

Spices of India Leader’s Guide

Objectives:

- Experience the cuisine of India through the flavors of herbs and spices that make it unique.
- Understand how spices of India have influenced western cuisine.
- Explore how some spices traditionally have been used for medicine and health purposes and what research says about them today.
- Experience new tastes and smells.



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To the Leader: To best experience this lesson, participants need to smell and taste! Make a spice blend and make a recipe or more. Ask participants to donate money to help pay for the purchase of food or spices the leader might not have. Ahead of the lesson ask participants if they have any of the spices that are needed for teaching the class that could be used, but be sure the spices are relatively fresh.

Introduction

Spices have been an important part of seasoning in foods throughout the world. Spices, herbs and essential oils have been the foundation for flavorings that defines the foods of the wide range of cultures and their cuisines throughout the world. Unless we have been exposed to these flavorings and smells, they may be “exotic” or “foreign” or “stinky.” In today’s world, we have more opportunities to experience cuisines that are new and different. Sometimes flavors have to be experienced several times to appreciate them and then we enjoy the new seasonings and find them delicious. This is often the case of spices from India.

Many of these spices, herbs, and oils have been used not only for flavoring, but also for health and medicinal purposes. Some of these are being examined more carefully by researchers and western medical practitioners.

Definitions

Herbs – something which can be grown in our own locality, even if it is not native to the area. It can be dried and include the seed of the plant.

Spices – plant parts that could not be grown at home. “Spice” covers dried roots, bark and berries and referred to any dried aromatics, nearly all parts of plants which grew in the tropical East.

In this lesson, we will also be looking at some herbs that are used in Indian cuisine as well as spices and even essential oils that help define Indian cuisine today.

Historical look at spices

Spices have a history of having tremendous commercial value and include a long and very bloody history. Spices were brought to the eastern Mediterranean and into Europe for at least 5000 years along the caravan routes which passed through the Middle East. Their origin might be anywhere from China south to Indonesia, southern India or Ceylon. Often people receiving them thought they were from Arabia since the trade routes went through the Arab and

Persian world. To gain greater access to these spices without having to go through traditional routes, countries in Europe searched to find new shipping routes to the East. Bloody competition among the English, Dutch, French and Portuguese was the result.

Much ancient and medieval history is based on the spice trade. All of the common spices have been available to cooks in the Mediterranean area since the beginning of written record and were exceedingly expensive. Pepper, ginger, cloves, cinnamon, and nutmeg may be found in the cooking of almost every country of the world today except for very primitive people.

How these spices are used by various cuisines often define those cuisines. For example, cardamom (a very important spice in India) is used very differently in Indian cuisine (curries) than in Scandinavian cuisines (cardamom bread).

Ask and discuss: What were the seasonings that your mother used in preparing dishes for your family as you grew up? Do you cook the same? How does that differ in family meals today? Why?

Discuss: Is it difficult to learn new tastes? What helps? Why do some people resist trying new flavors or textures in food? (Some people see new flavors as adventure, others resist anything new or different.)

Western man has sought the riches of Indian spices for centuries. Let's find out more about them and how they are used in Indian Cuisine, not just western cuisine. Many flavorings from India are very ordinary to us, such as pepper, garlic, cinnamon, and ginger. However there are many flavors that are very different to our palate and may take some time to understand or train our palates to enjoy them, such as fenugreek and nigella. These spices and flavorings are more available to us today in our grocery stores and through the internet. As we travel more, we are exposed to new flavors and cuisines and want to replicate them in our home.

It is important to realize as well that cuisines also vary in India. Northern Indian cooking is very different from Southern and Eastern Indian cooking, just as food from the Southern United States will differ from New England and the Pacific Northwest.



Photo from freedigitalphotos.net

Health and medicinal use of spices and herbs of India

As in many cultures throughout the world, Indians have used herbs and spices in their health practices. The Indian form of medicine using herbals including spices is "Ayurvedic medicine". Indians describe this as a system of "science of life" which looks at holistic treatment. Herbs and spices are seen to not only lend flavor to bland meals, but also "have a profound impact on human health because they affect many of the body's metabolic processes." (*"Feast of India", Rani*) In all medicine, Eastern or Western, herbs have been used for treating many conditions.

