepper suppressed the onset of colon cancer.
Aspergillus parasiticus, commonly known as aflatoxin, is a carcinogenic mold that is found on improperly stored grains and peanuts.

In a study reported in the *Journal of Medicine and Food*, the inhibitory effects of 16 spice hydrosols (anise, basil, cumin, dill, Aegean sage, fennel, laurel, mint, oregano, pickling herb, rosemary, sage, savory, sea fennel, sumac and thyme) on the aflatoxin strain were investigated *in vitro*. The hydrosols of anise, cumin, fennel, mint, pickling herb, oregano, savory, and thyme showed a strong inhibitory effect, while sumac, sea fennel, rosemary, sage, Aegean saage, laural, basil and rosemary were unable to totally inhibit the growth.

These researchers also studied the effects essential oils from of black thyme, cumin, fennel, laurel, marjoram, mint, oregano, pickling herb, sage, savory and thyme against *Bacillus* species of bacteria. All of the tested oils except laurel showed antibacterial activity against one or more of the *Bacillus* species used in the study. Researchers concluded that essential oils of some spices may be used as antimicrobial agents to prevent the spoilage of food products. Foods that will be left standing out for a period of time without refrigeration can be made safe with the addition of some of these spices and herbs.[8,17]

Spices that stand out for their health benefits

All spices confer a list of health benefits. The addition of any of them to a prepared dish, drink, or in a supplement form will help to reduce free radical damage and combat the effects of aging. Here are a few spices that offer outstanding benefits. Three key proteins are highly important in insulin signaling, glucose transport and inflammatory response. Cinnamon has insulin-like qualities that come from the release of these proteins.

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A study in *Hormone Metabolism Research* found that cinnamon prevents insulin resistance even in animals eating a high-fructose diet.

Cinnamon is anti-microbial and can stop the growth of bacteria, fungi and yeast. A study in the *International Journal of Food Microbiology* found that a few drops of cinnamon essential oil added to carrot broth were able to preserve it and fight pathogens.

Cinnamon has anti-clotting and anti-inflammatory properties, which reduce clumping of blood platelets. It is suspected that cinnamon boosts brain function. Of all the spices, cinnamon is one of the richest sources of antioxidants. Cinnamon's active ingredients are polyphenol polymers, which scientists think may act like insulin. In three trials involving 164 patients with type 2 diabetes, researchers evaluated the efficacy of cinnamon supplementation. Two of the studies reported modest improvements in lowering blood glucose levels with cinnamon supplementation in small patient samples, while one trial showed no significant difference between the cinnamon and placebo in lowering blood glucose levels. Researchers concluded that cinnamon has a possible modest effect in lowering plasma glucose levels in patients with poorly controlled type 2 diabetes. [18]

Ginger, a mixture of several hundred known constituents, including gingerols, beta-carotene, capsaicin, caffeic acid, curcumin, and salicylate, has a long history of medicinal use that dates back 2,500 years. Today, it is being studied for numerous uses, such as an aid for pain, nausea, and vomiting. Dried ginger may be efficacious for nausea and vomiting associated with pregnancy with little risk of harm, but there have been contradictory studies for efficacy in motion sickness and chemotherapy-related nausea and vomiting. Some compounds in ginger have potent antioxidant and anti-inflammatory activities. In addition, ginger exhibits cancer preventive activity in experimental carcinogenesis. Epidemiologic data suggest that populations consuming foods rich in polyphenols such as ginger have lower incidences of inflammatory disease. Gingerol, the active ingredient in ginger, has been shown to significantly help with nausea, vomiting, and morning sickness. It was found to be as twice as effective as Dramamine in preventing motion sickness. It is a powerful antioxidant, and is thought to relax blood vessels, stimulate blood flow and relieve pain. It is a common digestive aid and useful for people suffering the side effects of chemotherapy. Its anti-inflammatory abilities make it useful in fighting heart disease, cancer, Alzheimer's disease, and arthritis [3-6].

Thymol and carvacrol are two of oregano's potent antibacterial properties. A study in Mexico found oregano to be more effective against an amoeba than a common prescription drug called tinidazol. Oregano works in the intestinal tract to kill unfriendly bacteria without damage to the friendly bacteria. It is a effective against *candida albicans* overgrowth throughout the body, and particularly in the sinus cavities. It has 4 times the antioxidant activity of blueberries.

