

# Spice of Life

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# Introduction

- Spices have been used since ....forever
- Ayurved, the Indian traditional medicine uses herbs to cure diseases.
- Chinese medicines also use spices to treat ailments.
- Spices, in their original state are naturally occurring, hence their popularity these days.
- Spices can be taken as they exist or can be added to foods; they can be cooked which sometimes changes their chemical nature.
- Spices can be mixed, usually with no harm.



# Disclaimer

- I am a Ph.D. in Chemistry, not a MD.
- This talk is not about curing anyone's disease.
- I am not dispersing any medical advice nor can I prescribe medicine.
- It is not about promotion of one or the other spice or spice store.



# Supplements Vs Spices

- Supplements will usually have the active ingredient.
- The dosage of the active ingredient can be controlled.
- Bioavailability of active ingredient in spices is better with natural spices.



# Spices of the World

- Turmeric
- Cinnamon
- Black pepper
- Chilli pepper
- Ginger
- Ajwaain
- Asafoetida
- Garlic
- Cumin
- Cloves
- Cardamom
- Basil
- Bay leaves
- Mustard seeds
- Dill
- Fennel
- Etc etc etc...





# Spices Included in this Presentation



- Turmeric



- Garlic



- Cinnamon



- Cumin



- Black pepper



- Cloves



- Chilli pepper



- Cardamom



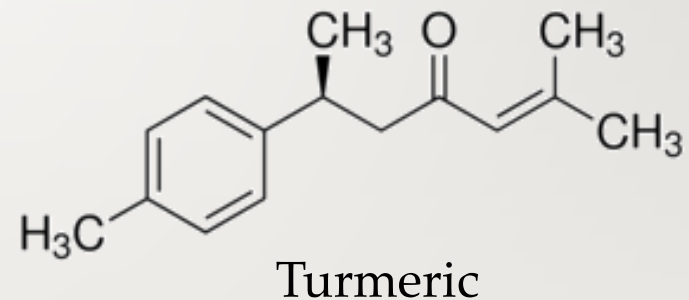
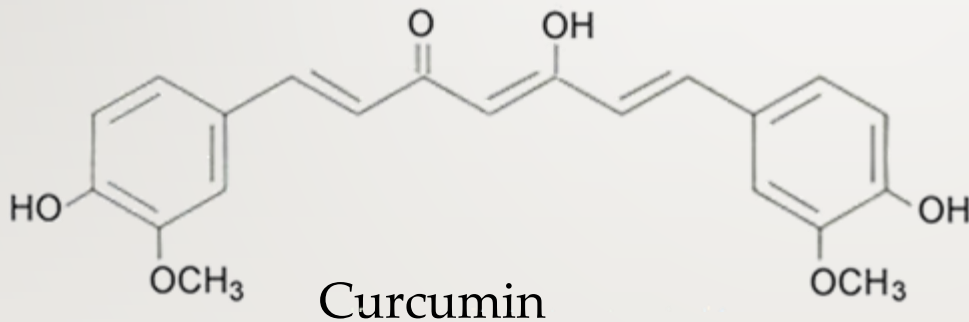
- Ginger



# Turmeric



- Yellow powder from the root of a plant
- **Plant**: *Curcuma longa*, a plant belonging to the ginger family
- **Cultivated**: mostly in India
- **Active Ingredient**: turmerone and curcumins – a mixture of chemicals.
- **Structures**:



# Turmeric

- **Used in form:** usually dried powder; can be used fresh also.
- The supplement is available in drugstores in various doses.
- **Interesting Tidbit:** It is one of the most researched spice in this world.





# Turmeric – Medical Benefits

- Curcumin prevents inflammation and cancer cell proliferation.
- Anti-inflammatory.
- Prevents clotting (drug interactions have to be considered).
- Anti microbial – very good in fighting infections (inside and outside the body).
- It is considered as an all round good spice.



# Turmeric – How to use it

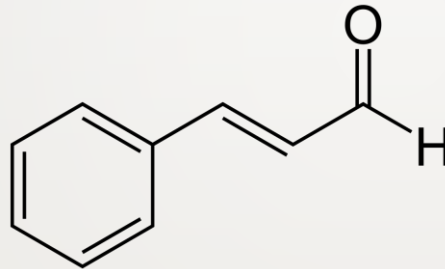
- Best is to add to any vegetables/dish e.g. cauliflower, cabbage etc.
- Make a turmeric – milk smoothie with coconut/almond milk and honey.
- Turmeric paste with yogurt or other creams makes for a great facial mask to improve skin.