Many modern medicines are formulated from natural sources. This does not mean that it is safe to treat oneself with **concentrations** of particular herbs and spices for health conditions.

There has been a lot of research in the recent years that include herbs and spices and compounds found in these that may be beneficial. Much of the research is preliminary or may show positive results in the laboratory and in animal studies, however definitive studies have not been done in humans. Other research has shown some compounds that have good results in human studies, but need to be carefully managed. (See more specific information in the Leader's Supplement: "Health and medicinal uses of India Herbs and Spices")



One thing we do know, these herbs and spices are **great in food**, and we can enjoy them in the quantities used in food. Caution should be taken in taking concentrated amounts in supplements.

In the following listing of Indian herbs and spices, we will share how some of these spices and herbs have been used for health – enjoy using them in your food. *This is for information only, not intended for self medication!*

A Look at the Herbs and Spices of India

Individual Herbs and Spices:

Spices and herbs are used abundantly in Indian cooking. We will just be scratching the surface of Indian flavors because most of these are used in combination with other spices, thus making very complex flavors.

Leader: Obtain some of the spices/seasonings listed below; pass them around as you discuss how they are used. Show how to peel and use fresh ginger. Some can be used in the recipes that follow.

- Ajwain seed* – Also known as ajowan or carom; a seed closely related to caraway and cumin. It looks like celery seed, but has a strong thyme flavor as it contains thymol (the pungent oil of thyme). These seeds are used cooking, breads, biscuits, savory pastries, and in bean dishes. Relieves flatulence and stomachache.
- Allspice (originated from the New World, but used in Indian cooking) – Used whole or ground to flavor vegetables, curry powder blends, and pickles (aids digestion).
- Anise seed and/or fennel seed (sounf) – Has a licorice flavor and is used widely in Kashmiri cuisine. Used to flavor some curries. Seeds can be chewed as a mouth-freshener after a spicy meal (aids digestion).
- Asafoetida (Hing)* – A pale yellow to dark brown dried gum resin. Sold in pieces or ground, it is an acquired taste and used to season seafood and legume (dal) dishes. Because of its pungent flavor (sulfur compounds) only a pinch is usually added to hot oil and allowed to sizzle for just a few seconds before other ingredients are added. Gives a garlic/onion flavor to dishes. Used mostly in vegetarian dishes. Aids digestion and relieves flatulence.

- Basil – Highly aromatic herb of the mint family imparts a fragrant and rich flavor to dishes. The Indian variety has small egg-shaped leaves and is called holy basil. Any basil can be used in its place. Used for digestion, insect bites, and respiratory ailments.
- Bay leaves – Used to flavor rice mixtures (pilao), biryani, curry and kebab dishes. It is one of five important spices (cardamom, cinnamon, cloves, and peppercorns are the other four) used in rice and biryani dishes to give them their distinctive flavor and delicate fragrance). See recipe following for turmeric rice. Prized for digestive and appetite stimulants.
- Black salt* – A rock salt with distinctive flavor and odor. Dark brown or pinkish gray in color and available in powdered form. Important in Northern Indian cooking.
- Caraway seeds – Used to season breads, pickles, and vegetables.
- Cardamom (pods, black, green) – One of the most prized spices after saffron. Pods come in two varieties, green and black. The small pale green and beige pods have a finer flavor than the coarser brown (black) pods which have a nuttier flavor. Pods are used whole to flavor many dishes, while the ground cardamom is used in curry powder and to favoring puddings and other sweet dishes. Since the flavor resides in the small seeds, crush the whole pods before using them. In America the green pods are often bleached and puffed which take away from the aroma and flavor. Seeds are chewed to aid digestion and to freshen the palate. *This spice is less expensive at Indian markets.
- *Chilies, dried red – Used to enhance the flavor of curries. These are used whole as well as crushed and ground. Ground cayenne can be used as a substitute in recipes. Most chilies are quite hot, though you can remove the seeds to make them less fiery.
- *Chilies, fresh green – An important ingredient and used in almost all chutneys, vegetable snacks, curry, vegetable and legume dishes. Seeds can be discarded to make them less hot, but they add flavor (and bite) to the dish. Capsaicin is the active ingredient in chilies that is promoted with health implications.
- Cinnamon – One of the earliest known spices. It has an aromatic and sweet flavor and is sold as ground or in sticks. Sticks are added for flavor and then removed before eaten. Ground cinnamon is an important seasoning in many dishes and an important ingredient in making curry powder and garam marsala.