In winter, a rosemary bush inside the house in acts as a natural air cleaner and freshener, along with being a source for the herb to use in cooking. Rosemary stops gene mutations that could lead to cancer, and may help prevent damage to the blood vessels, thereby reducing heart attack risk. [13]

Turmeric, the bright yellow spice of Indian cuisine is one of nature's most powerful healers. It is a potent anti-inflammatory that acts as effectively as drugs like hydrocortisone, phenylbutazone and Motrin. It is helpful with inflammatory bowel diseases, Crohn's disease, ulcerative colitis, rheumatoid arthritis, cystic fibrosis, cancer and Alzheimer's disease. Recent research shows it as positive for cardiovascular and liver protection.

When combined with cruciferous vegetables, turmeric has shown to prevent

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prostate cancer and stop the growth of existing prostate tumors. It prevented breast cancer from spreading to the lungs in mice. It may prevent melanoma and cause existing melanoma cells to die. Turmeric may also prevent metastasis from occurring in many different forms of cancer. [14]

Turmeric has been shown to reduce the risk of childhood leukemia, and shows promise in slowing the progression of multiple sclerosis. It is a natural liver detoxifier and one of nature's most effective pain relievers through inhibition of COX-2. One spice that is reaping much attention is curcumin, which is found in turmeric and curry powder. The components of turmeric and curcumin and related compounds called curcuminoids appear to have antioxidant, anti-inflammatory, antiviral, antibacterial, and antifungal properties, with potential activity against cancer, diabetes, arthritis, Alzheimer's disease, and other chronic diseases."Curcumin seems to be a very good anticarcinogen. It is linked to reduced susceptibility to cancer with a decreased occurrence of leukemia and cancers of the prostate, breast, and colon, which is most intensively studied. It promotes wound healing because it is an antioxidant and anti-inflammatory.

Garlic, the wonder drug of nature destroys cancer cells and may disrupt the metabolism of tumor cells. Studies show that two cloves of garlic weekly provide cancer-protective benefits. A recent study showed that eating garlic boosts the body's supply of hydrogen sulfide, which acts as an antioxidant and transmits cellular signals that relax blood vessels and increase blood flow.

In another recent study, researchers extracted juice from supermarket garlic and added small amounts to human RBCs (Red Blood Corpuscles). The cells immediately began emitting hydrogen sulfide. This ability to increase hydrogen sulfide production may explain why a garlic rich diet is so protective against various cancers, including breast, prostate and colon cancer. It may also explain why garlic appears to protect the heart. A recent study found that injecting hydrogen sulfide into mice almost completely prevented the damage to heart muscle cause by a heart attack. Garlic has a reputation as preventative and treatment for the common cold. It's used to treat the symptoms of acne and there is evidence that it can assist in managing high cholesterol levels. It even appears to be a natural mosquito repellent. The perceived health benefits of garlic, a species in the onion family, have long been passed down through the generations in many cultures. Garlic contains substances now being studied for their anticancer effects, including allicin, allixin, allyl sulfides, quercetin, and organosulfur compounds. There is some evidence that consuming one half to one full clove of garlic daily may have a cholesterol-lowering effect of up to 9%. Also, 7.2 grams of aged garlic extract has been associated with anti-clotting (in vivo studies), as well as modest reductions in blood pressure. However, a new National Institutes of Health-funded clinical trial recently published in the Archives of Internal Medicine found that consumption of garlic, in any form, did not reduce cholesterol levels in patients with

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moderately high levels. Sage contains flavonoids, phenolic acids and oxygen handling enzymes. This results in its ability to prevent oxygen-based damage to cells. Sage may fight rheumatoid arthritis, bronchial asthma and atherosclerosis. It appears to promote better brain function. A study showed that people given sage essential oil had significantly improved recall abilities compared to those given a placebo. [19]

Peppers contain capsaicin, a powerful anti-inflammatory compound that helps relieve pain. They ease congestion and clear mucus from the lungs and nose, boost immunity, prevent stomach ulcers by killing bacteria, assist in weight loss, reduce blood cholesterol, manage triglyceride levels, and prevent cancer including stomach cancer.