# Cinnamon



- Used as sticks or powder from the bark of a tree.
- **Plant**: leaves or bark of *Cinnamomum verum*.
- **Cultivated**: trees are found all over the world.
- **Active Ingredient**: cinnamaldehyde
- **Structure**:



# Cinnamon

- **Used in form**: usually dried powder or as the bark.
- The supplement is available in drugstores in various doses and as oil.
- **Interesting titbit**: cinnamon used to be 10-15 times more expensive than silver – a Roman emperor, Nero, felt guilty about kicking his wife so hard that she died, so he burned ALL the cinnamon he could find (it was a sacrifice because cinnamon was expensive)





# Cinnamon – Medical Benefits

- Prevents diabetes.
- Cinnamon can reduce the risk of colon cancer.
- Cinnamon is a coagulant and prevents bleeding. Cinnamon increases the blood circulation in the uterus and advances tissue regeneration.
- It also has antimicrobial, antifungal, antioxidant.
- Cinnamon has also been traditionally used as tooth powder and to treat toothaches, dental problems, and bad breath. (a number of candies have cinnamon)



# Cinnamon – How to use it

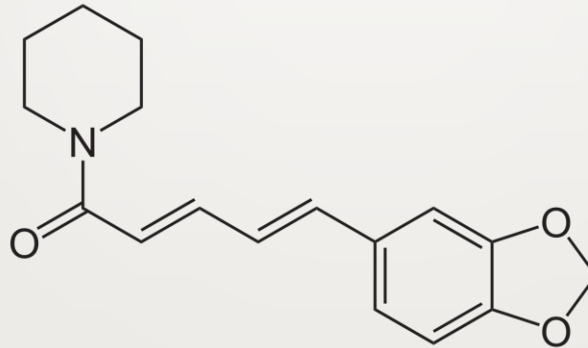
- Add cinnamon to any hot drink: tea, coffee, water.
- Mix with honey and apply on toast or any bread.
- Add to any cereal, butter or fruits.
- Cinnamon in conjunction with honey is proven to be most healthy. It is good for heart health, arthritis, reduces cholesterol, helps cure cold, builds immune system, helps with the immune system etc.
- Can eat up to 1 tbsp. as medicine daily.



# Black Pepper



- Black pepper – peppercorns (fruit)
- **Plant:** Piper nigrum
- **Cultivated:** Originally from India, Malaysia, Madagascar, China and Indonesia.
- **Active Ingredient:** piperine
- **Structure:**



# Black Pepper

- **Used in form:** usually dried powder or as whole.
- The supplement is available in drugstores in various forms.
- **Interesting titbit:** Number 1 selling spice in USA. Started the spice trade from India (largest producer of black pepper). It was so valuable that it was used as a currency in ancient Rome and Greece.





# Black Pepper – Medical Benefits

- Aids digestion
- Promotes weight loss
- Relief from congestion (cold and cough)
- It is an antioxidant, antibacterial
- Helps with arthritis
- Antidepressant
- Diuretic and laxative
- And much more....



# Black Pepper – How to use it

- Freshly ground is always better.
- Add it to any vegetable, foods, pasta, soups etc.
- Add to honey to eat.

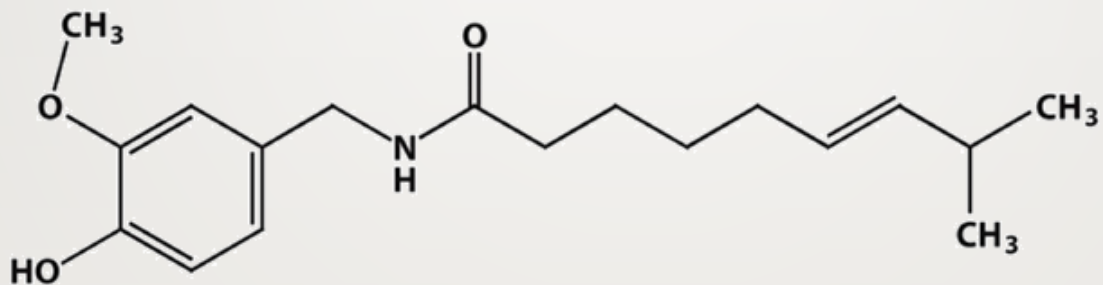
## CAUTION:

- Don't touch eyes after touching black pepper.
- Don't over do it – it may cause an upset stomach.