Go to more about cinnamon—see page 9. Do a taste test for freshness of cinnamon.

- Cloves – Dried, unopened flower buds dark red-brown in color. It flavors many sweet and savory dishes and is usually added whole. It is also used in spiced mixtures like garam marsala. Whole cloves and clove oil are used in home remedies for tooth and gum problems.
- Coriander seeds – Available whole or ground, are aromatic and have a slightly sweet, lemony flavor. They are used a great deal in vegetable and meat dishes. Roasted ground coriander is used frequently to flavor yogurt salads (raitas). Cilantro – Fresh, fragrant leaves of the coriander is used as a garnish on many dishes. Does not dry or freeze well, use fresh.
- Coconut – The coconut is popularly used in the south Indian and Goan cuisine. Freshly grated coconut, coconut milk, coconut cream, coconut oil, the clear liquid inside it – almost all parts of it are used to give an interesting and unmistakable flavor in various dishes.
- Cumin seeds – “White” seeds are oval, ridged and greenish brown in color and come whole or ground. They have a distinct odor and flavor. Whole seeds are usually toasted to flavor vegetable and rice dishes. Ground cumin is used in northern Indian recipes for yogurt

salads. Cumin seeds are used in treating digestive disorders, morning sickness, insomnia and flatulence.

Black (royal) cumin seeds* – Resemble caraway seeds and are smaller, sweeter-smelling and darker variety than most cumin seeds. From Kashmir and very prized and exotic. It is used whole and does not require toasting. Used whole and available only at Indian markets.

- Curry leaves – Similar in appearance to bay leaves but much smaller and are available fresh or dried. Fresh leaves freeze well and are preferred. Curry leaves have a distinct aroma and are used to flavor rice, curry dishes, South Indian dishes, and chutneys. Leaves are a mild laxative and used for diarrhea.
- Fenugreek seeds – Flat seeds, pale mustard in color and have a bitter taste but when cooked become a great flavor enhancer. They are available whole or ground and are used to flavor South Indian dal and vegetable dishes and pickles; they are also an ingredient in South Indian curry powders. Fresh leaves are also used as a vegetable. Indians use for the treating of indigestion, flatulence, diabetes, respiratory infections, and skin irritations.
- Flower essences (rose water, khus or sandalwood)* – Concentrated flavorings that are used to flavor Mughal-style dishes (a style of cooking in North India, Pakistan and Bangladesh). The most common use is rose water—a diluted form of rose essence. It is used to flavor desserts, biryanis, and yogurt drinks (lassi).
- Garlic – A standard ingredient, along with ginger and onion in almost every curry, legume or vegetable dish. It can be pulped, crushed or chopped. The powder is mainly used in spice mixtures. It is used extensively in Ayurveda medicine as a treatment for numerous maladies.
- Ginger – A very important and popular spice in Indian cooking. Ground ginger is almost never used in Indian cooking if fresh is possibly available. This rhizome is always peeled before using. The flavor of ginger might be delicate but it manages to stand out in a crowd of other ingredients in any dish. It is used widely in both vegetarian and meat-based dishes. Minced ginger freezes very well. Ginger tea is drunk all over India to cure sore throats.
- Mango powder * - Dried flesh of green mangos that has a sour flavor. Used instead of lime or lemon.
- Mint leaves – Fresh or dried, used as a flavoring herb and keeps mouth fresh. Used in curries, biryanis, kormas and chutneys
- Mustard seeds - yellow, brown and black – Available whole or ground. Sharp-flavored and used to flavor curries and relishes. Whole black mustard seeds are most commonly used in Indian cooking. They are generally sautéed to give flavor to vegetable and legume dishes and chutneys. The sharp flavor mellows when fried. Ground mustard is used in some curry powder blends and seafood dishes. In northern India mustard oil is used for pickling vegetables. The leaves of mustard are also eaten as a vegetable.
- Nigella (onion seeds—not a real onion) * – These seeds have nothing to do with the onion family, they just look like onion seeds and have a mild, oregano-like flavor. Similar in size and shape to sesame seeds and are used as a pickling spice and are sprinkled over bread (nan).
- Nutmeg – This seed is used sparingly, added to rich and sweet dishes. It is more popular added to various spice blends than by itself. Gives a sweet nutty flavor to dishes. Buy it whole and grind or grate. Mace – The lacy covering of nutmeg is mace and is available whole or ground. It is used to season curries, biryanis, kormas and desserts.

