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Review article

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Comparison of the herbal teas for obesity

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ABSTRACT

Herbal tea is essentially an herbal mixture made from leaves, seeds and roots of various plants. As per popular there are several kinds of tisanes (herbal teas) that have been used for their medicinal properties. Some of them being consumed for its energizing properties to help induce relaxation, to curb stomach or digestive and genetic factors and is associated with significant morbidity and mortality. Usage of herbs in the management of obesity in the recent times is attracting attention. Based on the available literature, for many of the herbal and weight loss products, there is little published information and there have been no clinical trials or the level of evidence is limited. Our literature survey also indicated that these herbal products fall below an acceptable level of evidence or with no scientific background at all, or they have a scientific rational but not to an acceptable level. Attempts were made in the review to define the features of possible herbal weight loss product. An ideal herbal anti obesity product should reduce the weight by 10% over placebo of treatment by showing an evidence of improvement of bio markers like blood pressure, lipids and glycemia without any side effects.

Keywords: Chamomile Tea, Green Tea, Hibiscus tea, Obesity, Weight management.

INTRODUCTION

Herbal teas are actually mixtures of several ingredients, and are more accurately known as 'tisanes.' Tisanes are made from combinations of dried leaves, seeds, grasses, nuts, barks, fruits, flowers, or other botanical elements that give them their taste and provide the benefits of herbal teas. Unlike most other forms of tea, herbal teas do not contain caffeine. They also taste great and are easy to drink. The plant *Camellia sinensis* yields a variety of white, green and black tea. The major polyphenols in green tea are flavonoids. The four major flavonoids in green tea are the catechins, epicatechin (EC), epigallocatechin (EGC), epicatechin gallate (ECG)

and epigallocatechin gallate (EGCG). Epigallocatechin gallate is viewed as the most significant active component. Much research is available depicting the health benefits of green tea for a wide variety of implications, including different types of cancer, heart disease, liver disease, etc. There is also a wide range of uses for green tea in diabetes, exercise enhancement, inflammatory bowel disease, skin disorders, hair loss, weight loss and iron overload. This paper will review the major health benefits of green tea, focusing on the catechins. Chamomile is considered as one of the oldest and also documented as a medicinal plant. Chamomile preparation is commonly used for many human ailments such as hay fever, inflammation, muscle

spasms, menstrual disorder, insomnia, ulcers, wounds, gastrointestinal disorders, rheumatic pain, and hemorrhoids. The most popular of which is in the form of herbal tea consumed more than one million cups per day. In this review, we describe the use of chamomile in traditional medicine with regard to evaluating its curative and preventive properties, highlight recent findings for its development as a therapeutic agent promoting human health. Hibiscus

rosa sinensis has been used for the treatment of variety of diseases. It is an easily available plant for natural remedies here in this article some pharmacological activities of this plant is focused. Most ornamental varieties are hybrids. The present wide range of cultivars is considered to be a complex of inter specific hybrids, between 8 or more different species originating from the African east coast and islands in the Indian and the pacific ocean.

PLANT PROFILE

German Chamomile



Botanical origin

Dried Flower Heads of *Matricaria chamomilla* L.

Botany medicinal species

Matricaria recutita (German chamomile)

Common names

German chamomile is also called Hungarian, single, genuine,

Botanical family

Asteraceae (Compositae)

PLANT DESCRIPTION

German chamomile is an apple-pineapple scented, smooth, branched annual, which grows two to three feet tall. Its flower head is one inch in diameter and has a hollow conical center covered with tiny yellow

florets surrounded by silver-white to cream colored florets. It has erect branching with finely divided leaves.