This herb is effective against swelling, high cholesterol levels, diarrhea, mouth ulcers, anemia, digestion, menstrual disorders, conjunctivitis, and skin disorders. It is antioxidant rich and contains vitamins A and C, and minerals. It is protective of the eye by preventing macular degeneration and soothing the eye against stress. It has a stimulating effect on the endocrine system which in turn stimulates the production of insulin, resulting in increased insulin in the blood to aid in proper assimilation and absorption of sugar and lower the sugar level in the blood. Chief among the abilities of parsley is cancer fighting. Animal studies have shown that parsley inhibits tumor formation, particularly in the lungs. It neutralizes carcinogens including those found in cigarette smoke. It is a good source of antioxidants and heart-healthy nutrients such as β-carotene, folic acid, and vitamins A and C. [20] There may be a host of health benefits in the heat of pepper. Cayenne pepper (ground red pepper), which gets its name from the city of Cayenne in French Guiana, is a concentrated source of capsaicin, the powerful phytochemical that gives chiles their heat and appears to have chemopreventative activity. Data also suggest that the major capsaicinoids of peppers target a variety of pathways involved in cancer development and inflammation.

Within the apricot like fruit of the tree myristica fragrans lies a kernel. The dried covering of that kernel yields the fragrant spice nutmeg. Nutmeg displays bactericidal activity toward *Helicobacter pylori* and *Escherichia coli (E. coli)* O157:H7. In addition, animal studies demonstrate antidepressant like activity. But nutmeg lovers need to be cautious, as 1 to 2 ounces.

Dining on fresh green herbs like oregano can offer the same benefits as eating fruits and vegetables [29-30], thanks to generous levels of phytochemicals and antioxidants. In one study, oregano had the highest antioxidant activity among 27 culinary herbs and 12 medicinal herbs tested, ranking even higher than fruits and vegetables. Oregano also presents antimicrobial activity against pathogens like *Salmonella typhimurium, E. coli, Staphylococcus aureus,* and *Staphylococcus epidermidis*. [21]

Native to the Mediterranean, rosemary has been prized for its medicinal strengths throughout history. Today, we know that rosemary, like other green herbs, possesses antioxidant and antimicrobial activities linked to its polyphenol composition. Animal studies have demonstrated its chemopreventative action. Even the aromatherapy effects of this fragrant herb have been studied regarding its relationship to relieving pain and improving mood.

Peppermint, one of the most widely consumed single-ingredient herbs in teas, has been used in traditional medicine for centuries. The phenolic constituents of the leaves include rosmarinic acid and several flavonoids, such as eriocitrin, luteolin, and hesperidin. The main volatile components of the essential oil of peppermint are menthol and menthone. Peppermint has significant antimicrobial and antiviral activities, strong antioxidant and antitumor actions, and some antiallergenic potential. Some animal

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model studies show a relaxation effect on gastrointestinal tissue, analgesic and anesthetic effects in the central and peripheral nervous system, immunomodulating actions, and chemopreventive potential.

Basil (*Ocimum basilicum*), which comes from the Greek word for "king," is one of the medicinal plants widely used in several countries, including Morocco, to reduce plasma cholesterol and the risk of atherosclerosis-related diseases. Basil extract appears to contain hypolipidemic and antioxidant substances that have shown some protection against carcinogen-induced cancers in mice [15].

ORIGIN, NUTRITIONAL SILHOUETTE & INTRINSIC BENEFITS OF SPICES [21-28]

TURMERIC POWDER: Turmeric is native to southern India and Indonesia, where it has been harvested for more than 5,000 years. It has served an important role in many traditional cultures throughout the East, including being a revered member of the Ayurvedic pharmacopeia. Much of its recent popularity in the west is owed to new research that has highlighted its therapeutic and healing properties.

A member of the ginger family, now cultivated widely in India, China, Taiwan, Indonesia, Vietnam, and the Philippines, turmeric is used throughout southern Asia. It is the underground rhizome of a robust perennial plant that grows to a height of about three feet. Its flavor is peppery, warm and bitter while its fragrance is mild yet slightly reminiscent of ginger, to which it is related. Although available fresh, the rhizome is most often sold dried and ground to a powder. It adds a warm, mild aroma and distinctive deep yellow-orange color to foods. It has been long been used in both the Chinese and Indian systems of medicine for healing and as a condiment. Turmeric is an excellent source of both iron and manganese. It is also a good source of vitamin B6, dietary fiber, and potassium.

Turmeric is the wonder of all wonders - a heating spice for the body, turmeric contains powerful anti-inflammatory properties and is a strong antioxidant. Every teaspoon of it has medicinal value.

CORIANDER POWDER: The use of coriander can be traced back to 5,000 BC, making it one of the world's oldest spices. It is native to the Mediterranean and has been known in Asian countries for thousands of years. Coriander was even cultivated in ancient Egypt and was used as a spice in both Greek and Roman cultures. The early physicians, including Hippocrates, used coriander for its medicinal properties, including as an aromatic stimulant.

