



Seasoning with *Herbs & Spices*



K-STATE
Research and Extension

Kansas State University Agricultural Experiment Station and
Cooperative Extension Service

The unique and amazing, subtle yet signature flavors and aromas of herbs and spices have enhanced foods and beverages for centuries. Highly valued throughout history for their rarity and their ability to mask off-flavors, spices and herbs sparked explorations to unknown parts of the globe in search of new sources. Today, access to and use of many varieties of herbs and spices, in cooking and in health, is universal, reaching across cultures and continents.

What are herbs and spices, and how do they differ?

The terms **herb** and **spice** are often interchanged, but they are two distinct types of seasonings, made from different sections of plants and processed in different ways. In culinary or cooking terms, the edible, green or leafy part of a plant is generally referred to as an herb, while the other parts (such as the aromatic buds, bark, root, berries, or seeds) are termed spices (which are often dried). Herbs and other botanicals have played a key role in human health for centuries.

Do herbs and spices actually offer health benefits?

Consumers have long used herbs and spices to treat health conditions. Research surrounding the mechanisms and effectiveness of herbal remedies and the health benefits of numerous spices have increased in recent years, due in partial response to the billions of dollars spent globally on botanical health-related compounds. Today, examination of the health effects of herbs and spices used in cooking is increasing worldwide. Results indicate that herbs and spices offer numerous health benefits in addition to increased flavor in foods and beverages.

Currently, herbs are applied medicinally in the treatment of chronic and acute conditions and various ailments and problems such as cardiovascular disease, prostate problems, depression, inflammation, and to boost the immune system, to name but a few. There are more than 100 common spices used in cooking around the globe. Studies have shown that spices are concentrated sources of naturally occurring substances that protect cells from damage. Many of the health benefits recognized from herbs and spices, either fresh or dried, are summarized in the pro-health, “anti” properties defined and discussed here:

Antioxidants — Substances in many spices and herbs that slow or prevent damage to cells; help our bodies fight off chronic diseases; and promote healthy cell aging.

Anti-Inflammatory — These compounds fight against inflammation, which may show up in our bodies as joint stiffness and pain or fever. Inflammation occurs when the body “over-responds” to an infection; inflammation is linked to type 2 diabetes, Alzheimer’s disease, and certain cancers. As an example, research has shown that the spice turmeric, which contains curcumin, is effective in reducing the pain and swelling related to some types of arthritis.

Antibacterial, antimicrobial, and antifungal — These compounds slow or inhibit the growth of foodborne bacteria and other substances making food unsafe. Some herbs and spices, such as clove, oregano, thyme, cinnamon, and cumin, have shown significant antibacterial and antifungal activities against food spoilage.

Antiemetic and anti-nausea — Ginger is an ancient herb used widely in history for its many natural medicinal properties and particularly as an antiemetic agent — something that prevents vomiting. Others with anti-nausea properties are chamomile and peppermint.

This lesson primarily discusses culinary herbs and spices, but the overlap between cooking and medicinal uses is highlighted throughout. Food is health!

Modern consumers use both herbs and spices to enhance the flavor and healthfulness of foods. Herbs and spices supply the flavors that define ethnic cooking and regional cuisines. Though familiarity, availability, and preference of different herb or spice use varies widely from culture to culture and from one geographic region to another, some basic ingredient pairing suggestions can



help beginning cooks gain confidence and develop their own preferences.

- **Beef** — bay leaf, marjoram, nutmeg, onion, pepper, sage, thyme
- **Chicken** — ginger, marjoram, oregano, paprika, poultry seasoning, rosemary, sage, tarragon, thyme
- **Fish** — curry powder, dill, dry mustard, marjoram, paprika, pepper
- **Lamb** — curry powder, garlic, rosemary, mint
- **Pork** — garlic, sage, pepper, oregano
- **Veal** — bay leaf, curry powder, ginger, marjoram, oregano
- **Carrots** — cinnamon, cloves, marjoram, nutmeg, rosemary, sage
- **Corn** — cumin, curry powder, paprika, parsley
- **Green beans** — dill, curry powder, lemon juice, marjoram, oregano, tarragon, thyme
- **Greens** — pepper
- **Peas** — ginger, marjoram, onion, parsley, sage
- **Potatoes** — dill, garlic, onion, paprika, parsley, sage
- **Summer squash** — cloves, curry powder, marjoram, nutmeg, rosemary, sage
- **Tomatoes** — basil, bay leaf, dill, marjoram, onion, oregano, parsley, pepper
- **Winter squash** — cinnamon, ginger, nutmeg, onion

How much do I use?