- Onions – Used in practically every dish; they are also pickled or eaten raw. Like garlic and ginger, onions are an important ingredient in curries and determine the consistency of the curry sauce. Generally they are ground with other spices or sautéed in oil. In India, onions are often used to treat circulatory disorders.
- Paprika – A rust-red powder which has a sweetish pungent taste and adds great favor and color. Used in tandoori dishes and curry sauces and used widely in Kashmiri cuisine in meat curries, koftas and kababs. Sweet Hungarian paprika is very similar to Indian.
- Peppercorns, black – Used whole, coarsely crushed, and ground to season many dishes. Green berries are dried in the sun, shrivel and turn black. White peppercorns are made by soaking in water, removing the black skin and re-drying them. Used for digestion, sore throats and sinuses.
- Pomegranate seeds * – Available dried and powdered. Have a spicy, tangy flavor which many cooks in north India use in vegetable and legume dishes. Add a rich brown color to dishes. They give flavoring to fillings in samosas, pakoras, and yogurt salads.
- Poppy seeds – These whole tiny white seeds are usually toasted to bring out flavor and sometimes used as a thickening agent. Refrigerate and use within 3-4 months.
- Saffron – The world’s most expensive spice used to color and flavor many dishes. It is the dried stigmas of the saffron crocus. Used as a thread or in powdered form, only a small amount is needed to flavor the dish. Imparts a lovely yellow color and great flavor.
- Sesame seeds – Small cream-colored seeds with a slightly nutty taste after roasting. They are used whole or ground. High protein seed often found as coatings on special desserts and candies.
- Tamarind – A dried pod that is available in pulp, cake or concentrate form which is soaked and strained before use. It is used extensively in southern India as a souring agent in preparation of legumes, vegetable dishes, and chutneys. It has a cooling effect on the body and is a mild laxative.
- Turmeric – Bright yellow/orange, bitter-tasting spice sold ground. It is a rhizome that can be found in a few produce markets. It is extensively in Indian cooking both to color and to flavor legume, vegetable, curry, rice and seafood dishes. It is highly regarded as a home remedy for various health problems. To the Hindus, turmeric is a sacred spice and used in every religious ceremony.

Spice combinations

The basic art of Indian cooking lies in the careful blending of different spices to yield subtle variations in the flavor of foods. They also intensify flavors of almost every kind of food.

Varying blends of spices in Indian cooking is called “masala.” It can be in the form of a powder or paste. Curry powders (kari masala) and garam masala are important in Indian cooking. Curry powders can be almost any combination of spices, and most home cooks have their own blends, ground fresh right before use. For cooks with less time, you can buy these spices already blended.

Curry powders and dry masala blends retain their flavor for up to six months when stored in **airtight** jars. Pastes must be stored in the refrigerator in airtight containers, and they retain their flavor for about one month.

Curry powder – A blend of several spices which are ground into a fine powder and sometimes into a paste with fresh onion, garlic and gingerroot. These vary in flavor and color. Curries may include some or all of these spices: ground turmeric, ground dried red chilies, coriander seeds, black pepper, cumin seeds, fenugreek seeds, curry leaves, mustard seeds, cinnamon, cardamom, cloves, nutmeg, peppercorns, and bay leaves.

Make a curry powder – use recipe given with lesson.