Shape

Hemisphere

Colour

Greenish-yellow to Yellowish- Brown

Odour

Aromatic, pleasant, apple like

Taste

Slightly bitter

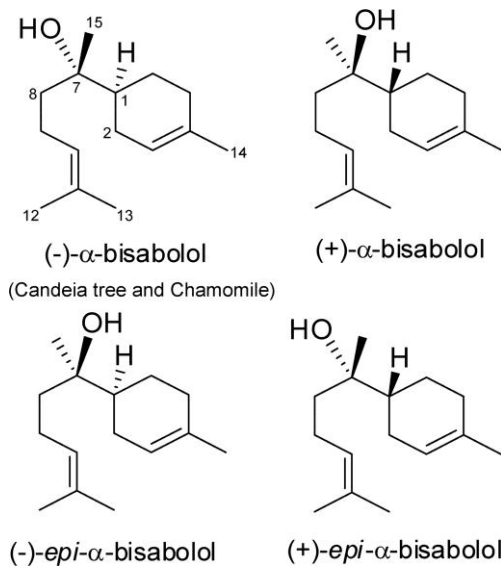
Size

~6mm in diameter

ACTIVE CONSTITUENTS

Terpenoids

α -bisabolol, α -bisabolol oxide A and B, chamazulene, Sesquiterpenes.



Coumarins

Umbelliferone.

Flavonoids

Apigenin, quercetin, luteolin

Spiroethers

en-yn dicyclo ether and other components such as tannins, anthemic acid, choline, polysaccharides, phytoestrogens, amino acids, mucilage, phenolic carboxylic acid.

CAMELLIA SINENSIS (GREEN TEA)



Family

Theaceae

Genus

Camellia Species: *C. sinensi*

India

Chha

Binomial name

Camellia sinensis (L)

Colour

Yellow-white

Size

5-4cm diameter, 7-8cm petals

Taste

Bitter

Botanical origin

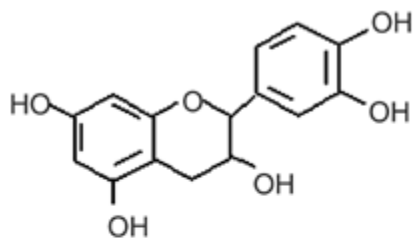
The tip bud and the first 2 or 3 leaves

ACTIVE CONSTITUENTS

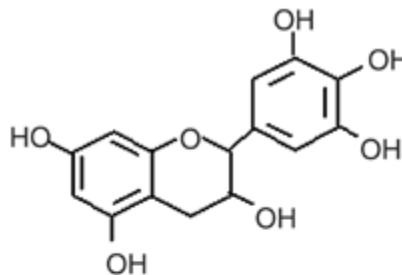
It contains 4000 bioactive compounds, polyphenols, alkaloids (caffeine, theophylline, theobromine), amino acids, carbohydrates, proteins,

chlorophyll, volatile organic compounds, fluoride, Aluminium, minerals, trace elements.

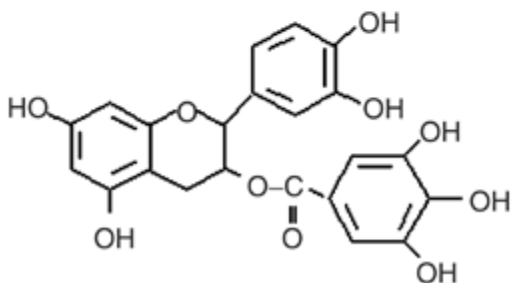
Green tea contains major chemical constituent is catechin, Epicatechin gallate (ECG), epicatechin (EC), epigallo catechin gallate (EGCG), majorly most active constituent is epigallo catechin-3-gallate (EGC-3-G).



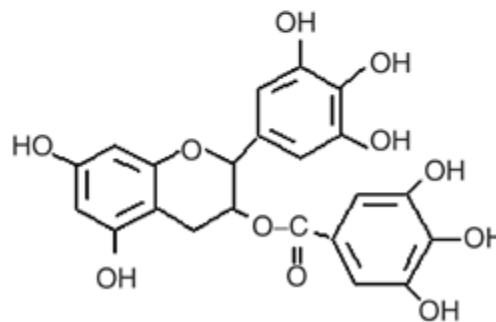
(-)-Epicatechin (EC)



(-)-Epigallocatechin (EGC)



(-)-Epicatechin-3-gallate (ECG)



(-)-Epigallocatechin-3-gallate (EGCG)

HIBICUS ROSA SINENSIS



Botanical Name

Hibiscus rosa-sinensis L.