The amount of herbs used depends on the form — fresh, dried, or ground.

Equivalent amounts: 1 tablespoon finely cut fresh herbs = 1 teaspoon crumbled dried herbs = $\frac{1}{4}$ to $\frac{1}{2}$ teaspoon ground dried herbs.

- Begin with a small amount and adjust as needed. For 4 servings or 1 pound of meat, or 1 pint/2 cups of soup or sauce, start with $\frac{1}{4}$ teaspoon dried ground herbs.
- When using cayenne pepper or garlic powder, start with $\frac{1}{8}$ teaspoon. Red pepper intensifies in flavor during cooking.
- When doubling a recipe, do not double herbs and spices. Increase amounts by 50 percent, adding more if needed.

- Add robust or less delicate herbs (such as rosemary, sage, oregano, thyme) earlier in the cooking and more delicate herbs (including basil, chives, mint, dill weed) later or just before serving.

How are herbs and spices best stored?

Careful storage of herbs and spices helps retain their flavor and extend their freshness.

The freshness of the **spice** is judged by its color and aroma.

1. When fresh, most spices have a bright, rich color and a strong aroma. Always purchase in small quantities to help ensure freshness.
2. Keep spices tightly covered and store them in a dark, cool, dry place. Whole spices stay fresh for up to 2 years, while ground spices have a 6-month shelf life.
3. Store red spices, such as paprika and red pepper, in the refrigerator. They will hold their color and keep their flavor longer.

Dried herbs are stored in the same way as spices. Dried whole herbs generally last longer than ground herbs. They can be stored as is and ground as needed. The flavors will stay fresher and stronger this way.

1. Make sure your dried herbs are completely free of any moisture. A good way of checking for any moisture is to rub a bit of these herbs in between your fingers. If the herbs crumble easily, they are dried.
2. Store dried herbs in an airtight dark container so that exposure to light and air does not spoil them. Glass bottles are preferable to plastic for preserving flavor.
3. Keep these jars away from sunlight; instead store them in a dark, dry place. Sunlight may ruin the potency of the herbs.
4. To extend their life, store herbs in a cool and dry place. Do not keep the containers near your stove — the heat and moisture from cooking will shorten their “lifespan.”

Fresh herbs are best stored in the refrigerator. Before storing, it is important to thoroughly rinse the entire bunch under cold water and dry well by patting dry with paper towels.

1. **Delicate herbs** like parsley, cilantro, and mint should be carefully stored in the refrigerator. Snip

the base of the stem and remove all the discolored parts of the herb. Transfer the sprigs or stems to a jar with about an inch of water in the bottom. Seal the jar with the lid and store in the refrigerator. It is important to change the water every day. This process will help the herbs retain moisture in the dry refrigerator environment. A jar with fresh basil should be kept at room temperature as this herb may turn black if refrigerated.

2. **Robust, harder herbs** like rosemary, thyme, and sage should be wrapped loosely in a damp paper towel. Store the bundle in an airtight container or zip-type plastic bag in the crisper drawer. The paper towel will keep the herbs moist enough to prevent drying and the bag or container keeps out the oxygen so they stay fresh longer.

Signature Flavor Families

Another way to experience a wider array of herbs and spices is to select seasonings by considering signature flavor “families” of ethnic cuisines. Start with the recommendations listed here, and discover which flavors are your favorites.