Garam masala – (hot spice) Hundreds of spice mixtures are used daily in kitchens all over India to give surprisingly different flavors to food – garam masala is one of the most common. It gives a strong distinctive aroma and taste to the food. It combines cumin seeds, coriander seeds, black peppercorns, cloves, cardamom seeds, dried bay leaves, cinnamon stick and dried red chili. There's no fixed 'recipe' as such, which will tell you exactly how much of each you have to use; every house has its own mix. All the ingredients mentioned are commonly used in Indian cooking.

Paanch phoran (Bengali) – a mixture or combination of five different aromatic spices – black mustard seeds, black cumin seeds, nigella, fenugreek seeds and fennel seeds – used to flavor legume and vegetable dishes.

Other spice mixtures – There are many more masalas or spice blends, such as tandoori, channa, chaat, and more. Recipes can be found for these and used in specific dishes.

Where to find these spices and herbs

Many of these spices and herbs can be found in the supermarket, but many are only in Asian or specifically Indian markets. In the list above, those spices that might only be found in an Indian market are identified with this symbol: *

Some of these spices/herbs/seeds may differ slightly because a different species of the plant is grown in a different part of the country, with slight differences in flavor. This makes the cuisine of India intriguing. One kind of flavoring used in North India in a dish may have slight differences from a similar dish in East India.

Almost all of these flavoring can be purchased online. Here are two sources:

The Spice House: This website has good information about each spice and includes recipes with most of the seasonings. <http://www.thespicehouse.com/>

Penzeys Spices: Includes some recipes. Three retail stores are located in the Portland area (Close to Clackamas Town Center, Beaverton and Pearl District). Go online to find the specific address. <http://www.penzeys.com>

Food descriptions/definitions:

Biryani is a rice-based dish made with spices, rice (usually basmati) and meat (chicken, mutton, fish) or eggs, or vegetables.

Korma is a dish where meat or vegetables are braised with water, stock, and yogurt or cream added.

Kofta are meatballs are made of lamb, beef, mutton, chicken, paneer (a non-melting cheese) or other combinations of seafood, meat and vegetables.

Curry is basically a casserole of beef, chicken, fish, pork, lamb, ground meat or vegetables cooked in a masala. The term *curry* does not automatically refer to dishes that are enriched with curry powder. Only a dish that has some type of a sauce, be it thick or thin, qualifies to be labeled as a curry. However some may also be “dry” in which the sauce is cooked until almost dry.

Chutney is condiments that contain some mixture of spice, vegetable and or/fruit. It is usually fresh or pickled, often sweetened.

Pakora is an appetizer or snack that is deep fried. It is usually made of vegetables, paneer, bread or plantains after being dipped in a batter.

Samosa is a fried or baked pastry with a savory filling such as spiced potatoes, onions, peas, lentils or ground meat. Typically it is triangular in shape.

Dal (or daal) are preparations of dried lentils, peas or beans.

Are you a gardener and want to try to grow some of your own spices?

Bay leaf: Try growing a culinary bay, but be sure to get the right species. Fresh bay is so much better than dried. This is a tender perennial, so plant in a shelter area of the garden. In Eastern Oregon, you may need to bring it into a sheltered area for the winter months.

Ginger or turmeric: Both of these can be grown in pots or in a greenhouse. They make large decorative plants and the rhizomes can be harvested every fall, or whenever the root system can handle a trim. They are usually harvested when the plants go dormant. Some farmers’ markets vendors in the Willamette Valley offer fresh ginger for sale in the late summer and fall.

More about Cinnamon

Cinnamon that Americans know is not necessarily the same as what the rest of the world call cinnamon. This spice varies in flavor, aroma and texture depending on where it comes from, how it is processed and its texture. In the United States we are more accustomed to bold, spicy flavors of a species, *cassia*, grown in Indonesia, China and Vietnam. Outside the U.S., cinnamon means cinnamon from the species, *verum*, grown primarily in Sri Lanka. (It is often called Ceylon cinnamon.)

Ceylon cinnamon is very pricey, but to most American tastes, it lacks the spiciness that is expected in cinnamon. It has a complex clove, citrus, and floral aroma. It is harvested from tender young shoots, from the thinnest inner layer of bark, which contains little volatile oil. It makes a more delicate flavor and scant heat.