Family

Malvaceae

Genus

Hibiscus

Species

Hibiscus rosa- sinensis

Plant type

Small tree or shrub

Parts used

Flowers, leaves and root

Size

Cylindrical 5-15 length, 2-cm diameter

Colour

light brown transverse lenticles

Taste

Sweet and mucilaginous

CHEMICAL CONSTITUENTS

Leaves and stems contain β -Sitosterol, stigmasterol, taraxeryl acetate, and three cyclopropane compounds and their derivatives. flowers contains cyaniding diglucoside, flavonoids and vitamins thiamine, riboflavin, niacin, ascorbic acid, quercetin-3-diglucoside, 3,7-diglucoside, cyaniding-3,5-diglucoside, cyaniding-3-sophoroside-5-glucoside have been isolated from deep yellow flowers.

HOW TO MAKE CHAMOMILE TEA

Chamomile tea can be prepared at home by following a few simple steps.

- Warm up your tea pot by pouring some boiling water into it and then add some apple slices, mashing it with a wooden spoon.
- Add some pre-washed chamomile flowers to the boiling water.
- Cover the pot and let the flowers steep for a couple of minutes.
- Strain the tea and add some lemon juice or honey to it for added taste.
- Consuming a cup of the fragrant chamomile tea can be one of the best things you can do for yourself.

HOW TO MAKE GREEN TEA

Make the Tea using green tea powder which is available readily in the market. So here's an easy way to make it using green tea powder.

- Green tea powder – 1 and ½ teaspoon,
- Water – 1 cup,
- Sugar – 1 teaspoon
- If you are on a diet, then using 1 teaspoon of honey as a substitute for sugar

Step 1

Take cup water in a stainless steel bowl or glass bowl and heat it. Remember green tea turns bitter when it is overheated so just keep a check on the temperature. Use a kitchen thermometer to see if it's around 85°C.

Step 2

Switch off the heat once it reaches boiling point. Now let it cool for a few seconds

Step 3

Add the green tea powder to the water. The ideal time to soak is about 3 minutes, but you may take a sip after 1 ½ minutes to check if the flavor is strong enough.

Step 4

After 3 minutes, the colour should have changed to brown. Strain the tea powder using a strainer.

Step 5

Add the sugar or honey to the tea and pour into the cup. You may also add a pinch of cardamom powder for an added taste.

HOW TO MAKE HIBISCUS TEA

Place one Hibiscus flower in a glass or mug, then cover with boiling water allow to steep. stir the water will turn a black blackish-purple as the colour comes out of the flower. Remove the flower, add sugar, to taste, then stir to dissolve Squeeze the juice from a wedge of lemon or lime into the glass watch how to colour changes an amazing bright pink, set aside, to cool, add ice.

OBESITY

Introduction

Obesity is rapidly reaching epidemic proportion worldwide and has become a public health burden. It is strongly associated with the risk of various diseases, including diabetes mellitus, hypertension, neurological disorders, cardiovascular diseases and even some types of cancer, and promotes premature death. Obesity is associated with the expansion of adipose tissue, deposition of fat, elevation of plasma free fatty acids, blood cholesterol and blood glucose levels. These disorders arise due to imbalance of metabolic, endocrine, neurological and nutritional factors. Most of the studies have reported that the lack of physical activities, overeating, binge eating, junk food, fast food, highly processed foods and drinking sugar sweetened beverages are the risk factors of obesity. However, in some cases, genetic predisposition, family history, and ethnicity have been associated with obesity. WHO estimated that more than 1.4 billion adults were overweight, of these over 200 million men and nearly 300 million women were obese and more than 40 million children under the age of five were overweight. In Saudi Arabia, prevalence of obesity ranged from ~14% in children to ~83% in adults. The observed prevalence and pattern of overweight/obesity in Saudi Arabia is due to urbanization, which has a significant impact on different aspects of lifestyle factors specially sedentation and eating habit. The preventive intervention of overweight and/or obese individuals is a key issue globally.

Finally, they found that the improvement of diets and physical activity patterns of global, regional and local population levels will be helpful in preventing obesity [8]. However, There are many controversies about the role of green tea and its effects on health and diseases. In view of this, we explored the beneficial effects of green tea and green tea catechins in healthy obese human subjects. This review has also focused on the patho-physiological model of obesity onset and the probable mechanism through which the green tea may prevent obesity and its related problems. It would be of great interest to the general population and especially those who are undergoing initiation and progression of obesity.