Herbs and spices can be used to create, or add to, beverages as well as food. Herb-flavored or infused water is easy and quick to prepare, versatile (use whatever herbs you have on hand!) and helpful in encouraging us to drink more water. The flavors of fresh herbs along with other additions, including fruits and vegetables, make it easy to replace sugar-sweetened beverages in meals and snacks. Here is an easy, tasty example to try:

Cucumber and Lemon Herb Water

- ½ cucumber
 - 1 lemon
 - 2 sprigs fresh rosemary
 - 1 handful fresh thyme leaves (roughly ⅓ to ½ cup, loosely packed)
 - 1 handful fresh mint leaves (roughly ⅓ to ½ cup, loosely packed)
1. Wash fruit, vegetables and herbs just before use. Thinly slice ½ cucumber and 1 lemon.
 2. Fill a pitcher or refrigerator bottle with water. Add lemon slices, cucumber slices and herbs.
 3. Refrigerate 1 hour before serving.

Flavor Families

Mexican

Coriander	Cumin	Oregano	Garlic Powder	Cinnamon
Chili Powder				

French

Nutmeg	Thyme	Garlic Powder	Rosemary	Herbes de Provence
Oregano				

Thai

Basil	Cumin	Garlic	Ginger	Turmeric
Cardamom	Curry Powder			

Mediterranean

Oregano	Rosemary	Thyme	Bay Leaves	Cardamom
Cinnamon	Cloves	Coriander	Basil	Ginger

Indian

Bay Leaves	Cardamom	Cumin	Cinnamon	Cayenne Pepper
Ginger	Nutmeg	Paprika	Turmeric	Garam Masala
Curry Powder				

Other fresh herbs may be substituted for those listed. Create a new favorite flavor by combining fruit (such as berries or melon) with herbs (such as basil, mint, or others) available by season or location.

Many hot drinks are popular infusions featuring herbs and spices. These aromatics add flavor and often are favored for their believed healthful benefits — in some cases, the herb is used as the basis of the drink, as in chamomile tea or peppermint tea. In others, signature herbs or spices, or both, add a flavor profile to the tea or coffee base. This recipe for Homemade Sugar-Free Chai Tea Latte highlights several delicious spices and herbs.

Homemade Sugar-Free Chai Tea Latte

(used with permission from claudiacanu.com)

Yield: Two 1-cup servings

- 1 cinnamon stick, broken into pieces
- 4 cardamom pods
- 2 whole cloves
- 4 whole black peppercorns
- 2 cups whole milk or coconut milk
- 1 piece fresh ginger, about .4 inches
- 2 teaspoons black tea leaves
- 2 whole star anise

Instructions

1. In a small pot, place the cinnamon, cardamom, cloves, and peppercorns. Toast them over medium heat for 3 to 4 minutes.
2. Add the milk, ginger, and star anise. Lower the heat and let it sit for about 3 to 4 minutes; avoid boiling the milk.
3. Remove from heat, cover the pot, and let it sit for about 10 minutes.
4. Strain the latte through a fine-mesh strainer directly into a glass, leaving a 1-inch space from the rim.
5. Strain about 1 inch of milk into a tall glass, using a milk frother to make some foam.
6. Top the first glass with milk froth, add cinnamon powder on top, and add star anise as decoration.

Nutrition facts per 1 cup serving:

Calories, 166; Total fat, 8.4 g; Total carbohydrate, 15.7 g; Sugars, 12.4; Sodium, 108.7 mg; Protein, 8.3 g.

Make your own herb and spice blends

These mixes can be scaled up for larger batches. Store blends in glass jars that close tightly.

- Apple pie spice – Mix 1 teaspoon cinnamon with ¼ teaspoon nutmeg and ⅛ teaspoon cardamom.
- Pumpkin pie spice – To yield about 5 tablespoons, mix 3 Tablespoons cinnamon, 2 teaspoons ginger, 2 teaspoons nutmeg, 1 teaspoon allspice and 1 teaspoon cloves.
- Italian seasoning – For approximately 1½ teaspoon seasoning, mix ½ teaspoon dried oregano leaves, ¼ teaspoon dried marjoram leaves, ¼ teaspoon dried basil leaves, ¼ teaspoon dried thyme, ⅛ teaspoon dried rosemary and ⅛ teaspoon rubbed sage.
- Poultry seasoning – To yield 1 teaspoon, mix ¾ teaspoon ground sage and ¼ teaspoon ground thyme.
- Mild curry powder – There are many variations of curry powder, so adjust as your tastes dictate! This recipe makes about 6 tablespoons of mix.
 - 2 tablespoons ground cumin
 - 2 tablespoons ground coriander
 - 2 teaspoons ground turmeric
 - ½ teaspoon crushed red pepper
 - ½ teaspoon mustard seed
 - ½ teaspoon ground ginger

In blender or food processor, combine all ingredients. Process to a fine powder. Store in airtight container.