Harvesting cinnamon entails stripping the exterior bark and then scraping its interior into strips, or quills, which are sun-dried and ground. Older trees contain the most oils and presumably yield the spiciest spice. “Saigon” cassia cinnamon from Vietnam is usually harvested from 20-25 year old trees while Indonesian and Chinese cinnamon are harvested from trees younger than 10 years and contain less volatile oil. In cassia trees, the oldest bark, near the base of the trunk, is considered best; bark from the middle of the trunk is moderate and bark from the top and branches are considered the lowest in quality. But does it matter?

In taste testing when cinnamon was applied to food, three factors mattered most: heat, complexity of flavor, and texture. Top ranked cinnamon had a spicy heat that built gradually, complex and balanced clove and floral flavor and aroma, and a fine texture that could not be

detected when mixed into food. The lowest ranked cinnamon had heat and flavor that hit hard and faded quickly.

The grinding of cinnamon made a difference in quality of the cinnamon. Heat generated in the grinding of the cinnamon destroys much of the aroma that makes cinnamon multidimensional. Some companies use a cold process that results in a better flavored cinnamon. Sometimes companies will choose coarser grinds to increase shelf life, even though finer grinding blends better with food.

Try a taste test: Choose a variety of brands of cinnamon. Mix ½ teaspoon of cinnamon into one cup of applesauce, taste and compare flavors. Evaluate according to texture, aroma, flavor and spiciness. Also compare tastes of cinnamon from an old jar found in the back of the cupboard to a fresh bottle of the same brand. Even though the old jar may smell fragrant and spicy you will be surprised what a difference fresh spices make.

Source: Cooks Illustrated, November & December 2009

Using and Cooking with Spices

Getting the most flavors possible from spices -- Toast or bloom spices to help release the volatile oils and fullest flavor.

Toast/Roast: (For whole spices to be ground later.) Put the whole spice into a small skillet without any oil and place over medium heat. Stir constantly to prevent scorching and toast until they are fragrant (3-5 minutes) and are a shade darker than their original color. Cool slightly before grinding. Sometimes ground spices are toasted, but watch closely so the spices do not burn.

Bloom: (To intensify flavors of ground spices.) Cook ground spices for a minute or two in a little clarified butter (ghee) or oil before any liquid is added to the recipe. If the recipe calls for sautéing onions or other aromatics, add the spices when the vegetables are nearly cooked. This step is particularly important with spice mixtures where it is crucial to develop complex flavors. You will see this in many Indian recipes. Whole spices can also be bloomed in oil or butter. The whole spices are discarded before dish is served (bay leaf, cinnamon stick, cardamom pod, cloves).

Demonstrate toasting whole spices before grinding them. Also be sure to show how to bloom spices in a dish that you will prepare for the class. If your group is not familiar with making clarified butter (ghee), you might want to demonstrate how to make it. Clarified butter will not burn as quickly as plain melted butter.

Grinding Spices

In Indian cooking, many of the spice mixtures can be made at home, resulting in a much fresher product. To get the benefits of the whole spice, you need to use a device that yields a fine, even powder. There are many gadgets available, but the best tool is a coffee grinder. It

will produce good results with little effort. It is recommended to keep one coffee grinder for coffee and another for spices.

To clean a spice grinder, wipe with a brush or cloth. However, if spice residues remain, add several tablespoons of raw white rice to the grinder and pulverize to a fine powder. The rice powder will absorb residual spice particles and oils. Discard the rice powder.

Demonstrate using and cleaning a coffee grinder. You will use the spices in a recipe later on in the lesson (make basic curry or garam masala).

Buying and Storing Spices

In most cases, purchasing whole spices and grinding them is preferable to buying ground spices. Whole spices have a longer shelf life (twice that of ground spices), and most have superior aroma and flavor. Whether whole or ground, buy in smallest quantities as available and check the expiration date.

When storing spices, store in a cool, dark dry place in a well-sealed container. Use stick on dots with the name of the spice and date of purchase on the top of the spice jar, especially if stored in a drawer.

Source: Cooks Illustrated, November & December 2009

Resources used in lesson development:

Feast of India, A Legacy of Recipes and Fables, Rani, 1991.

Healthy Indian Cooking, Manisha Kanani and Shehzad Husain, 2010.