# Chilli Pepper

- Chilli – fruit of a plant
- **Plant**: Capsicum – has over 30 varieties
- **Cultivated**: Peru, Bolivia
- **Active Ingredient**: capsaicin
- **Structure**:





# Red Pepper

- **Used in form:** usually dried powder; can be used fresh also.
- Can be found in drugstores in arthritic creams
- **Interesting titbit:** Scoville scale of hotness.
- Can easily grow it at home in a pot.

Scoville rating	Type of pepper
15,000,000-16,000,000	Pure <a href="#">capsaicin</a> <sup>[4]</sup>
9,100,000	<a href="#">Nordihydrocapsaicin</a>
2,000,000-5,300,000	Standard US Grade <a href="#">pepper spray</a> <sup>[5]</sup>
855,000-1,041,427	<a href="#">Naga Jolokia</a> <sup>[6][7][8][9]</sup>
876,000-970,000	<a href="#">Dorset Naga</a> <sup>[10][5]</sup>
350,000-577,000	<a href="#">Red Savina Habanero</a> <sup>[11]</sup>
100,000-350,000	<a href="#">Habanero Chile</a> <sup>[12]</sup>
100,000-350,000	<a href="#">Scotch Bonnet</a> <sup>[12]</sup>
100,000-200,000	<a href="#">Jamaican Hot Pepper</a> <sup>[5]</sup>
50,000-100,000	<a href="#">Thai Pepper</a> , <a href="#">Malagueta Pepper</a> , <a href="#">Chiltepin Pepper</a>
30,000-50,000	<a href="#">Cayenne Pepper</a> , <a href="#">Ají pepper</a> <sup>[12]</sup> , <a href="#">Tabasco pepper</a>
10,000-23,000	<a href="#">Serrano Pepper</a>
7,000-8,000	<a href="#">Tabasco Sauce (Habanero)</a> <sup>[13]</sup>
5,000-10,000	<a href="#">Wax Pepper</a>
2,500-8,000	<a href="#">Jalapeño Pepper</a>
2,500-5,000	<a href="#">Tabasco Sauce (Tabasco pepper)</a> <sup>[13]</sup>
1,500-2,500	<a href="#">Rocotillo Pepper</a>
1,000-1,500	<a href="#">Poblano Pepper</a>
600-800	<a href="#">Tabasco Sauce (Green Pepper)</a> <sup>[13]</sup>
500-1000	<a href="#">Anaheim pepper</a>
100-500	<a href="#">Pimento</a> <sup>[5]</sup> , <a href="#">Pepperoncini</a>
0	No heat, <a href="#">Bell pepper</a> <sup>[5]</sup>





# Red Pepper – Medical Benefits

- Good in assisting digestion and stimulating saliva.
- Clears sinuses.
- Antioxidant.
- It is an analgesic.
- External use can treat arthritis and muscle soreness.
- Causes warming in the body thus improving circulation.



