# **Ginger and Turmaric (golden herbes)**

Dear Students, in to-day's lecture, we will discuss about "Ginger and Turmaric(golden herbes), with reference to Ginger, bioactive compounds health benefits, Turmeric, curcuminoids and medicinally important comounds.." The fallowing points are highlighted,

1:Ginger
2:Uses and health benefits
3:Turmaric
4: Folk medicine, health benefits and traditional uses
5: Conclusion

# Introduction:

The history of Ginger goes back over 5000 years when the Indians and ancient Chinese considered it a medicinal root for all ailments. Ginger became quite costly like many other spices. The use of turmeric dates back nearly 4000 years to the Vedic culture in India, where it was used as a culinary spice and had some religious significance. It probably reached China by 700 AD.Turmeric was traditionally called "Indian saffron" because of its deep yellow-orange color and has been used throughout history as a condiment, healing remedy and textile dye. Turmeric has played an important role in Hindu spiritualism. The robes of the Hindu monks were traditionally colored with a yellow dye made of turmeric.Both are commercial crop as well as medicinally important.

# 1:Ginger

## <u>History</u>

Ginger (*Zingiber officinale* Roscoe) is a flowering plant ,belongs to the family of flowering plant in the Zingiberaceae, ginger root is widely used as a spice as well as very important folk medicine.

Ginger is indigenous to south chaina and was spread eventually to the other parts of Asia. India is now the largest producer of ginger. The main constituents in ginger are phenolic compounds such as gingerols and shogaols, and sesquiterpenes such as zingiberene. These and other compounds are extracts found in ginger oleoresin. The main pungent flavor chemicals are the gingerols, which are not volatile

Ginger belongs to the

Family: Zingiberaceae

Genus: Zingiber

Species: Z officinale

Uses of ginger:

Ginger is among the healthiest and most delicious spices on the planet. Ginger is a flowering plant that originated from China, is closely related to turmeric, cardomon and galangal. The underground part of the stem are called as rhizome the part commonly used as a spice. It is often called ginger root or commonly called Ginger.

## **2:Uses and health benefits**

Ginger has a very long history of use in various forms of traditional/alternative medicine. It has been used to help digestion, reduce nausea and help fight the flu and common cold, to name a few.

Nausea is an uneasiness of the stomach that often comes before vomiting Vomiting is the forcible voluntary or involuntary emptying ("throwing up") of stomach contents through the mouth.

Ginger can be used fresh, dried, powdered, or as an oil or juice, and is sometimes added to cosmetics as well as processed foods for its flavor.

## Health benefits:

The unique fragrance and flavor of ginger come from its natural oils, the most important of which is known as gingerol. Gingerol is the main bioactive compound in ginger, responsible for much of its medicinal properties. It has powerful antiinflammatory and antioxidant effects.



Cooking ginger transforms gingerol into zingerone, which is less pungent and has a spicy-sweet aroma. When ginger is dried, gingerol undergoes a dehydration reaction forming shogaols, which are about twice as pungent as gingerol. This explains why dried ginger is more pungent than fresh ginger

**Shogaols** and gingerols stimulate production of saliva, bile and fluids made by your stomach, ... Ginger Root Medicinal Importance and **Benefits**.

Ginger **Shogaols**: Promising Preventation for Lung and Colon Cancer ... We want to know how much we need to eat to get the most **benefits** or

Chronic indigestion characterized by recurrent pain and discomfort in the upper part of the stomach.It is believed that delayed emptying of the stomach is a major driver of indigestion. Interestingly, ginger has been shown to speed up emptying of the stomach in people with this condition. After eating soup, ginger reduced the time it took for the stomach to empty from 16 to 12 minutes .The foods you eat can have a strong influence on LDL levels.

Cancer is a very serious disease that is characterized by uncontrolled growth of abnormal cells. Ginger extract has been studied as an alternative treatment for several forms of cancer. The anti-cancer properties are attributed to 6-gingerol, a substance that is found in large amounts in raw ginger. In a study of 30 individuals, 2 grams of ginger extract per day significantly reduced pro-inflammatory signalling molecules in the colon .However, a follow-up study in individuals at a high risk of colon cancer did not confirm these findings .There is some, albeit limited, evidence that ginger may be effective against pancreatic cancer, breast cancer and ovarian cancer.