GREEN TEA COMPOSITION

Green tea is a popular beverage made from the leaves of *Camellia sinensis* var. *sinensis* and *Camellia sinensis* var. *assamica* plant (family: Theaceae). Green tea catechin epigallocatechin gallate (EGCG) has been reported for anticancer, antiobesity, antidiabetes effectiveness and prevention of cardiovascular diseases. However, caffeine and EGCG catechins are also considered as active substances of green tea, which associated with energy expenditure, fat oxidation and weight loss in obese subjects. Other catechins and polyphenolic compounds in green tea have been reported for various pharmacological activities, which reflect the increasing interest in the possible health benefits of green tea. Green tea is produced from freshly harvested young leaves by immediate steaming to prevent enzymatic fermentation. Steaming processes inactivate the polyphenolic oxidase enzyme, which is capable for oxidation of tea catechins to oligomeric and polymeric derivatives. Though, young leaves processed for fully enzymatic oxidation (fully-fermentation), in which catechins is converted into the flavins and the arubigins, is known to be a feature of the black tea, while limited enzymatic oxidation (semi-fermentation) is known to produce Oolong tea. Catechins content in green tea infusion depends on species, harvesting variables, and brewing methods. Wu and Wei, estimated ~90 mg of EGCG in a cup of green tea (2.5 g of green tea leaves in 200 ml of water), whereas, Higdon and Frei, estimated EGCG content about 30-130 mg/237 ml green tea infusion. Cabrera et al. estimated ~32.5 mg of caffeine content in 1g of green tea infusion.

MECHANISM OF ANTI-OBESITY ACTION OF THE GREEN TEA

To date, metabolites have established enormous possibilities for the onset of obesity. The changes in metabolic network are uniquely poised to increase obesity and obesity-related diseases, and finally disordered whole body systems. The metabolomics concept of obesity is almost similar to the old concept of energy balance model. In other obese individuals the level of total caloric expenditure is lower than caloric intake, resulting in fat accumulation in adipose tissue. It has been reported that overeating, not only accumulates high caloric energy, it also

enhances the stomach capacity, which activates gastric stretch receptors and mechanoreceptors that regulate signals for again and eating again. Adversely, slow rate of gastric emptying, delayed duodenal release of cholecystokinin and therefore also delayed satiety signals, enhances over eating. Hence, overeating results in weight gain, and onset of obesity. Green tea polyphenols elevate cholecystokinin in hormone that decreases food intake and suppresses appetite. Green tea beverage is also altering energy balance through their interference with the metabolism of lipid and carbohydrate by virtue of their antioxidant and physicochemical effect as well as their ability to activate metabolic enzymes. High concentration of lactate in the plasma may be an indicator of hepatic glucose production and hepatic lipid synthesis, which may also result in the onset of obesity. Complex molecules, like starch and glycogen are hydrolytically broken down by α -glycosidase enzyme into glucose molecules. Glucose molecules either used as a metabolic energy or in excess, are converted into lactate. Some studies have reported that, theaflavins and catechins retard starch.

Digestion through inhibition of α -Glucosidase, salivary amylase and pancreatic amylase activities. However, caffeine stimulates the cori-cycle where lactate move from muscles to the liver and converted into pyruvate . Finally pyruvate is converted into glucose by lactate dehydrogenase and circulates back to the muscles. Hence, green tea's role as a starch blocker minimizes lactate concentration and reduces carbohydrate utilization. Free fatty acid compositions, especially saturated fatty acids have been positively associated with the development of obesity and cardiovascular related diseases including diabetes and hypertension. Metabolically, free fatty acids either are catabolized in mitochondria to produced energy and excess lipids stored in adipose tissue or elsewhere as triglycerides . Studies have shown that green tea extracts inhibit fatty acid synthesis, increase lipid metabolism through the intervention in the process of adipogenesis and lipolysis. Green tea catechins inhibit gastric lipase and pancreatic lipase, which is involved in lipid digestion. This inhibition is apparently due to catechins reduced lipolysis of long chain triglycerides and interference with the emulsification, digestion and micellar-solubilization of lipids that support