Herbs, Spices and Flavorings, Tom Stobart, 1982

The Indian Vegetarian, Flavors for the American Kitchen, Neelam Batra, 1994

Tufts University Health and Nutrition Letter

University of California Berkley Wellness Letter

Cooks Illustrated, November and December 2009

Websites referenced:

Sloan-Kettering Memorial Cancer Center: <http://www.mskcc.org/cancer-care/integrative-medicine/about-herbs-botanicals-other-products>

University of California, Berkeley Wellness: www.berkeleywellness.com

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Leader's Supplemental Materials -- share information as you have time and interest.

Health and medicinal uses of India Herbs and Spices

Garlic

There have been thousands of studies on garlic, but its health effects still remain a mystery. It has been used medicinally since ancient times in many cultures throughout the world. One of the main compounds that may be linked to health benefits is allicin; a sulfur compound formed in raw garlic after it is cut or crushed. Allicin is the major source of garlic's taste and smell, but not all scientists agree that allicin is the key ingredient, since it breaks down quickly into other compounds. The enzyme that forms allicin is destroyed if the whole clove is cooked before being cut. In fact, no one knows which component in the garlic is most important.

Animal studies have shown a great range of benefits, but results in people are not clear. The different garlic preparations and doses make comparisons difficult. Some main areas of interest is: reduction of LDL cholesterol (studies don't show consistent improvement), lower blood pressure slightly, lower risk of cancer (evidence is mixed), diabetes, arthritis, upper respiratory infection (not good evidence of benefit).

Garlic supplements vary widely depending on the age of the garlic and how it was processed. Health practitioners say: don't take garlic supplements; the health effects are small, so supplements don't replace medication. No one knows what form or dose would be best. STILL, there's no harm in eating more garlic in your food, if you like it!

Source: *University of California, Berkeley Wellness Letter, January 2012*

Ginger

The rhizome or the underground stem of the plant *Zingiber officinale*, ginger has been valued as a culinary spice and medicine in Asian and Arabic traditions for thousands of years. It has been used to treat a range of ailments, from the common cold, headache, and fevers to gastrointestinal and inflammatory disorders.

In-vitro studies indicate that ginger has anti-emetic, anti-cancer, anti-inflammatory, and hypoglycemic effects, and may protect against Alzheimer's disease.

Current clinical data support the effectiveness of ginger in controlling nausea and vomiting following surgery and associated with pregnancy and motion sickness. However, its therapeutic value against chemotherapy-induced nausea and vomiting await more definitive data.

A systematic review found ginger moderately effective in the treatment of osteoarthritic and chronic low back pain.

There is no harm in eating ginger in food, enjoy it!

Source: *Memorial Sloan-Kettering Cancer Center, Herb eNewsletter, Dec. 2013*

Cinnamon

Some research has found that cassia cinnamon, may lower blood sugar in people with diabetes. However, other studies have not found a benefit. Studies of cinnamon for lowering cholesterol and treating yeast infections in people with HIV have been inconclusive.

Lab studies have shown that cinnamon may reduce inflammation, have antioxidant effects, and fight bacteria. But it is unclear what the implications are for people. For now, studies have been mixed, and it's unclear what role cinnamon may play in improving health.

Because cinnamon is an unproven treatment, there no established dose. Some recommend ½ to 1 teaspoon (2-4 grams) of powder a day. Some studies have used between 1 gram and 6 grams of cinnamon. Very high doses may be toxic.

Cinnamon is added to countless foods and can be obtained naturally by using it in the food you eat—enjoy it. Taking cinnamon supplements should be taken with a doctor’s approval. They can interact with other medications that are being taken.

Source: *WebMD, October 2013*

Fenugreek

The seeds of fenugreek, a member of the legume family, are ground up and used to flavor curries, among other dishes. But you can also find it as a dietary supplement. It has long been used in traditional Indian and Chinese medicine. Today it’s often promoted to control blood sugar and reduce cholesterol. Some marketers claim it helps increase weight loss and libido.

This seed is rich in fiber, flavonoids (including quercetin), and other compounds. It has been shown in lab and animal studies to have an anti-inflammatory, anti-oxidant, anti-cancer, and pain-relieving properties, and to help lower blood sugar and cholesterol. But its effect in people is less clear.