Ginger contain a substance called 6-gingerol, which may have protective effects against cancer. Oxidative stress and chronic inflammation can accelerate the aging process.

Ginger does contain numerous other anti-inflammatory and antioxidant compounds beneficial to health such as gingerols, beta-carotene, capsaicin, caffeic acid, curcumin and salicylate. It contains health benefiting essential oils such as *gingerol, zingerone, shogaol, farnesene*, and small amounts of *β-phelladrene, cineol, and citral*. Gingerols help improve the intestinal motility and have been anti-inflammatory, painkiller (analgesic: An analgesic or painkiller is any member of the group of drugs used to achievea nalgesia, relief from pain. Analgesic drugs act in various ways on the peripheral and central nervous systems. They are distinct from anesthetics, which reversibly eliminate sensation. ), nerve soothing, anti-pyretic as well as anti-bacterial properties. Studies have shown that it may decrease nausea induced by motion sickness or pregnancy and may help relieve migraine headache.

They are believed to be among the key drivers of Alzheimer's disease and age-related cognitive decline. Some studies in animals suggest that the antioxidents and bioactive compounds in ginger can inhibit inflammatory responses that occur in the brain. There

is also some evidence that ginger can enhance brain function directly. In a study of 60 middle-aged women, ginger extract was shown to improve reaction time and working memory .

There are also numerous studies in animals showing that ginger can protect against age-related decline in brain function.Gingerol, the bioactive substance in fresh ginger, can help lower the risk of infections.In fact, ginger extract can inhibit the growth of many different types of bacteria .It is very effective against the oral bacteria linked to inflammatory diseases in the gums, such as gingivitis and periodontitis. Fresh ginger may also be effective against the RSV virus, a common cause of respiratory infections

One of the traditional uses of ginger is for pain relief, including menstrual pain. In one study, they reported that 150 women were instructed to take 1 gram of ginger powder per day, for the first 3 days of the menstrual period. Ginger managed to reduce pain as effectively as the drugs mefenamic acid and ibuprofen.

## Ginger May Drastically Lower Blood Sugars and Improve Heart Disease Risk

Factors. Ginger have powerful anti-diabetic properties.

It also dramatically improved HbAIc (a marker for long-term blood sugar levels), leading to a 10% reduction over a period of 12 weeks.There was also a 28% reduction in the ApoB/ApoA-I ratio, and a 23% reduction in markers for oxidized lipoproteins. These are both major risk factors for heart disease.

The Anti-Inflammatory Effects Can Help With Osteoarthritis . It is a common health problem it involves degeneration of the joints in the body, leading to symptoms like joint pain and stiffness. Many study report found that a combination of ginger, cinnamon and sesame oil, can reduce pain and stiffness in osteoarthritis patients when applied topically

**Ginger May Reduce Muscle Pain and Soreness:** Ginger has been shown to be effective against exercise-induced muscle pain. Ginger does not have an immediate impact, but may be effective at reducing the day-to-day progression of muscle pain.

These effects are believed to be mediated by the anti-inflammatory properties.

**Ginger Can Treat Many Forms of Nausea, Especially Morning Sickness:** Ginger appears to be highly effective against nausea. Ginger may also relieve nausea and vomiting after surgery, and in cancer patients undergoing chemotherapy.

But it may be the most effective when it comes to pregnancy-related nausea, such as morning sickness.Ginger improves the microcirculation channels of the body, including the perky sinuses,.Ginger help reduces flatulence.

## 3:Turmeric

Family: Zingiberaceae Genus:Cucuma Species: *C. longa Curcuma longa* 

**Turmeric** (*Curcuma longa*) It is native to southwest India.Turmeric has been used in Asia for thousands of years and is a major part of Aurvedic medicin and Siddha medicine. It was first used as a dye then later for its medicinal properties.

The most important chemical components of turmeric are a group of compounds called curcuminoids, which include The oleoresin, demethoxycurcumin and bisdemethoxycurcumin. The best-studied compound is curcumin, which constitutes 3.14% (on average) of powdered turmeric. In addition, other important volatile oil include turmerone, atlantone, and Zingiberene. Some general constituents are sugars, proteins and resins.



