Spice Up Your Immune System!

Lisa Gaetke Ph.D., R.D.
University of Kentucky
Superfund Basic Research Program
Community Outreach Core
Outline

• Introduction to the Immune System
• Herb vs. Spice: What is the difference?
• In depth look at herbs and spices
• Taste Testing… mmmm!!!
Help!
They’re attacking me!
I'm fighting back with food!
HERBS and SPICES

• Used for:
  ▪ Taste
  ▪ Food preservation
  ▪ Food sanitation
  ▪ Variety
  ▪ Gifts
SPICES

“any of various pungent, aromatic plant substances, such as cinnamon or nutmeg, used to flavor foods or beverages; or something that adds zest or flavor” - Webster’s Online
Spices (cont.)

- Obtained from the roots, flowers, fruits, seeds, or bark
  - Can be woody or herbaceous plants

- Native to warm tropical climates

- Potent and strongly flavored
  - Used in small amounts
HERBS

“a plant whose stem does not produce woody, persistent tissue and generally dies back at the end of each growing season” – Webster’s Online
Herbs (cont.)

• Obtained from the leaves of plants

• Used for both medicinal and culinary purposes
Herbs (cont.)

• Often used in larger amounts
  ▪ Flavor is not as concentrated

• Herbal supplements
  ▪ Not as good as the real thing
What do herbs and spices have to do with my health or immune system?
Antioxidants

- Prevents bad things from forming inside of our bodies
  - Prevents oxidation
  - Prevents/reverses free-radical formation
Example of Free Radical Formation

**Oxygen, Light, or Heat**

**Cooking Oil** → **Rancid Cooking Oil**
SPICES
CINNAMON

• One of the oldest spices known:
  ▪ Biblical times: use in anointing oils
  ▪ Ancient Rome: mourners burnt cinnamon in funeral pyres to cover scent of burning flesh
  ▪ Later Europe: status symbol—could only be obtained by the rich
Cinnamon (cont.)

- Varieties:
  - Chinese: most common form in US
  - Ceylon: slightly sweeter and more difficult to find

- Forms:
  - Stick
  - Ground
Health Benefits of Cinnamon

- **Antioxidant benefits:**
  - Heart: decreases inflammation
  - Diabetes: improves ability to respond to insulin

- **Food Preservation and Safety**
  - Good preservative
  - Decreased growth of food-borne pathogens
CUMIN

- Commonly used in Mexican/Tex-Mex and Middle Eastern/Indian Cuisine
- Key component of Curry Powder
- Small seed
  - Whole and ground forms
Cumin (cont.)

- Native to Egypt
- Historical Uses:
  - Biblical: used as a seasoning and to pay tithes to priests
  - Ancient Egypt: culinary spice and ingredient used in mummification
  - Ancient Greek: used by students to alter their complexion to trick their teachers
Health benefits of Cumin

• Good source of iron
• Benefits the Digestive System
• May help defend against cancer
BLACK PEPPER

• Most popular of all spices
• Available all year round
• Variety of colors, each with different spice characteristics
  ▪ Whole and ground forms
Black Pepper (cont.)

• Historical Uses:
  - Ancient Greece: valued as spice, a currency and an offering to the gods
  - Used to cover up “less-than-fresh” foods
  - Catalyzed much of the spice trade and exploration of various lands
Health Benefits of Pepper

• Digestion:
  ▪ Stimulates taste buds
  ▪ Promote stomach acid secretion
  ▪ Decreases the formation of intestinal gas

• Has antioxidant and anti-bacterial properties
The outer layer of peppercorn stimulates the breakdown of fat cells—helping you stay slim, while giving you energy to burn!
TURMERIC

- Also called “Indian Saffron” because of its characteristic deep yellow color

- Native to southern India and Indonesia
Turmeric

• Historical Uses:
  ▪ Used as a condiment, healing remedy, and textile dye
  ▪ Used in Indian and Chinese medical systems as an anti-inflammatory agent
Health Benefits of Turmeric

• Anti-inflammatory effects
  ▪ Potential help for inflammatory bowel disease
  ▪ Potential relief for rheumatoid arthritis

• Potential benefit for cystic fibrosis patients
Health Benefits of Turmeric (cont.)

• Antioxidant Benefits:
  ▪ May reduce colon cancer and help the body destroy cancer cells
  ▪ May reduce the risk of developing childhood leukemia

• May improve liver function
Health Benefits of Turmeric (cont.)

- May decrease risk for diseases of the heart
- May provide protection against Alzheimer’s
Health Benefits of Turmeric (cont.)