Now cultivated in India, southern Europe as well as the Middle and Far East, and the Americas, Coriander is popular in cuisines worldwide. It grows from one to three feet tall and bears small clusters of tiny white or pink flowers. All parts of the plant are used for different cuisines in different ways. The fresh leaves (also known as cilantro or Chinese parsley) are used in Southeast Asia, the Middle East, Spain, Portugal, and Mexico. On the Indian subcontinent, both the seeds and leaves are essential ingredients in curries.

Coriander seeds have a health-supporting reputation that is high on the list of the healing spices. In parts of Europe, coriander has traditionally been referred to as an "anti-diabetic" plant. In parts of India, it has traditionally been used for its anti-inflammatory properties. In the United States, coriander has recently been studied for its cholesterol-lowering effects.

Coriander seeds contain an unusual array of phytonutrients. They are a very good source of dietary fiber and a good source of iron, magnesium and manganese.

Coriander is known to be a powerful aid to digestion, has anti-bacterial properties and helps to prevent infection in wounds as well as aids in combating allergies.

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RED CHILI POWDER: Chili peppers are members of the capsicum family and they come in all shapes, sizes, and colors. There are over two hundred different types of chilies grown in all parts of the tropics. Indigenous to central and South America and the West Indies, they are cultivated in India, Mexico, China, Japan, Indonesia, and Thailand. Chilies have little aroma but vary in taste from mild to fiery hot.
Chili peppers are usually red or green in color.
Red chili peppers are used in cuisines around the world and spice up many savory dishes. They enhance the bland flavor of staple foods in India and Southeast Asia, Mexico and South America. After being harvested, red chilies are dried in the sun and may be left whole, crushed into flakes, or ground into powder. Chili peppers are used as a food and seasoning and revered for their medicinal qualities. Red chili peppers contain beta-carotene, are a very good source of vitamin A, vitamin C and dietary fiber. They are also a good source of Fe and K.
Red chili aids is weight loss, fights inflammation in the body and boosts the body's immunity to fight diseases

ASAFETIDA: Asafetida is the strong-smelling, even stinking, dried brownish resin extracted from the root of a plant (*Ferula assafoetida*) that grows wild from the eastern Mediterranean to central Asia.
Its name is derived from the Persian aza (resin), and the Latin fetida (stinking)—so the name describes its most obvious attributes. Ferula are odorous plants that grow to heights of between six and twelve feet. They have soft-centered stems and finely toothed leaves and produce clusters of yellow flowers. When the stems and roots are cut, a milky liquid exudes, which then dries to form asafetida. It is used in ground powder form. In western and southern India, asafetida flavors pulses and vegetable dishes, pickles and sauces.
It should always be used sparingly. The pungent, bitter smell and taste disappears when cooked to leave behind an onion like flavor.
Asafetida contains minerals and vitamins content including calcium, phosphorus, iron, carotene, riboflavin and niacin.
Asafetida has antispasmodic properties and aids in digestion and stomach disorders, coughs and respiratory problems. It is very widely used in ayurvedic (eastern holistic medicine) medicine preparations.

CUMIN SEEDS: Originally from the Nile Valley, cumin was commonly used as a culinary spice in ancient Egypt. These seeds were highly honored as a culinary seasoning in both ancient Greek and Roman kitchens. Cumin's popularity was partly due to the fact that its peppery flavor and both its medicinal and cosmetic properties were renowned.
While it still maintained an important role in Indian and Middle Eastern cuisines, the popularity of cumin in Europe declined after the Middle Ages. Cumin is now widely grown in India, Middle-East, and Mediterranean countries. It needs a warm climate and thrives best in sandy, calcium-rich soil. The plant grows to a height of about a foot, and fruits appear after two months. Cumin seeds resemble caraway seeds but are not the same although they both are oblong in shape, longitudinally ridged, and yellow-brown in color. Although the small cumin seed looks rather unassuming, it packs a punch when it comes to flavor, which can be described as penetrating, nutty and peppery with slight citrus overtones. It can be used in both forms – tempering the seeds or dry-roasted ground powder. Cumin seeds are a very good source of iron and a good source of Mn.
Cumin is a cooling spice. It carries a reputation as the "seeds of good digestion". They are known to help flush toxins out of the body and provide iron for energy and immune function.