**Zingiberene** is a monocyclic sesquiterpene that is the predominant constituent of the oil of ginger (*Zingiber officinale*), from which it gets its name. It can contribute up to 30% of the essential oils in ginger rhizomes. This is the compound that gives ginger its distinct flavoring

## 4 Folk medicine and traditional uses

In India, turmeric has been used as a remedy for stomach and liver ailments, as well as topically to heal sores, basically for its supposed antimicrobial property. In the Siddh system (since around 1900 BCE), turmeric was a medicine for a range of diseases and conditions, including those of the skin, pulmonary, and gastrointestinal systems, aches, pains, wounds, sprains, and liver disorders. A fresh juice is commonly used in many skin conditions, ie, scabies, allergy, chiken pox (**Chickenpox**, also known as varicella, is a highly contagious disease caused by the initial infection with varicella zoster virus (VZV). Chickenpox is an airborne -disease which spreads easily through the coughs and sneezes of an infected person )and eczema( **Eczema** is term for a group of medical conditions that cause the skin to become inflamed or irritated). The active compound curcumin is believed to have a wide range of biological effects including anti-inflammatory, antioxident, antitumour, antibacterial, and antiviral activities, which indicate potential in clinical medicine.

Another potentially useful **nephro-protective** medicinal herb popular in Ayurvedic medicine is picroliv (Picrorhiza kurrooa). Extracts from the roots and rhizomes . offer protection against various hepatic and renal toxins...

# Active constituents and composition

The most important chemical components of curcumin are a group of compounds called curcuminoids, which are poly phenolic pigment compounds and include diferuloylmethane, demethoxycurcumin, and bisdemethoxycurcumin. These pigmented compounds are impart characteristic bright yellow to orange color to the powdered extract. The other important chemical constituents include:

# Turmaric essential oil, main constituents are:

- Sesquiterpene alcohol 50%
- Zingeriberene and other Sesquiterpene hydrocarbons 30%
- d-a-phellandrene 4%
- Cineol 3%
- d-sabinene 2%
- d-borneol 2.5%
- Valeric acid 0.1%

**Industrial usage:** Turmeric oil is used as spice in food industry. It is also used in pharma industry where it is used in making anti-inflammatory, pain relieving, anti-microbial, anti-fungal, antiseptic drugs as well as ointments.

Turmeric oil is very powerful and it is full of rare compounds as it is extracted from such a powerful healer herb. When analyzed turmeric oil may show the presence of 400-500 different kinds of molecules

Essential oils such as turmerone, curlone, curumene, cineole, and p-cymene. Oil from turmeric is used in the perfume and food industry for its flavor and coloring.

1. Essential vitamins such as pyridoxine (vitamin B6), Vitamin C, Vitamin E, choline, niacin, and riboflavin, etc.

- 2. Essential minerals like calcium, iron, potassium, manganese, copper, zinc, and magnesium.
- 3. Sugars, dietary fiber, and resins.
- 4. This popular herb contains no cholesterol; however, it is rich in anti-oxidants and dietary fiber, which helps to control blood LDL or "bad cholesterol" levels.

In India, sun dried roots mixed with other spices, curry leaves, peppers, etc., and then gently roasted and ground to prepare a **curry-masala powder**.

Turmeric powder complements well with any vegetable or meat preparations and mixes nicely with other spicy powders and herbs, enhancing overall flavor and fragrance of the dishes. It has been used in the preparations of soups, salad dressings and has been found application in food industry like canned beverages, baked products, dairy products, ice cream, yogurt, yellow cakes, orange juice, biscuits, popcorn color, sweets, cake icings, cereals, sauces,

## Health benefits:

According to the National Center for Complementtary and Intergative Health" "and some research shows compounds in turmeric to have antifungal and antibactrial properties.

**Antibiotics** or **antibacterials** are used in treatment of bacterial infection. They may either kill or inhibit the growth of bacteria. Several antibiotics are also effective against Fungi but they are effective against Viruses.

Antibiotics revolutionized medicine in the 20th century, and have together with vaccination led to the near eradication of diseases such as tuberculosis in the developed world. Their effectiveness and easy access led to overuse, especially in live-stock raising, prompting bacteria to develop resistance.

