Ginger: As Anti-Obesity and Anti-Inflammatory Herb

1.Suraj M. Gholap, S2.Miss.Supriya V. Kadu

Research Scholar-Assistant Professor, Ashvin College Of Pharmacy,Manchi Hill,Ashvi Bk
Research Scholar-B.Pharm, Ashvin College Of Pharmacy,Manchi Hill,Ashvi Bk

----

ABSTRACT
Ginger (Zingiberofficinale Roscoe)belongs to the familyZingiberaceae and genus Zingiber. Other names of ginger are African ginger, Black ginger, Cochin ginger, GanJiang,Gegibre, Ingwer, Jamaican ginger, and Race ginger. The English botanist William Roscoe gave the plant the name Zingiber, derived from a Sanskrit word singabera .It is horn-shaped rhizome . The genus includes about 85 species of aromatic herbs from East Asia and tropical Australia.

Ginger grows horizontally, laterally flattened with branching pieces,a configuration known as rhizome. The whole rhizome has a firm, striated texture. It is 5 to 15cm long, 1.5to 6cm wide, 2cm thick and depending on the variety can be yellow, white, or red in color.

I.   INTRODUCTION
Ginger, an herbaceous perennial plant of the family Zingiberaceae, probably native to southeastern Asia , or its aromatic, pungent rhizome, is used as a spice, flavouring, food and medicine. Its generic name Zingiber is derived from the Greek zingiberis, which comes from the Sanskrit name of the spice, singabera.

SYNONYME:
Zingiber,Adrak,Sunthi

BIOLOGICAL SOURCE:
Ginger consists of the dried rhizomes of the Zingiber officinale Roscoe, belonging to family Zingiberaceae.

GEOGRAPHICAL SOURCE:
It is mainly cultivated in West Indies, Nigeria, Jamaica, India, Japan, and Africa.

CULTIVATION AND COLLECTON:
Ginger plant is a perennial herb that grows to 1 m. It is cultivated at an altitude of 600 to 1,500 m above sea level. The herb grows well in well-drained rich, loamy soil, and in abundant rain fall. The rhizome is cut into pieces called fingers, and each finger consisting of a bud is placed in a hole filled with rotten manure in March or April. The rhizomes get matured in December or January. By January the plants wither after flowering and then the flowers are forked up, buds and the roots removed and washed to remove the mould and clay or dirt attached to them. The rhizomes are socked in water overnight and the next morning they are scraped with a knife to remove the outer cork and little of parenchyma. They are washed again and then dried under sun for a week. The rhizomes are turned by the sides at regular intervals to facilitate proper drying. This is the 'unbleached Jamaica' or the uncoated ginger. The coated or the unpeeled variety is prepared by dropping the rhizome for few minutes in boiling water, and then skin is removed such that the layer on the flat surface is removed but not in the grooves between the branches. The 'bleached' or 'limed' is prepared by treating it with sulphuric acid or chlorine or dusting it with calcium sulphate or calcium carbonate

Chemical Composition
Volatile oil is composed of sesquiterpene hydrocarbon like α-zingiberol; α-sesquiterpen alcohol α-bisabolene, α-farnesene, α-sesquiphellandrene. Less pungent components like

gingerone and shogaol are also present. Shogal is formed by the dehydration of gingerol and is not present in fresh rhizome.Ginger contains 1 to 2% volatile oil, 5 to 8% pungent resinous mass and starch. Ginger contains approximately 50% carbohydrates, 9% protein and free amino acids, 6-8 % fatty acids ,triglycerides,and 3-6% crude fiber.

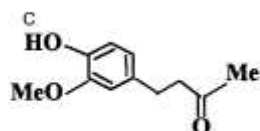**Table 1. Active Chemical Constituents of ginger**

Phenols	Volatile Sesquiterpenes	Others
Gingerols and Shogoals	Bisapolene, Zingiberene, Zingiberol, Sesquiphellandrene, Curcurmene	6-dehydrogingerdione, Galanolactone, Gingesulfonic acid, Zingerone, Geraniol, Neral, Monoacyldigalactosylglycerols, Gingerglycolipids
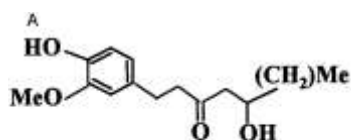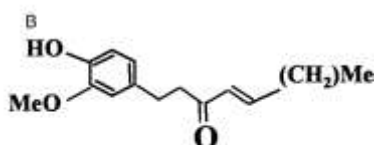
Figure 1. Chemical structure of chemical constituents present in ginger

Uses of Ginger
Ginger is worldwide as spice, flavoring agent, food preservative, helps in digestion, antiobesed activity,anti-inflammatory action, helps in preventing nausea and vomiting during motion sickness.