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MUSTARD SEEDS: Mustard seeds can be traced to different areas of Europe and Asia with the white variety originating in the eastern Mediterranean regions, the brown from the foothills of the Himalayan Mountains, and the black from the Middle East. Mustard seeds are mentioned in ancient Sanskrit writings dating back about 5,000 years ago. The physicians of both civilizations, including the father of medicine Hippocrates, used mustard seed medicinally. Mustard continues to be one of the most popular spices in the world today. The mustard is a well-known oil seed. It is a small annual plant that thrives in temperate climates and grows up to a height of three feet. The fruit is a pod of about an inch long containing seeds. Dry mustard seeds are small, round, and darkish-brown or grayish-brown in color. The seeds are used to make a paste where the whole seeds are pounded and moistened with water to emit a pungent odor or as in yoga cooking - tempering it, which leaves a crunchy, warm, slightly bitter taste with no smell.

Mustard seeds are a very good source of selenium and omega-3 fatty acids. They are also a good source of phosphorus, magnesium, manganese, dietary fiber, iron, calcium, protein, niacin and Zn. Mustard not only stimulates the appetite but also has digestive, laxative, antiseptic, and circulative stimulant properties. It is also known for its anti-inflammation properties

FENNEL SEEDS: Ever since ancient times, fennel has enjoyed a rich history. The ancient Greeks knew fennel by the name "marathron"; it grew in the field in which one of the great ancient battles was fought and which was subsequently named the Battle of Marathon after this revered plant. Fennel was revered by the Greeks and the Romans for its medicinal and culinary properties. Fennel has been grown throughout Europe, especially areas surrounding the Mediterranean Sea, and the Near East since ancient times. Today, the United States, France, India and Russia are among the leading cultivators of fennel.

A perennial that grows tall, Fennel has an erect, bright green stem. The yellow flowers grow in dense, compact clusters. The bulb, stalk, leaves and seeds are all edible. The fruits, which are about 1/2 inch long, are oval and ridged. The seed heads are harvested just before the seeds ripen. Fennel seeds are sweetish in taste, and work as fabulous flavor-enhancers along with all their healing properties. Fennel's aromatic taste is unique, strikingly reminiscent of licorice and anise, so much so that fennel is often mistakenly referred to as anise.

Fennel is an excellent source of vitamin C. It is also a very good of dietary fiber, potassium, manganese, folate, and molybdenum. In addition, fennel is a good source of niacin as well as the minerals phosphorus, calcium, magnesium, iron, and copper. : Fennel seeds are a cooling spice (cools the body) and have a unique combination of nutrients that make it a powerful antioxidant. It is also believed to help cure stomach complaints and is extremely good for digestion. In India, eating a few fennel seeds after a meal is a common practice.

CONCLUSION

Spices are an intrinsic part of cooking, and most are known to possess therapeutic and healing properties. What's more, the exotic colors and heady aromas of spices will help elevate any dish from the ordinary to a sublime feast for the senses of sight, smell, and taste. So spice your meals to enhance your food with better taste and medicinal and healing properties without adding a single calorie! You are taking something ordinary and turning it into something extraordinary and here's why: Spices maximize nutrient density. Spices contain antioxidants, minerals and multivitamins. Spices naturally increase your metabolism. Because spices are nutrient dense, they are thermogenic, which means they naturally increase your metabolism. Spices have real medicinal properties. Spices do more than make food taste great. Recent research is showing that spices can promote health and well being through

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a series of actions that are anti-aging and inhibiting of degenerative disease. The vegetarian diet so often associated with good health and lack of disease relies heavily on the use of spice. But you don't have to be a vegetarian to gain the amazing health benefits these inexpensive flavor enhancers have to offer. The addition of spices can turn up the taste of almost any food. Add some chili pepper, cumin or turmeric to mashed potatoes or rice. Sprinkle marjoram or rosemary on your salads, and dress up cottage cheese with whatever spicy flavor appeals to you. Add spice to vegetable dishes and sprinkle it on meats, poultry or fish before cooking. Spice up your veggie juices and smoothies. Any way you do it, adding spice means adding a wealth of health benefits. Though these spices provide innumerable benefits they should be used sparingly. The excessive use of spices in food can cause harm to the health. Try to make specific use of these spices. This will help you to make optimal use of the resources provided by nature. Strike the right balance and add some spice to your life. Now recent studies and scientific research both boast the healing benefits of spices.

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