intestinal absorption of dietary lipids. This notion suggests that the reduced lipid emulsification and digestibility may be responsible for lowering intestinal absorption of dietary lipids, including triglyceride, cholesterol, and other lipophilic compounds. Green tea also lowers plasma cholesterol by increasing fecal bile acids and cholesterol excretion. Neurological factors, particularly sympathetic nervous system (SNS) regulates energy balance in both basal and stimulated (exercise, food intake and stress) conditions via interference with the metabolic rate and facultative thermogenesis. This low activity of the SNS is associated with weight gain and onset of obesity. A study has shown that an obese population with low SNS activity gained more and more weight [48]. The actual role of SNS is to stimulate adrenal medulla that secretes catecholamines, epinephrine and norepinephrine, which is circulated in the body through the blood. The active norepinephrine (NE) binds to the fat cells surface receptor and stimulates the activity of hormone sensitive lipase (HSL) so that fat could be used as fuel. Adversity, catechol O-methyltransferase (COMT) is an enzyme encoded by the COMT gene, that degrades NE and prevents the breakdown of fat. Some studies have revealed that green tea catechins, especially EGCG inhibits COMT and caffeine inhibits transcellular phosphodiesterases that break down NE-induced cAMP. This notion indicated that the thermogenic properties of green tea could reside primarily in an interaction between its high content of catechins and the presence of caffeine that sympathetically released noradrenaline and inhibits trans-cellular phosphodiesterases. Hence, such synergistic interaction between catechins and caffeine may result in increased CNS activity that prolongs the sympathetic stimulation of thermogenesis, energy expenditure, and fat oxidation, which could be helpful in obesity management intervention. Green Tea Catechins: An Overview Of Their Properties.

GREEN TEA CATECHINS: THEIR PROPERTIES

Green tea contains low-molecular-weight polyphenols consisting mainly of flavanol (flavan-3-ol) monomers, which are referred to as catechins. There are several isomers of this compound:

catechin, catechin gallate (Cg), gallicocatechin, gallicocatechin gallate (GCg), epicatechin, epicatechin gallate (ECg), epigallocatechin, and epigallocatechin gallate (EGCg). Under experimental conditions, the ingestion of catechins exhibit antioxidant, antiviral, and antiplaque-forming activities, while epidemiological evidences suggest that green tea catechins are associated with decreased risk of certain cancers and experimentally demonstrate important anticancer properties. Animal studies also suggest a role in reducing high blood pressure and high blood sugar. Lipid metabolism studies in animals, tissues, and cells have found that catechins reduce blood levels of triglycerides and total cholesterol. As well, catechins have also been shown to inhibit fat accumulation in the liver as well as body fat, and stimulate thermogenesis (increased fat-burning and calorie burning at rest).

CATECHIN AND BODY FAT REDUCTION

In one open trial with human subjects, individuals ingesting catechins showed a reduction in body weight and waist circumference, but no comparative controls were included in the study. As a follow-up to this initial study, T Nagao et al, investigated the effect of green tea catechins on body fat reduction, waist circumference and other endpoints. Nagao et al supplemented one group of men with a catechin-enriched, decaffeinated green tea product (yielding 690 mg per day of catechins) and the control group received a decaffeinated green tea product that contained only 22 mg of catechins. All men had similar body mass index scores and were either at the upper limit of their normal weight or slightly above.

After 12 weeks the men receiving the catechin-enriched decaffeinated green tea product showed a significant reduction in body weight, waist circumference and body fat, compared to men ingesting the catechin-depleted decaffeinated green tea product. The average weight loss in the catechin-enriched group was 5.3 lbs, compared to 2.9 lbs in the catechin-depleted product. Waist circumference was reduced by 3.4 cm (1.36 inches) in the catechin-enriched group compared to a reduction of 1.6 cm (0.64 inches) in the catechin-depleted group. Decrease in hip circumference was also greater in the catechin-rich group compared to the catechin depleted

group. In addition, the group receiving the catechin-enriched product showed a reduction in LDL-cholesterol from 3.38 mmol/L (130 mg/dl) to 2.99 mmol/L (115 mg/dl) during the 12- week trial period. They also realized a rise in their HLD-cholesterol. LDL-cholesterol reduction in the catechin-depleted group was much less pronounced. The study by CK Maki et al (2008) showed that during a 12-week trial of overweight subjects (males and females) that a catechin-enriched supplement (daily dosage of 625 mg per day) enhanced the weight reduction effects of exercise (180 minutes per week) compared to the control group. Reduction in abdominal fat was more noteworthy, and a more significant reduction in serum fasting triglycerides was also seen in the catechin-enriched group.