# Red Chilli – How to use it

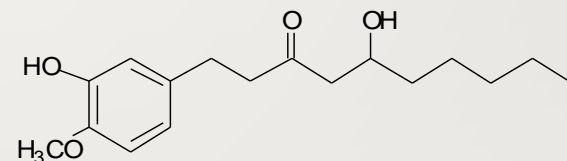
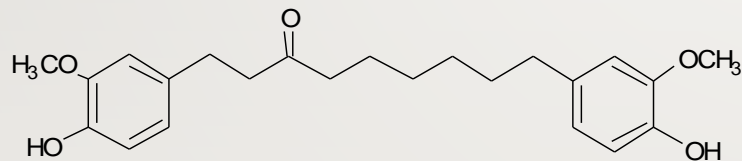
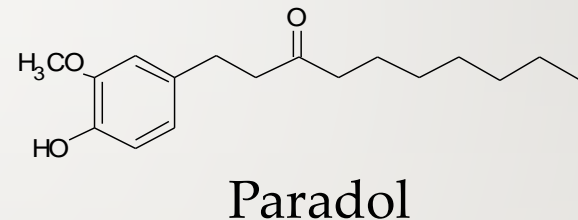
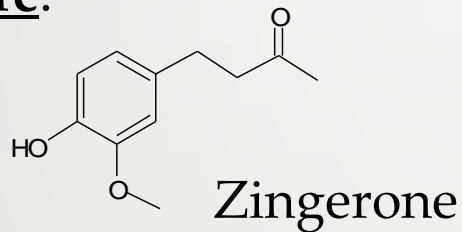
- Definitely don't eat it as is!! Unless your mouth can handle it!
- Add to any foods as much as you can handle it.
- Some desserts also call for red chilli, eg some chocolate desserts.
- Use chilli sauce – can be made from plain chillis or with tomatoes or ginger etc.
- Use chilli infused oil for eating. Can use coconut oil or olive oil.



# Ginger



- A rhizome (underground stem)
- **Plant:** *Zingiber officinale*
- **Cultivated:** native to southeast Asia.
- **Active Ingredient:** gingerol and many other terpenes.
- **Structure:**





# Ginger

- **Used in form:** usually dried powder; can be used fresh also.
- The supplement is available in drugstores in various doses.
- **Interesting titbit:** Can grow it at home also from regular ginger. Has beautiful flowers.





# Ginger – Medical Benefits

- Best known as an antinauseating agent.
- Antioxidant activity.
- Anti-inflammatory processes.
- Ginger also acts as antitumor via modulation of genetic pathways such as activation tumour suppressor gene.
- Ginger shows antimicrobial properties due some of its components (gingerol and paradol, shogaols and zingerone).
- It can help with chronic indigestion.
- SHOULD NOT BE USED IN CASE OF ULCERS AND PREGNANT WOMEN WITH A HISTORY OF MISCARRAIGES.



# Ginger – How to use it

- Best to add it to foods (vegetables, fish, breads, cookies etc.)
- Add it to boiling water, tea.
- Eat candied ginger (take care if diabetic)
- Juice the ginger and add to juices.

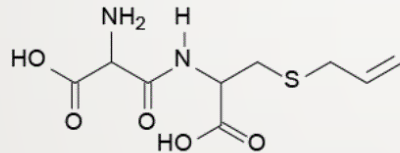


# Garlic

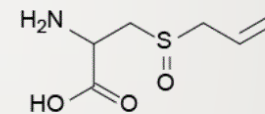


- Garlic – it's the bulb of a plant.
- **Plant:** *Allium sativum*
- **Cultivated:** Central Asia and parts of Iran
- **Active Ingredient:** a mixture of sulfur compounds

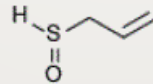
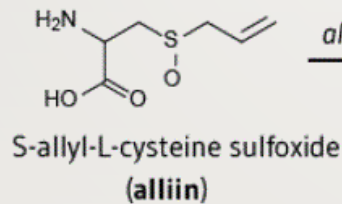
- **Structure:**



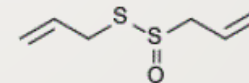
$\gamma$ -glutamyl-S-allyl-L-cysteine



S-allyl-L-cysteine sulfoxide  
(alliin)



2-propenesulfenic acid



allyl 2-propenethiosulfinate  
(diallyl thiosulfinate; **allicin**)



# Garlic

- **Used in form:** usually dried powder, diced etc; can be used fresh.
- The supplement is available in drugstores in various doses.
- **Interesting titbit:**
- Can grow at home – has beautiful flowers.
- Gilroy, CA is USA's garlic capital.
- 19<sup>th</sup> April is National Garlic Day.
- Oh – it keeps the vampires away!





# Garlic – Medical Benefits

- Anti cancer (sulfur compounds prevent cancer).
- Decrease risk of cardiovascular disease.
- Decreases cholesterol, arthritis, cold, skin disease.
- Keep on wounds to heal them faster.
- Garlic contains Vit A and C and many amino acids.
- Good for treating colds and hair loss.
- Helps regulate blood sugar.