Anti-Obesity Properties of Ginger
Ginger (Zingiber officinale) is a herb belonging to the ginger family (Zingiberaceae) of subtropical/tropical origin, widely used as a spice and flavoring material, especially in Asia. Ginger contains various physiologically active nutrients, including phenolic compounds such as gingerols and shogaols and active components such as flavonoids and terpenoids .While active chemical constituents in ginger like Gingerol and Gingerone A produces anti-obesity property. Recent evidence shows that these components in ginger have health-promoting effects . 6-gingerol, responsible for the unique taste of ginger has been reported to exhibit anti-inflammatory, antiseptic, and antioxidant activities , and gingerol and shogaol have been investigated to enhance immunity . In recent years, various physiological effects, including the antiobesity effects of ginger and several bioactive components in ginger (gingerol and gingerone A etc.) have been revealed in ginger supplementation in vivo . Furthermore, systematic reviews of recent clinical trials with ginger supplementation reported that ginger supplementation resulted in a

remarkable reduction in low-density lipoprotein cholesterol (LDL-C), total cholesterol (TC), and triglyceride (TG) levels, as well as an increase in high-density lipoprotein cholesterol (HDL-C) concentration . However, the effect of ginger on adipocyte metabolism in vivo is still unknown.

Ginger could modulate obesity through various potential mechanisms including increasing thermogenesis, increasing lipolysis, suppression of lipogenesis, inhibition of intestinal fat absorption, and controlling appetite.

Anti-Inflammatory Properties of Ginger

Ginger is useful in treating inflammation, pain, and rheumatism. Ginger has staring potential for treating a number of ailments including degenerative disorders (arthritis and rheumatism), digestive health (indigestion, constipation and ulcer), cardiovascular disorders (atherosclerosis and hypertension), vomiting, diabetes mellitus, and cancer. It also has anti-inflammatory and anti-oxidative properties for controlling the process of aging.

POSSIBLE INTERACTIONS

Ginger may alter the effects of some prescribed and nonprescribed medications. If blood-thinners such as warfarin (Coumadin) or aspirin, diabetes medicines,or high blood pressure medicines are being taken ginger therapy is not advisable.Ginger may lower blood sugar, raising the risk of hypoglycemia or low blood sugar, and may lower blood pressure, raising the risk of low blood pressure or irregular heartbeat.

II. CONCLUSION

Ginger is a rhizomatous plant grown throughout South-eastern Asia and China and in parts of Japan, Austria, Latin America, Jamaica, and Africa. Ginger has been used as a anti-obesity and anti-inflammatory medicine in the Indian subcontinent since ancient times. Its medicinal values have been known for centuries.It is the most widely used flavoring, and garnishing agent. It is known cholesterol lowering properties, due to which it is used in treating obesity and inflammatory diseases.The major phenolic compounds such as Gingerol and Gingerone A helps to reduce low density cholesterol level and increases high density choleshterol level.This active chemical constituents also produces anti-inflammatory action.

REFERENCES

[1]. Attari V.E., Mahdavi A.M., Javadivala Z., Mahluji S., Vahed S.Z., Ostadrahimi A. A systematic review of the anti-obesity and weight lowering effect of ginger (Zingiber officinale Roscoe)

[2]. Wellen K.E., Hotamisligil G.S. Obesity-induced inflammatory changes in adipose tissue.

[3]. Dugasani S., Pichika M.R., Nadarajah V.D., Balijepalli M.K., Tandra S., Korlakunta J.N. Comparative antioxidant and anti-inflammatory effects of [6]-gingerol,[8]-gingerol,[10]-gingerol and [6]-shogaol.

[4]. A text book of Pharmacognosy. thirty eight edition. S. B Gokhale. Dr. C. K. Kokate.

[5]. Essentials of medical pharmacology 8 edition KD Tripathi MD. Jaypee brothers medical publishers.