FAT BURNING EFFECTS OF CATECHIN

Dulloo et al, reported that certain green tea catechins (GTE) increase thermogenesis in brown fat tissue of rat. They also found that consumption of GTE increased energy expenditure in a human study. The authors suggested that one of the effects of catechins is due to its inhibitory activity of catechol-O-methyl transferase (COMT), which is a catecholamine-degrading enzyme. As a result, the more sustained activity of catecholamines, such as epinephrine and norepinephrine, may encourage greater release of fat from fat cells and may up-regulate the activity of brown fat, increasing the total amount of fat burned at rest and increasing the total number of calories burned on a daily basis.

Catechins have been shown to decrease lipid oxidation in the body via their antioxidant properties. Studies suggest that obesity might be related to an increase in lipid oxidizability, as oxidized lipids have been shown to activate certain transcription factors (nuclear factor- B and peroxisome proliferator-activated receptors), which regulate body fat metabolism. As such, green tea catechins may discourage fat accumulation in fat cells and liver, by decreasing fat oxidation in the body. An indirect marker for fat oxidation (lipid peroxidation) in the blood is malondialdehydemodified LDL-cholesterol (MDA-LDL).

A number of studies link higher MDA-LDL blood levels with higher incidence of obesity. The study

by T Nagao et al showed that the catechin-enriched group showed a reduction in lipid oxidation end-products (MDA-LDL) in their blood compared to the catechin-depleted group, which may, through signal transduction pathways involving transcription factors (nuclear factor- B and peroxisome proliferator-activated receptors), have been a factor in suppressing fat accumulation and triggering body fat reduction. The authors conclude that further investigation is needed to clarify the relation between a redox regulatory system (lipid oxidation signaling mechanism) and the body fat-reducing mechanism.

WEIGHT LOSS BENEFITS FOR CHAMOMILE TEA

Chamomile tea really can do all these things--and more. If you're looking to lose weight, get fit or just become healthier, this powerful drink should be a part of your daily routine starting now.

Fights off stress

Stress has a huge impact on your endocrine system, which controls the hormones floating through your body. If you're under too much stress, it can throw your hormones out of whack, and that means a lower metabolism, more cravings and more weight gain. Fortunately, chamomile acts a natural de-stressor, warding off anxiety and all the waistline-busting effects that come with it.

Helps you sleep

Sleep is crucial to losing weight because it helps you produce more serotonin, a hormone that suppresses your appetite and curbs unhealthy cravings. If your serotonin levels are kept high, you'll be less hungry, and you won't have cravings that can threaten your weight loss

Detoxes your body

Chamomile has been known to have detoxification qualities, which help rid your body of toxins, waste and excess water. This is crucial not only to lose weight, but also to fighting off bloating in the abdomen and tummy region.

Produces gastric juices

Drinking chamomile tea before a meal is said to stimulate the production of gastric juices. These

juices promote weight loss and improve overall digestion.

Acts a diuretic

Chamomile tea can act as a diuretic, helping to flush out water, liquids and waste from your body's tissues. This result in immediate weight loss and it can decrease bloating, too.

Curbs your appetite

This powerful tea can also curb your appetite, filling you up and keeping your tendency to overeat at bay. Be sure to drink one cup right before a meal for best results.

- How you can drink it: Chamomile tea can be consumed either hot or cold, whichever is your preference.
- Though you can add milk, sugar or other sweeteners to it, these are best avoided if you're looking to lose weight.
- If you really need some extra flavor in your cup.