## Dye

Turmeric makes a poor fabric dye, but is commonly used in Indian and Bangladeshi clothing, such as saris and Buddhist monks' dress. Turmeric has given code as E100 when it is used as a food additive.

. The oleoresin is used for oil-containing products and protect food products from sunlight. Over-coloring, such as in pickles, relishes, and mustard, is sometimes used to compensate for fading.

In combination with annatto (E160b), turmeric has been used to color cheeses, yogurt, dry mixes, butter and margarine. Turmeric is also used to give a yellow color to some prepared mustards, canned chicken broths, and other foods (often as a much cheaper replacement for saffron).

Turmeric is considered auspicious and holy in India and has been used in various Hindu ceremonies it remains popular in India for wedding and religious ceremonies. Turmeric has played an important role in Hindu spiritualism. The robes of the Hindu monks were traditionally colored with a yellow dye made of turmeric.

Haldi ceremony is a ceremony observed during Hindu wedding celebrations in many parts of India. The turmeric paste is applied by friends to the bodies of the couple. This is said to soften the skin, but also colors them with the distinctive yellow hue that gives its name to this ceremony.

In Tamil Nadu and Andhra Pradesh, as a part of the Tamil/Telugu marriage ritual, dried turmeric tuber tied with string is used as opposed to the Mangalasutra of Hindus in India. In western and coastal India, during weddings.

## Acts as good blood clotting agent and heals wounds faster

It has got all the healing properties because it contain phenolic compounds and it is an effective natural antiseptic agent as well as natural antibacterial agent. Turmeric could not only heal a wound faster but also reduce the intensity of the scar seen on the skin.

Turmeric is an excellent medicine for the skin. It's anti-inflammatory and anti oxidative properties help reduces the signs of ageing, wrinkles, reduces burn and stretch marks, fights acne and takes care of cracked heels.Turmeric is an excellent source of both iron and manganese. It is also a good source of vitamin B6, dietary fiber, and potassium.

In India, turmeric is used in almost all curries and gravy dishes. It gives a rich color and a unique flavor to the food. Turmeric is a well-known preservatives. Scientists from Gujarat found that adding turmeric to *paneer* (cottage cheese) extends the shelf life of paneer up to 12 days. Turmeric is a great pesticide. Sprinkle turmeric (powder) water near all the entry points of your house to ward of insects, ants, and termites

#### 5:Conclusion :

The use of turmeric dates back nearly 4000 years to the Vedic culture in India..Turmaric is called golden spice of India. Turmeric has played an important role in Hindu spiritualism. The robes of the Hindu monks were traditionally colored with a yellow dye made of turmeric. Because of its yellow-orange coloring, turmeric was associated with the sun in the mythology of ancient Tamil religion.

Orange is the color of the sacral chakra. The activities of turmeric include antibacterial, antiviral, anti-inflammatory, antitumor, antioxidant, antiseptic, cardio protective, hepato protective, nephro protective, radio protective, and digestive activities.

**Ginger:** Ginger root has been in use since ancient times for its anti-inflammatory, carminative, anti-flatulent, and anti-microbial properties. Fresh root ginger can be used in the preparation of variety of spicy snacks, candies and ginger bread in the food industry.Ginger tea is a popular drink in many Asian countries.Ginger root has been in use since ancient times for its anti-inflammatory, carminative, anti-flatulent, and anti-microbial properties. Total antioxidant strength measured in terms of *oxygen radical absorbance capacity*(ORAC) of ginger root is 14840 µmol TE/100 g.

- Studies suggest that zingerone, a chemical compound which gives pungent character to the ginger root, is effective against *E.coli* induced diarrhea, especially in children.( Three groups of *E coli* are associated with diarrheal diseases. ... cells, whereas others are merely cytotonic, inducing only the secretion of water and electrolytes.)
- Furthermore, it also holds good amount of minerals like potassium, manganese, copper, and magnesium. Potassium is an important component of cell and body fluids that helps controlling heart rate and blood pressure.

Ginger stimulates many secretary glands in the body; it has "sialogogic" effect (increases salivary juice secretion in the mouth) on salivary glands; increase bile secretion and its release. Therefore, the root may be contraindicated in patients with history of gallstones.