Fenugreek has interesting properties that make it worth studying. But it is recommended that you limit its use to cooking and skip supplements, since their benefits are unproven and their long-term safety unknown. In rare cases, allergic reactions to fenugreek may occur in people with allergies to other legumes.

Source: *University of California, Berkeley Wellness Letter, August 2012*

Turmeric (Curcumin)

This spice is best known in curries (for pickle makers, bread and butter pickles!) and in the countries of origin, used to treat many health conditions. It is believed to have anti-inflammatory, antioxidant, and perhaps even anticancer properties. The substance in turmeric is curcumin, the bright orange pigment. Curcumin has been in the news for the current finding from research that show promise in health issues.

Research has suggested curcumin might have benefits ranging from restricting the growth of blood vessels that feed tumors to reducing the inflammation associated with arthritis. Most recently, a randomized clinical trial found curcumin reduced the risk of progression from prediabetes to type-2 diabetes.

Another clinical trial has shown curcumin has an effect similar to that of aerobic exercised on improving blood vessel activity.

Turmeric is considered safe for most adults, although high doses or long-term use may cause indigestion, nausea or diarrhea. People with gallbladder disease should avoid using turmeric as a dietary supplement as it may worsen the condition.

Turmeric is a spice that you can put into your diet; a little extra just might give you a healthy boost. Add it as seasoning to sandwich spreads, to soups, to sauces or to something that needs just a little bit more flavor or color.

Source: *Tufts University Health and Nutrition Letter, November 2012 and March 2013.*

Holy Basil

Holy basil (*Ocimum tenuiflorum* or *Ocimum sanctum*)— called *tulsi* in Hindi, meaning “incomparable one”—is considered a sacred Indian plant and is used to treat hypertension, respiratory disorders, diabetes, wounds and other conditions. Practitioners use the roots and leaves in tea and sometimes apply it topically.

Basil leaves contain essential oils, including limonene and eugenol, which have antioxidant properties. These aromatic compounds help defend plants against bacteria, fungi and insects, among other beneficial functions. In lab studies, basil extracts have been shown to inhibit the growth of bacteria like *Salmonella* and *E. coli*, as well as viruses, including hepatitis B and adenoviruses (which cause the common cold and other infections). The extracts also have anti-inflammatory, blood-sugar-lowering, immune-boosting and anti-cancer activity.

The chemical makeup of basil varies, however, depending on the variety and other factors, such as the soil and climate in which it grows. Basil is a source of potassium, vitamins C and K, calcium and iron—though to get significant amounts you’d have to eat cups of the herb.

Unfortunately, human studies are in short supply. Some preliminary research suggests that holy basil may lower blood sugar in people with diabetes, but the Natural Standard, which evaluates complementary and alternative therapies, gives it a C rating for that use, meaning that the evidence is unclear or conflicting. Meanwhile, a few studies have found increases in certain immune cells in people consuming basil (in capsules and teas), though it’s unknown if this would have any practical effects.

Basil is also touted as a traditional “stress buster.” In a 2012 study from India, holy basil, taken for six weeks, reduced symptoms of stress (such as forgetfulness and fatigue) more than a placebo. But “stress” is difficult to define, and for other “stress” symptoms the placebo was just as effective.

Given the scarcity of good studies, we can’t vouch for any health effects of basil. But we can vouch for its tastiness. Use basil in salads and sandwiches, and in soups, stir-fries and other dishes. Look for less-common types like holy basil (with its distinct anise aroma) or purple basil. If your regular market doesn’t have them, look in farmers’ markets and Asian grocery stores. You can also buy holy basil plants, seeds and teas on line.

Source: *University of California, Berkeley Wellness*: www.berkeleywellness.com, July 08, 2013

More information

For more information on health benefits of herbs and spices, go to Sloan-Kettering Memorial Cancer Center: <http://www.mskcc.org/cancer-care/integrative-medicine/about-herbs-botanicals-other-products> . This information resource, presented by their Integrative Medicine Service, provides evidence-based information about herbs, botanicals, supplements, and more.