HIBISCUS TEA WEIGHT LOSS BENEFITS

Hibiscus is filled with minerals and vitamins, making it perfect for healthy weight loss. The most common reason for weight gain people eat more calories than they burn. This high calorie food often comes in the form of carbohydrates that are full of starch and sugars. Hibiscus minimize the amount of amylase that the produces. Amylase is an enzyme that helps to turn starch into sugar, so the body can absorb it. by inhibiting this process is taking place in the body, hibiscus tea minimize how much sugar and starch the body takes in, making it easier to lose weight.

Not only does hibiscus tea help keep the body from taking in harmful calories, it also helps keep the digestive system running smoothly, so toxins are flushed from the system before they can be absorbed. Hibiscus is natural, gentle diuretic, which aids in keeping the digestive tract moving properly.

Drinking the tea on a regular basis will minimize the amount of bloat, gas, and swelling around the abdominal area that is often associated with being overweight. While hibiscus tea is an amazing all natural supplement to aid in weight loss.

HIBISCUS TEA USED IN LOWER BLOOD PRESSURE AND BAD CHOLESTEROL

Several years back a report was released from the American heart association examining how hibiscus tea can help lower blood pressure, because a third part of American peoples suffer from this condition having an all-natural treatment option like hibiscus tea can be a great relief.

Hibiscus tea is a full of antioxidants which makes it a great choice to help lower cholesterol. There are two forms in body cholesterol in the body, one that is considered harm full. The harmful cholesterol, LDL, lowered when hibiscus tea is used daily having lower levels of LDL minimize the chances of heart disease and damage to blood vessels. Few cups hibiscus tea can also offer better control over diabetes.

Antioxidants don't just help keep cholesterol levels low, they also help prevent liver disease. The anti-oxidant found in hibiscus tea work to neutralize free radicals throughout the body. This process helps keep cells and tissue within the body healthy and clear.

SIDE EFFECTS OF GREEN TEA

Even though quite unusual and rare, allergic reactions due to consumption of green tea are possible. Some of them, including difficulty in breathing and other respiratory or throat affecting issues, swelling around the lips, tongue, face. In such cases, one should stop the consumption of green tea and seek emergency medical care.

Consumption of green tea for extremely long periods of time (in heavy quantities), has also proven to be connected with esophageal cancer.

Green tea is known to also cause other less serious side effects (although rarely), such as: heartburn, upset stomach, loss of appetite, constipation or diarrhea, nervousness, irritability, anxiety, sleeplessness, irregular heart beats, headache.

SIDE EFFECTS OF CAMOMILE TEA

A person suffering from allergic reactions to plants of the composite family (a large Group

including such as flowers as daisies, ragweed, asters and chrysanthemums), one should be cautious about using chamomile, skin rashes, bronchial constrictions most people use this herb with no problem. Pregnant individuals are advised not to consume chamomile tea as it can stimulate uterine contractions. Also chamomile has a blood –thinning effect, so if one is already taking blood thinners, not to be drunk this tea.

SIDE EFFECTS OF HIBISCUS TEA

Blood pressure

The health benefits of hibiscus tea include lowering blood pressure (anti hypertensive property) it is not recommended for people that already have low blood pressure, a condition called hypotension. It may cause faintness, dizziness and can even damage the heart or brain if it is consumed by an individual with low blood pressure.

Pregnancy and infertility

Hibiscus tea is not recommended for pregnant women, particularly due to its emmenagogue effects which may stimulate menstruation or blood flow in the uterus or pelvic region. For those undergoing hormonal treatments.

Hallucinatory effect

Some people may feel intoxicated or experience hallucination when drinking hibiscus tea, you should be somewhat cautious until you know how your body react to the tea. Don't drive a car or try anything particularly dangerous until you know what its effects are on your system.

Allergy

Some people might develop allergic reactions such as itchy red eye, sinus, hay fever when consuming hibiscus tea.

CONCLUSION

Potential benefit of green tea for the prevention of obesity and its related disorders due to the synergistic effects of its constituents. Most of the investigators found that green tea catechins plus caffeine significantly reduced obesity as compared with either caffeine or caffeine-free catechins. Green tea catechins ingestion not only stimulates thermo genesis and fat oxidation, it also reduces body mass,

visceral fat and total body fat. However, green tea intervention has more putative benefits when ingested on a daily basis along with the physical

activities. We hope that this review will be beneficial to the people who are undergoing initiation and progression of obesity and its related problems.

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