• Excellent source of manganese and iron

• Good source of vitamin B6, fiber, and potassium
CLOVES

• Traditionally used for baked goods, ciders, main dishes, and soups

• History:
  ▪ 200 BC: used as breath fresheners
  ▪ Middle Ages: masked the flavor of poorly preserved food
Health Benefits of Cloves

• Studied in Research:
  ▪ Prevention of toxicity from environmental pollutants
  ▪ Prevention of digestive tract cancers
  ▪ Prevention of joint inflammation
Health Benefits of Cloves (cont.)

• Mild anesthetic and anti-bacterial agent
  - Used in mouth wash and throat sprays

• Anti-inflammatory:
  - Contains a variety of flavonoids
Health Benefits of Cloves (cont.)

- Excellent source of manganese
- Good source of fiber, vitamin C, and omega 3-fatty acids
- Good source of calcium and magnesium
GINGER

• Native to southeastern Asia

• History:
  ▪ Mentioned in ancient writings
  ▪ Prized for aromatic, culinary, and medicinal properties
Health Benefits of Ginger

- Effective against intestinal distress
  - Helps relieve gas
  - Helps relieve motion sickness
  - Helpful in preventing nausea/vomiting of pregnancy
Health Benefits of Ginger (cont.)

• Anti-inflammatory properties
  ▪ Helps against rheumatoid and osteoarthritis
Health Benefits of Ginger (cont.)

• May help against colon cancer

• May promote immune system health
  ▪ Can promote healthy sweating during colds and flu
HERBS
THYME

• Historical Uses:
  ▪ Ancient Egypt: embalming agent
  ▪ Ancient Greece: used as incense
  ▪ Medieval Times: symbol of courage and admiration
  ▪ Antiseptic mouthwash and topical treatment
Health Benefits of Thyme

- Antioxidant benefits
  - Contains several flavonoids

- Anti-microbial Activity
  - Can prevent food contamination
  - Can decontaminate contaminated foods!
OREGANO

• Common to Mediterranean Cuisine
• Historical Uses:
  ▪ Greek & Roman: Oregano was a symbol of joy and happiness
  ▪ Unknown in US until 20th century when GIs returning from Italy made it known
Health Benefits of Oregano

• High Antioxidant Activity
  - 42x’s that of apples
  - 30x’s that of potatoes
  - 12x’s that of oranges
  - 4x’s that of blueberries
Health Benefits of Oregano (cont.)

• Nutrient Dense
  ▪ Very good source of fiber, iron, and manganese
  ▪ Good source of calcium, vitamin C, vitamin A, and omega 3-fatty acids
Health Benefits of Oregano (cont.)

- Anti-bacterial properties
  - Research: In Mexico, more effective than prescription drugs against Giardia
BASIL

• Basil: means “royal” (Greek)

• History:
  ▪ India: cherished icon of hospitality
  ▪ Italy: symbol of love
Health Benefits of Basil

• Good for your heart!
  ▪ High antioxidant properties

• Anti-inflammatory
  ▪ Help with rheumatoid arthritis and inflammatory bowel disease
Health Benefits of Basil (cont.)

• Antibacterial Properties
  ▪ May be effective against antibiotic resistant bacteria!

• Good source of vitamin A, potassium, and vitamin C

• Very Good Source of Iron and Calcium
PARSLEY

• Most popular herb
• Native to Mediterranean region of Southern Europe
• Types:
  ▪ Curly
  ▪ Italian Flat Leaf
  ▪ Hamburg
Parsley (cont.)

• History:
  ▪ Ancient Greece: sacred
    ▪ adorned visitors of athletic contests
    ▪ Decorated tombs of deceased
  ▪ Garnish
Health Benefits of Parsley

• Cancer Prevention
  ▪ Inhibit tumor cell growth
  ▪ Help neutralize certain carcinogens

• Antioxidant properties
Health Benefits of Parsley (cont.)

• Anti-inflammatory:
  ▪ May help against rheumatoid arthritis

• Excellent source of folic acid, beta-carotene, and vitamin C
CONCLUSION

• Herbs and Spices
  ▪ Provide health benefits
    ▪ Antioxidant
    ▪ Anti-inflammatory
    ▪ Antibacterial/Anti-microbial
  ▪ Add flavor and depth to foods
QUESTIONS?
University of Kentucky
Superfund Basic Research Program
Community Outreach Core
Website

www.uky.edu/Research/Superfund/
University of Kentucky
Superfund Basic Research Program
Community Outreach Core

Supported by NIEHS/NIH (ES 07380)