Grow your own herbs

Many cooks like to grow their own fresh herbs in pots or plots right outside the kitchen. For more information on tips and techniques for growing your own herbs, see this KSRE publication: bookstore.ksre.ksu.edu/pubs/MF2579.pdf

There are many reasons to include more herbs and spices in your daily life, and great flavors and health benefits are just the beginning. Enjoy!

Seasoning with Herbs and Spices – Leader Tips

This publication can supplement and support other educational series or curricula. Here are some suggestions for related activities that could enhance your lessons:

- Consider asking a Master Gardener, K-State Research and Extension horticulture agent, or someone from a local greenhouse to lead a session on growing and harvesting herbs. You could demonstrate how to store and use. Offer a couple of sample recipes to taste.
- Offer small spice samples to participants in cooking classes where seasoning is discussed. Several types of dried herbs and spices are available in small, inexpensive packages in dollar-type or grocery stores and may allow participants to try a new-to-them flavor. Or make seasoning mixes from herbs or spices purchased in bulk, then bag into smaller amounts for each participant.
- Guess the seasoning: Put herbs or spices in small cups with numbers, have participants guess what they are. Discuss how to use and health benefits.
- Taste different spices on rice.
- Compare dried and fresh versions of several herbs — for example, sage, basil, oregano. What are some benefits of each type?

References:

Hogeback J. What's the difference between an herb and a spice? <https://www.britannica.com/story/whats-the-difference-between-an-herb-and-a-spice>. Accessed June 25, 2020.

Cooksmarts.com. Guide to flavoring with spices. <https://www.cooksmarts.com/articles/ultimate-infographic-guide-spices/#guide-to-flavoring-with-spices>. Accessed June 28, 2020.

<https://claudiacanu.com/healthy-recipe/chai-tea-latte/> Homemade sugar-free chai tea latte recipe. Accessed June 29, 2020. Accessed at www.claudiacanu.com on June 25, 2020.

Jiang TA. (2019). Health benefits of culinary herbs and spices. *Journal of AOAC International*. 102(2); 395-411. DOI: <https://doi.org/10.5740/jaoacint.18-0418>. <https://academic.oup.com/jaoac/article-abstract/102/2/395/5658185>. Accessed June 20, 2020.

B. Blumberg, PhD, director of Tufts HNRCA Antioxidants Research Laboratory. Healthy Herbs Do More Than Spice Up Your Meals Tufts Health and Nutrition Letter, Tufts University. Published: November 15, 2013. Updated: September 17, 2019. <https://www.nutritionletter.tufts.edu/special-reports/healthy-herbs-do-more-than-just-spice-up-your-meals>

Johns Hopkins Medicine. 5 spices with healthy benefits. <https://www.hopkinsmedicine.org/health/wellness-and-prevention/5-spices-with-healthy-benefits>. Accessed July 13, 2020.

Original lesson by Jan Stephens

Revision by

*Sandy Procter, PhD, RD/LD, State Extension Nutrition Specialist,
K-State Research and Extension*

and

*Barbara Roths, RD/LD, Family Consumer Sciences,
K-State Research and Extension, Butler County*

Reviewed by

*Sara Sawyer, Nutrition, Health and Wellness Extension Agent,
K-State Research and Extension, Sedgwick County*

*Barbara Ames, Nutrition, Health and Food Safety Extension Agent,
K-State Research and Extension, Wildcat District*

*Crystal Futrell, Family and Consumer Sciences/Health and Nutrition
Extension Agent, K-State Research and Extension, Johnson County*

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Publications from Kansas State University are available at:
www.bookstore.ksre.ksu.edu

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Date shown is that of publication or last revision. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Sandy Procter, et al., *Seasoning with Herbs and Spices*, Kansas State University, July 2020.

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of K-State Research and Extension, Kansas State University, County Extension Councils, Extension Districts.