# Garlic – How to use it

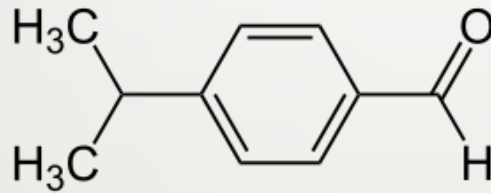
- Take one raw clove per day as medicine.
- Garlic has to be chewed or minced to get all the benefits. (it releases the allicin)
- Finely chop or mince the garlic to add to food.
- Soak in oil and use the oil.



# Cumin



- Cumin – seeds
- **Plant**: Cuminum Cymimuni
- **Cultivated**: Middle East
- **Active Ingredient**: Cuminaldehyde
- **Structure**:



# Cumin

- Used in form: usually as whole seeds or dried powder.

## Interesting titbit:

- Was used to pay taxes once upon a time.
- Is the main component of curry powder.





# Cumin – Medical Benefits

- Antioxidant
- Anti-flatulent properties.
- Treats insomnia: contrary since it is a stimulant as well as relaxant.
- Respiratory disorders: Its anti-congestive effects may be beneficial for people with asthma and bronchitis.
- Anticancer properties.
- Prevents diabetes.
- Helps to lose weight.
- Excellent source of dietary fiber, vitamins A, E, B and C; and many minerals.



# Cumin – How to use it

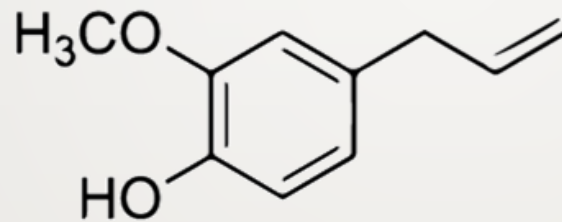
- Can be added to food as seeds or powder.
- Infuse with oil and use it to massage on body.
- A paste of cumin powder with flour and hot water can be applied on abdomen for help stomach, liver and gall bladder pains.



# Cloves



- Cloves – flower buds
- **Plant**: *Eugenia caryophyllata*
- **Cultivated**: Indonesia and Madagascar
- **Active Ingredient**: Eugenol
- **Structure**:



# Cloves

- **Used in form:** usually as whole or dried powder.
- The supplement is available in drugstores as essential oil.
- **Interesting titbit:** can be used as an insect repellant.





# Cloves – Medical Benefits

- Nutrients – rich in manganese.
- Antioxidant.
- Has shown some antitumor activity.
- Painkiller for toothaches.
- Used in cold, coughs, asthma.
- Breath freshener (and also air freshener).



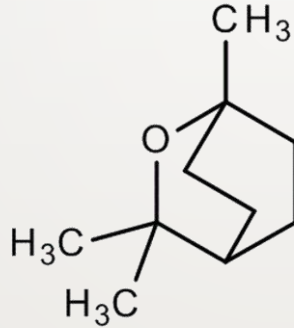
# Cloves – How to use it

- Can add to food as is or in powder form.
- Add to tea and drink.
- Use as a lotion or massage oil.
- Inhale an infusion of cloves to clear lungs.
- Clove oil is also used as an insect repellant.
- Drinking cloves boiled in water can help with depression and acidity.



# Cardmom

- Cardamom – pods contain the seeds
- **Plant**: Elettaria cardamomum
- **Cultivated**: India
- **Active Ingredient**: 1, 8-Cineole and more
- **Structure**:



# Cardamom – Medical Benefits

- Nutrients – Manganese
- Antioxidant.
- Helps in respiratory problems (cold, cough).
- Helps in digestive problems: vomiting, indigestion and belching (gas).





# Cardamom – How to use it

- Is used as whole seeds or powder.
- Add to tea, milk, and other foods.
- Infuse with oil and use it to massage on body.



# Buying and Storing Spices

- It is important that spices are unadulterated.
- Buy whole spices and grind them in small batches or as needed. Also reduces the chances of adulteration.
- Buy from a reputed company, e.g. Penzey's, World Spice, Mountain Rose Herbs. Go to a local ethnic store.
- Avoid big box stores, gourmet stores (overpriced!)
- Store in a cool place, it will last longer.
- Good, authentic spices may not be cheap.
- Don't buy in bulk – I buy less than a pound of any spice and I consume so much!! Very little is needed for effectiveness and taste.



# References

## General:

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